U.S. TSUBAKI INC.

GENERAL CATALOG

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U.S. TSUBAKI DRIVE CHAINS

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U.S. TSUBAKI RS ROLLER CHAIN

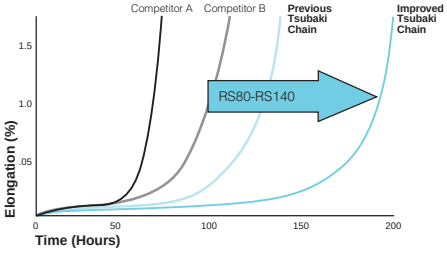
U.S. TSUBAKI ROLLER CHAIN — A SOLID DIFFERENCE

ASME/ANSI RS Roller Chain

RS ROLLER CHAIN RS11 ~ RS240

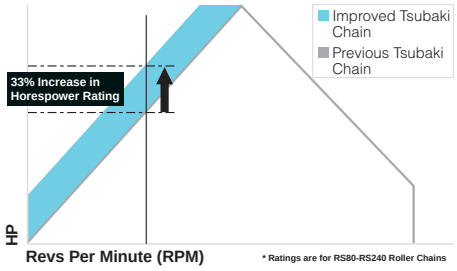
Longer Wear Life
U.S. Tsubaki Roller Chain lasts up to twice as long as our previous chain in many applications. Advanced technology allows us to combine the strength, durability, and reliability of a solid bushing with our patented lube groove on the inner surface of sizes RS80 through RS140. The solid bushings are precise round cylinders, which means better contact between the pin and bushing. The lube grooves hold oil where chain needs it most. The result is longer lasting chain.

Wear Elongation Curve



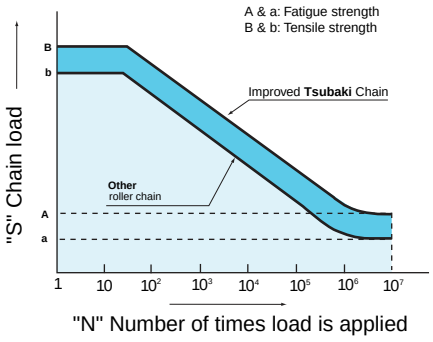
Higher Horsepower Ratings
U.S. Tsubaki ASME/ANSI Chains handle up to 33 percent more horsepower so you can increase drive performance without increasing chain size. In fact, depending on your application, you may be able to transmit the same horsepower with a smaller, less costly chain. The improvement comes from a U.S. Tsubaki exclusive ring coining process for the slip fit connecting link and special processing on the two-pitch offset link.

Horsepower Ratings



Greater Fatigue Strength
U.S. Tsubaki ASME/ANSI Chains are designed to have higher fatigue strength. The wider waist of the link plates puts more metal where you need it — running your application. There is less downtime because chains operate longer. Operating costs are reduced because chains perform more efficiently. These benefits go right to your bottom line.

S-N Curve



Save Time & Money
Wear in the pin-bushing joint can lead to elongation and replacement. U.S. Tsubaki's ASME/ANSI Chains have a patented lube groove that holds lubricant right where it's needed — in the pin-bushing joint. Tsubaki chains last longer, reducing maintenance, operating, and replacement costs.

U.S. TSUBAKI RS ROLLER CHAIN

Assurance of Greater Fatigue Strength
The wider waist of U.S. Tsubaki link plates ensures greater fatigue strength for all chain sizes. Fatigue strength (max. allowable load) of each size can be found in this catalog.

U.S. Tsubaki Other Brands

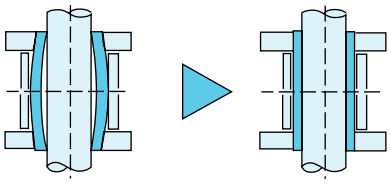
Longer Wear Life & Less Initial Adjustment

1) U.S. Tsubaki has decreased initial wear elongation to 0.01% and increased wear life by up to twice as long in many applications. Where initial elongation is a problem, as in precision applications or when you simply demand the best, U.S. Tsubaki roller chain is the solution.

2) Our original prelubricant minimizes wear elongation to enable a vast increase in the chain's wear life.

3) U.S. Tsubaki's lube groove bushings hold oil at the pin-bushing interface, extending the working life of the chain.

4) Micron control has enabled U.S. Tsubaki to produce perfectly straight bushings and significantly reduce wear elongation during initial operation.



Micron Control

5) Improved U.S. Tsubaki roller chain sizes RS80 through RS140 have the patented PerforMax™ solid lube groove bushings and last up to twice as long in many applications. The lube groove retains oil at the critical pin-bushing contact point, extending the life of the chain.

Patented PerforMax™
solid lube groove bushing

Shot Peened Parts
Link plates and rollers are shot peened for greater fatigue strength.

Factory Preloading
U.S. Tsubaki roller chains are continuously preloaded on multi-sprockets after final assembly as shown below. This results in minimum initial stretch.

Preloading on Sprockets

Heat Treatment Ensures Durability
Chain durability depends to a great extent on the heat-treatment of the various parts. The use of the most advanced heat-treatment methods and equipment guarantees that U.S. Tsubaki roller chains are highly durable.

Heat Treatment

Prelubrication
A special lubrication is applied by U.S. Tsubaki to bearing surfaces by hot dipping to extend chain life and reduce maintenance costs.

Prelubrication

A Completely Automated Manufacturing Process
The manufacture of U.S. Tsubaki roller chains employs advanced, automated techniques. The specialized equipment used in each process ensures that all parts are uniform and high quality. The photo below shows the automated positioning of curled bushings.

Automated Manufacturing

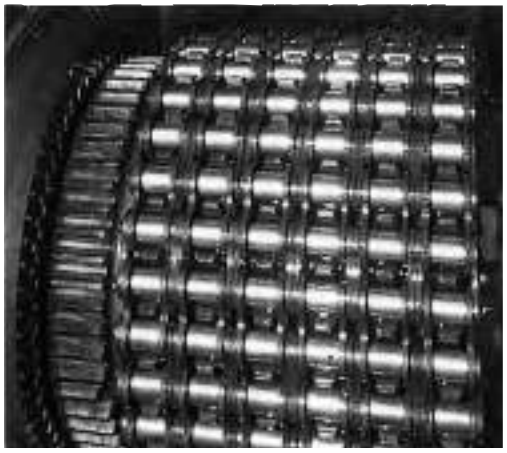
U.S. TSUBAKI RS ROLLER CHAIN

APPLICATIONS

Roller chains can be operated at speeds of up to 10,000 rpm. Even at high speeds, chain drive is quieter and smoother than a gear drive. You never have to worry about slippage as you would with a belt.

Roller chains are inherently elastic. Compared with gear drives, they soften shock and absorb vibration. They can be used in machines which are subjected to great shock or which constantly move or vibrate. Both the machine's body and bearing parts are protected against damage.

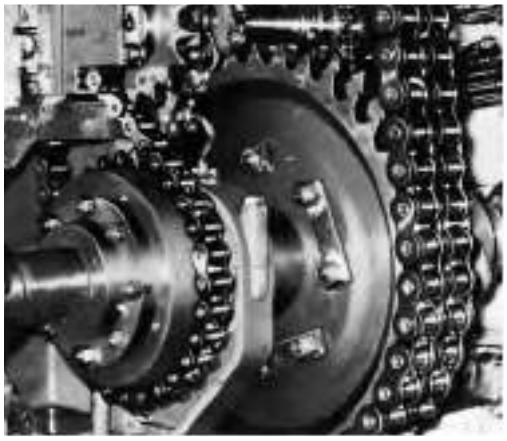
For accurate high speed drives... automobile engines



For high speed and heavy load drives... oil-well drilling equipment

For heavy shock... draw benches

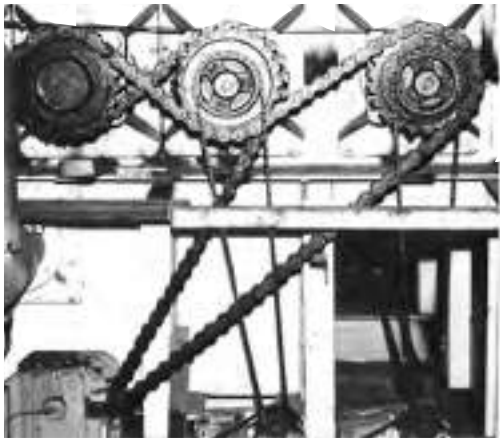
For long center distance drives... container straddle carriers



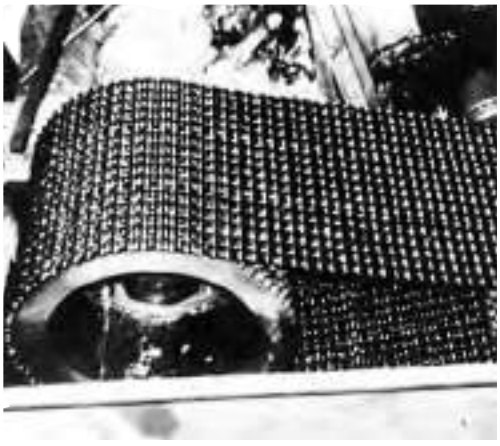
For precision drives... marine diesel engines

For severe conditions... tilting tables

For heavy shock... crawler drills



For multi-shaft drives... roller tables



For high speed operation... pump drives

CONNECTION OF RS ROLLER CHAIN – IMPROVED

Roller chain is normally used as a continuous length with a connecting link, resulting in an even number of pitches.

Connecting Links
Standard connecting links are used when RS roller chain is operated under normal conditions. For severe applications, press fit connecting links are suggested. In either case, a spring clip connecting link is used for RS roller chains of sizes RS60 or smaller, a cottered connecting link for sizes RS80 to RS200, and a spring pin connecting link for RS240. A cottered type connecting link is used for three to six strands of RS40 to RS60. A cottered type can be provided for single and double strands of RS40 to RS60 upon request.

Standard connecting links have a slip fit cover plate.

The wider waist of U.S. Tsubaki's cover plates provides higher fatigue strength.

Installation of press fit connecting links may be less convenient than that of standard connecting links, but performance is better. Press fit connecting links should be used in extremely high-speed or heavy duty applications.

The slip fit connecting links on improved U.S. Tsubaki chain have 25% greater fatigue strength. These connecting links are ring coined, which means improved capacity for your application.

Spring Clip
Connecting Link

Cottered
Connecting Link

If a continuous length has an odd number of pitches, an offset link must be used. However, the use of offset links should be avoided.

Offset Links
Both two-pitch offset links and one-pitch offset links are available for RS roller chains. U.S. Tsubaki's redesigned link plate and improved manufacturing process make our two-pitch offset links stronger than ever.

The two-pitch offset link is a combination of a roller link and an offset link connected with a riveted pin. The connecting link can be attached to either side of a two-pitch offset link.

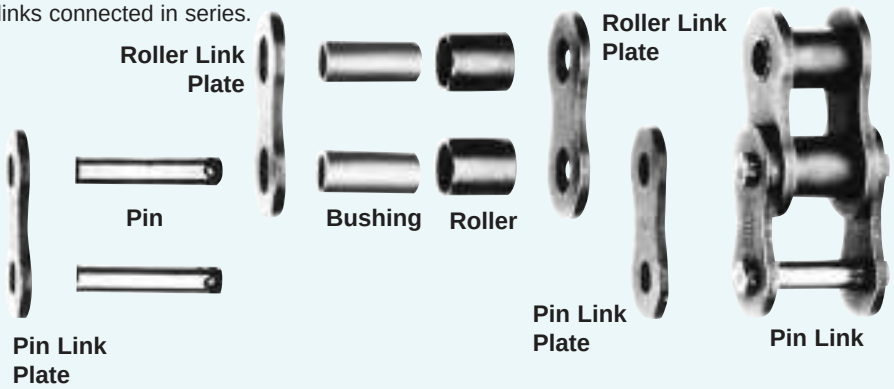
One-pitch offset links are very handy, but pin and offset link plates have to be slip-fitted. One-pitch offset links are also weaker than plain chain and two-pitch offset links. Therefore, one-pitch offset links are not suggested, especially for frequent on-and-off operation, heavy impact loads, and high-speed driving.

Note: Only two-pitch offset links are available for RS25.

Two-Pitch Offset Link

One-Pitch Offset Link

Roller Chain
A roller chain consists of roller links and pin links connected in series.

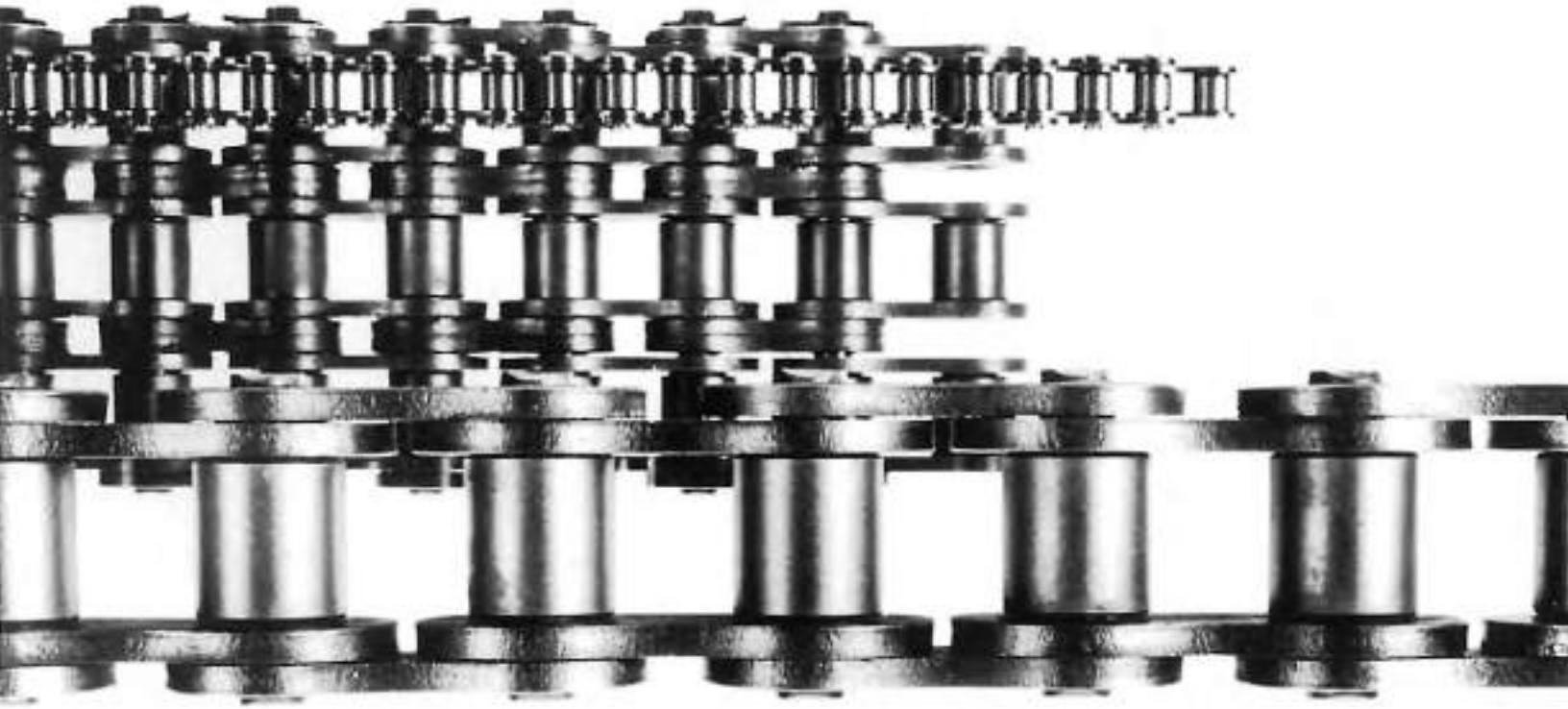


U.S. TSUBAKI RS ROLLER CHAIN

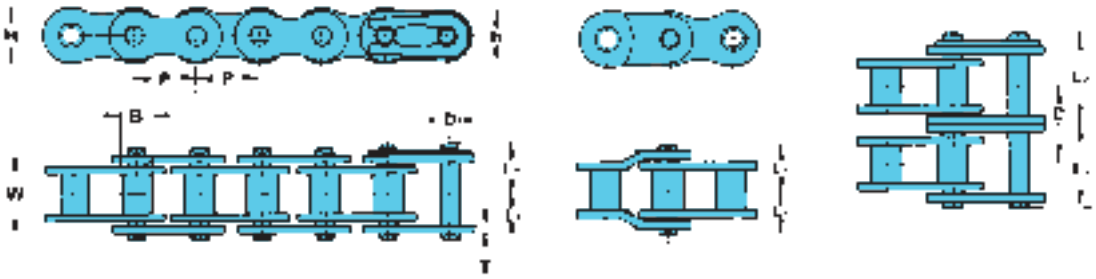
CHAIN DIMENSIONS (inch)

U.S. TSUBAKI Chain No.	ANSI No.	Page No.	Pitch	Roller Diameter	Width Between Roller Link Plates	Connecting Pin Length	Plate Thickness	Minimum Ultimate Strength ANSI Standard lbs.	Single Strand: Average Tensile Strength lbs.	Single Strand: ⁂ Maximum Allowable Load lbs.	Number of Links Per 10 ft.
RS11SS▲	—	A-45	.1475	⁂ .090	.072	.214	.015	—	175	11	814
RS15 ▲	—	A-45	.1875	⁂ .098	.094	.272	.024	—	510	70	640
RS25 ▲	25	A-6	.250	⁂ .130	.125	.339	.030	780	1,050	140	480
RS35 ▲	35	A-7	.375	⁂ .200	.188	.500	.050	1,760	2,530	480	320
RS37 (43)	—	—	.500	.306	.134	.425	.040	—	2,120	370	240
RS38 (42)	—	—	.500	.306	.188	.496	.040	—	2,120	370	240
RS41	41	A-8	.500	.306	.250	.579	.050	1,500	2,640	500	240
RS40	40	A-9	.500	.312	.312	.717	.060	3,125	4,290	810	240
RS50	50	A-10	.625	.400	.375	.878	.080	4,880	7,050	1,430	192
RS60	60	A-11	.750	.469	.500	1.087	.094	7,030	9,920	1,980	160
RS80	80	A-12	1.000	.625	.625	1.398	.125	12,500	17,640	3,300	120
RS100	100	A-13	1.250	.750	.750	1.678	.156	19,530	26,460	5,070	96
RS120	120	A-14	1.500	.875	1.000	2.118	.187	28,125	37,480	6,830	80
RS140	140	A-15	1.750	1.000	1.000	2.307	.219	38,280	48,510	9,040	68
RS160	160	A-16	2.000	1.125	1.250	2.705	.250	50,000	60,630	11,900	60
RS180	180	A-17	2.250	1.406	1.406	3.075	.281	63,280	80,480	13,670	54
RS200	200	A-18	2.500	1.562	1.500	3.299	.312	78,125	103,630	16,090	48
RS240	240	A-19	3.000	1.875	1.875	4.071	.375	112,500	152,140	22,270	40

▲ Rollerless
⁂ Bushing Diameter
⁂⁂ Refer to page A-23, "Selection for Slow Speed."



RS25 1/4" Pitch



U.S. TSUBAKI Chain No.	ANSI	Pitch No. P	Bushing Diameter B	Width Between Inner Link Plates W	Link Plate T	Link Plate H	Link Plate h	Pin Diameter D
RS25	25	.250	.130	.125	.030	.230	.199	.0905

U.S. TSUBAKI Chain No.	Number of Strands	Pin L_1+L_2	Pin L_1	Pin L_2	Transverse Pitch C	Standard Type of Pin	Minimum Ultimate Strength ANSI Standard lbs.	Average Tensile Strength lbs.	❊ Maximum Allowable Load lbs.	Approx. Weight lbs./ft.	Number of Links per 10 ft.
RS25	1	.339	.150	.189	.252	Riveted	780	1,050	140	.094	480
RS25-2	2	.591	.276	.315		Riveted	1,560	2,100	240	.181	

Note: Only two-pitch offset links are available for RS25 and RS25-2.
❊ Refer to page A-23, "Selection for Slow Speed."

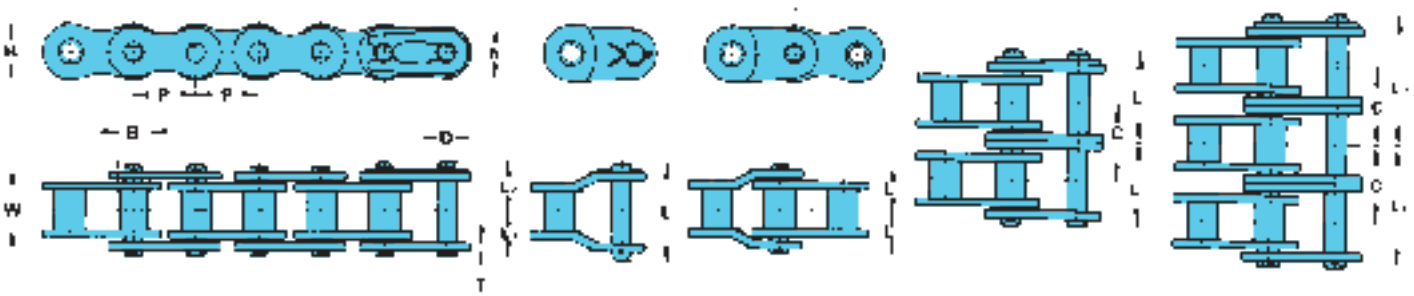
Maximum Horsepower Ratings

No. of Teeth Small Spkt.	Maximum Speed – Small Sprocket (rpm) 50	100	300	500	700	900	1200	1500	1800	2100	2500	3000	3500	4000	4500	5000	5500	6000	6500	7000	7500	8000	8500	9000	10,000
	Lubrication System A														B										
11	0.03	0.05	0.14	0.23	0.31	0.39	0.50	0.60	0.71	0.83	0.95	1.13	1.29	1.38	1.16	0.99	0.86	0.75	0.67	0.60	0.54	0.49	0.45	0.41	0.35
12	0.03	0.06	0.16	0.25	0.34	0.43	0.55	0.66	0.78	0.90	1.05	1.23	1.42	1.57	1.32	1.12	0.97	0.86	0.76	0.68	0.61	0.56	0.51	0.47	0.40
13	0.04	0.06	0.17	0.27	0.37	0.47	0.60	0.72	0.84	0.98	1.14	1.34	1.54	1.74	1.49	1.27	1.10	0.96	0.86	0.77	0.69	0.63	0.57	0.53	0.45
14	0.04	0.07	0.19	0.30	0.40	0.50	0.65	0.78	0.94	1.06	1.23	1.46	1.68	1.89	1.66	1.42	1.23	1.08	0.96	0.86	0.77	0.70	0.64	0.59	0.50
15	0.04	0.08	0.20	0.32	0.43	0.54	0.68	0.84	0.99	1.14	1.33	1.57	1.81	2.04	1.84	1.57	1.36	1.20	1.06	0.95	0.86	0.78	0.71	0.65	0.56
16	0.04	0.08	0.22	0.34	0.47	0.58	0.74	0.90	1.06	1.22	1.43	1.69	1.93	2.19	2.03	1.73	1.50	1.32	1.17	1.05	0.94	0.86	0.78	0.72	0.61
17	0.05	0.09	0.23	0.37	0.48	0.60	0.79	0.97	1.14	1.30	1.53	1.80	2.07	2.33	2.22	1.90	1.64	1.44	1.28	1.14	1.03	0.94	0.86	0.79	0.67
18	0.05	0.09	0.25	0.39	0.53	0.64	0.84	1.02	1.21	1.38	1.62	1.92	2.20	2.48	2.42	2.07	1.79	1.57	1.39	1.25	1.12	1.02	0.93	0.86	0.73
19	0.05	0.10	0.26	0.41	0.56	0.68	0.89	1.09	1.29	1.48	1.72	2.02	2.33	2.63	2.62	2.24	1.94	1.70	1.51	1.35	1.22	1.11	1.01	0.93	0.79
20	0.06	0.10	0.28	0.44	0.59	0.72	0.94	1.15	1.35	1.56	1.82	2.15	2.47	2.78	2.83	2.42	2.10	1.84	1.63	1.46	1.32	1.20	1.09	1.00	0.86
21	0.06	0.11	0.29	0.46	0.60	0.76	0.99	1.21	1.42	1.64	1.92	2.27	2.60	2.92	3.05	2.60	2.26	1.98	1.76	1.57	1.42	1.29	1.17	1.08	0.92
22	0.06	0.11	0.31	0.48	0.64	0.80	1.05	1.27	1.50	1.73	2.01	2.37	2.74	3.08	3.27	2.79	2.42	2.12	1.88	1.69	1.52	1.38	1.26	1.16	0.99
23	0.06	0.12	0.32	0.51	0.67	0.84	1.10	1.34	1.57	1.81	2.12	2.49	2.87	3.23	3.50	2.98	2.59	2.27	2.01	1.80	1.62	1.47	1.35	1.24	1.06
24	0.07	0.13	0.34	0.53	0.72	0.90	1.14	1.39	1.65	1.89	2.21	2.61	3.00	3.38	3.73	3.18	2.76	2.42	2.15	1.92	1.73	1.57	1.44	1.32	1.12
25	0.07	0.13	0.35	0.55	0.75	0.94	1.19	1.46	1.72	1.98	2.32	2.72	3.14	3.54	3.93	3.38	2.93	2.57	2.28	2.04	1.84	1.67	1.53	1.40	1.20
26	0.07	0.14	0.37	0.56	0.76	0.98	1.25	1.53	1.80	2.07	2.41	2.84	3.27	3.69	4.10	3.59	3.11	2.73	2.42	2.17	1.95	1.77	1.62	1.49	1.27
28	0.08	0.15	0.40	0.63	0.83	1.05	1.35	1.65	1.94	2.24	2.61	3.08	3.54	4.00	4.44	4.01	3.47	3.05	2.70	2.42	2.18	1.98	1.81	1.66	1.42
30	0.08	0.16	0.43	0.66	0.90	1.13	1.46	1.78	2.09	2.41	2.82	3.33	3.82	4.30	4.79	4.45	3.85	3.38	3.00	2.68	2.42	2.20	2.01	1.84	1.57
32	0.09	0.17	0.44	0.71	0.98	1.21	1.56	1.90	2.25	2.59	3.02	3.57	4.09	4.61	5.14	4.90	4.25	3.73	3.30	2.96	2.67	2.42	2.21	2.03	1.73
35	0.10	0.19	0.51	0.78	1.06	1.33	1.72	2.11	2.48	2.84	3.33	3.93	4.51	5.08	5.65	5.60	4.86	4.26	3.78	3.38	3.05	2.77	2.53	2.32	1.98
40	0.12	0.22	0.58	0.90	1.22	1.53	1.98	2.43	2.86	3.29	3.85	4.53	5.20	5.87	6.53	6.85	5.93	5.21	4.62	4.13	3.73	3.38	3.09	2.83	2.42
45	0.13	0.25	0.64	1.03	1.39	1.74	2.25	2.76	3.25	3.73	4.37	5.15	5.91	6.66	7.42	8.15	7.08	6.21	5.51	4.93	4.45	4.04	3.69	3.38	2.89
																			C						

Note: 1. Multiply the value given above by the multiple strand factor (page A-22, Table II) in order to obtain the transmission horsepower of multiple strand chain.
2. For lubrication systems A, B & C, refer to page A-77 for explanation. Please consult U.S. Tsubaki for use of horsepower ratings to the right of the boundary line.
3. Refer to page A-22, "Procedures for Selecting Roller Chain."
4. Gray portion of Maximum Horsepower Ratings Table is Lubrication System C.

U.S. TSUBAKI RS ROLLER CHAIN

RS35 3/8" Pitch



U.S. TSUBAKI Chain No.	ANSI No.	Pitch P	Bushing Diameter B	Width Between Inner Link Plates W	Link Plate T	Link Plate H	Link Plate h	Pin Diameter D
RS35	35	.375	.200	.188	.050	.354	.307	.141

U.S. TSUBAKI Chain No.	Number of Strands	Pin L_1+L_2	Pin L_1	Pin L_2	Pin L	Transverse Pitch C	Standard Type of Pin	Minimum Ultimate Strength ANSI Standard lbs.	Average Tensile Strength lbs.	❊Maximum Allowable Load lbs.	Approx. Weight lbs./ft.	Number of Links per 10 ft.
RS35	1	.500	.230	.270	.531	.399	Riveted	1,760	2,530	480	.22	320
RS35-2	2	.898	.429	.469	.965		Riveted	3,520	5,060	810	.46	
RS35-3	3	1.295	.630	.665	1.362		Riveted	5,280	7,590	1,200	.70	

Note: ❊ Refer to page A-23, "Selection for Slow Speed."

Maximum Horsepower Ratings

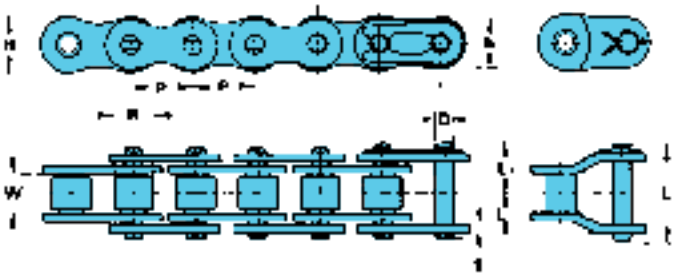
No. of Teeth Small Sprkt.	Maximum Speed – Small Sprocket (rpm) 50	100	300	500	700	900	1200	1500	1800	2100	2500	3000	3500	4000	4500	5000	5500	6000	6500	7000	7500	8000	8500	9000	10,000
	Lubrication System					A					B												C		
11	0.16	0.30	0.78	1.23	1.66	2.09	2.71	3.31	3.90	4.48	3.86	2.92	2.32	1.90	1.58	1.35	1.18	1.03	0.91	0.82	0.74	0.67	0.60	0.56	0.48
12	0.17	0.32	0.86	1.35	1.84	2.29	2.98	3.63	4.29	4.92	4.40	3.35	2.66	2.17	1.82	1.56	1.35	1.18	1.05	0.94	0.84	0.76	0.70	0.64	0.55
13	0.19	0.35	0.94	1.48	2.00	2.51	3.25	3.97	4.68	5.38	4.96	3.75	2.99	2.45	2.05	1.74	1.50	1.33	1.17	1.05	0.94	0.86	0.78	0.72	0.62
14	0.20	0.38	1.01	1.60	2.16	2.71	3.51	4.30	5.07	5.82	5.55	4.21	3.34	2.72	2.29	1.96	1.70	1.49	1.31	1.18	1.06	0.97	0.87	0.80	0.68
15	0.21	0.40	1.09	1.72	2.33	2.92	3.80	4.63	5.46	6.26	6.16	4.65	3.70	3.03	2.53	2.17	1.88	1.65	1.46	1.31	1.18	1.07	0.98	0.90	0.76
16	0.23	0.43	1.17	1.85	2.49	3.14	4.06	4.96	5.85	6.72	6.77	5.10	4.08	3.34	2.80	2.39	2.07	1.82	1.61	1.43	1.30	1.18	1.07	0.99	0.83
17	0.25	0.47	1.25	1.97	2.67	3.35	4.33	5.30	6.25	7.17	7.42	5.59	4.47	3.66	3.06	2.61	2.27	1.98	1.77	1.58	1.42	1.29	1.18	1.07	0.93
18	0.27	0.50	1.33	2.09	2.84	3.57	4.61	5.65	6.64	7.63	8.09	6.09	4.87	3.98	3.34	2.84	2.47	2.17	1.92	1.72	1.54	1.41	1.29	1.18	1.01
19	0.28	0.52	1.41	2.23	3.02	3.77	4.89	5.98	7.04	8.09	8.77	6.60	5.28	4.32	3.62	3.08	2.68	2.35	2.09	1.86	1.68	1.53	1.38	1.27	1.09
20	0.30	0.55	1.49	2.35	3.18	4.00	5.16	6.32	7.44	8.56	9.47	7.13	5.70	4.67	3.90	3.34	2.90	2.53	2.25	2.01	1.82	1.65	1.50	1.41	1.18
21	0.31	0.58	1.57	2.48	3.35	4.21	5.44	6.66	7.84	9.01	10.2	7.67	6.13	5.02	4.21	3.59	3.11	2.72	2.41	2.17	1.96	1.77	1.62	1.49	1.27
22	0.32	0.62	1.65	2.60	3.53	4.43	5.73	7.00	8.25	9.48	10.9	8.31	6.58	5.38	4.51	3.85	3.34	2.92	2.60	2.33	2.09	1.90	1.74	1.60	1.35
23	0.35	0.64	1.73	2.74	3.70	4.64	6.01	7.35	8.66	9.95	11.6	8.88	7.05	5.77	4.83	4.13	3.58	3.14	2.79	2.49	2.25	2.04	1.86	1.72	1.46
24	0.36	0.67	1.81	2.86	3.88	4.85	6.29	7.70	9.07	10.4	12.2	9.47	7.50	6.13	5.15	4.39	3.80	3.34	2.96	2.64	2.39	2.17	1.98	1.82	1.54
25	0.38	0.70	1.89	2.99	4.05	5.08	6.57	8.05	9.48	10.9	12.7	10.1	7.99	6.54	5.48	4.66	4.05	3.57	3.16	2.82	2.55	2.31	2.11	1.94	1.65
26	0.39	0.74	1.97	3.12	4.22	5.30	6.87	8.39	9.88	11.4	13.3	10.7	8.46	6.92	5.81	4.96	4.30	3.77	3.34	2.99	2.70	2.45	2.24	2.05	1.74
28	0.43	0.79	2.13	3.38	4.57	5.74	7.43	9.09	10.7	12.3	14.3	11.9	9.48	7.75	6.49	5.55	4.81	4.22	3.74	3.35	3.02	2.74	2.51	2.31	1.96
30	0.46	0.86	2.31	3.65	4.93	6.18	8.01	9.79	11.5	13.2	15.6	13.2	10.5	8.57	7.17	6.14	5.32	4.67	4.14	3.70	3.34	3.03	2.76	2.53	2.17
32	0.50	0.91	2.47	3.90	5.28	6.62	8.58	10.5	12.4	14.2	16.6	14.6	11.5	9.44	7.91	6.76	5.86	5.14	4.56	4.08	3.67	3.34	3.04	2.80	0
35	0.54	1.01	2.72	4.30	5.82	7.31	9.45	11.6	13.7	15.7	18.4	16.6	13.2	10.8	9.07	7.72	6.71	5.87	5.22	4.67	4.21	3.82	3.49	3.21	0
40	0.63	1.17	3.14	4.98	6.73	8.44	10.9	13.4	15.7	18.1	21.2	20.4	16.1	13.2	11.1	9.45	8.19	7.19	6.37	5.70	5.14	4.67	0		
45	0.71	1.33	3.57	5.65	7.64	9.57	12.4	15.2	17.8	20.5	24.0	24.3	19.3	15.8	13.2	11.3	9.79	8.60	7.63	6.83	0				

Note: 1. Multiply the value given above by the multiple strand factor (page A-22, Table II) in order to obtain the transmission horsepower of multiple strand chain.

2. For lubrication systems A, B & C, refer to page A-77 for explanation. Please consult U.S. Tsubaki for use of horsepower ratings to the right of the boundary line.

3. Refer to page A-22, "Procedures for Selecting Roller Chain."

RS41 1/2" Pitch



U.S. TSUBAKI Chain No.	ANSI No.	Pitch P	Roller Diameter R	Width Between Roller Link Plates W	Link Plate T	Link Plate H	Link Plate h	Pin Diameter D
RS41	41	.500	.306	.250	.050	.386	.331	.141

U.S. TSUBAKI Chain No.	Pin L_1+L_2	Pin L_1	Pin L_2	Pin L	Standard Type of Pin	Minimum Ultimate Strength ANSI Standard lbs.	Average Tensile Strength lbs.	❊Maximum Allowable Load lbs.	Approx. Weight lbs./ft.	Number of Links per 10 ft.
RS41	.579	.266	.313	.594	Riveted	1,500	2,640	500	.27	240

Note: ❊Refer to page A-23, "Selection for Slow Speed."

Maximum Horsepower Ratings

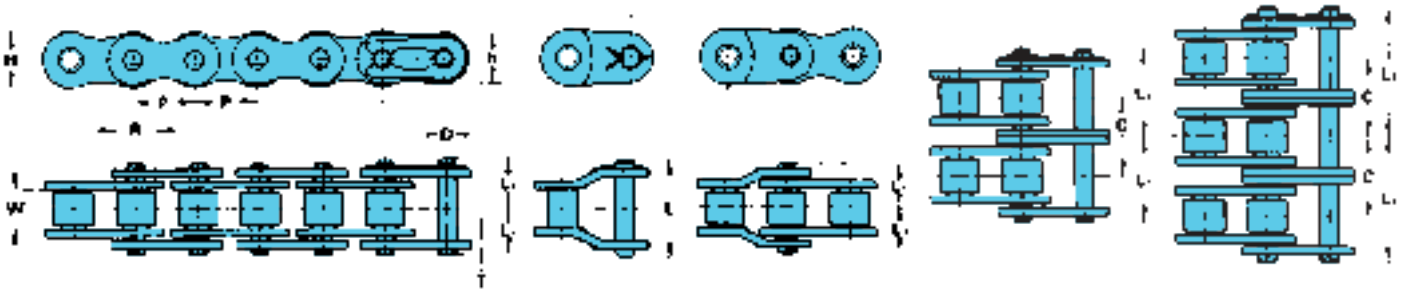
No. of Teeth Small Sprkt.	Maximum Speed – Small Sprocket (rpm) 10	25	50	100	200	300	400	500	700	900	1000	1200	1400	1600	1800	2100	2400	2700	3000	3500	4000	5000	6000	7000	8000
	Lubrication System A								B														C		
11	0.04	0.09	0.16	0.31	0.58	0.82	1.06	1.30	1.76	2.20	2.27	1.71	1.36	1.11	0.93	0.74	0.61	0.51	0.43	0.34	0.28	0.20	0.15	0.12	0.10
12	0.04	0.09	0.19	0.34	0.63	0.90	1.17	1.42	1.93	2.41	2.59	1.95	1.55	1.27	1.06	0.84	0.69	0.58	0.49	0.39	0.32	0.23	0.17	0.14	0.11
13	0.04	0.11	0.20	0.36	0.68	0.98	1.27	1.55	2.10	2.63	2.90	2.20	1.75	1.43	1.20	0.95	0.78	0.65	0.56	0.44	0.36	0.26	0.20	0.16	0.13
14	0.05	0.11	0.21	0.39	0.74	1.06	1.37	1.68	2.28	2.85	3.14	2.46	1.95	1.60	1.34	1.06	0.87	0.73	0.62	0.49	0.40	0.29	0.22	0.17	0.14
15	0.05	0.12	0.23	0.43	0.79	1.14	1.47	1.81	2.45	3.07	3.38	2.73	2.17	1.77	1.49	1.18	0.96	0.81	0.69	0.55	0.45	0.32	0.24	0.19	0.16
16	0.05	0.13	0.24	0.46	0.84	1.22	1.58	1.94	2.63	3.30	3.62	3.01	2.39	1.95	1.64	1.30	1.06	0.89	0.76	0.60	0.49	0.35	0.27	0.21	0.17
17	0.07	0.13	0.25	0.48	0.91	1.31	1.69	2.08	2.80	3.51	3.86	3.29	2.61	2.14	1.79	1.42	1.16	0.98	0.83	0.66	0.54	0.39	0.29	0.23	0.19
18	0.07	0.15	0.28	0.52	0.97	1.39	1.80	2.20	2.98	3.74	4.11	3.59	2.86	2.33	1.95	1.55	1.27	1.06	0.91	0.72	0.59	0.42	0.32	0.25	0
19	0.07	0.16	0.29	0.55	1.02	1.47	1.90	2.33	3.16	3.97	4.36	3.89	3.10	2.53	2.12	1.68	1.38	1.15	0.98	0.78	0.64	0.46	0.35	0.28	0
20	0.07	0.16	0.31	0.58	1.09	1.55	2.02	2.47	3.34	4.20	4.61	4.24	3.33	2.73	2.29	1.81	1.49	1.24	1.06	0.84	0.69	0.49	0.38	0.30	0
21	0.08	0.17	0.32	0.62	1.14	1.65	2.13	2.60	3.52	4.41	4.85	4.56	3.59	2.94	2.46	1.95	1.60	1.34	1.14	0.91	0.74	0.53	0.40	0.32	0
22	0.08	0.19	0.35	0.64	1.19	1.73	2.22	2.73	3.70	4.64	5.11	4.88	3.85	3.15	2.64	2.09	1.71	1.44	1.23	0.97	0.80	0.57	0.43	0.34	0
23	0.08	0.19	0.36	0.67	1.26	1.81	2.35	2.87	3.89	4.87	5.36	5.21	4.11	3.37	2.82	2.24	1.83	1.54	1.31	1.04	0.85	0.61	0.46	0.37	0
24	0.09	0.20	0.38	0.71	1.31	1.90	2.45	3.00	4.07	5.11	5.60	5.56	4.38	3.59	3.01	2.39	1.95	1.64	1.40	1.11	0.91	0.65	0.49	0.39	0
25	0.09	0.21	0.40	0.74	1.38	1.98	2.57	3.14	4.25	5.33	5.86	5.91	4.66	3.81	3.20	2.54	2.08	1.74	1.49	1.18	0.96	0.69	0.53	0	
26	0.09	0.23	0.42	0.76	1.43	2.06	2.68	3.28	4.44	5.56	6.11	6.27	4.94	4.05	3.39	2.69	2.20	1.85	1.58	1.25	1.02	0.73	0.56	0	
28	0.11	0.24	0.44	0.83	1.55	2.24	2.91	3.55	4.81	6.03	6.62	7.01	5.52	4.52	3.79	3.01	2.46	2.06	1.76	1.40	1.14	0.82	0.62	0	
30	0.11	0.25	0.48	0.90	1.68	2.41	3.12	3.82	5.17	6.49	7.13	7.77	6.13	5.01	4.20	3.33	2.73	2.29	1.95	1.55	1.27	0.91	0.69	0	
32	0.12	0.28	0.51	0.97	1.80	2.59	3.36	4.10	5.55	6.96	7.65	8.56	6.75	5.52	4.63	3.67	3.01	2.52	2.15	1.71	1.40	1.00	0		
35	0.13	0.31	0.58	1.06	1.98	2.85	3.70	4.52	6.11	7.67	8.43	9.80	7.72	6.32	5.29	4.20	3.44	2.88	2.46	1.95	1.60	1.14	0		
40	0.16	0.35	0.66	1.23	2.29	3.30	4.26	5.21	7.06	8.86	9.73	11.5	9.43	7.72	6.47	5.13	4.20	3.52	3.01	2.39	1.95	1.40	0		
45	0.17	0.40	0.75	1.39	2.60	3.74	4.85	5.92	8.03	10.1	11.1	13.0	11.3	9.21	7.72	6.13	5.01	4.20	3.59	2.85	2.33	0			

Note: 1. For lubrication systems A, B & C, refer to page A-77 for explanation. Please consult U.S. Tsubaki for use of horsepower ratings to the right of the boundary line.

2. Refer to page A-22, "Procedures for Selecting Roller Chain."

U.S. TSUBAKI RS ROLLER CHAIN

RS40 1/2" Pitch



U.S. TSUBAKI Chain No.	ANSI No.	Pitch P	Roller Diameter R	Width Between Roller Link Plates W	Link Plate T	Link Plate H	Link Plate h	Pin Diameter D
RS40	40	.500	.312	.312	.060	.472	.409	.156

U.S. TSUBAKI Chain No.	Number of Strands	Pin L_1+L_2	Pin L_1	Pin L_2	Pin L	Transverse Pitch C	Standard Type of Pin	Minimum Ultimate Strength ANSI Standard lbs.	Average Tensile Strength lbs.	❊Maximum Allowable Load lbs.	Approx. Weight lbs./ft.	Number of Links per 10 ft.
RS40	1	.717	.325	.392	.709	.566	Riveted	3,125	4,290	810	.43	240
RS40-2	2	1.283	.608	.675	1.319		Riveted	6,250	8,580	1,370	.85	
RS40-3	3	1.843	.892	.951	1.886		Riveted	9,375	12,870	2,020	1.28	
RS40-4	4	2.409	1.177	1.232	2.453		Riveted	12,500	17,160	2,670	1.70	
RS40-5	5	2.980	1.461	1.519	3.024		Riveted	15,625	21,450	3,150	2.12	
RS40-6	6	3.547	1.744	1.803	3.591		Riveted	18,750	25,740	3,720	2.55	

Note: ❊Refer to page A-23, "Selection for Slow Speed."

Maximum Horsepower Ratings

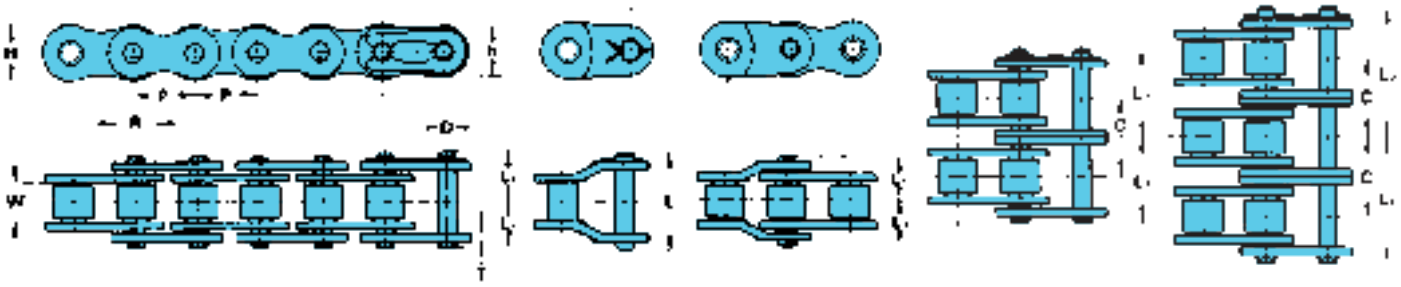
No. of Teeth Small Spkt.	Maximum Speed – Small Sprocket (rpm) 10	25	50	100	200	300	400	500	700	900	1000	1200	1400	1600	1800	2100	2400	2700	3000	3500	4000	5000	6000	7000	8000
	Lubrication System A													B									C		
11	0.08	0.19	0.35	0.64	1.21	1.73	2.24	2.74	3.70	4.65	5.11	6.02	6.81	5.58	4.67	3.70	3.03	2.55	2.15	1.72	1.41	1.01	0.76	0.62	0.50
12	0.09	0.20	0.38	0.71	1.31	1.90	2.47	3.00	4.08	5.11	5.62	6.61	7.60	6.36	5.31	4.22	3.45	2.90	2.47	1.96	1.60	1.14	0.87	0.68	0.58
13	0.09	0.23	0.42	0.76	1.43	2.07	2.68	3.29	4.44	5.57	6.13	7.21	8.29	7.16	5.99	4.76	3.89	3.26	2.79	2.21	1.81	1.29	0.98	0.78	0.64
14	0.11	0.24	0.44	0.83	1.56	2.24	2.91	3.55	4.81	6.03	6.64	7.82	8.97	8.01	6.71	5.31	4.36	3.65	3.11	2.47	2.02	1.45	1.10	0.87	0.71
15	0.11	0.25	0.48	0.90	1.68	2.41	3.14	3.84	5.19	6.50	7.15	8.42	9.67	8.88	7.43	5.89	4.83	4.04	3.45	2.74	2.24	1.60	1.22	0.97	0.79
16	0.12	0.28	0.52	0.97	1.80	2.59	3.35	4.10	5.55	6.97	7.66	9.03	10.4	9.79	8.18	6.49	5.31	4.45	3.81	3.02	2.47	1.77	1.34	1.07	0.87
17	0.13	0.30	0.55	1.03	1.92	2.76	3.58	4.39	5.93	7.44	8.18	9.64	11.1	10.7	8.97	7.11	5.82	4.88	4.17	3.31	2.71	1.94	1.48	1.17	0.97
18	0.13	0.31	0.59	1.10	2.04	2.95	3.81	4.67	6.32	7.91	8.70	10.2	11.8	11.7	9.76	7.75	6.34	5.31	4.55	3.61	2.96	2.11	1.60	1.27	0
19	0.15	0.34	0.62	1.17	2.17	3.12	4.05	4.95	6.69	8.39	9.23	10.9	12.5	12.7	10.5	8.41	6.88	5.77	4.92	3.92	3.21	2.29	1.74	1.38	0
20	0.16	0.35	0.66	1.23	2.29	3.30	4.28	5.23	7.07	8.86	9.75	11.5	13.2	13.7	11.1	9.08	7.53	6.22	5.31	4.22	3.45	2.47	1.88	1.49	0
21	0.16	0.38	0.70	1.29	2.41	3.47	4.51	5.51	7.46	9.35	10.3	12.1	13.9	14.8	12.4	9.76	7.99	6.71	5.73	4.55	3.71	2.66	2.02	1.60	0
22	0.17	0.39	0.72	1.35	2.53	3.66	4.73	5.79	7.84	9.83	10.8	12.7	14.6	15.8	13.2	10.5	8.57	7.19	6.13	4.87	3.98	2.86	2.17	1.72	0
23	0.17	0.42	0.76	1.42	2.67	3.84	4.98	6.07	8.22	10.3	11.3	13.4	15.3	16.9	14.1	11.2	9.16	7.68	6.56	5.20	4.26	3.06	2.32	1.84	0
24	0.19	0.43	0.80	1.49	2.79	4.02	5.20	6.36	8.61	10.8	11.9	13.9	16.1	18.0	15.0	11.9	9.76	8.18	7.00	5.54	4.55	3.25	2.47	1.96	0
25	0.20	0.44	0.83	1.56	2.91	4.20	5.44	6.65	9.00	11.3	12.4	14.6	16.8	18.9	16.0	12.7	10.4	8.70	7.43	5.89	4.83	3.45	2.63	0	
26	0.20	0.47	0.87	1.62	3.04	4.39	5.67	6.93	9.39	11.8	12.9	15.3	17.6	19.7	17.0	13.5	11.0	9.24	7.89	6.25	5.12	3.66	2.76	0	
28	0.23	0.51	0.95	1.77	3.30	4.75	6.14	7.51	10.2	12.8	14.1	16.5	19.0	21.5	19.0	15.0	12.3	10.3	8.81	7.00	5.73	4.09	3.11	0	
30	0.24	0.55	1.02	1.90	3.55	5.11	6.62	8.10	11.0	13.7	15.2	17.8	20.4	23.1	21.1	16.8	13.5	11.4	9.76	7.75	6.34	4.55	3.45	0	
32	0.25	0.59	1.09	2.04	3.81	5.48	7.09	8.68	11.7	14.8	16.2	19.0	21.9	24.7	23.2	18.4	15.0	12.6	10.8	8.54	7.00	5.00	0		
35	0.28	0.64	1.21	2.24	4.20	6.03	7.82	9.56	12.9	16.2	17.8	21.1	24.1	27.2	26.6	21.1	17.2	14.3	12.3	9.76	7.99	5.73	0		
40	0.32	0.75	1.39	2.59	4.84	6.97	9.04	11.1	14.9	18.8	20.7	24.3	27.9	31.5	32.5	25.7	21.1	17.6	15.0	11.9	9.76	7.00	0		
45	0.38	0.84	1.58	2.95	5.50	7.93	10.3	12.5	17.0	21.3	23.5	27.6	31.6	35.7	38.6	30.6	25.1	21.1	18.0	14.2	11.7	0			

Note: 1. Multiply the value given above by the multiple strand factor (page A-22, Table II) in order to obtain the transmission horsepower of multiple strand chain.

2. For lubrication systems A, B & C, refer to page A-77 for explanation. Please consult U.S. Tsubaki for use of horsepower ratings to the right of the boundary line.

3. Refer to page A-22, "Procedures for Selecting Roller Chain."

RS50 5/8" Pitch



U.S. TSUBAKI Chain No.	ANSI No.	Pitch P	Roller Diameter R	Width Between Roller Link Plates W	Link Plate T	Link Plate H	Link Plate h	Pin Diameter D
RS50	50	.625	.400	.375	.080	.591	.512	.200

U.S. TSUBAKI Chain No.	Number of Strands	Pin L_1+L_2	Pin L_1	Pin L_2	Pin L	Transverse Pitch C	Standard Type of Pin	Minimum Ultimate Strength ANSI Standard lbs.	Average Tensile Strength lbs.	❊Maximum Allowable Load lbs.	Approx. Weight lbs./ft.	Number of Links per 10 ft.
RS50	1	.878	.406	.472	.886	.713	Riveted	4,880	7,050	1,430	.70	192
RS50-2	2	1.595	.762	.833	1.646		Riveted	9,760	14,100	2,430	1.39	
RS50-3	3	2.307	1.118	1.189	2.358		Riveted	14,640	21,150	3,570	2.08	
RS50-4	4	3.020	1.475	1.545	3.075		Riveted	19,520	28,200	4,710	2.76	
RS50-5	5	3.732	1.831	1.901	3.787		Riveted	24,400	35,250	5,570	3.45	
RS50-6	6	4.449	2.189	2.260	4.504		Riveted	29,280	42,300	6,570	4.14	

Note: ❊Refer to page A-23, "Selection for Slow Speed."

Maximum Horsepower Ratings

No. of Teeth Small Sprkt.	Maximum Speed – Small Sprocket (rpm) 10	25	50	100	200	300	400	500	700	900	1000	1200	1400	1600	1800	2100	2400	2700	3000	3500	4000	4500	5000	5500	6000
	Lubrication System A											B								C					
11	0.16	0.38	0.71	1.33	2.48	3.58	4.64	5.66	7.67	9.62	10.6	10.3	8.14	6.65	5.58	4.43	3.62	3.04	2.59	2.07	1.68	1.41	1.21	1.05	0.93
12	0.19	0.42	0.78	1.46	2.72	3.93	5.10	6.22	8.42	10.6	11.6	11.7	9.27	7.59	6.36	5.04	4.13	3.46	2.95	2.35	1.92	1.61	1.37	1.19	1.05
13	0.20	0.46	0.86	1.60	2.98	4.28	5.55	6.79	9.19	11.5	12.7	13.2	10.4	8.56	7.16	5.70	4.65	3.90	3.33	2.64	2.16	1.81	1.56	1.34	0
14	0.21	0.50	0.93	1.73	3.22	4.64	6.01	7.35	9.95	12.5	13.7	14.8	11.7	9.56	8.02	6.36	5.20	4.36	3.73	2.95	2.43	2.02	1.73	1.50	0
15	0.23	0.54	0.99	1.86	3.47	5.00	6.48	7.93	10.7	13.4	14.8	16.4	13.0	10.6	8.89	7.05	5.77	4.83	4.13	3.27	2.68	2.25	1.92	1.66	0
16	0.25	0.58	1.07	2.00	3.73	5.36	6.95	8.49	11.5	14.3	15.8	18.0	14.3	11.7	9.79	7.76	6.36	5.32	4.55	3.61	2.95	2.47	2.11	1.84	0
17	0.27	0.62	1.14	2.13	3.97	5.73	7.42	9.07	12.3	15.4	16.9	19.7	15.7	12.8	10.7	8.50	6.96	5.83	4.99	3.96	3.23	2.71	2.31	2.01	0
18	0.28	0.66	1.22	2.27	4.22	6.09	7.89	9.64	13.0	16.4	18.0	21.2	17.0	13.9	11.7	9.27	7.59	6.36	5.42	4.30	3.53	2.95	2.52	0	
19	0.31	0.68	1.29	2.40	4.48	6.45	8.37	10.2	13.8	17.3	19.0	22.5	18.5	15.2	12.7	10.0	8.22	6.89	5.89	4.67	3.82	3.21	2.74	0	
20	0.32	0.72	1.35	2.53	4.73	6.83	8.84	10.8	14.6	18.4	20.1	23.7	20.0	16.4	13.7	10.8	8.89	7.44	6.36	5.04	4.13	3.46	2.95	0	
21	0.34	0.76	1.43	2.68	4.99	7.19	9.32	11.4	15.4	19.3	21.2	25.1	21.5	17.6	14.8	11.7	9.57	8.02	6.84	5.42	4.44	3.73	3.18	0	
22	0.35	0.80	1.50	2.82	5.24	7.56	9.80	12.0	16.2	20.4	22.4	26.3	23.1	18.8	15.8	12.5	10.2	8.60	7.34	5.82	4.76	4.00	3.41	0	
23	0.38	0.84	1.58	2.95	5.51	7.94	10.3	12.6	17.0	21.3	23.5	27.6	24.7	20.1	16.9	13.4	11.0	9.19	7.84	6.22	5.10	4.28	0		
24	0.39	0.89	1.66	3.08	5.77	8.30	10.8	13.2	17.8	22.4	24.5	29.0	26.3	21.5	18.0	14.3	11.7	9.79	8.35	6.64	5.42	4.55	0		
25	0.40	0.93	1.73	3.23	6.02	8.68	11.3	13.8	18.6	23.3	25.6	30.2	27.9	22.8	19.2	15.2	12.4	10.4	8.89	7.05	5.77	4.83	0		
26	0.43	0.97	1.81	3.37	6.29	9.05	11.7	14.3	19.4	24.4	26.8	31.5	29.6	24.3	20.2	16.1	13.2	11.0	9.43	7.47	6.13	5.14	0		
28	0.46	1.05	1.96	3.65	6.81	9.82	12.7	15.6	21.1	26.4	29.0	34.2	33.1	27.0	22.7	18.0	14.8	12.3	10.5	8.35	6.84	5.74	0		
30	0.50	1.13	2.11	3.93	7.34	10.6	13.7	16.8	22.7	28.4	31.2	36.7	36.7	30.0	25.1	19.8	16.4	13.7	11.7	9.27	7.59	0			
32	0.54	1.21	2.27	4.21	7.87	11.3	14.6	18.0	24.3	30.4	33.5	39.4	40.4	33.3	27.8	22.0	18.0	15.2	12.9	10.2	8.35	0			
35	0.59	1.33	2.49	4.64	8.66	12.5	16.2	19.7	26.8	33.5	36.9	43.4	46.3	38.1	31.6	25.1	20.7	17.2	14.8	11.7	9.56	0			
40	0.67	1.54	2.87	5.36	10.0	14.5	18.6	22.8	31.0	38.8	42.6	50.3	56.5	46.4	38.8	30.7	25.1	21.1	18.0	14.3	0				
45	0.76	1.74	3.27	6.09	11.4	16.4	21.2	25.9	35.1	44.0	48.4	57.0	65.6	55.1	46.1	36.6	30.0	25.1	21.5	0					

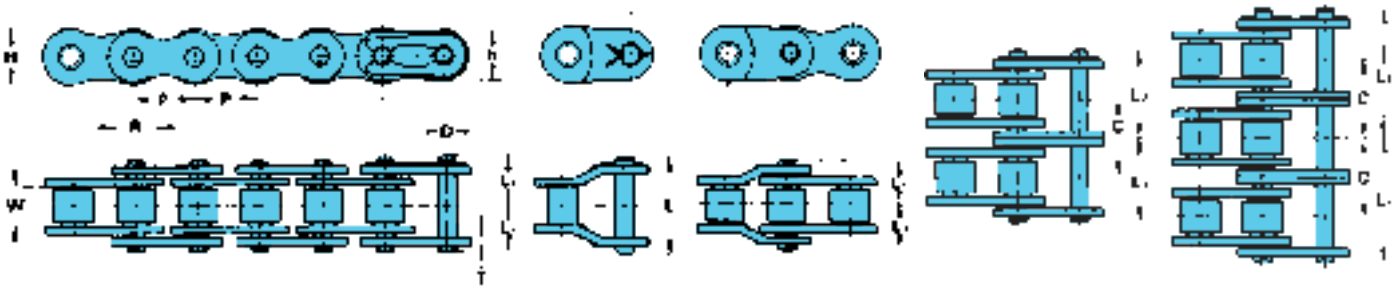
Note: 1. Multiply the value given above by the multiple strand factor (page A-22, Table II) in order to obtain the transmission horsepower of multiple strand chain.

2. For lubrication systems A, B & C, refer to page A-77 for explanation. Please consult U.S. Tsubaki for use of horsepower ratings to the right of the boundary line.

3. Refer to page A-22, "Procedures for Selecting Roller Chain."

U.S. TSUBAKI RS ROLLER CHAIN

RS60 3/4" Pitch



U.S. TSUBAKI Chain No.	ANSI No.	Pitch P	Roller Diameter R	Width Between Roller Link Plates W	Link Plate T	Link Plate H	Link Plate h	Pin Diameter D
RS60	60	.750	.469	.500	.094	.713	.614	.234

U.S. TSUBAKI Chain No.	Number of Strands	Pin L_1+L_2	Pin L_1	Pin L_2	Pin L	Transverse Pitch C	Standard Type of Pin	Minimum Ultimate Strength ANSI Standard lbs.	Average Tensile Strength lbs.	❊ Maximum Allowable Load lbs.	Approx. Weight lbs./ft.	Number of Links per 10 ft.
RS60	1	1.087	.506	.581	1.110	.897	Riveted	7,030	9,920	1,980	1.03	160
RS60-2	2	1.988	.955	1.033	2.071		Riveted	14,060	19,840	3,360	2.04	
RS60-3	3	2.906	1.404	1.502	2.972		Riveted	21,090	29,760	4,950	3.05	
RS60-4	4	3.803	1.852	1.951	3.870		Riveted	28,120	39,680	6,530	4.06	
RS60-5	5	4.705	2.303	2.402	4.772		Riveted	35,150	49,600	7,720	5.07	
RS60-6	6	5.606	2.752	2.854	5.669		Riveted	42,180	59,520	9,100	6.08	

Note: ❊ Refer to page A-23, "Selection for Slow Speed."

Maximum Horsepower Ratings

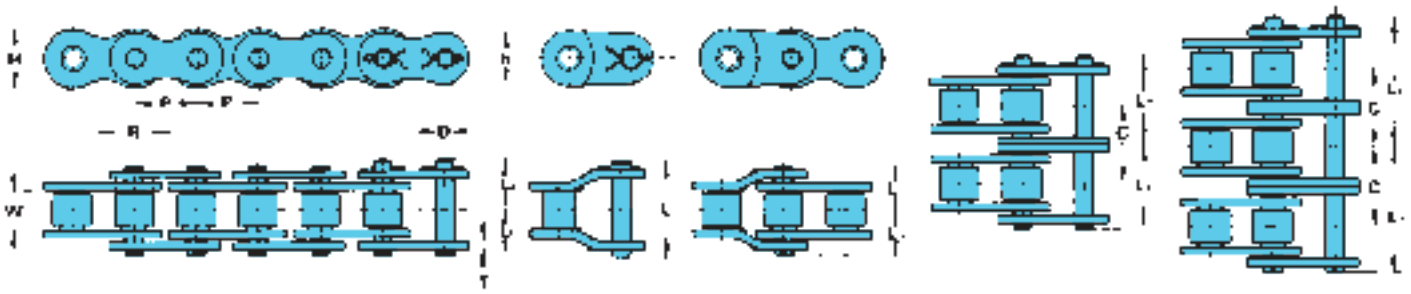
No. of Teeth Small Spkt.	Maximum Speed – Small Sprocket (rpm) 10	25	50	100	150	200	300	400	500	600	700	800	900	1000	1100	1200	1400	1600	1800	2000	2500	3000	3500	4000	4500
	Lubrication System					A										B							C		
11	0.30	0.67	1.26	2.35	3.39	4.39	6.32	8.19	10.0	11.8	13.5	15.3	17.0	15.6	13.5	11.9	9.41	7.70	6.45	5.51	3.94	3.00	2.39	1.94	1.64
12	0.32	0.74	1.38	2.59	3.71	4.81	6.95	9.00	11.0	13.0	14.9	16.8	18.6	17.8	15.6	13.5	10.7	8.77	7.35	6.29	4.49	3.42	2.71	2.23	1.86
13	0.35	0.80	1.52	2.82	4.06	5.26	7.58	9.80	12.0	14.1	16.2	18.2	20.4	20.1	17.4	15.2	12.1	9.90	8.30	7.08	5.07	3.85	3.06	2.51	0
14	0.39	0.87	1.64	3.06	4.40	5.70	8.21	10.6	13.0	15.3	17.6	19.8	22.0	22.4	19.4	17.0	13.5	11.1	9.27	7.91	5.66	4.32	3.42	2.80	0
15	0.42	0.94	1.76	3.29	4.73	6.13	8.84	11.5	13.9	16.5	18.9	21.3	23.7	24.8	21.6	18.8	15.0	12.3	10.3	8.77	6.29	4.77	3.80	3.10	0
16	0.44	1.01	1.89	3.53	5.08	6.57	9.47	12.3	15.0	17.7	20.2	22.9	25.5	27.4	23.7	20.9	16.5	13.5	11.3	9.67	6.92	5.26	4.17	3.42	0
17	0.47	1.09	2.01	3.77	5.42	7.03	10.1	13.1	16.0	18.9	21.7	24.4	27.2	29.9	26.0	22.9	18.1	14.8	12.4	10.6	7.58	5.77	4.57	3.74	0
18	0.51	1.15	2.15	4.00	5.77	7.47	10.8	13.9	17.0	20.1	23.1	26.0	29.0	31.8	28.3	24.9	19.7	16.1	13.5	11.5	8.26	6.29	4.99	4.08	0
19	0.54	1.22	2.28	4.24	6.12	7.91	11.4	14.8	18.1	21.3	24.4	27.6	30.7	33.7	30.7	27.1	21.5	17.6	14.6	12.5	8.96	6.81	5.40	4.43	0
20	0.56	1.29	2.40	4.48	6.46	8.37	12.1	15.6	19.0	22.5	25.9	29.1	32.5	35.7	33.1	29.2	23.1	18.9	15.8	13.5	9.67	7.35	5.83	0	
21	0.59	1.35	2.53	4.73	6.81	8.82	12.7	16.5	20.1	23.7	27.2	30.7	34.2	37.5	35.7	31.5	24.8	20.2	17.0	14.5	10.4	7.91	6.29	0	
22	0.63	1.42	2.67	4.98	7.16	9.28	13.4	17.3	21.2	24.9	28.7	32.3	35.9	39.4	38.2	33.8	26.6	21.9	18.2	15.6	11.1	8.49	6.73	0	
23	0.66	1.50	2.79	5.22	7.51	9.74	14.1	18.1	22.3	26.1	30.0	33.9	37.7	41.4	40.9	36.1	28.4	23.3	19.4	16.8	11.9	9.08	7.19	0	
24	0.68	1.57	2.92	5.46	7.87	10.2	14.6	19.0	23.2	27.4	31.5	35.5	39.4	43.3	43.6	38.2	30.3	24.8	20.8	17.8	12.7	9.67	7.67	0	
25	0.72	1.64	3.06	5.71	8.22	10.6	15.3	19.8	24.3	28.6	32.9	37.1	41.2	45.3	46.4	40.6	32.2	26.4	22.1	18.9	13.5	10.3	8.15	0	
26	0.75	1.72	3.19	5.95	8.58	11.1	16.0	20.8	25.3	29.9	34.3	38.8	43.0	47.3	49.2	43.2	34.2	28.0	23.5	20.0	14.3	10.9	8.55	0	
28	0.82	1.85	3.46	6.45	9.29	12.0	17.3	22.4	27.5	32.3	37.1	42.0	46.7	51.2	55.0	48.3	38.2	31.4	26.1	22.4	16.0	12.2	0		
30	0.87	2.00	3.73	6.95	10.0	13.0	18.6	24.1	29.6	34.9	40.1	45.2	50.2	55.3	60.2	53.5	42.4	34.7	29.1	24.8	17.8	13.5	0		
32	0.94	2.15	4.00	7.46	10.7	13.9	20.0	25.9	31.8	37.4	42.9	48.4	53.8	59.1	64.5	58.9	46.7	38.2	32.1	27.4	19.6	14.9	0		
35	1.03	2.36	4.40	8.21	11.8	15.3	22.1	28.6	35.0	41.2	47.3	53.4	59.3	65.2	71.1	67.5	53.4	43.7	36.6	31.4	22.4	17.0	0		
40	1.19	2.72	5.08	9.48	13.7	17.7	25.5	33.0	40.4	47.6	54.6	61.6	68.5	75.4	82.1	82.3	65.7	53.5	44.8	38.2	27.4	0			
45	1.35	3.10	5.77	10.8	15.6	20.1	29.0	37.5	45.9	54.0	62.1	70.0	77.8	85.6	93.2	98.3	78.4	63.7	53.4	45.6	32.6	0			

Note: 1. Multiply the value given above by the multiple strand factor (page A-22, Table II) in order to obtain the transmission horsepower of multiple strand chain.

2. For lubrication systems A, B & C, refer to page A-77 for explanation. Please consult U.S. Tsubaki for use of horsepower ratings to the right of the boundary line.

3. Refer to page A-22, "Procedures for Selecting Roller Chain."

RS80 1" Pitch



U.S. TSUBAKI Chain No.	ANSI No.	Pitch P	Roller Diameter R	Width Between Roller Link Plates W	Link Plate T	Link Plate H	Link Plate h	Pin Diameter D
RS80	80	1.000	.625	.625	.125	.949	.819	.312

U.S. TSUBAKI Chain No.	Number of Strands	Pin L_1+L_2	Pin L_1	Pin L_2	Pin L	Transverse Pitch C	Standard Type of Pin	Minimum Ultimate Strength ANSI Standard lbs.	Average Tensile Strength lbs.	❊ Maximum Allowable Load lbs.	Approx. Weight lbs./ft.	Number of Links per 10 ft.
RS80	1	1.398	.640	.758	1.417	1.153	Riveted	12,500	17,640	3,300	1.79	120
RS80-2	2	2.552	1.217	1.335	2.657		Riveted	25,000	35,280	5,610	3.54	
RS80-3	3	3.704	1.795	1.909	3.815		Riveted	37,500	52,920	8,250	5.30	
RS80-4	4	4.862	2.372	2.490	4.972		Riveted	50,000	70,560	10,890	7.06	
RS80-5	5	6.020	2.951	3.069	6.126		Riveted	62,500	88,200	12,870	8.81	
RS80-6	6	7.170	3.528	3.642	7.280		Riveted	75,000	105,840	15,180	10.57	

Note: ❊Refer to page A-23, "Selection for Slow Speed."

Maximum Horsepower Ratings

No. of Teeth Small Spkt.	Maximum Speed – Small Sprocket (rpm) 10	25	50	100	150	200	300	400	500	600	700	800	900	1000	1100	1200	1400	1600	1800	2000	2200	2400	2700	3000	3400
	Lubrication System A					B													C						
11	0.88	2.02	3.76	7.02	10.1	13.1	18.9	24.4	29.9	30.3	30.3	27.4	23.0	19.6	17.0	14.9	11.8	9.70	8.13	6.94	6.01	5.28	4.42	3.78	1.70
12	0.97	2.21	4.13	7.71	11.1	14.4	20.7	26.8	32.8	33.4	33.3	31.2	26.2	22.4	19.4	17.0	13.5	11.0	9.26	7.90	6.85	6.01	5.04	4.30	
13	1.06	2.41	4.50	8.40	12.1	15.7	22.6	29.3	35.8	36.3	36.3	35.2	29.5	25.2	21.9	19.2	15.2	12.5	10.4	8.91	7.73	6.78	5.68	4.85	
14	1.15	2.61	4.88	9.10	13.1	17.0	24.5	31.7	38.8	39.4	39.4	39.4	33.0	28.2	24.4	21.4	17.0	13.9	11.7	9.96	8.63	7.58	6.35	5.42	
15	1.23	2.82	5.26	9.81	14.1	18.3	26.4	34.2	41.8	43.7	43.7	43.7	36.6	31.2	27.1	23.8	18.9	15.4	12.9	11.0	9.58	8.40	7.04	6.01	
16	1.32	3.02	5.64	10.5	15.1	19.6	28.3	36.6	44.8	48.1	48.1	48.1	40.3	34.4	29.8	26.2	20.8	17.0	14.3	12.2	10.5	9.26	7.76	6.62	
17	1.41	3.22	6.02	11.2	16.2	21.0	30.2	39.1	47.8	56.3	52.7	52.7	44.2	37.7	32.7	28.7	22.8	18.6	15.6	13.3	11.6	10.1	8.50	7.26	
18	1.50	3.43	6.40	11.9	17.2	22.3	32.1	41.6	50.8	57.4	57.4	57.4	48.1	41.1	35.6	31.2	24.8	20.3	17.0	14.5	12.6	11.0	9.26	7.90	
19	1.59	3.64	6.79	12.7	18.2	23.6	34.0	44.1	53.9	61.7	61.7	61.7	52.2	44.5	38.6	33.9	26.9	22.0	18.4	15.7	13.7	12.0	10.0	8.57	
20	1.68	3.84	7.17	13.4	19.3	25.0	36.0	46.6	57.0	65.3	65.3	65.3	56.3	48.1	41.7	36.6	29.0	23.8	19.9	17.0	14.7	12.9	10.8		
21	1.78	4.05	7.56	14.1	20.3	26.3	37.9	49.1	60.0	68.8	68.8	68.8	60.6	51.8	44.9	39.4	31.2	25.6	21.4	18.3	15.9	13.9	11.7		
22	1.87	4.26	7.95	14.8	21.4	27.7	39.9	51.7	63.1	72.3	72.3	72.3	65.0	55.5	48.1	42.2	33.5	27.4	23.0	19.6	17.0	14.9	12.5		
23	1.96	4.47	8.34	15.6	22.4	29.0	41.8	54.2	66.2	75.9	75.9	75.9	69.5	59.3	51.4	45.1	35.8	29.3	24.6	21.0	18.2	16.0	13.4		
24	2.05	4.68	8.73	16.3	23.5	30.4	43.8	56.7	69.4	79.5	79.5	79.5	74.1	63.2	54.8	48.1	38.2	31.2	26.2	22.4	19.4	17.0	14.3		
25	2.14	4.89	9.13	17.0	24.5	31.8	45.8	59.3	72.5	83.0	83.0	83.0	78.7	67.2	58.3	51.1	40.6	33.2	27.8	23.8	20.6	18.1	15.2		
26	2.24	5.10	9.52	17.8	25.6	33.2	47.8	61.9	75.6	86.6	86.6	86.6	83.5	71.3	61.8	54.2	43.0	35.2	29.5	25.2	21.9	19.2	16.1		
28	2.42	5.53	10.3	19.2	27.7	35.9	51.7	67.0	81.9	93.9	93.9	93.9	93.3	79.7	69.1	60.6	48.1	39.4	33.0	28.2	24.4	21.4			
30	2.61	5.95	11.1	20.7	29.9	38.7	55.7	72.2	88.3	104	104	104	104	88.4	76.6	67.2	53.4	43.7	36.6	31.2	27.1	23.8			
32	2.80	6.38	11.9	22.2	32.0	41.5	59.8	77.4	94.6	112	114	114	114	97.4	84.4	74.1	58.8	48.1	40.3	34.4	29.8	26.2			
35	3.08	7.03	13.1	24.5	35.3	45.7	65.8	85.3	104	123	130	130	130	111	96.5	84.7	67.2	55.0	46.1	39.4	34.1				
40	3.56	8.12	15.2	28.3	40.8	52.8	76.0	98.5	120	142	153	153	153	136	118	104	82.1	67.2	56.3	48.1	20.0				
45	4.04	9.23	17.2	32.1	46.3	60.0	86.4	112	137	161	174	174	174	162	141	124	98.0	80.2	67.2	54.2					

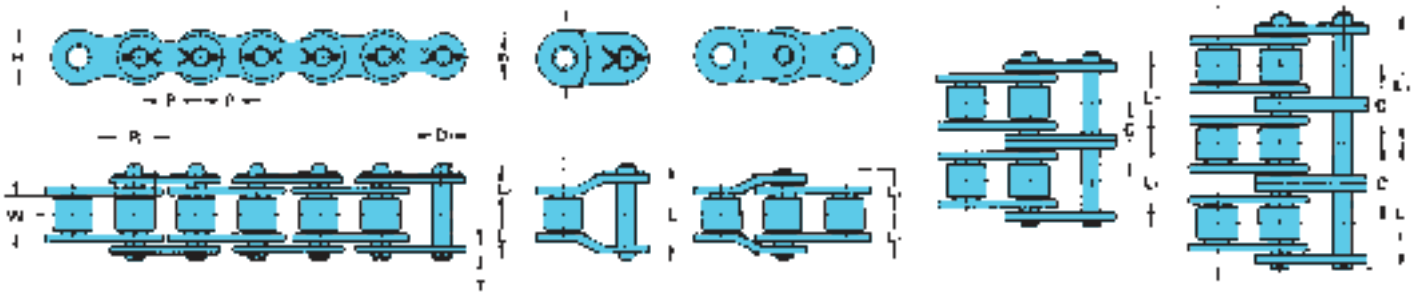
Note: 1. Multiply the value given above by the multiple strand factor (page A-22, Table II) in order to obtain the transmission horsepower of multiple strand chain.

2. For lubrication systems A, B & C, refer to page A-77 for explanation. Please consult U.S. Tsubaki for use of horsepower ratings to the right of the boundary line.

3. Refer to page A-22, "Procedures for Selecting Roller Chain."

U.S. TSUBAKI RS ROLLER CHAIN

RS100 1 1/4" Pitch



U.S. TSUBAKI Chain No.	ANSI No.	Pitch P	Roller Diameter R	Width Between Roller Link Plates W	Link Plate T	Link Plate H	Link Plate h	Pin Diameter D
RS100	100	1.250	.750	.750	.156	1.185	1.024	.375

U.S. TSUBAKI Chain No.	Number of Strands	Pin L_1+L_2	Pin L_1	Pin L_2	Pin L	Transverse Pitch C	Standard Type of Pin	Minimum Ultimate Strength ANSI Standard lbs.	Average Tensile Strength lbs.	❊Maximum Allowable Load lbs.	Approx. Weight lbs./ft.	Number of Links per 10 ft.
RS100	1	1.678	.778	.900	1.748	1.408	Cottered	19,530	26,460	5,070	2.68	96
RS100-2	2	3.090	1.484	1.606	3.209		Cottered	39,060	52,920	8,610	5.27	
RS100-3	3	4.504	2.191	2.313	4.618		Cottered	58,590	79,380	12,670	7.91	
RS100-4	4	5.914	2.896	3.018	6.028		Riveted	78,120	105,840	16,730	10.55	
RS100-5	5	7.326	3.602	3.724	7.437		Riveted	97,650	132,300	19,770	13.12	
RS100-6	6	8.740	4.309	4.431	8.846		Riveted	117,180	158,760	23,320	15.78	

Note: ❊Refer to page A-23, "Selection for Slow Speed."

Maximum Horsepower Ratings

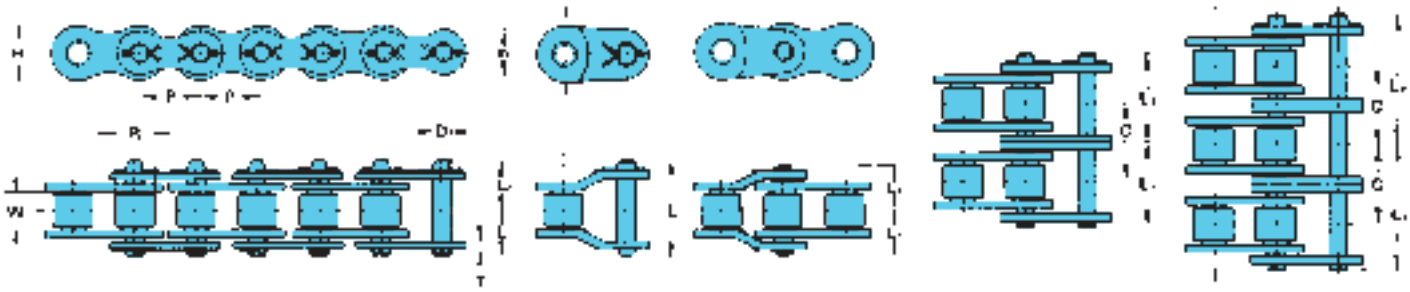
No. of Teeth Small Spkt.	Maximum Speed – Small Sprocket (rpm) 10	25	50	100	150	200	300	400	500	600	700	800	900	1000	1100	1200	1300	1400	1600	1800	2000	2200	2400	2600	2700
	Lubrication System A				B											C									
11	1.70	3.87	7.23	13.5	19.4	25.2	36.2	44.0	44.0	44.0	40.1	32.8	27.5	23.5	20.3	17.8	15.8	14.2	11.6	9.71	8.29	7.19	6.31	1.29	
12	1.86	4.25	7.94	14.8	21.3	27.6	39.8	48.4	48.4	48.4	45.6	37.4	31.3	26.7	23.2	20.3	18.0	16.1	13.2	11.1	9.45	8.19	7.19		
13	2.03	4.64	8.65	16.2	23.3	30.1	43.4	52.7	52.7	52.7	51.5	42.1	35.3	30.1	26.1	22.9	20.3	18.2	14.9	12.5	10.7	9.24	8.11		
14	2.20	5.02	9.38	17.5	25.2	32.6	47.0	57.5	57.5	57.5	57.5	47.1	39.4	33.7	29.2	25.6	22.7	20.3	16.6	13.9	11.9	10.3	9.06		
15	2.37	5.41	10.1	18.8	27.2	35.2	50.7	63.8	63.8	63.8	63.8	52.2	43.7	37.4	32.4	28.4	25.2	22.5	18.5	15.5	13.2	11.4	10.0		
16	2.54	5.80	10.8	20.2	29.1	37.7	54.3	70.3	70.3	70.3	70.3	57.5	48.2	41.2	35.7	31.3	27.8	24.8	20.3	17.0	14.5	12.6	11.1		
17	2.72	6.20	11.6	21.6	31.1	40.3	58.0	75.1	77.0	77.0	77.0	63.0	52.8	45.1	39.1	34.3	30.4	27.2	22.3	18.7	15.9	13.8	0.79		
18	2.89	6.59	12.3	23.0	33.1	42.8	61.7	79.9	83.8	83.8	83.8	68.6	57.5	49.1	42.6	37.4	33.1	29.6	24.3	20.3	17.4	15.0			
19	3.06	6.99	13.0	24.3	35.0	45.4	65.4	84.7	90.9	90.9	90.9	74.4	62.4	53.3	46.2	40.5	35.9	32.1	26.3	22.1	18.8	16.3			
20	3.24	7.39	13.8	25.7	37.0	48.0	69.1	89.6	96.4	96.4	96.5	80.4	67.4	57.5	49.8	43.7	38.8	34.7	28.4	23.8	20.3	17.6			
21	3.41	7.79	14.5	27.1	39.0	50.6	72.9	94.4	102	102	102	86.5	72.5	61.9	53.6	47.1	41.7	37.4	30.6	25.6	21.9	19.0			
22	3.59	8.19	15.3	28.5	41.1	53.2	76.6	99.3	107	107	107	92.7	77.7	66.3	57.5	50.5	44.8	40.1	32.8	27.5	23.5	20.3			
23	3.77	8.59	16.0	29.9	43.1	55.8	80.4	104	112	112	112	99.1	83.1	70.9	61.5	54.0	47.8	42.8	35.0	29.4	25.1	7.74			
24	3.94	8.99	16.8	31.3	45.1	58.4	84.2	109	117	117	117	106	88.5	75.6	65.5	57.5	51.0	45.6	37.4	31.3	26.7				
25	4.12	9.40	17.5	32.7	47.1	61.1	88.0	114	123	123	123	112	94.1	80.4	69.7	61.1	54.2	48.5	39.7	33.3	28.4				
26	4.30	9.80	18.3	34.1	49.2	63.7	91.8	119	128	128	128	119	99.8	85.2	73.9	64.8	57.5	51.5	42.1	35.3	30.1				
28	4.66	10.6	19.8	37.0	53.3	69.0	99.4	129	138	138	139	133	112	95.3	82.6	72.5	64.3	57.5	47.1	39.4	33.7				
30	5.02	11.4	21.4	39.8	57.4	74.4	107	139	149	149	149	148	124	106	91.6	80.4	71.3	63.8	52.2	43.7	10.0				
32	5.38	12.3	22.9	42.7	61.5	79.7	115	149	162	162	162	163	136	116	101	88.5	78.5	70.3	57.5	45.2					
35	5.93	13.5	25.2	47.1	67.8	87.8	127	164	186	186	186	186	156	133	115	101	89.8	80.4	65.8	55.1					
40	6.84	15.6	29.1	54.4	78.3	101	146	189	228	228	228	227	191	163	141	124	110	98.2	80.4						
45	7.77	17.7	33.1	61.7	88.9	115	166	215	263	263	263	261	227	194	168	148	131	117	45.3						

Note: 1. Multiply the value given above by the multiple strand factor (page A-22, Table II) in order to obtain the transmission horsepower of multiple strand chain.

2. For lubrication systems A, B & C, refer to page A-77 for explanation. Please consult U.S. Tsubaki for use of horsepower ratings to the right of the boundary line.

3. Refer to page A-22, "Procedures for Selecting Roller Chain."

RS120 1 1/2" Pitch



U.S. TSUBAKI Chain No.	ANSI No.	Pitch P	Roller Diameter R	Width Between Roller Link Plates W	Link Plate T	Link Plate H	Link Plate h	Pin Diameter D
RS120	120	1.500	.875	1.000	.187	1.425	1.228	.437

U.S. TSUBAKI Chain No.	Number of Strands	Pin L_1+L_2	Pin L_1	Pin L_2	Pin L	Transverse Pitch C	Standard Type of Pin	Minimum Ultimate Strength ANSI Standard lbs.	Average Tensile Strength lbs.	❊Maximum Allowable Load lbs.	Approx. Weight lbs./ft.	Number of Links per 10 ft.
RS120	1	2.118	.980	1.138	2.197	1.789	Cottered	28,125	37,480	6,830	3.98	80
RS120-2	2	3.905	1.874	2.031	4.063		Cottered	56,250	74,960	11,560	7.86	
RS120-3	3	5.701	2.772	2.929	5.850		Cottered	84,375	112,440	17,070	11.78	
RS120-4	4	7.488	3.665	3.823	7.638		Riveted	112,500	149,920	22,530	15.70	
RS120-5	5	9.280	4.561	4.719	9.425		Riveted	140,625	187,400	26,630	19.59	
RS120-6	6	11.067	5.455	5.612	11.213		Riveted	168,750	224,880	31,410	23.49	

Note: ❊Refer to page A-23, "Selection for Slow Speed."

Maximum Horsepower Ratings

No. of Teeth Small Spkt.	Maximum Speed – Small Sprocket (rpm) 10	25	50	100	150	200	300	400	500	600	700	800	900	1000	1100	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100
	Lubrication System A			B									C												
11	2.74	6.25	11.7	21.8	31.4	40.6	58.5	68.4	68.4	58.4	46.3	37.9	31.8	27.1	23.5	20.6	18.3	16.4	14.8	13.4	12.2	11.2	10.4	9.60	
12	3.01	6.87	12.8	23.9	34.4	44.6	64.3	75.2	75.2	66.5	52.8	43.2	36.2	30.9	26.8	23.5	20.9	18.7	16.8	15.3	14.0	12.8	11.8	10.9	
13	3.28	7.49	14.0	26.1	37.6	48.6	70.1	81.9	82.0	75.0	59.5	48.7	40.8	34.9	30.2	26.5	23.5	21.1	19.0	17.2	15.7	14.4	13.3	12.3	
14	3.56	8.11	15.1	28.2	40.7	52.7	75.9	88.8	88.8	83.8	66.5	54.5	45.6	39.0	33.8	29.6	26.3	23.5	21.2	19.3	17.6	16.1	14.9	8.9	
15	3.83	8.74	16.3	30.4	43.8	56.8	81.8	95.6	95.7	93.0	73.8	60.4	50.6	43.2	37.5	32.9	29.2	26.1	23.5	21.4	19.5	17.9	16.5		
16	4.11	9.37	17.5	32.6	47.0	60.9	87.7	103	103	102	81.3	66.5	55.8	47.6	41.3	36.2	32.1	28.7	25.9	23.5	21.5	19.7	18.2		
17	4.38	10.0	18.7	34.8	50.2	65.0	93.6	112	112	112	89.0	72.9	61.1	52.1	45.2	39.7	35.2	31.5	28.4	25.8	23.5	21.6	19.9		
18	4.66	10.6	19.9	37.0	53.4	69.1	99.6	122	122	122	97.0	79.4	66.5	56.8	49.2	43.2	38.3	34.3	30.9	28.1	25.6	23.5	11.3		
19	4.94	11.3	21.0	39.3	56.6	73.3	106	133	133	133	105	86.1	72.2	61.6	53.4	46.9	41.6	37.2	33.5	30.4	27.8	25.5			
20	5.23	11.9	22.2	41.5	59.8	77.5	112	143	143	143	114	93.0	77.9	66.5	57.7	50.6	44.9	40.2	36.2	32.9	30.0	27.6			
21	5.51	12.6	23.5	43.8	63.0	81.7	118	152	154	154	122	100	83.8	71.6	62.1	54.5	48.3	43.2	39.0	35.4	32.3	29.6			
22	5.79	13.2	24.7	46.0	66.3	85.9	124	160	165	165	131	107	89.9	76.8	66.5	58.4	51.8	46.3	41.8	37.9	34.6	16.6			
23	6.08	13.9	25.9	48.3	69.5	90.1	130	168	177	177	140	115	96.1	82.1	71.1	62.4	55.4	49.5	44.7	40.5	37.0				
24	6.36	14.5	27.1	50.5	72.8	94.3	136	176	188	187	149	122	102	87.5	75.8	66.5	59.0	52.8	47.6	43.2	39.5				
25	6.65	15.2	28.3	52.8	76.1	98.6	142	184	196	196	159	130	109	93.0	80.6	70.7	62.7	56.1	50.6	45.9	41.3				
26	6.94	15.8	29.5	55.1	79.4	103	148	192	204	204	168	138	116	98.6	85.5	75.0	66.5	59.5	53.7	48.7	26.6				
28	7.52	17.1	32.0	59.7	86.0	111	160	208	221	221	188	154	129	110	96.0	83.8	74.4	66.5	60.0	54.5					
30	8.10	18.5	34.5	64.3	92.7	120	173	224	239	238	209	171	143	122	106	93.0	82.5	73.8	66.5	42.4					
32	8.68	19.8	37.0	69.0	99.3	129	185	240	256	256	230	188	158	135	117	102	90.9	81.3	73.3						
35	9.56	21.8	40.7	76.0	109	142	204	265	282	282	263	215	180	154	134	117	104	93.0	47.7						
40	11.0	25.2	47.0	87.8	126	164	236	306	325	325	321	263	220	188	163	143	127	59.5							
45	12.5	28.6	53.4	99.7	144	186	268	347	384	384	383	314	263	225	195	171	80.1								

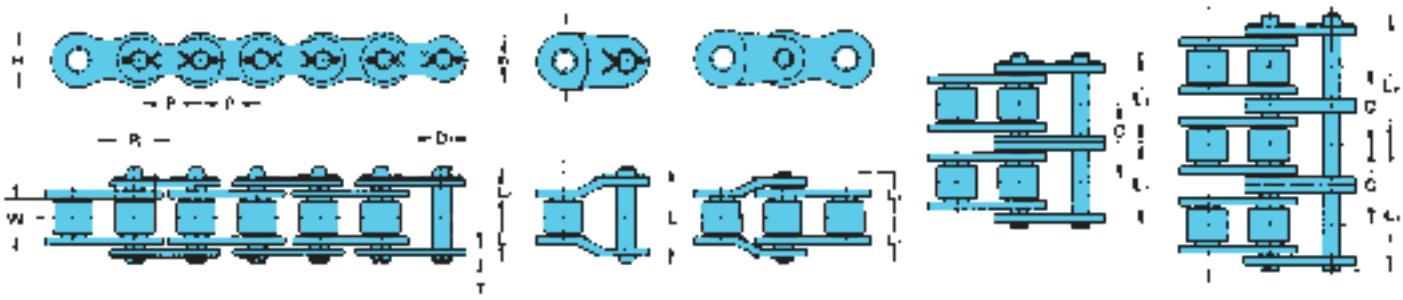
Note: 1. Multiply the value given above by the multiple strand factor (page A-22, Table II) in order to obtain the transmission horsepower of multiple strand chain.

2. For lubrication systems A, B & C, refer to page A-77 for explanation. Please consult U.S. Tsubaki for use of horsepower ratings to the right of the boundary line.

3. Refer to page A-22, "Procedures for Selecting Roller Chain."

U.S. TSUBAKI RS ROLLER CHAIN

RS140 1 3/4" Pitch



U.S. TSUBAKI Chain No.	ANSI No.	Pitch P	Roller Diameter R	Width Between Roller Link Plates W	Link Plate T	Link Plate H	Link Plate h	Pin Diameter D
RS140	140	1.750	1.000	1.000	.219	1.661	1.433	.500

U.S. TSUBAKI Chain No.	Number of Strands	Pin L_1+L_2	Pin L_1	Pin L_2	Pin L	Transverse Pitch C	Standard Type of Pin	Minimum Ultimate Strength ANSI Standard lbs.	Average Tensile Strength lbs.	❊Maximum Allowable Load lbs.	Approx. Weight lbs./ft.	Number of Links per 10 ft.
RS140	1	2.307	1.059	1.248	2.382	1.924	Cottered	38,280	48,510	9,040	5.03	68
RS140-2	2	4.233	2.022	2.211	4.421		Cottered	76,560	97,020	15,360	9.97	
RS140-3	3	6.165	2.986	3.179	6.350		Cottered	114,840	145,530	22,600	14.92	
RS140-4	4	8.091	3.949	4.142	8.276		Riveted	153,120	194,040	29,830	19.16	
RS140-5	5	10.015	4.913	5.102	10.201		Riveted	191,400	242,550	35,250	24.84	
RS140-6	6	11.949	5.878	6.071	12.126		Riveted	229,680	291,060	41,580	29.77	

Note: ❊Refer to page A-23, "Selection for Slow Speed."

Maximum Horsepower Ratings

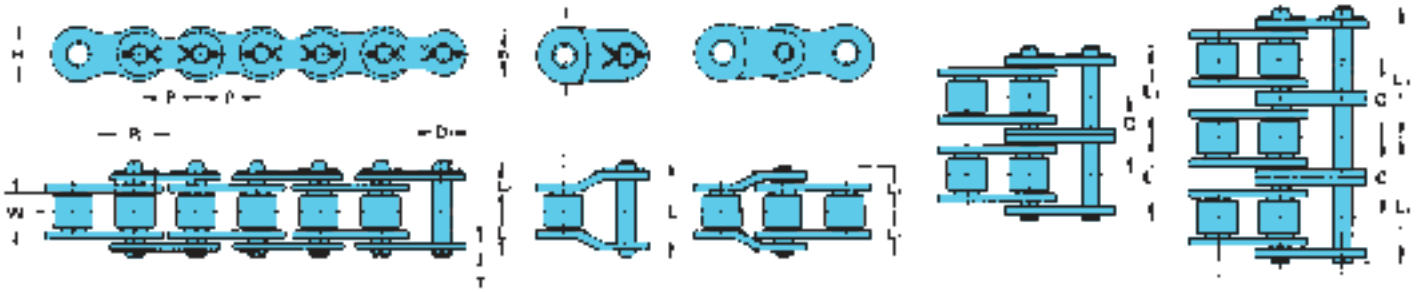
No. of Teeth Small Sprkt.	Maximum Speed – Small Sprocket (rpm) 10	25	50	100	150	200	250	300	350	400	450	500	550	600	700	800	900	1000	1100	1200	1300	1400	1500	1600	1700
	Lubrication System A			B											C										
11	4.23	9.64	18.0	33.6	48.4	62.7	76.6	90.3	97.5	97.5	97.5	86.8	75.3	66.1	52.4	42.9	36.0	30.7	26.6	23.4	20.7	18.5	16.7	15.2	
12	4.64	10.6	19.8	36.9	53.1	68.8	84.1	99.2	107	107	107	98.9	85.8	75.3	59.7	48.9	41.0	35.0	30.3	26.6	23.6	21.1	19.0	17.3	
13	5.06	11.5	21.6	40.2	57.9	75.1	91.7	108	117	117	117	112	96.7	84.9	67.4	55.1	46.2	39.4	34.2	30.0	26.6	23.8	21.5	19.5	
14	5.49	12.5	23.3	43.6	62.8	81.3	99.4	117	127	127	127	125	108	94.9	75.3	61.6	51.6	44.1	38.2	33.5	29.7	26.6	24.0	21.8	
15	5.91	13.5	25.2	46.9	67.6	87.6	107	126	138	138	138	138	120	105	83.5	68.3	57.3	48.9	42.4	37.2	33.0	29.5	26.6		
16	6.34	14.5	27.0	50.3	72.5	93.9	115	135	153	153	153	152	132	116	92.0	75.3	63.1	53.9	46.7	41.0	36.3	32.5	29.3		
17	6.76	15.4	28.8	53.7	77.4	100	123	144	166	166	166	167	145	127	101	82.4	69.1	59.0	51.1	44.9	39.8	35.6	32.1		
18	7.20	16.4	30.6	57.2	82.3	107	130	154	176	182	182	182	158	138	110	89.8	75.3	64.3	55.7	48.9	43.4	38.8	35.0		
19	7.63	17.4	32.5	60.6	87.3	113	138	163	187	193	193	193	171	150	119	97.4	81.6	69.7	60.4	53.0	47.0	42.1	37.9		
20	8.06	18.4	34.3	64.0	92.3	120	146	172	198	204	204	205	185	162	129	105	88.2	75.3	65.2	57.3	50.8	45.4			
21	8.50	19.4	36.2	67.5	97.2	126	154	181	208	216	216	216	199	174	138	113	94.9	81.0	70.2	61.6	54.6	48.9			
22	8.94	20.4	38.0	71.0	102	132	162	191	219	227	227	227	213	187	148	121	102	86.8	75.3	66.1	58.6	52.4			
23	9.38	21.4	39.9	74.5	107	139	170	200	230	237	237	238	228	200	159	130	109	92.8	80.5	70.6	62.6	56.0			
24	9.82	22.4	41.8	78.0	112	146	178	210	241	249	249	249	243	213	169	138	116	98.9	85.8	75.3	66.8	59.7			
25	10.3	23.4	43.7	81.5	117	152	186	219	252	260	260	260	258	226	180	147	123	105	91.2	80.0	71.0	63.5			
26	10.7	24.4	45.6	85.0	122	159	194	229	263	274	274	274	274	240	191	156	131	112	96.7	84.9	75.3				
28	11.6	26.5	49.4	92.1	133	172	210	248	284	306	306	306	306	268	213	174	146	125	108	94.9	84.1				
30	12.5	28.5	53.2	99.2	143	185	226	267	306	339	339	339	339	298	236	193	162	138	120	105	93.3				
32	13.4	30.6	57.0	106	153	199	243	286	329	370	370	370	370	328	260	213	178	152	132	116					
35	14.8	33.7	62.8	117	169	219	267	315	362	408	408	408	408	375	298	244	204	174	151	133					
40	17.0	38.9	72.6	135	195	253	309	364	418	471	471	471	471	458	364	298	249	213	178						
45	19.4	44.2	82.4	154	221	287	351	413	475	535	547	547	547	547	434	355	298	237	92.8						

Note: 1. Multiply the value given above by the multiple strand factor (page A-22, Table II) in order to obtain the transmission horsepower of multiple strand chain.

2. For lubrication systems A, B & C, refer to page A-77 for explanation. Please consult U.S. Tsubaki for use of horsepower ratings to the right of the boundary line.

3. Refer to page A-22, "Procedures for Selecting Roller Chain."

RS160 2" Pitch



U.S. TSUBAKI Chain No.	ANSI No.	Pitch P	Roller Diameter R	Width Between Roller Link Plates W	Link Plate T	Link Plate H	Link Plate h	Pin Diameter D
RS160	160	2.000	1.125	1.250	.250	1.898	1.638	.562

U.S. TSUBAKI Chain No.	Number of Strands	Pin L_1+L_2	Pin L_1	Pin L_2	Pin L	Transverse Pitch C	Standard Type of Pin	Minimum Ultimate Strength ANSI Standard lbs.	Average Tensile Strength lbs.	❊Maximum Allowable Load lbs.	Approx. Weight lbs./ft.	Number of Links per 10 ft.
RS160	1	2.705	1.254	1.451	2.795	2.305	Cottered	50,000	60,630	11,900	6.79	60
RS160-2	2	5.011	2.407	2.604	5.205		Cottered	100,000	121,260	20,230	13.47	
RS160-3	3	7.319	3.561	3.758	7.508		Cottered	150,000	181,890	29,750	20.17	
RS160-4	4	9.622	4.715	4.907	9.811		Riveted	200,000	242,520	39,270	26.92	
RS160-5	5	11.929	5.868	6.061	12.114		Riveted	250,000	303,150	46,410	33.53	
RS160-6	6	14.237	7.020	7.217	14.417		Riveted	300,000	363,780	54,740	40.27	

Note: ❊Refer to page A-23, "Selection for Slow Speed."

Maximum Horsepower Ratings

No. of Teeth Small Sprkt.	Maximum Speed – Small Sprocket (rpm) 10	25	50	100	150	200	250	300	350	400	450	500	550	600	650	700	750	800	850	900	1000	1100	1200	1300	1400
	Lubrication System A							B					C												
11	6.37	14.5	27.1	50.6	72.9	94.4	115	132	132	132	113	96.6	83.8	73.5	65.2	58.3	52.6	47.7	43.6	40.0	34.2	29.6	26.0	23.0	
12	7.00	16.0	29.8	55.6	80.1	104	127	145	145	145	129	110	95.4	83.8	74.3	66.5	59.9	54.4	49.7	45.6	38.9	33.7	29.6	26.3	
13	7.63	17.4	32.5	60.6	87.3	113	138	158	158	158	145	124	108	94.4	83.8	74.9	67.6	61.3	56.0	51.4	43.9	38.0	33.4	29.6	
14	8.26	18.9	35.2	65.7	94.6	123	150	172	172	172	163	139	120	106	93.6	83.8	75.5	68.6	62.6	57.5	49.1	42.5	37.3	33.1	
15	8.90	20.3	37.9	70.7	102	132	161	185	185	185	180	154	133	117	104	92.9	83.8	76.0	69.4	63.7	54.4	47.2	41.4		
16	9.55	21.8	40.6	75.8	109	142	173	198	198	198	198	170	147	129	114	102	92.3	83.8	76.5	70.2	59.9	51.9	45.6		
17	10.2	23.3	43.4	81.0	117	151	185	217	217	217	217	186	161	141	125	112	101	91.7	83.8	76.9	65.6	56.9	49.9		
18	10.8	24.7	46.2	86.1	124	161	196	231	237	237	237	202	175	154	136	122	110	99.9	91.3	83.8	71.5	62.0	54.4		
19	11.5	26.2	48.9	91.3	132	170	208	245	257	257	257	219	190	167	148	132	119	108	99.0	90.8	77.6	67.2	59.0		
20	12.1	27.7	51.7	96.5	139	180	220	259	278	278	278	237	205	180	160	143	129	117	107	98.1	83.8	72.6	63.7		
21	12.8	29.2	54.5	102	147	190	232	273	295	295	295	255	221	194	172	154	139	126	115	106	90.1	78.1	68.6		
22	13.5	30.7	57.3	107	154	200	244	288	310	310	310	273	237	208	184	165	149	135	123	113	96.6	83.8			
23	14.1	32.2	60.1	112	162	209	256	302	326	326	326	292	253	222	197	176	159	144	132	121	103	89.5			
24	14.8	33.7	63.0	118	169	219	268	316	341	341	341	311	270	237	210	188	170	154	140	129	110	95.4			
25	15.5	35.3	65.8	123	177	229	280	330	357	357	357	331	287	252	223	200	180	164	149	137	117	101			
26	16.1	36.8	68.7	128	185	239	292	344	371	371	371	351	304	267	237	212	191	174	158	145	124	108			
28	17.5	39.9	74.4	139	200	259	317	373	402	402	402	392	340	299	265	237	214	194	177	163	139	120			
30	18.8	42.9	80.1	150	215	279	341	402	436	436	436	436	377	331	294	263	237	215	196	180	154				
32	20.2	46.0	85.9	160	231	299	366	431	480	480	480	480	416	365	323	289	261	237	216	199	170				
35	22.2	50.7	94.6	177	254	330	403	475	545	548	548	548	475	417	370	331	299	271	247	227	180				
40	25.7	58.6	109	204	294	381	465	548	630	650	650	650	581	510	452	405	365	331	302	257					
45	29.2	66.5	124	232	334	432	528	623	715	739	739	739	693	608	539	483	418	349	271	189					

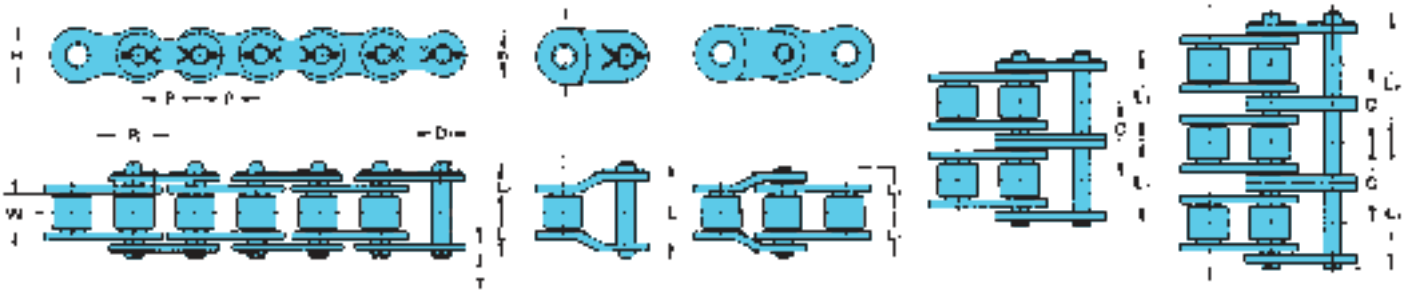
Note: 1. Multiply the value given above by the multiple strand factor (page A-22, Table II) in order to obtain the transmission horsepower of multiple strand chain.

2. For lubrication systems A, B & C, refer to page A-77 for explanation. Please consult U.S. Tsubaki for use of horsepower ratings to the right of the boundary line.

3. Refer to page A-22, "Procedures for Selecting Roller Chain."

U.S. TSUBAKI RS ROLLER CHAIN

RS180 2 1/4" Pitch



U.S. TSUBAKI Chain No.	ANSI No.	Pitch P	Roller Diameter R	Width Between Roller Link Plates W	Link Plate T	Link Plate H	Link Plate h	Pin Diameter D
RS180	180	2.250	1.406	1.406	.281	2.134	1.843	.687

U.S. TSUBAKI Chain No.	Number of Strands	Pin L_1+L_2	Pin L_1	Pin L_2	Pin L	Transverse Pitch C	Standard Type of Pin	Minimum Ultimate Strength ANSI Standard lbs.	Average Tensile Strength lbs.	❊ Maximum Allowable Load lbs.	Approx. Weight lbs./ft.	Number of Links per 10 ft.
RS180	1	3.075	1.404	1.671	3.173	2.592	Cottered	63,280	80,480	13,670	9.04	54
RS180-2	2	5.674	2.707	2.967	5.949		Cottered	126,560	160,960	23,230	17.82	
RS180-3	3	8.276	4.004	4.272	8.539		Cottered	189,840	241,440	34,170	25.68	
RS180-4	4	10.870	5.301	5.569	11.134		Riveted	253,120	321,920	45,110	34.20	
RS180-5	5	13.464	6.598	6.866	13.724		Riveted	316,400	402,400	53,310	42.73	
RS180-6	6	16.059	7.896	8.163	16.315		Riveted	379,680	482,880	62,880	51.25	

Note: ❊Refer to page A-23, "Selection for Slow Speed."

Maximum Horsepower Ratings

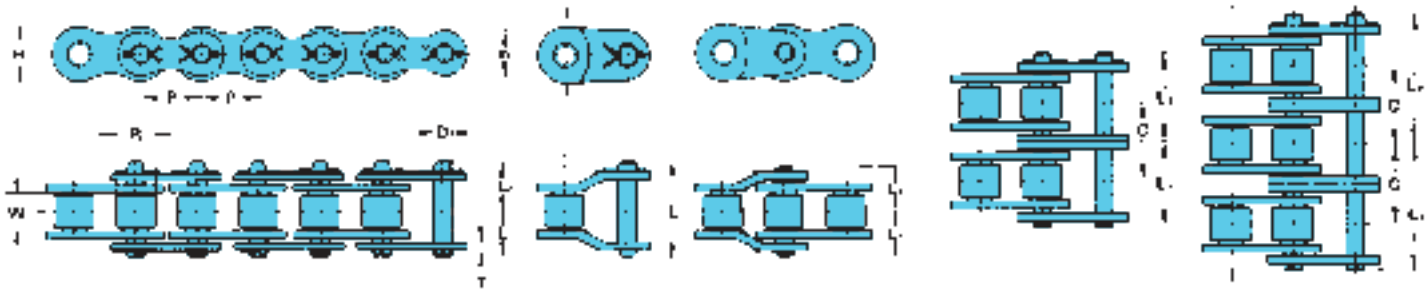
No. of Teeth Small Sprkt.	Maximum Speed – Small Sprocket (rpm) 10	25	50	100	150	200	250	300	350	400	450	500	550	600	650	700	750	800	850	900	950	1000	1050	1100	1150
	Lubrication System A		B									C													
11	8.22	18.8	35.0	65.3	94.1	122	149	152	152	148	124	106	92.0	80.8	71.6	64.1	57.8	52.5	47.9	44.0	40.5	37.5	34.9	32.5	
12	9.03	20.6	38.4	71.7	103	134	164	169	169	169	142	121	105	92.0	81.6	73.0	65.9	59.8	54.6	50.1	46.2	42.8	39.8	37.1	
13	9.85	22.5	41.9	78.2	113	146	178	190	190	191	160	136	118	104	92.0	82.4	74.3	67.4	61.5	56.5	52.1	48.2	44.8		
14	10.7	24.3	45.4	84.7	122	158	193	213	213	213	179	152	132	116	103	92.0	83.0	75.3	68.8	63.1	58.2	53.9	50.1		
15	11.5	26.2	48.9	91.3	131	170	208	236	236	236	198	169	147	129	114	102	92.0	83.5	76.3	70.0	64.6	59.8	55.6		
16	12.3	28.1	52.4	97.9	141	183	223	256	256	256	218	186	161	142	126	112	101	92.0	84.0	77.1	71.1	65.9	61.2		
17	13.2	30.0	56.0	104	151	195	238	270	270	270	239	204	177	155	138	123	111	101	92.0	84.5	77.9	72.1			
18	14.0	31.9	59.6	111	160	207	254	290	290	290	260	222	193	169	150	134	121	110	100	92.0	84.9	78.6			
19	14.8	33.8	63.1	118	170	220	269	307	307	307	282	241	209	183	163	146	131	119	109	99.8	92.0	85.2			
20	15.7	35.8	66.7	125	179	232	284	326	326	326	305	260	226	198	176	157	142	129	117	108	99.4	92.0			
21	16.5	37.7	70.4	131	189	245	299	343	343	343	328	280	243	213	189	169	152	138	126	116	107	99.0			
22	17.4	39.6	74.0	138	199	258	315	361	361	361	352	300	260	228	203	181	163	148	135	124	115				
23	18.2	41.6	77.6	145	209	270	330	378	378	378	376	321	278	244	217	194	175	159	145	133	123				
24	19.1	43.5	81.3	152	218	283	346	401	401	401	401	342	297	260	231	207	186	169	154	142	131				
25	20.0	45.5	84.9	158	228	296	362	426	426	426	426	364	315	277	245	220	198	180	164	151	139				
26	20.8	47.5	88.6	165	238	309	377	444	452	452	452	386	334	294	260	233	210	191	174	160					
28	22.5	51.4	96.0	179	258	334	409	481	506	506	506	431	374	328	291	260	235	213	195	179					
30	24.3	55.4	103	193	278	360	440	519	561	561	561	478	415	364	323	289	260	236	216	198					
32	26.0	59.4	111	207	298	386	472	556	601	601	601	527	457	401	355	318	287	260	238						
35	28.7	65.5	122	228	328	425	520	613	662	662	662	603	522	458	407	364	328	291	220						
40	33.1	75.6	141	263	379	491	601	676	676	676	676	621	575	524	465	398	325	244							
45	37.6	85.9	160	299	431	558	682	739	739	739	680	632	578	514	441	361	271								

Note: 1. Multiply the value given above by the multiple strand factor (page A-22, Table II) in order to obtain the transmission horsepower of multiple strand chain.

2. For lubrication systems A, B & C, refer to page A-77 for explanation. Please consult U.S. Tsubaki for use of horsepower ratings to the right of the boundary line.

3. Refer to page A-22, "Procedures for Selecting Roller Chain."

RS200 2 1/2" Pitch



U.S. TSUBAKI Chain No.	ANSI No.	Pitch P	Roller Diameter R	Width Between Roller Link Plates W	Link Plate T	Link Plate H	Link Plate h	Pin Diameter D
RS200	200	2.500	1.562	1.500	.312	2.374	2.047	.781

U.S. TSUBAKI Chain No.	Number of Strands	Pin L_1+L_2	Pin L_1	Pin L_2	Pin L	Transverse Pitch C	Standard Type of Pin	Minimum Ultimate Strength ANSI Standard lbs.	Average Tensile Strength lbs.	❊ Maximum Allowable Load lbs.	Approx. Weight lbs./ft.	Number of Links per 10 ft.
RS200	1	3.299	1.535	1.764	3.437	2.817	Cottered	78,125	103,630	16,090	11.08	48
RS200-2	2	6.122	2.947	3.175	6.346		Cottered	156,250	207,260	27,350	21.93	
RS200-3	3	8.945	4.360	4.585	9.173		Riveted	234,375	310,890	40,220	32.94	
RS200-4	4	11.768	5.772	5.996	11.996		Riveted	312,500	414,520	53,090	43.79	
RS200-5	5	14.590	7.181	7.409	14.815		Riveted	390,625	518,150	62,750	54.64	
RS200-6	6	17.414	8.593	8.821	17.638		Riveted	468,750	621,780	74,010	65.58	

Note: ❊ Refer to page A-23, "Selection for Slow Speed."

Maximum Horsepower Ratings

No. of Teeth Small Sprkt.	Maximum Speed – Small Sprocket (rpm) 10	15	20	30	40	50	70	100	150	200	250	300	350	400	450	500	550	600	650	700
	Lubrication System A				B									C						
11	10.8	15.5	20.1	28.9	37.5	45.8	62.0	85.4	123	159	181	181	181	161	135	116	100	87.9	77.9	
12	11.8	17.0	22.0	31.8	41.1	50.3	68.1	93.9	135	175	198	198	198	184	154	132	114	100		
13	12.9	18.6	24.0	34.6	44.9	54.8	74.2	102	147	191	216	216	216	207	174	148	129	113		
14	14.0	20.1	26.0	37.5	48.6	59.4	80.4	111	160	207	235	235	235	232	194	166	144	126		
15	15.0	21.7	28.1	40.4	52.4	64.0	86.6	119	172	223	257	257	257	257	215	184	159	140		
16	16.1	23.2	30.1	43.3	56.1	68.6	92.9	128	184	239	283	283	283	283	237	203	176	154		
17	17.2	24.8	32.1	46.3	59.9	73.3	99.2	137	197	255	310	310	310	310	260	222	192	169		
18	18.3	26.4	34.2	49.2	63.8	77.9	105	145	209	271	332	338	338	338	283	242	210	184		
19	19.4	28.0	36.2	52.2	67.6	82.6	112	154	222	288	352	366	366	366	307	262	227	199		
20	20.5	29.6	38.3	55.1	71.4	87.3	118	163	235	304	372	389	389	389	332	283	245			
21	21.6	31.1	40.4	58.1	75.3	92.1	125	172	247	321	392	409	409	409	357	305	264			
22	22.7	32.8	42.4	61.1	79.2	96.8	131	181	260	337	412	430	430	430	383	327	283			
23	23.9	34.4	44.5	64.1	83.1	102	137	190	273	354	432	452	452	452	409	349	303			
24	25.0	36.0	46.6	67.1	87.0	106	144	198	286	370	453	473	473	473	436	372	323			
25	26.1	37.6	48.7	70.2	90.9	111	150	207	299	387	473	495	495	495	464	396	343			
26	27.2	39.2	50.8	73.2	94.8	116	157	216	312	404	493	516	516	516	492	420	364			

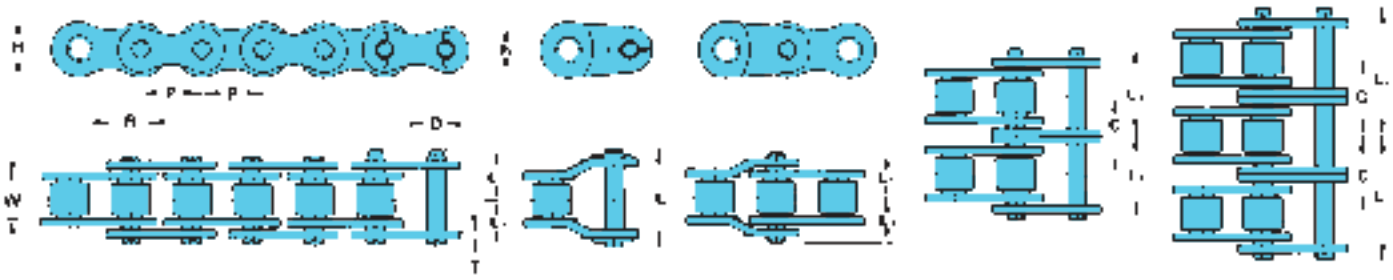
Note: 1. Multiply the value given above by the multiple strand factor (page A-22, Table II) in order to obtain the transmission horsepower of multiple strand chain.

2. For lubrication systems A, B & C, refer to page A-77 for explanation. Please consult U.S. Tsubaki for use of horsepower ratings to the right of the boundary line.

3. Refer to page A-22, "Procedures for Selecting Roller Chain."

U.S. TSUBAKI RS ROLLER CHAIN

RS240 3" Pitch



U.S. TSUBAKI Chain No.	ANSI No.	Pitch P	Roller Diameter R	Width Between Roller Link Plates W	Link Plate T	Link Plate H	Link Plate h	Pin Diameter D
RS240	240	3.000	1.875	1.875	.375	2.850	2.457	.937

U.S. TSUBAKI Chain No.	Number of Strands	Pin L_1+L_2	Pin L_1	Pin L_2	Pin L	Transverse Pitch C	Standard Type of Pin	Minimum Ultimate Strength ANSI Standard lbs.	Average Tensile Strength lbs.	❊ Maximum Allowable Load lbs.	Approx. Weight lbs./ft.	Number of Links per 10 ft.
RS240	1	4.071	1.886	2.185	4.201	3.458	Riveted	112,500	152,140	22,270	16.46	40
RS240-2	2	7.531	3.618	3.913	7.811		Riveted	225,000	304,280	37,850	32.32	
RS240-3	3	10.984	5.348	5.636	11.272		Riveted	337,500	456,420	55,670	48.11	
RS240-4	4	14.453	7.079	7.374	14.732		Riveted	450,000	608,560	73,490	63.90	
RS240-5	5	17.913	8.809	9.104	18.189		Riveted	562,500	760,700	86,850	79.70	
RS240-6	6	21.370	10.539	10.831	21.657		Riveted	675,000	912,840	102,440	95.49	

Note: ❊ Refer to page A-23, "Selection for Slow Speed."

Maximum Horsepower Ratings

No. of Teeth Small Sprkt.	Maximum Speed – Small Sprocket (rpm) 5	10	15	20	25	30	40	50	60	80	100	125	150	175	200	250	300	350	400	450	500
	Lubrication System A					B											C				
11	9.56	17.8	25.7	33.3	40.7	48.0	62.1	76.0	89.5	116	142	173	204	235	265	271	271	228	188	156	
12	10.5	19.6	28.2	36.6	44.7	52.7	68.3	83.5	98.3	127	156	190	224	258	291	298	298	260	213		
13	11.5	21.4	30.8	39.9	48.8	57.5	74.4	91.0	107	139	170	208	245	281	317	325	325	294	240		
14	12.4	23.2	33.4	43.2	52.8	62.2	80.6	98.6	116	150	184	225	265	304	343	353	353	329	268		
15	13.4	24.9	35.9	46.6	56.9	67.1	86.9	106	125	162	198	242	285	328	370	380	380	363	298		
16	14.3	26.7	38.5	49.9	61.0	71.9	93.1	114	134	174	212	260	306	352	397	401	401	361	329		
17	15.3	28.6	41.1	53.3	65.1	76.8	99.5	122	143	186	227	277	327	375	402	402	402	377	359		
18	16.3	30.4	43.8	56.7	69.3	81.7	106	129	152	197	241	295	348	399	406	406	406	390	377		
19	17.3	32.2	46.4	60.1	73.5	86.6	112	137	162	209	256	313	368	423	425	425	425	408	393		
20	18.2	34.0	49.0	63.5	77.6	91.5	119	145	171	221	270	331	389	443	443	443	443	424	408		
21	19.2	35.9	51.7	67.0	81.8	96.4	125	153	180	233	285	348	411	463	463	463	463	440	421		
22	20.2	37.7	54.3	70.4	86.1	101	131	161	189	245	300	366	432	464	464	464	459	455	422		
23	21.2	39.6	57.0	73.9	90.3	106	138	169	199	257	314	384	453	496	496	496	481	469	448		
24	22.2	41.4	59.7	77.3	94.5	111	144	176	208	269	329	402	474	531	531	531	504	483			
25	23.2	43.3	62.4	80.8	98.8	116	151	184	217	281	344	421	496	550	550	550	520	496			
26	24.2	45.2	65.1	84.3	103	121	157	192	227	294	359	439	517	561	561	561	532	510			

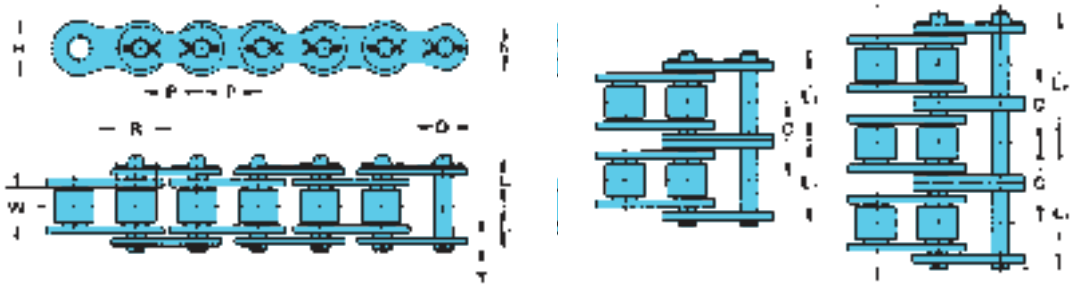
Note: 1. Multiply the value given above by the multiple strand factor (page A-22, Table II) in order to obtain the transmission horsepower of multiple strand chain.

2. For lubrication systems A, B & C, refer to page A-77 for explanation. Please consult U.S. Tsubaki for use of horsepower ratings to the right of the boundary line.

3. Refer to page A-22, "Procedures for Selecting Roller Chain."

Heavy Series

Heavy Series roller chains differ from the ASME/ANSI standard series in the extra thickness of the link plates and the extra length of the pins. These link plates have the same thickness as the link plates of ASME/ANSI chains having the next larger pitch. The thicker link plates provide greater capacity (approximately 10%) for absorbing shock loads. These chains are suitable in situations where the load is heavy or operating conditions are severe.



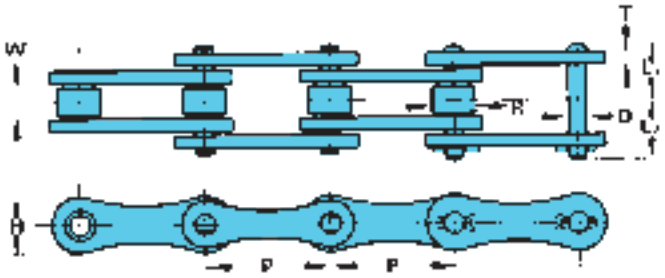
U.S. TSUBAKI Chain No.	Pitch P	Roller Dia. R	Width Between Roller Link Plates W	Link Plate T	Link Plate H	Link Plate h	Pin D	Pin L_1	Pin L_2	Transverse Pitch C	Average Tensile Strength lbs.	❊Maximum Allowable Load lbs.	Approx. Weight lbs./ft.
SINGLE STRAND													
RS60H	.75	.469	.500	.125	.713	.614	.234	.583	.669	—	9,920	2,200	1.21
RS80H	1.00	.625	.625	.156	.949	.819	.312	.720	.823	—	17,640	3,630	2.08
RS100H	1.25	.750	.750	.187	1.185	1.024	.375	.858	.965	—	26,460	5,510	3.07
RS120H	1.50	.875	1.000	.219	1.425	1.228	.437	1.061	1.203	—	37,480	7,270	4.38
RS140H	1.75	1.000	1.000	.250	1.661	1.433	.500	1.138	1.303	—	48,510	9,590	5.54
RS160H	2.00	1.125	1.250	.281	1.898	1.638	.562	1.337	1.514	—	60,630	12,500	7.35
RS200H	2.50	1.562	1.500	.375	2.374	2.047	.781	1.689	1.894	—	103,630	17,600	12.33
RS240H	3.00	1.875	1.875	.500	2.850	2.457	.937	2.157	2.453	—	152,140	25,300	19.54
DOUBLE STRAND													
RS60H-2	.75	.469	.500	.125	.713	.614	.234	1.083	1.181	1.028	19,840	3,700	2.41
RS80H-2	1.00	.625	.625	.156	.949	.819	.312	1.358	1.492	1.283	35,280	6,100	4.15
RS100H-2	1.25	.750	.750	.187	1.185	1.024	.375	1.630	1.736	1.539	52,920	9,300	6.07
RS120H-2	1.50	.875	1.000	.219	1.425	1.228	.437	2.014	2.171	1.924	71,880	12,300	8.67
RS140H-2	1.75	1.000	1.000	.250	1.661	1.433	.500	2.163	2.343	2.055	94,370	16,300	11.01
RS160H-2	2.00	1.125	1.250	.281	1.898	1.638	.562	2.555	2.736	2.437	121,260	21,200	14.64
RS200H-2	2.50	1.562	1.500	.375	2.374	2.047	.781	3.230	3.437	3.083	207,260	29,900	24.51
RS240H-2	3.00	1.875	1.875	.500	2.850	2.457	.937	4.146	4.461	3.985	304,280	43,000	38.47
TRIPLE STRAND													
RS60H-3	.75	.469	.500	.125	.713	.614	.234	1.614	1.720	1.028	29,760	5,500	3.60
RS80H-3	1.00	.625	.625	.156	.949	.819	.312	1.998	2.120	1.283	52,920	9,000	6.21
RS100H-3	1.25	.750	.750	.187	1.185	1.024	.375	2.400	2.510	1.539	79,380	13,700	9.10
RS120H-3	1.50	.875	1.000	.219	1.425	1.228	.437	2.984	3.134	1.924	107,820	18,100	12.99
RS140H-3	1.75	1.000	1.000	.250	1.661	1.433	.500	3.191	3.370	2.055	141,550	23,900	16.48
RS160H-3	2.00	1.125	1.250	.281	1.898	1.638	.562	3.756	3.961	2.437	181,890	31,200	21.93
RS200H-3	2.50	1.562	1.500	.375	2.374	2.047	.781	4.760	4.969	3.083	310,890	44,000	36.81
RS240H-3	3.00	1.875	1.875	.500	2.850	2.457	.937	6.104	6.423	3.985	456,420	63,200	57.33

Note: 1. Riveted or cottered types are available.

❊ 2. Refer to page A-23, “Selection for Slow Speed.”

RS Double Pitch Roller Chains

RS DOUBLE PITCH ROLLER CHAINS



An economical choice in drive applications where the speed is low, the load moderate, or the center distance relatively long.

U.S. Tsubaki Double Pitch Drive Chains are also available in stainless steel, nickel-plated, and NEPTUNE®.

U.S. TSUBAKI Chain No.	Pitch P	Roller Dia. R	Width Between Roller Link Plates W	Pin D	Pin L_1	Pin L_2	Link Plate T	Link Plate H	Average Tensile Strength lbs.	Approx. Weight lbs./ft.	No. of Links per 10 ft.
A2040	1.000	.312	.312	.156	.325	.380	.060	.472	3,700	.26	120
A2050	1.250	.400	.375	.200	.406	.469	.080	.591	6,100	.42	96
A2060	1.500	.469	.500	.234	.506	.600	.094	.709	8,500	.63	80
A2080	2.000	.625	.625	.312	.640	.754	.125	.906	14,500	1.03	60

Note: Spring clip type connecting links will be provided for A2040 ~ A2060, unless otherwise specified.

Sprockets for RS Double Pitch Roller Chain

There are special sprockets for RS Double Pitch roller chains. However, ASME/ANSI standard sprockets are also available for use, if the roller is a standard roller and the number of sprocket teeth is 30 or over. Please contact U.S. Tsubaki for details of special sprockets.

Horsepower Rating

The horsepower rating in Table IV on page A-24 is based on the following conditions:

1) The chains are operated under ordinary conditions. The ambient temperature range must be between 15°F and 140°F. They should not be used in an atmosphere in which abrasive dust or corrosive gas is present or where the humidity is high.
2) The two transmission shafts are in a horizontal position, and the chains are properly installed.
3) The suggested lubrication system and oil are used.
4) The load does not change significantly during transmission. The "Service Factor" given in Table I should be taken into account when the chains are used under various operating conditions. The load conditions will affect the life of the chain.
5) The increase in the horsepower rating of multiple strand roller chain cannot be calculated simply by multiplying the horsepower rating of one strand by the number of strands, since the load on each strand is not exactly the same. In order to estimate the service life of a multiple strand chain, the "Multiple Strand Factor" given in Table II must be used. When the chain length is 100 pitches and the above conditions are met, a service life of approximately 15,000 hours can be expected.

Procedures for Selecting Roller Chain

1) The following factors must be considered when selecting roller chain.
   a. Source of power
   b. Driven machine
   c. Horsepower to be transmitted
   d. RPM of driving and driven shafts
   e. Diameter of driving and driven shafts
   f. Center distance of the shafts
2) Use Table I to obtain the "Service Factor."
3) Multiply the horsepower value by the service factor to obtain the design horsepower value.
4) Use Table IV on page A-24 and the horsepower ratings tables on pages A-6 to A-19 to obtain the appropriate chain number and the number of teeth for small sprockets. Refer to the number of revolutions of the high speed shaft (the driving shaft when the speed is reduced; the driven shaft when the speed is increased) and the design horsepower value. For smoother chain drive, a smaller pitch chain is suggested. If a single strand chain does not satisfy the transmission requirements, use a multiple strand chain. If there are space limitations, a multiple strand roller chain with a smaller pitch may be used.
5) After determining the number of teeth necessary for the small sprocket, refer to the Sprocket Dimension Table (pages A-79 to A-82) to check if the sprocket diameter satisfies the space limitations.
6) The number of teeth for the large sprocket is determined by multiplying the number of teeth for the small sprocket by the speed ratio. More than 15 teeth on the small sprocket is suggested. The number of teeth for the large sprocket should be less than 120. By reducing the number of teeth for the small sprocket, the number of teeth for the large sprocket can be reduced.
7) For temperatures below 15°F, see the Environmental Temperatures and Points of Concern Table on page B-38.

Basic Formula for Chain Drive

1) Chain speed: S

$$S = \frac{P \cdot N \cdot n}{12} \text{ (ft./min.)}$$

P : Chain pitch (inch)
N : Number of teeth of sprocket
n : Revolution per minute (rpm)

2) Chain tension: T

$$T = \frac{33{,}000 \cdot HP}{S} \text{ (lbs.)}$$

S : Chain Speed (ft./min.)
HP : Horsepower to be transmitted (hp)

3) Number of pitches of chain: L

$$*L = \frac{N_1+N_2}{2} + 2C + \frac{\left(\frac{N_2-N_1}{6.28}\right)^2}{C}$$

N_1 : Number of teeth (small sprocket)
N_2 : Number of teeth (large sprocket)
C : Center distance in pitches
* Any fraction of L is counted as one pitch.

4) Center distance in pitches: C

$$C = \frac{1}{8}\left\{2L - N_1 - N_2 + \sqrt{(2L-N_1-N_2)^2 - \frac{8}{9.86}(N_2-N_1)^2}\right\}$$

Table II: Multiple Strand Factor

Number of Roller Chain Strands	Multiple Strand Factor
2	1.7
3	2.5
4	3.3
5	3.9
6	4.6

Table I: Service Factor

Type of Impact	Machines	Source of Power		
		Electric Motor or Turbine	Internal Combustion Engine	
			With hydraulic drive	Without hydraulic drive
Smooth	Belt conveyors with small load fluctuation, chain conveyors, centrifugal blowers, general textile machines, machines with small load fluctuation	1.0	1.0	1.2
Some impact	Centrifugal compressors, marine engines, conveyors with some load fluctuation, automatic furnaces, dryers, pulverizers, general machine tools, compressors, general work machines, general paper mills	1.3	1.2	1.4
Large impact	Press, construction or mining machines, vibration machines, oil well rigs, rubber mixers, rolls, general machines with reverse or large impact loads	1.5	1.4	1.7

Example

Step 1 **Data Required**

1. Type of application:
   Centrifugal Blower
2. Shock Load:
   Small load fluctuation
3. Source of Power: Motor
4. HP to be transmitted: 40 hp
5. Drive shaft:
   Diameter 2 inches, 750 rpm
   Driven shaft:
   Diameter 3 inches, 250 rpm
6. Center distance:
   Less than 9 inches
7. Space limitation:
   Less than 20 inches

Step 2 **Use Table I to determine the service factor.**

Service Factor SF = 1.0

Step 3 **Obtain Design HP**

Design HP = (HP to be transmitted) • SF
= 40 hp • 1.0
= 40 hp

Step 4 **Obtain the chain number and the number of teeth on the small sprocket from the Roller Chain Selection Table (page A-24) referring to the above 40 hp and 750 rpm.**

Then check it by referring to the Horsepower Rating Tables (pages A-6 to A-19).

1. According to the horsepower rating, the best choice would normally be a single strand of RS80-17 teeth. Since the speed ratio is 1/3 (250/750 rpm), the necessary number of sprocket teeth would be 17 for the small sprocket and 51 for the large sprocket. But, as the outside diameters are 5.94 inches for 17 teeth and 16.81 inches for 51 teeth (refer to sprocket dimensions on pages A-79 to A-82), it exceeds the space limitation of 20 inches (5.94 + 16.81 > 20 inches).

   Therefore, these sprockets are not suitable.
2. As a single strand chain is not suitable, a multiple-strand RS60-2, 22 and 66 teeth would be possible. But this combination is not suitable due to the space limitation again (5.67 + 16.18 > 20 inches).
3. For triple strand, RS60-3, 15 and 45 teeth would be possible.

   The sprockets' diameters are 3.90 inches and 11.18 inches respectively, the sum of which is less than 20 inches. The horsepower rating of a 15-tooth sprocket for the RS60-3 should be confirmed by the horsepower rating for the RS60 (see page A-11).

   The horsepower rating of a 15 tooth sprocket is 15.1 hp at 700 rpm and 17 hp at 800 rpm. So the horsepower rating at 750 rpm is about 16 hp. Since 16 hp is for a single strand chain, the horsepower rating must be multiplied by a multiple strand factor of 2.5 for a triple strand (see page A-22).

   Therefore, the horsepower rating of RS60-3, 15 teeth at 750 rpm is 40 hp (16 • 2.5 = 40).

Step 5 **Refer to Sprocket Section (C) in this catalog to check the diameter of the bore.**

A 45-tooth sprocket meets the necessary requirement, but since the maximum bore diameter (1.87 inches) of a 15-tooth sprocket is smaller than the drive shaft diameter of 2 inches, it can't be used.

A 16-tooth sprocket with a maximum bore diameter of 2 inches must be used. Check again that the outside diameter, 4.21 inches for 16 teeth and 11.89 inches for 48 teeth, is less than the space limitation (4.21 + 11.89 < 20).

A combination of RS60-3, 16 and 48 teeth must be used to fulfill all the necessary requirements.

Selection for Slow Speed

When the chain speed (S) is less than 160 ft./min., select the RS roller chain that is one size smaller than the chain chosen from the horsepower rating method mentioned above.

1. Tentatively select the chain and sprocket from Table IV (page A-24) and proceed by using a one-size-smaller chain and its sprocket with the number of teeth close to the sprocket selected above. Be sure to confirm that the sprocket meets the application requirements such as bore diameter and space limitation, etc.
2. Calculate the chain speed from the number of teeth on the driving sprocket using equation (A). Also check that the speed is less than 160 ft./min.
3. Calculate the chain tension for the above drive from equation (B).
4. Select the service factor and the chain speed coefficient from Table I (page A-22) and Table III.
5. Verify that the chain has maximum allowable load which satisfies equation (C).

$$S = \frac{P \cdot N \cdot n}{12} \text{ (ft./min.)} \quad \ldots\ldots\ldots\ldots (A)$$

$$T = \frac{33{,}000 \cdot HP}{S} \text{ (lbs.)} \quad \ldots\ldots\ldots\ldots (B)$$

T • Service Factor • Chain Speed Coefficient ≤ Maximum Allowable Load . . . . . .(C)

S: chain speed (ft./min.)
P: chain pitch (inch)
N: number of sprocket teeth
n: revolutions per minute (rpm)
T: chain tension (lbs.)
HP: horsepower to be transmitted (hp)

There are two different ways to do the next step: to increase the number of teeth, or to use the same procedure for Super Chains of the same size (refer to Super Chains on pages A-35 to A-42).

Note: Please use press fit connecting links for slow speed chain selection.

Table III: Chain Speed Coefficient

Chain Speed	Speed Coefficient
Less than 50 ft./min.	1.0
50 to 100 ft./min.	1.2
100 to 160 ft./min.	1.4

Selection for High Temperatures

U.S. Tsubaki Improved Drive Chains are made of heat treated carbon steel. When exposed to high temperatures, the mechanical properties of the heat treated chain components are lost.

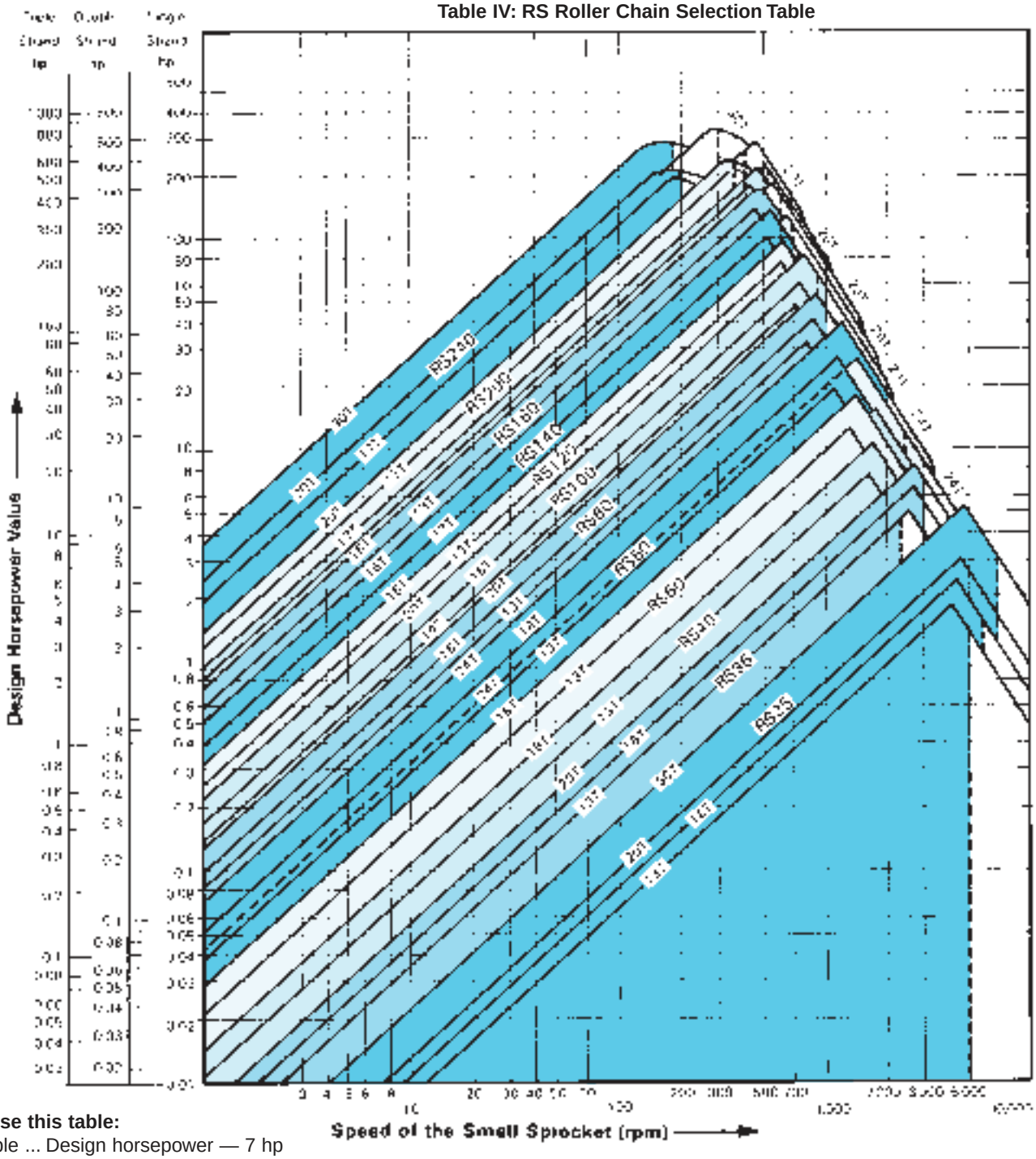
1. The hardness, and therefore the wear resistance of pins and bushings, is reduced.
2. At temperatures above 390°F, the rollers and plates lose their hardness and strength.

Standard roller chains can be used in temperatures up to 500°F with the following adjustments:

Temperature	Percentage of Catalog Capacity Rating
Up to 340°F	100%
390°F	75%
500°F	50%

For temperatures below 15°F, see the Environmental Temperatures and Points of Concern Table on page B-38.

Table IV: RS Roller Chain Selection Table



How to use this table:

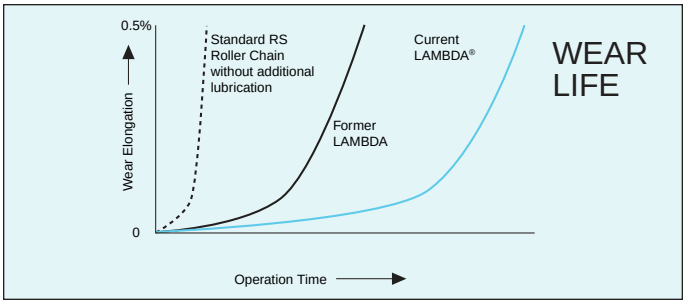
1. Example ... Design horsepower — 7 hp
   a) Assume that the RPM of the small sprocket is 100.
   Judging from the intersection point of the design horsepower's value of 7 hp and the RPM value of 100, RS80 and a sprocket with either 17 teeth or 18 teeth can be selected. Sprockets with 17 teeth are more economical than those with 18 teeth.
   b) Assume that the RPM of the small sprocket is 300. An RS60, 15-tooth sprocket is appropriate from the intersection point in the same manner as above. The line for RS50-24 teeth can also be seen near the intersection of 7 hp and 300 rpm. Therefore, either RS60-15 teeth or RS50-24 teeth can be selected. This table is used to make a tentative selection. The Horsepower Rating Tables should be used to determine the most appropriate chain and sprocket.
2. Horsepower lines of 20, 24 and 30-tooth sprockets are shown only in the high speed range on the right hand side of the above chart. When checking the horsepower line of these sprockets, make a line parallel to the other lines on the left hand side of the dotted line for RS50-24 teeth.
3. When using a chain in the white part on the right side of the table, please consult with U.S. Tsubaki.
4. When the chain speed is less than 160 ft./min., it is more economical to select your RS roller chain by the selection method for slow speed drives (see page A-23).

Lambda® Chain

Lube-free Drive Chain

- Maintenance-free
- Even longer wear life
- Increased operating temperatures

UNIQUE PATENTED DESIGN



LAMBDA Chain outlasts standard chain without post-lubrication. It outlasts our former LAMBDA Chain up to twice as long in normal temperature range (+14°F ~ +140°F).

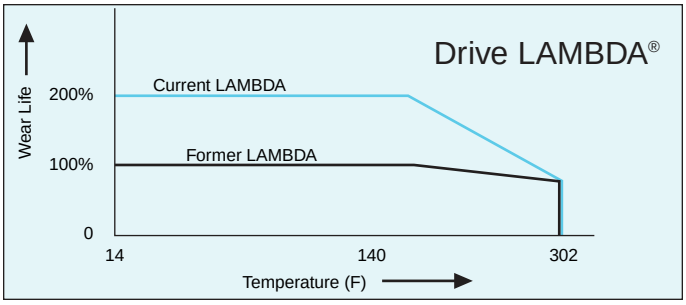
LAMBDA Drive Chain means real savings for your operation

- Reduce maintenance costs
- Eliminate product contamination
- Reduce downtime
- Increase sprocket life

Better than ever for lube-free applications

When your operation runs “clean,” when machines and conveyed materials must be free from contact with oil, or when lubrication is difficult, LAMBDA Chain is the right choice.

- Outlasts our former LAMBDA Chain without additional lubrication.
- Outstanding performance in temperatures up to 302°F.
- Available in single and double strand — from RSD40 to RSD140.
- Factory pre-loaded to minimize initial stretch.



LAMBDA Drive Chain is ideal for clean applications, where machines and conveyed materials must be free from contact with oil, or when lubrication is difficult. If product contamination is a concern, if lubrication is difficult, or if you simply want to reduce maintenance costs, choose LAMBDA Chain from U.S. Tsubaki.

Select the LAMBDA Chain that’s right for your operation

Standard LAMBDA Drive Chain works in temperatures up to 302°F, with a wide range of sizes and types for special applications.

Start Saving Immediately

Maximize the efficiency of your existing system without costly design or reconfiguration changes. LAMBDA Chain is directly interchangeable with most standard ASME/ANSI chain and will articulate smoothly with sprockets. And LAMBDA Chain is in stock and ready when you need it, so your line is up and running right away.

Next Generation LAMBDA® Chain for Special Applications

In addition to our standard sizes and types of LAMBDA Chain, we offer Next Generation LAMBDA Chain for special applications:

LAMBDA Chain with NEPTUNE® Coating

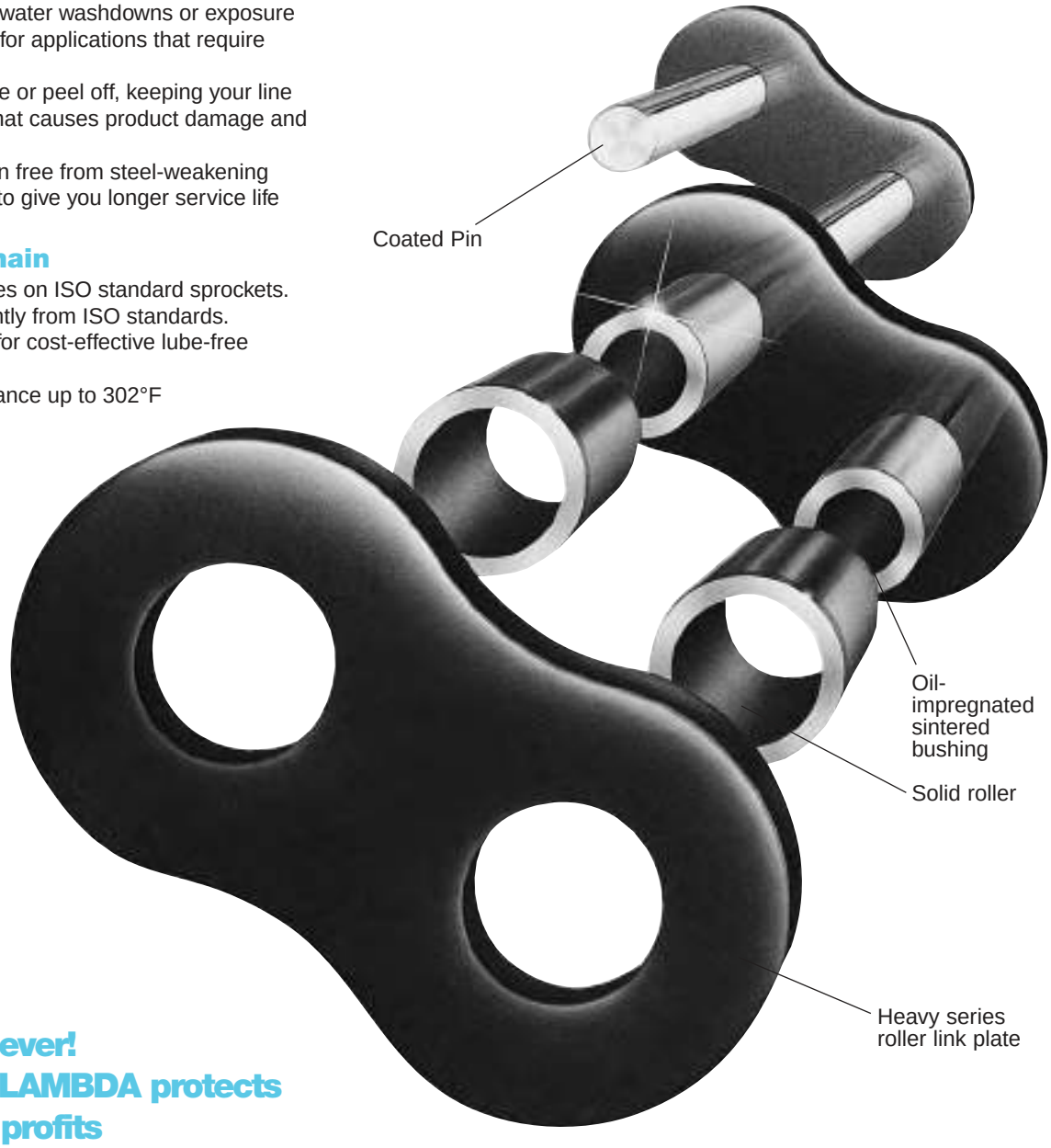
Corrosion-resistant lube-free chain with the strength of carbon steel. You get:

- Excellent corrosion resistance to extend wear life in applications that require water washdowns or exposure to moisture (not suitable for applications that require contact with food)
- Protection that won't flake or peel off, keeping your line free from the exposure that causes product damage and premature chain wear
- Strong, dependable chain free from steel-weakening hydrogen embrittlement to give you longer service life

BS/DIN LAMBDA Chain

Lube-free chain that operates on ISO standard sprockets. Some dimensions vary slightly from ISO standards.

- Replaces BS/DIN chain for cost-effective lube-free operations
- Extra temperature resistance up to 302°F



Now better than ever! Next Generation LAMBDA protects applications and profits

U.S. TSUBAKI LAMBDA® CHAINS

LAMBDA for lube-free drive applications

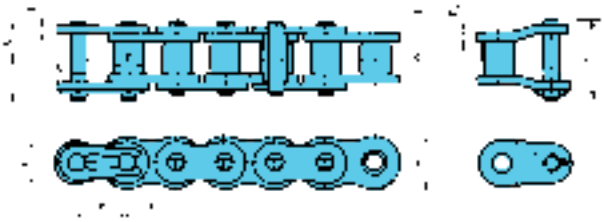
- Operates in temperatures up to 302°F
- Same maximum allowable load as our standard RS chain
- Available in sizes from RSD40 to RSD140

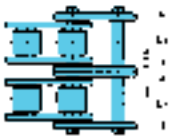
Single Strand Drive LAMBDA®

U.S. TSUBAKI Chain No.	Standard Type of Pin*	Pitch	Roller Dia.	Width Between Roller Link Plates	Link Plates				Pin				Average Tensile Strength lbs.	Maximum Allowable Load lbs.	Approx. Weight lbs./ft.
					PLP Thickness	RLP Thickness	RLP Height	PLP Height							
		P	R	W**	T_1	T_2	H	h	D	L_1	L_2	L			
RSD40-LAMBDA	R	.500	.312	.297	.060	.080	.472	.409	.156	.344	.411	.787	4,300	816	0.47
RSD50-LAMBDA	R	.625	.400	.365	.080	.094	.591	.512	.200	.423	.490	.945	7,050	1,430	0.75
RSD60-LAMBDA	R	.750	.469	.483	.094	.125	.713	.614	.234	.541	.616	1.260	9,920	1,980	1.16
RSD80-LAMBDA	R	1.000	.625	.609	.125	.156	.949	.819	.312	.675	.797	1.571	17,600	3,310	1.86
RSD100-LAMBDA	C/R	1.250	.750	.736	.156	.187	1.185	1.024	.375	.813	.939	1.870	26,500	5,070	2.89
RSD120-LAMBDA	C/R	1.500	.875	.974	.187	.220	1.425	1.228	.437	1.014	1.179	2.323	37,500	6,830	4.30
RSD140-LAMBDA	C/R	1.750	1.000	.974	.220	.252	1.661	1.433	.500	1.091	1.268	2.508	48,500	9,040	5.40

Double Strand Drive LAMBDA®

U.S. TSUBAKI Chain No.	Standard Type of Pin*	Pitch	Roller Dia.	Width Between Roller Link Plates	Link Plates				Pin				Traverse Pitch	Average Tensile Strength lbs.	Maximum Allowable Load lbs.	Approx. Weight lbs./ft.
					PLP Thickness	RLP Thickness	RLP Height	PLP Height								
		P	R	W**	T_1	T_2	H	h	D	L_1	L_2	C				
RSD40(H)-2LAMBDA	R	.500	.312	.297	.080	.080	.472	.409	.156	.689	.754	.646	8,600	1,390	1.00
RSD50(H)-2LAMBDA	R	.625	.400	.365	.094	.094	.591	.512	.200	.825	.892	.776	14,100	2,430	1.64
RSD60(H)-2LAMBDA	R	.750	.469	.483	.125	.125	.713	.614	.234	1.083	1.181	1.028	19,840	3,370	2.41
RSD80(H)-2LAMBDA	R	1.000	.625	.609	.156	.156	.949	.819	.312	1.358	1.492	1.283	35,200	5,630	4.15
RSD100(H)-2LAMBDA	C	1.250	.750	.736	.187	.187	1.185	1.024	.375	1.630	1.736	1.539	53,000	8,620	6.07
RSD120(H)-2LAMBDA	C	1.500	.875	.974	.220	.220	1.425	1.228	.437	2.014	2.171	1.924	75,000	11,600	8.67
RSD140(H)-2LAMBDA	C	1.750	1.000	.974	.252	.252	1.661	1.433	.500	2.163	2.343	2.055	97,000	15,400	11.01





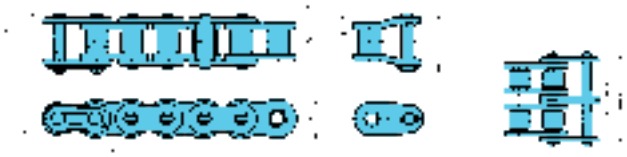
* R indicates riveted, C indicates cottered, C/R indicates available with cottered or riveted pins.

** Width between roller link plates (W) is slightly narrower than ANSI standard, however this chain runs on standard sprockets.

Note:
1. Drive and Conveyor series LAMBDA chains cannot be intercoupled or interchanged.
2. The heavy roller link plates slightly increase the width, which means Drive LAMBDA connecting links are required.
3. Connecting links for RSD80-LAMBDA to RSD140-LAMBDA and RSD80(H)-2LAMBDA to RSD140(H)-2LAMBDA have cottered pins.
4. Double Strand Drive LAMBDA requires heavy-series sprockets.

LAMBDA for corrosion resistance

- Operates in temperatures up to 302°F
- Ideal for mildly corrosive environments
- Long-lasting and lube-free



Nickel-Plated Single Strand Drive LAMBDA®

U.S. TSUBAKI Chain No.	Standard Type of Pin*	Pitch	Roller Dia.	Width Between Roller Link Plates	Link Plates				Pin				Average Tensile Strength lbs.	Maximum Allowable Load lbs.	Approx. Weight lbs./ft.
					PLP Thickness	RLP Thickness	RLP Height	PLP Height							
		P	R	W**	T_1	T_2	H	h	D	L_1	L_2	L			
RSD40NP-LAMBDA	R	.500	.312	.297	.060	.080	.472	.409	.156	.344	.411	.787	4,300	683	0.47
RSD50NP-LAMBDA	R	.625	.400	.365	.080	.094	.591	.512	.200	.423	.490	.945	7,050	1,210	0.75
RSD60NP-LAMBDA	R	.750	.469	.483	.094	.125	.713	.614	.234	.541	.616	1.260	9,920	1,630	1.16
RSD80NP-LAMBDA	R	1.000	.625	.609	.125	.156	.949	.819	.312	.675	.797	1.571	17,600	2,870	1.86
RSD100NP-LAMBDA	C	1.250	.750	.736	.156	.187	1.185	1.024	.375	.813	.939	1.870	26,500	4,300	2.89
RSD120NP-LAMBDA	C	1.500	.875	.974	.187	.220	1.425	1.228	.437	1.014	1.179	2.323	37,500	5,730	4.30
RSD140NP-LAMBDA	C	1.750	1.000	.974	.220	.252	1.661	1.433	.500	1.091	1.268	2.508	48,500	7,720	5.40

Nickel-Plated Double Strand Drive LAMBDA®

U.S. TSUBAKI Chain No.	Standard Type of Pin*	Pitch	Roller Dia.	Width Between Roller Link Plates	Link Plates				Pin			Traverse Pitch	Average Tensile Strength lbs.	Maximum Allowable Load lbs.	Approx. Weight lbs./ft.
					PLP Thickness	RLP Thickness	RLP Height	PLP Height							
		P	R	W**	T_1	T_2	H	h	D	L_1	L_2	C			
RSD40(H)NP-2LAMBDA	R	.500	.312	.297	.080	.080	.472	.409	.156	.689	.754	.646	8,600	1,160	1.00
RSD50(H)NP-2LAMBDA	R	.625	.400	.365	.094	.094	.591	.512	.200	.825	.892	.776	14,100	2,060	1.64
RSD60(H)NP-2LAMBDA	R	.750	.469	.483	.125	.125	.713	.614	.234	1.083	1.181	1.028	19,840	2,770	2.41
RSD80(H)NP-2LAMBDA	R	1.000	.625	.609	.156	.156	.949	.819	.312	1.358	1.492	1.283	35,200	4,880	4.15
RSD100(H)NP-2LAMBDA	C	1.250	.750	.736	.187	.187	1.185	1.024	.375	1.630	1.736	1.539	53,000	7,310	6.07
RSD120(H)NP-2LAMBDA	C	1.500	.875	.974	.220	.220	1.425	1.228	.437	2.014	2.171	1.924	75,000	9,740	8.67
RSD140(H)NP-2LAMBDA	C	1.750	1.000	.974	.252	.252	1.661	1.433	.500	2.163	2.343	2.055	97,000	13,100	11.01

LAMBDA for international standards

- Operates in temperatures up to 302°F
- Replaces BS/DIN chain
- Cost effective, lube-free operation

* R indicates riveted, C indicates cottered.

** Width between roller link plates (W) is slightly narrower than ANSI standard, however this chain runs on standard sprockets.

Note:
1. Drive and Conveyor series LAMBDA chains cannot be intercoupled or interchanged.
2. The heavy roller link plates slightly increase the width, which means Drive LAMBDA connecting links are required.
3. Connecting links for RSD80NP-LAMBDA to RSD140NP-LAMBDA and RSD80(H)NP-2LAMBDA to RSD140(H)NP-2LAMBDA have cottered pins.
4. Double Strand Drive LAMBDA requires heavy-series sprockets.

BS/DIN Drive LAMBDA®

U.S. TSUBAKI Chain No.	Pitch	Roller Dia.	Width Between Roller Link Plates	Link Plates				Pin				Average Tensile Strength lbs.	Approx. Weight lbs./ft.
				PLP Thickness	RLP Thickness	RLP Height	PLP Height						
	P	R	W**	T_1	T_2	H	h	D	L_1	L_2	L		
RSD08B-LAMBDA	.500	.335	.305	.060	.080	.472	.409	.175	.346	.411	.787	4,230	0.47
RSD10B-LAMBDA	.625	.400	.380	.080	.080	.591	.512	.200	.406	.472	.886	6,080	0.70
RSD12B-LAMBDA	.750	.475	.460	.094	.094	.713	.614	.225	.486	.565	1.138	9,060	1.01

Note:
1. Although some dimensions differ from British Standard (BS/DIN), the primary dimensions are identical, enabling BS-compatible LAMBDA to engage perfectly with British Standard sprockets.
2. The heavy roller link plates slightly increase the width, which means drive LAMBDA connecting links are required.

Horsepower Ratings

The horsepower ratings shown in these charts are based on the following conditions.

1. The chains are operated under ordinary conditions. The ambient temperatures during typical operating conditions range between 14°F and 302°F. They should not be used in an atmosphere in which abrasive dust or corrosive gas is present or where humidity is high.

2. The two transmission shafts are horizontal and the chains are properly installed.

3. The load does not change significantly during transmission. The Service Factors given in Table I on page A-22 should be taken into account when the chains are used under various operating conditions.

RSD40-LAMBDA®

No. of Teeth Small Spkt.	HORSEPOWER RATINGS Maximum Speed - Small Sprocket (rpm) 10	25	50	100	200	300	400	500	700	900	1000
11	0.08	0.19	0.35	0.64	1.21	1.73	2.24	2.73	3.70	4.65	5.11
12	0.09	0.20	0.38	0.71	1.31	1.90	2.47	3.00	4.07	5.11	
13	0.09	0.23	0.42	0.76	1.43	2.06	2.68	3.28	4.44	5.56	
14	0.11	0.24	0.44	0.83	1.55	2.24	2.91	3.55	4.81		
15	0.11	0.25	0.48	0.90	1.68	2.41	3.14	3.83	5.19		
16	0.12	0.28	0.52	0.97	1.80	2.59	3.35	4.10	5.55		
17	0.13	0.29	0.55	1.03	1.92	2.76	3.58	4.38			
18	0.13	0.31	0.59	1.10	2.04	2.95	3.81	4.66			
19	0.15	0.34	0.62	1.17	2.17	3.12	4.05	4.95			
20	0.16	0.35	0.66	1.23	2.29	3.30	4.28	5.23			
21	0.16	0.38	0.70	1.29	2.41	3.47	4.50	5.51			
22	0.17	0.39	0.72	1.35	2.53	3.66	4.73	5.79			
23	0.17	0.42	0.76	1.42	2.67	3.83	4.97	6.07			
24	0.19	0.43	0.80	1.49	2.79	4.02	5.20				
25	0.20	0.44	0.83	1.55	2.91	4.20	5.44				
26	0.20	0.47	0.87	1.62	3.04	4.38	5.67				
28	0.23	0.51	0.95	1.77	3.30	4.74	6.14				
30	0.24	0.55	1.02	1.90	3.55	5.11					
32	0.25	0.59	1.09	2.04	3.81	5.48					
35	0.28	0.64	1.21	2.24	4.20	6.03					
40	0.32	0.75	1.39	2.59	4.84						
45	0.38	0.84	1.58	2.95	5.50						

RSD50-LAMBDA®

No. of Teeth Small Spkt.	HORSEPOWER RATINGS Maximum Speed - Small Sprocket (rpm) 10	25	50	100	200	300	400	500	700	900
11	0.16	0.38	0.71	1.33	2.48	3.58	4.64	5.66	6.67	7.67
12	0.19	0.42	0.78	1.46	2.72	3.93	5.09	6.22	7.33	8.42
13	0.20	0.46	0.86	1.59	2.98	4.28	5.55	6.78	7.99	
14	0.21	0.50	0.92	1.73	3.22	4.64	6.00	7.34	8.66	
15	0.23	0.54	0.99	1.86	3.47	5.00	6.47	7.92		
16	0.25	0.58	1.07	2.00	3.73	5.36	6.94	8.48		
17	0.27	0.62	1.14	2.13	3.97	5.72	7.41	9.06		
18	0.28	0.66	1.22	2.27	4.22	6.08	7.88			
19	0.31	0.68	1.29	2.40	4.48	6.45	8.36			
20	0.32	0.72	1.35	2.53	4.73	6.82	8.83			
21	0.34	0.76	1.43	2.68	4.99	7.18	9.32			
22	0.35	0.80	1.50	2.81	5.24	7.56				
23	0.38	0.84	1.58	2.95	5.51	7.93				
24	0.39	0.88	1.66	3.08	5.76	8.30				
25	0.40	0.92	1.73	3.23	6.02	8.67				
26	0.43	0.97	1.81	3.36	6.29	9.05				
28	0.46	1.05	1.96	3.65	6.81	9.81				
30	0.50	1.13	2.10	3.93	7.33					
32	0.54	1.21	2.27	4.21	7.87					
35	0.59	1.33	2.49	4.64	8.66					
40	0.67	1.54	2.87	5.36	10.0					
45	0.76	1.74	3.27	6.08						

RSD60-LAMBDA®

No. of Teeth Small Spkt.	HORSEPOWER RATINGS Maximum Speed - Small Sprocket (rpm) 10	25	50	100	150	200	250	300	400	500
11	0.29	0.67	1.26	2.35	3.39	4.38	5.36	6.31	8.19	10.0
12	0.32	0.74	1.38	2.59	3.71	4.81	5.88	6.94	8.99	11.0
13	0.35	0.80	1.51	2.81	4.06	5.25	6.42	7.57	9.80	
14	0.39	0.87	1.64	3.06	4.40	5.70	6.96	8.20	10.6	
15	0.42	0.94	1.76	3.28	4.73	6.13	7.49	8.83	11.4	
16	0.44	1.01	1.89	3.52	5.08	6.57	8.04	9.46		
17	0.47	1.09	2.01	3.77	5.41	7.02	8.58	10.1		
18	0.51	1.15	2.14	3.99	5.76	7.47	9.13	10.7		
19	0.54	1.22	2.28	4.24	6.11	7.91	9.68	11.4		
20	0.56	1.29	2.40	4.48	6.46	8.36	10.2	12.0		
21	0.59	1.35	2.53	4.73	6.81	8.82	10.8			
22	0.63	1.42	2.67	4.97	7.16	9.27	11.3			
23	0.66	1.50	2.79	5.21	7.51	9.73	11.9			
24	0.68	1.57	2.92	5.46	7.87	10.2	12.5			
25	0.72	1.64	3.06	5.71	8.22	10.6	13.0			
26	0.75	1.72	3.19	5.95	8.58	11.1				
28	0.82	1.85	3.46	6.45	9.29	12.0				
30	0.87	2.00	3.73	6.94	10.0	13.0				
32	0.94	2.14	3.99	7.45	10.7					
35	1.03	2.36	4.40	8.20	11.8					
40	1.19	2.72	5.08	9.48	13.7					
45	1.35	3.10	5.76	10.8						

RSD80-LAMBDA®

No. of Teeth Small Spkt.	HORSEPOWER RATINGS Maximum Speed - Small Sprocket (rpm) 10	25	50	75	100	125	150	200	250	300
11	0.66	1.51	2.81	4.06	5.27	6.43	7.57	9.82	12.0	14.2
12	0.72	1.66	3.10	4.46	5.78	7.06	8.32	10.8	13.2	
13	0.79	1.81	3.38	4.87	6.30	7.71	9.07	11.8	14.3	
14	0.86	1.96	3.66	5.27	6.82	8.35	9.84	12.7	15.5	
15	0.92	2.12	3.94	5.68	7.36	8.99	10.6	13.7		
16	0.99	2.27	4.22	6.08	7.88	9.64	11.4	14.7		
17	1.06	2.41	4.52	6.50	8.42	10.3	12.1	15.7		
18	1.13	2.57	4.80	6.92	8.95	11.0	12.9			
19	1.19	2.72	5.09	7.33	9.49	11.6	13.7			
20	1.26	2.88	5.37	7.75	10.0	12.3	14.5			
21	1.33	3.04	5.67	8.16	10.6	12.9	15.3			
22	1.39	3.19	5.96	8.59	11.1	13.5	16.1			
23	1.47	3.35	6.26	9.01	11.7	14.2	16.8			
24	1.54	3.51	6.55	9.44	12.2	14.9				
25	1.61	3.67	6.85	9.85	12.8	15.5				
26	1.68	3.82	7.14	10.3	13.3	16.4				
28	1.82	4.14	7.73	11.1	14.5	17.7				
30	1.96	4.46	8.34	12.0	15.5					
32	2.10	4.78	8.94	12.9	16.6					
35	2.32	5.28	9.84	14.2	18.4					
40	2.67	6.10	11.4	16.4						
45	3.03	6.92	12.9	18.6						

RSD100-LAMBDA®

No. of Teeth Small Spkt.	HORSEPOWER RATINGS Maximum Speed - Small Sprocket (rpm) 10	25	50	75	100	125	150	175	200	225
11	1.10	2.52	4.70	6.77	8.77	10.7	12.6	14.5	16.4	18.2
12	1.21	2.76	5.16	7.44	9.64	11.8	13.9	15.9	18.0	
13	1.33	3.02	5.63	8.11	10.5	12.8	15.1	17.4		
14	1.43	3.27	6.10	8.78	11.4	13.9	16.4	18.8		
15	1.54	3.52	6.57	9.46	12.3	15.0	17.7			
16	1.65	3.78	7.05	10.1	13.1	16.1	18.9			
17	1.77	4.03	7.52	10.8	14.1	17.2				
18	1.88	4.29	8.00	11.5	14.9	18.2				
19	2.00	4.54	8.48	12.2	15.8	19.3				
20	2.10	4.80	8.97	12.9	16.8	20.5				
21	2.22	5.07	9.45	13.7	17.7					
22	2.33	5.32	9.93	14.3	18.5					
23	2.45	5.59	10.4	15.0	19.4					
24	2.56	5.84	10.9	15.7	20.4					
25	2.68	6.11	11.4	16.5	21.3					
26	2.80	6.38	11.9	17.2						
28	3.03	6.90	12.9	18.6						
30	3.26	7.44	13.9	20.0						
32	3.50	7.97	14.9	21.4						
35	3.86	8.79	16.4							
40	4.45	10.2	18.9							
45	5.05	11.5	21.6							

RSD120-LAMBDA®

No. of Teeth Small Spkt.	HORSEPOWER RATINGS Maximum Speed - Small Sprocket (rpm) 5	10	15	20	25	30	40	50	60	80	100	125
11	1.09	2.02	2.91	3.78	4.61	5.44	7.04	8.60	10.1	13.1	16.1	19.6
12	1.19	2.22	3.20	4.14	5.07	5.98	7.73	9.46	11.1	14.5	17.7	21.6
13	1.30	2.43	3.48	4.52	5.52	6.51	8.43	10.3	12.2	15.7	19.3	23.5
14	1.41	2.63	3.78	4.89	5.99	7.05	9.14	11.2	13.2	17.0	20.9	
15	1.51	2.83	4.07	5.28	6.45	7.60	9.85	12.0	14.2	18.4	22.5	
16	1.62	3.03	4.37	5.66	6.92	8.15	10.6	12.9	15.1	19.7	24.1	
17	1.73	3.23	4.66	6.04	7.39	8.70	11.3	13.8	16.2	21.0		
18	1.85	3.44	4.96	6.42	7.85	9.25	12.0	14.6	17.3	22.3		
19	1.96	3.65	5.25	6.81	8.32	10.2	12.7	15.5	18.4	23.6		
20	2.06	3.86	5.56	7.20	8.81	10.4	13.4	16.5	19.3	25.0		
21	2.18	4.06	5.86	7.59	9.27	10.9	14.2	17.3	20.4			
22	2.29	4.28	6.17	7.97	9.76	11.5	14.9	18.2	21.4			
23	2.40	4.49	6.46	8.38	10.2	12.1	15.7	19.0	23.4			
24	2.52	4.69	6.77	8.77	10.7	12.6	16.4	20.0	24.5			
25	2.63	4.91	7.08	9.15	11.2	13.2	17.2	20.9	25.6			
26	2.75	5.12	7.37	9.56	11.7	13.8	17.8	21.8				
28	2.98	5.55	7.99	10.3	12.7	14.9	19.3	23.6				
30	3.20	5.98	8.60	11.2	13.7	16.1	20.8	25.5				
32	3.43	6.41	9.23	12.0	14.6	17.3	22.4	27.4				
35	3.78	7.06	10.2	13.2	16.1	19.0	24.5					
40	4.37	8.15	11.7	15.3	18.6	22.0	28.3					
45	4.96	9.26	13.3	17.3	21.2	24.8						

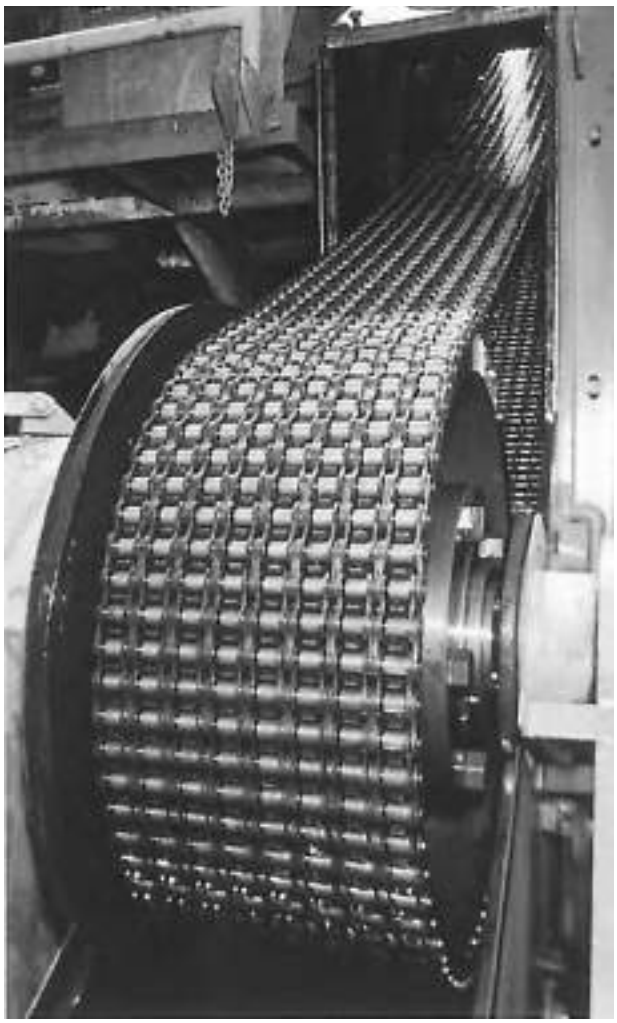
RSD140-LAMBDA®

No. of Teeth Small Spkt.	HORSEPOWER RATINGS Maximum Speed - Small Sprocket (rpm) 5	10	15	20	25	30	40	50	60	80	100
11	1.70	3.16	4.57	5.91	7.22	8.51	11.0	13.5	15.9	20.6	25.2
12	1.86	3.48	5.01	6.50	7.93	9.36	12.1	14.9	17.4	22.7	
13	2.04	3.79	5.47	7.08	8.66	10.2	13.2	16.2	19.0	24.7	
14	2.20	4.11	5.92	7.67	9.38	11.1	14.3	17.6	20.6	26.7	
15	2.37	4.42	6.38	8.27	10.1	11.9	15.4	18.9	22.2		
16	2.55	4.74	6.84	8.86	10.8	12.8	16.5	20.2	23.9		
17	2.72	5.07	7.30	9.46	11.6	13.7	17.7	21.6	25.5		
18	2.90	5.39	7.77	10.1	12.3	14.5	18.8	22.9	27.1		
19	3.07	5.72	8.23	10.7	13.0	15.4	20.0	24.4			
20	3.24	6.04	8.70	11.3	13.8	16.2	21.0	25.7			
21	3.42	6.37	9.18	11.9	14.5	17.2	22.2	27.1			
22	3.59	6.70	9.65	12.5	15.3	18.0	23.3	28.5			
23	3.77	7.02	10.1	13.1	16.1	18.9	24.5				
24	3.94	7.36	10.6	13.7	16.8	19.8	25.6				
25	4.11	7.69	11.1	14.3	17.6	20.6	26.8				
26	4.30	8.03	11.6	15.0	18.4	21.6	27.9				
28	4.66	8.69	12.5	16.2	19.8	23.3	30.3				
30	5.01	9.37	13.5	17.4	21.3	25.2					
32	5.37	10.0	14.5	18.8	22.9	26.9					
35	5.92	11.1	15.9	20.6	25.2	29.8					
40	6.85	12.8	18.4	23.9	29.1						

Energy Series® Chain

Energy Series® Chain is designed for high speed and high shock load applications. This chain is built to deliver reliable power and performance in demanding applications like oil fields, mining, logging, and ball mills.

American Petroleum Institute License No. 7F-0016



Pump Drive

Ball Mill

Energy Series®

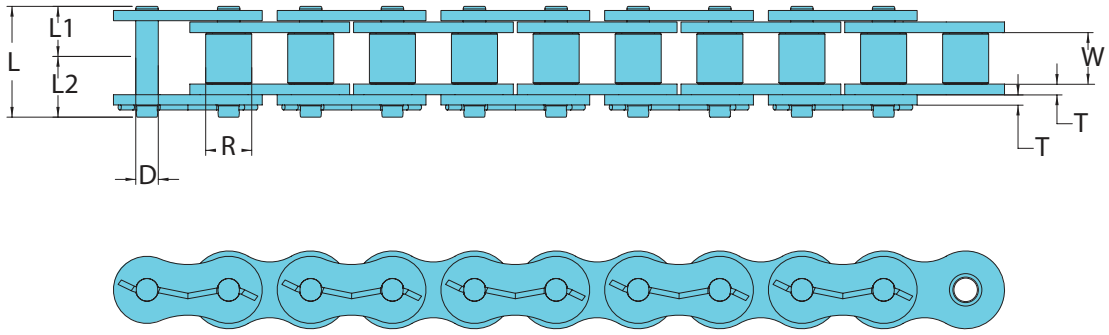
BY TSUBAKI

Benefits

- Stronger pins for longer chain life
- Ballized holes for improved fatigue strength
- Shot peened link plates for maximum strength
- Bushings and rollers that last longer
- Factory applied hot-dip lube penetrates deeper
- Unique Z-cotter design

Z-cotters hold tight, minimizing vibration and maximizing fatigue life, yet they're easy to assemble/disassemble in the field

Single Strand



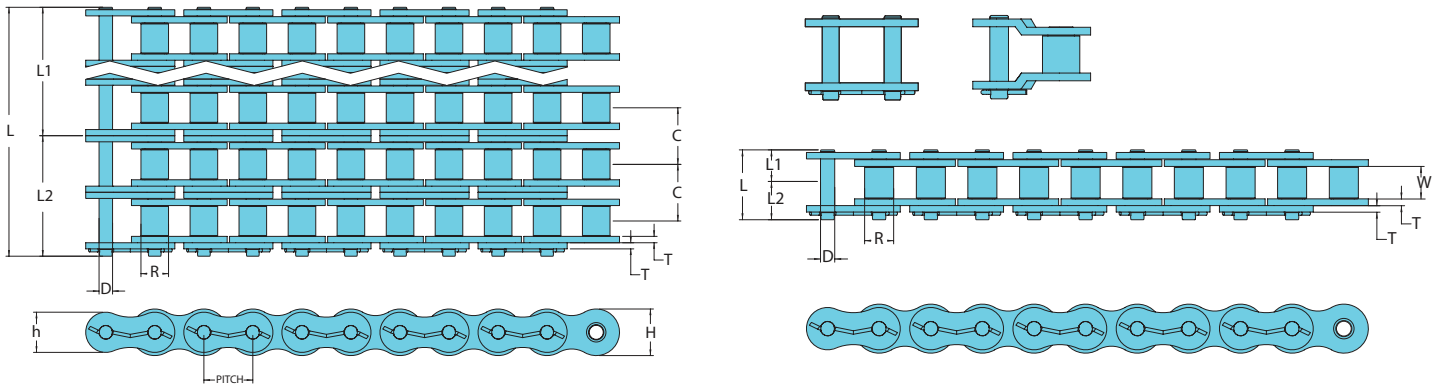
Dimensions

Chain No.	Pitch	L1	L2	L	D	R	W	h	H	T	ATS[1]
80	1.000	0.640	0.758	1.398	0.312	0.625	0.625	0.819	0.949	0.125	17,600
100	1.250	0.778	0.900	1.678	0.375	0.750	0.750	1.025	1.185	0.156	27,300
120	1.500	0.980	1.138	2.118	0.437	0.875	1.000	1.228	1.425	0.187	39,700
140	1.750	1.059	1.248	2.307	0.500	1.000	1.000	1.433	1.661	0.219	52,900
160	2.000	1.254	1.451	2.705	0.562	1.125	1.250	1.638	1.898	0.250	68,300
180	2.250	1.404	1.671	3.075	0.687	1.406	1.406	1.843	2.134	0.281	80,500
200	2.500	1.535	1.764	3.299	0.781	1.562	1.500	2.047	2.374	0.312	105,800
240	3.000	1.886	2.185	4.071	0.937	1.875	1.875	2.457	2.850	0.375	154,300
80H	1.000	0.720	0.823	1.543	0.312	0.625	0.625	0.819	0.949	0.156	20,900
100H	1.250	0.858	0.965	1.823	0.375	0.750	0.750	1.025	1.185	0.187	32,000
120H	1.500	1.061	1.203	2.264	0.437	0.875	1.000	1.228	1.425	0.219	43,000
140H	1.750	1.138	1.303	2.441	0.500	1.000	1.000	1.433	1.661	0.250	56,200
160H	2.000	1.337	1.514	2.851	0.562	1.125	1.250	1.638	1.898	0.281	71,700
180H	2.250	1.486	1.734	3.220	0.687	1.406	1.406	1.843	2.134	0.312	80,500
200H	2.500	1.689	1.894	3.583	0.781	1.562	1.500	2.047	2.374	0.375	125,700
264	2.500	1.686	1.965	3.651	0.875	1.562	1.500	2.047	2.366	0.375	121,000
240H	3.000	2.157	2.453	4.610	0.937	1.875	1.875	2.457	2.850	0.500	198,400

[1] Average Tensile Strength

Multi-Strand

Energy Series® is available in two, three, four, five, six, eight, and ten strands. Call U.S. Tsubaki for details.



Dimensions

Chain No.	Pitch	L1	L2	L	D	R	W	h	H	C	T	Strands 2 L1	2 L2	2 ATS[1]	2 WPF[2]	3 L1	3 L2	3 ATS[1]	3 WPF[2]
80	1.000	0.640	0.758	1.398	0.312	0.625	0.625	0.819	0.949	1.153	0.125	1.217	1.335	35,200	3.54	1.793	1.911	52,800	5.30
100	1.250	0.778	0.900	1.678	0.375	0.750	0.750	1.025	1.185	1.408	0.156	1.482	1.604	54,600	5.27	2.186	2.308	81,900	7.91
120	1.500	0.980	1.138	2.118	0.437	0.875	1.000	1.228	1.425	1.789	0.187	1.875	2.033	71,880	7.86	2.769	2.927	107,820	11.78
140	1.750	1.059	1.248	2.307	0.500	1.000	1.000	1.433	1.661	1.924	0.219	2.021	2.210	94,370	9.97	2.983	3.172	141,550	14.92
160	2.000	1.254	1.451	2.705	0.562	1.125	1.250	1.638	1.898	2.305	0.250	2.407	2.604	136,600	13.47	3.559	3.756	204,900	20.17
180	2.250	1.404	1.671	3.075	0.687	1.406	1.406	1.843	2.134	2.592	0.281	2.700	2.967	161,000	17.82	3.996	4.263	241,500	25.68
200	2.500	1.535	1.764	3.299	0.781	1.562	1.500	2.047	2.374	2.817	0.312	2.944	3.173	211,600	21.93	4.352	4.581	317,400	32.94
240	3.000	1.886	2.185	4.071	0.937	1.875	1.875	2.457	2.850	3.458	0.375	3.615	3.914	308,600	32.32	5.344	5.643	462,900	48.11
80H	1.000	0.720	0.823	1.543	0.312	0.625	0.625	0.819	0.949	1.283	0.156	1.362	1.465	41,800	4.15	2.003	2.106	62,700	6.21
100H	1.250	0.858	0.965	1.823	0.375	0.750	0.750	1.025	1.185	1.539	0.187	1.628	1.735	64,000	6.07	2.397	2.504	96,000	9.10
120H	1.500	1.061	1.203	2.264	0.437	0.875	1.000	1.228	1.425	1.924	0.219	2.023	2.165	71,880	8.67	2.985	3.127	107,820	12.99
140H	1.750	1.138	1.303	2.441	0.500	1.000	1.000	1.433	1.661	2.055	0.250	2.166	2.331	94,370	11.01	3.193	3.358	141,550	16.48
160H	2.000	1.337	1.514	2.851	0.562	1.125	1.250	1.638	1.898	2.437	0.281	2.556	2.733	143,400	14.64	3.774	3.951	215,100	21.93
180H	2.250	1.486	1.734	3.221	0.687	1.406	1.406	1.843	2.134	2.722	0.312	2.847	3.095	161,000	19.20	4.208	4.456	241,500	28.80
200H	2.500	1.689	1.894	3.583	0.781	1.562	1.500	2.047	2.374	3.083	0.375	3.231	3.436	207,260	24.51	4.772	4.977	310,890	36.81
264	2.500	1.686	1.965	3.651	0.875	1.562	1.500	2.047	2.366	3.083	0.375	3.228	3.507	250,000	24.93	4.769	5.048	375,000	37.32
240H	3.000	2.157	2.453	4.610	0.937	1.875	1.875	2.457	2.850	3.985	0.500	4.150	4.446	304,280	38.47	6.142	6.438	456,420	57.33

Strands 4 L1	4 L2	4 ATS[1]	4 WPF[2]	5 L1	5 L2	5 ATS[1]	5 WPF[2]	6 L1	6 L2	6 ATS[1]	6 WPF[2]	8 L1	8 L2	8 ATS[1]	8 WPF[2]	10 L1	10 L2	10 ATS[1]	10 WPF[2]
2.370	2.488	70,400	7.06	2.946	3.064	88,000	8.81	3.523	3.641	105,600	10.57	4.676	4.794	140,800	14.08	5.829	5.947	176,000	17.59
2.890	3.012	109,200	10.55	3.594	3.716	136,500	13.12	4.298	4.420	163,800	15.78	5.706	5.828	218,400	21.01	7.114	7.236	273,000	26.24
3.664	3.822	143,760	15.70	4.558	4.716	179,700	19.59	5.453	5.611	215,640	23.49	7.242	7.400	287,520	31.28	9.031	9.189	359,400	39.07
3.945	4.134	188,740	19.16	4.907	5.096	235,920	24.84	5.869	6.058	283,110	29.77	7.793	7.982	377,490	40.38	9.717	9.906	471,870	50.99
4.712	4.909	273,200	26.92	5.864	6.061	341,500	33.53	7.017	7.214	409,800	40.27	9.322	9.519	546,400	53.62	11.627	11.824	683,000	66.97
5.292	5.559	322,000	34.20	6.588	6.855	402,500	42.73	7.884	8.151	483,000	51.25	10.476	10.743	644.000	68.30	13.068	13.335	805,000	85.35
5.761	5.990	423,200	43.79	7.169	7.398	529,000	54.64	8.578	8.807	634,800	65.58	11.395	11.624	846,400	87.37	14.212	14.441	1,058,000	109.16
7.073	7.372	617,200	63.90	8.802	9.101	771,500	79.70	10.531	10.830	925,800	95.49	13.989	14.288	1,234,400	127.08	—	—	—	—
2.645	2.748	83,600	8.27	3.286	3.389	104,500	10.33	3.928	4.031	125,400	12.39	5.211	5.314	167,200	16.51	6.494	6.597	209,000	20.63
3.167	3.274	128,000	12.13	3.936	4.043	160,000	15.16	4.706	4.813	192,000	18.19	6.245	6.352	256,000	24.25	7.784	7.891	320,000	30.31
3.947	4.089	143,760	17.31	4.909	5.051	179,700	21.63	5.871	6.013	215,640	25.95	7.795	7.937	287,520	34.59	9.719	9.861	359,400	43.23
4.221	4.386	188,730	21.95	5.248	5.413	235,910	27.42	6.276	6.441	283,090	32.89	8.331	8.496	377,450	43.83	10.386	10.551	471,810	54.77
4.993	5.170	286,800	29.22	6.211	6.388	358,500	36.51	7.430	7.607	430,200	43.80	9.867	10.044	573,600	58.38	12.304	12.481	717,000	72.96
5.569	5.817	322,000	38.40	6.930	7.178	402,500	48.00	8.291	8.539	483,000	57.60	11.013	11.261	644,000	76.80	13.735	13.983	805,000	96.00
6.314	6.519	502,800	49.11	7.855	8.060	628,500	61.41	9.397	9.602	754,200	73.71	12.480	12.685	1,005,600	98.31	15.563	15.768	1,257,000	122.91
6.311	6.590	500,000	49.81	7.852	8.131	625,000	62.30	9.394	9.673	750,000	74.79	12.477	12.756	1,000,000	99.77	—	—	—	—
8.135	8.431	793,600	76.19	10.127	10.423	992,000	95.05	12.120	12.416	1,190,400	113.91	16.105	16.401	1,587,200	151.63	—	—	—	—

[1] Average Tensile Strength (lbs.)
[2] Approximate Weight (lbs./ft.)

Super Chain

Proven Performance

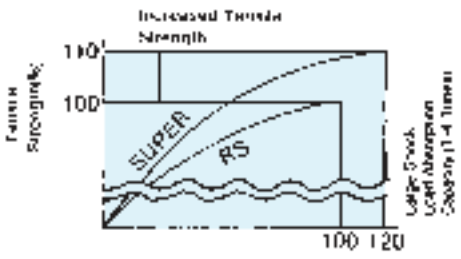
ASME/ANSI standard roller chains are widely used in various industries. To meet the insistent demands of heavy industry, construction and agriculture, stronger and higher performing chains which can replace the corresponding ASME/ANSI standard chains are necessary. U.S. Tsubaki offers a line-up of Super and Ultra Super Chains which will solve your specific driving and conveying problems relating to heavy shock load and/or space limitations.

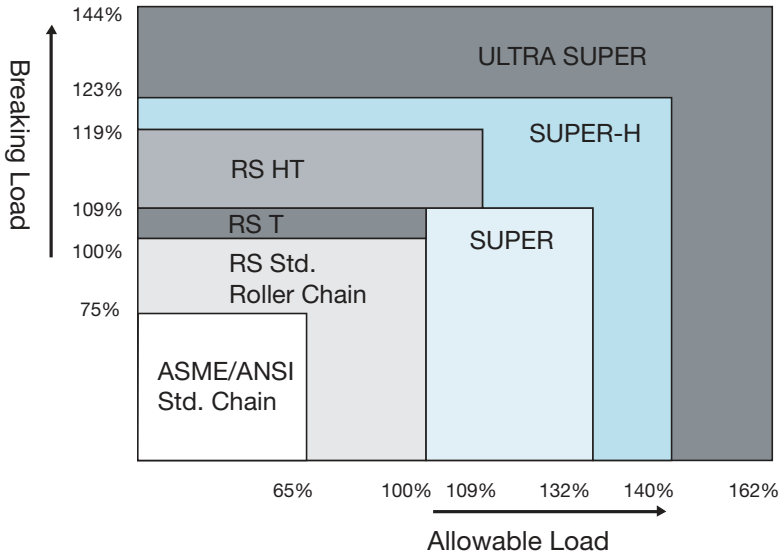
SUPER ROLLER CHAIN SUPER 80 ~ 240

High fatigue and tensile strength allow the selection of a chain one size smaller than would be required with standard chain.

Pins constructed of “high toughness” steel give this chain exceptional ability to absorb shock loads.

The link plate holes are ball drifted to obtain high fatigue strength.





If you have a problem like breakage of pins due to heavy shock loads, we suggest that you use either the T Series or the HT Series.

If you have problems such as fatigue breakage of link plates, generally poor performance, or a space limitation, we suggest that you use the Super Series, Super-H Series or Ultra Super Series. You may be able to use the next smaller size chain or even a chain two sizes smaller.

T Series

T Series chains have greater shock load resistance and higher ultimate tensile strength than comparable ASME/ANSI standard roller chains. This is accomplished by using thru hardened pins. The dimensions of the chains are identical to ASME/ANSI standard roller chains.

HT Series

HT Series chains have a greater ultimate tensile strength (plus 15-30%) than ASME/ANSI standard roller chains by using thru hardened pins and link plates of the next larger chain size. These chains also provide greater shock load resistance. The dimensions of the chains are identical to those of the ASME/ANSI Heavy Series standard roller chains.

Super Series

The dimensions of Super Series Chain are identical to those of ASME/ANSI standard roller chain. Super Series Chain has a wider waist link plate than our standard chain and special manufacturing techniques are used to produce the pitch holes. After heat treatment, the holes are then ball drifted for greater fatigue strength. The pins are thru hardened for greater shock resistance. Because of this, Super Series Chain has a Maximum Allowable Load 25-30% higher than our standard RS roller chain.

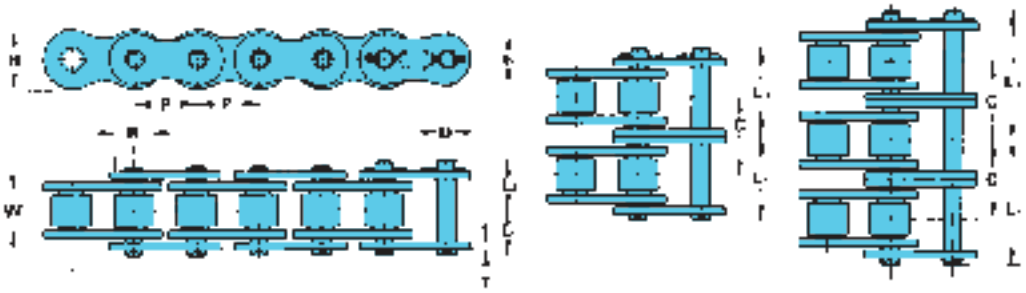
Super-H Series

Super-H Series Chain has the same wide waist as Super Series. The link plate thickness is identical to those of the ASME/ANSI Heavy Series roller chains. The same special manufacturing techniques used in Super Series Chain are used to produce the pitch holes. The pins are thru hardened. Because of this, Super-H Series Chain has an even higher Maximum Allowable Load than the Super Series.

Ultra Super Series

U.S. Tsubaki Ultra Super Series has a greater ultimate tensile strength and allowable load than any other roller chain we manufacture. With the Ultra Super Series, a chain up to two sizes smaller than standard can be selected.

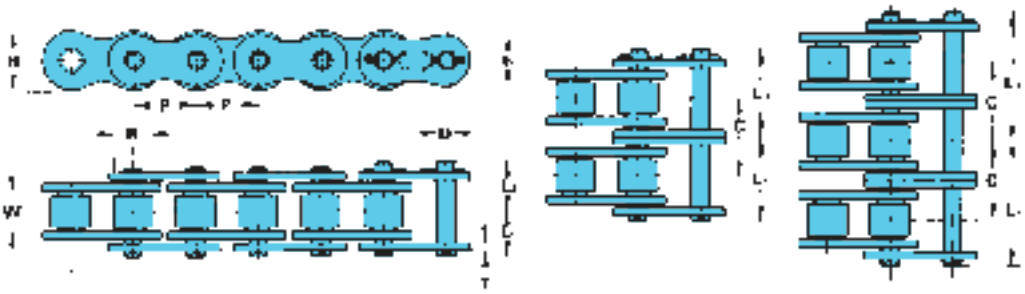
RS-T Series



U.S. TSUBAKI Chain No.	Pitch P	Roller Dia. R	Width Between Roller Link Plates W	Link Plate T	Link Plate H	Link Plate h	Pin D	Pin L_1	Pin L_2	Transverse Pitch C	Average Tensile Strength lbs.	❊Maximum Allowable Load lbs.	Approx. Weight lbs./ft.
SINGLE STRAND													
RS60T	.750	.469	.500	.094	.713	.614	.234	.506	.581	—	10,300	1,980	1.03
RS80T	1.000	.625	.625	.125	.949	.819	.312	.640	.758	—	17,600	3,300	1.79
RS100T	1.250	.750	.750	.156	1.185	1.024	.375	.778	.900	—	27,300	5,070	2.68
RS120T	1.500	.875	1.000	.187	1.425	1.228	.437	.980	1.138	—	39,700	6,830	3.98
RS140T	1.750	1.000	1.000	.219	1.661	1.433	.500	1.059	1.248	—	52,900	9,040	5.03
RS160T	2.000	1.125	1.250	.250	1.898	1.638	.562	1.254	1.451	—	68,300	11,900	6.79
RS200T	2.500	1.562	1.500	.312	2.374	2.047	.781	1.535	1.764	—	105,800	16,090	11.08
RS240T	3.000	1.875	1.875	.375	2.850	2.457	.937	1.886	2.185	—	154,300	22,270	16.46
DOUBLE STRAND													
RS60T-2	.750	.469	.500	.094	.713	.614	.234	.955	1.033	.897	20,600	3,360	2.04
RS80T-2	1.000	.625	.625	.125	.949	.819	.312	1.217	1.335	1.153	35,200	5,610	3.54
RS100T-2	1.250	.750	.750	.156	1.185	1.024	.375	1.484	1.606	1.408	54,600	8,610	5.27
RS120T-2	1.500	.875	1.000	.187	1.425	1.228	.437	1.874	2.031	1.789	79,400	11,560	7.86
RS140T-2	1.750	1.000	1.000	.219	1.661	1.433	.500	2.022	2.211	1.924	105,800	15,360	9.97
RS160T-2	2.000	1.125	1.250	.250	1.898	1.638	.562	2.407	2.604	2.305	136,600	20,230	13.47
RS200T-2	2.500	1.562	1.500	.312	2.374	2.047	.781	2.947	3.175	2.817	211,600	27,350	21.93
RS240T-2	3.000	1.875	1.875	.375	2.850	2.457	.937	3.618	3.913	3.458	308,600	37,850	32.32
TRIPLE STRAND													
RS60T-3	.750	.469	.500	.094	.713	.614	.234	1.404	1.502	.897	30,900	4,950	3.05
RS80T-3	1.000	.625	.625	.125	.949	.819	.312	1.795	1.909	1.153	52,800	8,250	5.30
RS100T-3	1.250	.750	.750	.156	1.185	1.024	.375	2.191	2.313	1.408	81,900	12,670	7.91
RS120T-3	1.500	.875	1.000	.187	1.425	1.228	.437	2.772	2.929	1.789	119,100	17,070	11.78
RS140T-3	1.750	1.000	1.000	.219	1.661	1.433	.500	2.986	3.179	1.924	158,700	22,600	14.92
RS160T-3	2.000	1.125	1.250	.250	1.898	1.638	.562	3.561	3.758	2.305	204,900	29,750	20.17
RS200T-3	2.500	1.562	1.500	.312	2.374	2.047	.781	4.360	4.585	2.817	317,400	40,220	32.94
RS240T-3	3.000	1.875	1.875	.375	2.850	2.457	.937	5.348	5.636	3.458	462,900	55,670	48.11

Note: Riveted type chain will be provided unless otherwise specified.
Cottered type chain will be provided upon request.
❊ Refer to page A-42, “Chain Drive Selection.”

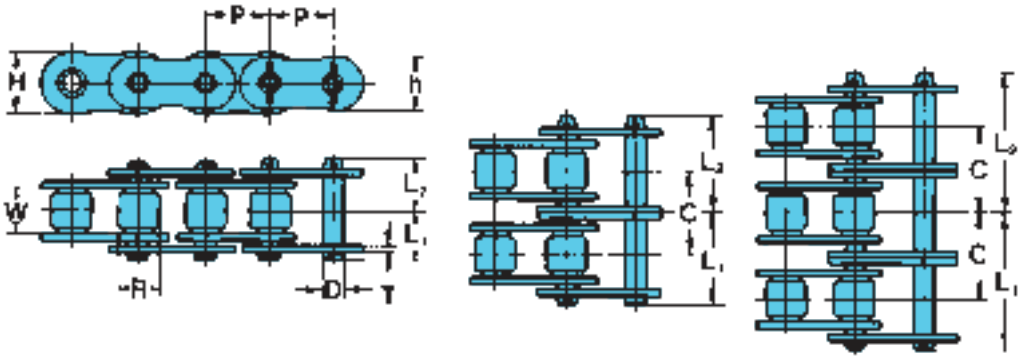
RS-HT Series



U.S. TSUBAKI Chain No.	Pitch P	Roller Dia. R	Width Between Roller Link Plates W	Link Plate T	Link Plate H	Link Plate h	Pin D	Pin L_1	Pin L_2	Transverse Pitch C	Average Tensile Strength lbs.	❊Maximum Allowable Load lbs.	Approx. Weight lbs./ft.
SINGLE STRAND													
RS40HT	.500	.312	.312	.080	.472	.409	.156	.375	.433	—	5,290	1,170	.53
RS50HT	.625	.400	.375	.094	.591	.512	.200	.437	.504	—	8,260	1,870	.79
RS60HT	.750	.469	.500	.125	.713	.614	.234	.582	.669	—	12,500	2,200	1.21
RS80HT	1.000	.625	.625	.156	.949	.819	.312	.720	.823	—	20,900	3,630	2.08
RS100HT	1.250	.750	.750	.187	1.185	1.024	.375	.858	.965	—	31,900	5,510	3.07
RS120HT	1.500	.875	1.000	.219	1.425	1.228	.437	1.061	1.203	—	43,000	7,270	4.38
RS140HT	1.750	1.000	1.000	.250	1.661	1.433	.500	1.138	1.303	—	56,200	9,590	5.54
RS160HT	2.000	1.125	1.250	.281	1.898	1.638	.562	1.337	1.514	—	71,600	12,500	7.35
RS200HT	2.500	1.562	1.500	.375	2.374	2.047	.781	1.689	1.894	—	125,600	17,600	12.33
RS240HT	3.000	1.875	1.875	.500	2.850	2.457	.937	2.157	2.453	—	198,400	25,300	19.57
DOUBLE STRAND													
RS60HT-2	.750	.469	.500	.125	.713	.614	.234	1.083	1.181	1.028	25,100	3,700	2.41
RS80HT-2	1.000	.625	.625	.156	.949	.819	.312	1.358	1.492	1.283	41,800	6,100	4.15
RS100HT-2	1.250	.750	.750	.187	1.185	1.024	.375	1.630	1.736	1.539	63,900	9,300	6.06
RS120HT-2	1.500	.875	1.000	.219	1.425	1.228	.437	2.014	2.171	1.925	86,000	12,300	8.65
RS140HT-2	1.750	1.000	1.000	.250	1.661	1.433	.500	2.163	2.343	2.055	112,400	16,300	10.98
RS160HT-2	2.000	1.125	1.250	.281	1.898	1.635	.562	2.555	2.736	2.437	143,000	21,200	14.61
RS200HT-2	2.500	1.562	1.500	.375	2.374	2.047	.781	3.230	3.437	3.083	251,300	29,900	24.46
RS240HT-2	3.000	1.575	1.875	.500	2.850	2.457	.937	4.146	4.461	3.984	396,800	43,000	38.46
TRIPLE STRAND													
RS60HT-3	.750	.469	.500	.125	.713	.614	.234	1.614	1.720	1.028	37,700	5,500	3.60
RS80HT-3	1.000	.625	.625	.156	.949	.819	.312	1.998	2.120	1.283	62,800	9,000	6.20
RS100HT-3	1.250	.750	.750	.187	1.185	1.024	.375	2.400	2.510	1.539	95,900	13,700	9.08
RS120HT-3	1.500	.875	1.000	.219	1.425	1.228	.437	2.984	3.134	1.924	129,000	18,100	12.96
RS140HT-3	1.750	1.000	1.000	.250	1.661	1.433	.500	3.191	3.370	2.055	168,600	23,900	16.46
RS160HT-3	2.000	1.125	1.250	.281	1.898	1.635	.562	3.756	3.961	2.437	214,900	31,200	21.88
RS200HT-3	2.500	1.562	1.500	.375	2.374	2.047	.781	4.760	4.969	3.083	377,000	44,000	36.73
RS240HT-3	3.000	1.875	1.875	.500	2.850	2.457	.937	6.104	6.423	3.985	595,200	63,200	57.32

Note: Riveted type chain will be provided unless otherwise specified.
Cottered type chain will be provided upon request.
❊ Refer to page A-42, “Chain Drive Selection.”

Super Series

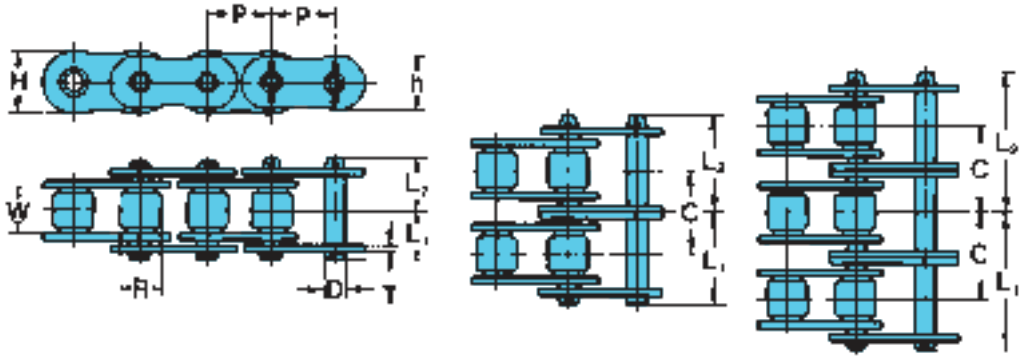


U.S. TSUBAKI Chain No.	Pitch P	Roller Dia. R	Width Between Roller Link Plates W	Link Plate T	Link Plate H	Link Plate h	Pin D	Pin L_1	Pin L_2	Transverse Pitch C	Average Tensile Strength lbs.	❊Maximum Allowable Load lbs.	Approx. Weight lbs./ft.
SINGLE STRAND													
SUPER80	1.000	.625	.625	.125	.949	.819	.312	.640	.758	—	19,100	4,180	1.89
SUPER100	1.250	.750	.750	.156	1.185	1.024	.375	.778	.900	—	28,600	6,830	2.86
SUPER120	1.500	.875	1.000	.187	1.425	1.228	.437	.980	1.138	—	41,800	8,810	4.23
SUPER140	1.750	1.000	1.000	.219	1.661	1.433	.500	1.059	1.248	—	55,100	12,100	5.40
SUPER160	2.000	1.125	1.250	.250	1.898	1.638	.562	1.254	1.451	—	70,500	15,800	7.25
SUPER200	2.500	1.562	1.500	.312	2.374	2.047	.781	1.535	1.764	—	113,500	21,100	11.85
SUPER240	3.000	1.875	1.875	.375	2.850	2.457	.937	1.886	2.185	—	165,300	29,700	17.22
DOUBLE STRAND													
SUPER80-2	1.000	.625	.625	.125	.949	.819	.312	1.217	1.335	1.153	38,300	7,100	3.78
SUPER100-2	1.250	.750	.750	.156	1.185	1.024	.375	1.484	1.606	1.408	57,300	11,610	5.63
SUPER120-2	1.500	.875	1.000	.187	1.425	1.228	.437	1.874	2.031	1.789	83,700	14,990	8.36
SUPER140-2	1.750	1.000	1.000	.219	1.661	1.433	.500	2.022	2.211	1.924	110,200	20,610	10.70
SUPER160-2	2.000	1.125	1.250	.250	1.898	1.638	.562	2.407	2.604	2.305	141,000	26,980	14.40
SUPER200-2	2.500	1.562	1.500	.312	2.374	2.047	.781	2.947	3.175	2.817	227,000	35,980	23.46
SUPER240-2	3.000	1.875	1.875	.375	2.850	2.457	.937	3.618	3.913	3.458	330,700	50,590	34.19
TRIPLE STRAND													
SUPER80-3	1.000	.625	.625	.125	.949	.819	.312	1.795	1.909	1.153	57,500	10,470	5.64
SUPER100-3	1.250	.750	.750	.156	1.185	1.024	.375	2.191	2.313	1.408	85,900	17,080	8.45
SUPER120-3	1.500	.875	1.000	.187	1.425	1.228	.437	2.772	2.929	1.789	125,600	22,040	12.53
SUPER140-3	1.750	1.000	1.000	.219	1.661	1.433	.500	2.986	3.179	1.924	165,300	30,310	16.02
SUPER160-3	2.000	1.125	1.250	.250	1.898	1.638	.562	3.561	3.758	2.305	211,600	39,680	21.57
SUPER200-3	2.500	1.562	1.500	.312	2.374	2.047	.781	4.360	4.585	2.817	340,600	52,910	35.24
SUPER240-3	3.000	1.875	1.875	.375	2.850	2.457	.937	5.348	5.636	3.458	496,000	74,400	51.14

Note:
1. Offset links are not available.
2. Riveted type chain will be provided unless otherwise specified.
3. Press-fit connecting links will be supplied.
4. Carbon steel sprockets with hardened teeth should be used with Super Series chain.

❊ 5. Refer to page A-42, “Chain Drive Selection.”

Super-H Series



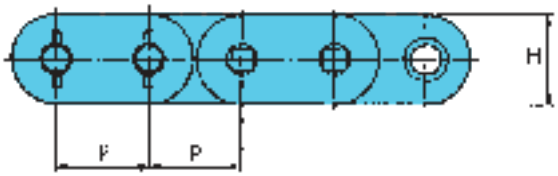
U.S. TSUBAKI Chain No.	Pitch P	Roller Dia. R	Width Between Roller Link Plates W	Link Plate T	Link Plate H	Link Plate h	Pin D	Pin L_1	Pin L_2	Transverse Pitch C	Average Tensile Strength lbs.	❊Maximum Allowable Load lbs.	Approx. Weight lbs./ft.
SINGLE STRAND													
SUPER80H	1.000	.625	.625	.156	.949	.819	.312	.720	.823	—	22,000	4,630	2.21
SUPER100H	1.250	.750	.750	.187	1.185	1.024	.375	.858	.965	—	32,600	7,270	3.28
SUPER120H	1.500	.875	1.000	.219	1.425	1.228	.437	1.061	1.203	—	44,000	9,480	4.66
SUPER140H	1.750	1.000	1.000	.250	1.661	1.433	.500	1.138	1.303	—	57,300	12,780	5.97
SUPER160H	2.000	1.125	1.250	.281	1.898	1.638	.562	1.337	1.514	—	72,700	16,500	7.88
SUPER200H	2.500	1.562	1.500	.375	2.374	2.047	.781	1.689	1.894	—	134,400	22,500	13.22
SUPER240H	3.000	1.875	1.875	.500	2.850	2.457	.937	2.157	2.453	—	207,200	31,300	20.47
DOUBLE STRAND													
SUPER80H-2	1.000	.625	.625	.156	.949	.819	.312	1.358	1.492	1.283	44,000	7,870	4.38
SUPER100H-2	1.250	.750	.750	.187	1.185	1.024	.375	1.630	1.736	1.539	65,200	12,360	6.39
SUPER120H-2	1.500	.875	1.000	.219	1.425	1.228	.437	2.014	2.171	1.924	88,100	16,110	9.08
SUPER140H-2	1.750	1.000	1.000	.250	1.661	1.433	.500	2.163	2.343	2.055	114,600	21,730	11.68
SUPER160H-2	2.000	1.125	1.250	.281	1.898	1.638	.562	2.555	2.736	2.437	145,500	28,100	15.44
SUPER200H-2	2.500	1.562	1.500	.375	2.374	2.047	.781	3.230	3.437	3.083	268,900	38,220	25.86
SUPER240H-2	3.000	1.875	1.875	.500	2.850	2.457	.937	4.146	4.461	3.985	414,400	53,220	40.16
TRIPLE STRAND													
SUPER80H-3	1.000	.625	.625	.156	.949	.819	.312	1.998	2.120	1.283	66,100	11,570	6.55
SUPER100H-3	1.250	.750	.750	.187	1.185	1.024	.375	2.400	2.510	1.539	97,800	18,180	9.50
SUPER120H-3	1.500	.875	1.000	.219	1.425	1.228	.437	2.954	3.134	1.925	132,200	23,700	13.50
SUPER140H-3	1.750	1.000	1.000	.250	1.661	1.433	.500	3.191	3.370	2.055	171,900	31,960	17.39
SUPER160H-3	2.000	1.125	1.250	.281	1.898	1.638	.562	3.756	3.961	2.437	218,200	41,330	22.99
SUPER200H-3	2.500	1.562	1.500	.375	2.374	2.047	.781	4.761	4.968	3.083	403,400	56,210	38.50
SUPER240H-3	3.000	1.875	1.875	.500	2.850	2.457	.937	6.105	6.424	3.985	621,700	78,260	59.87

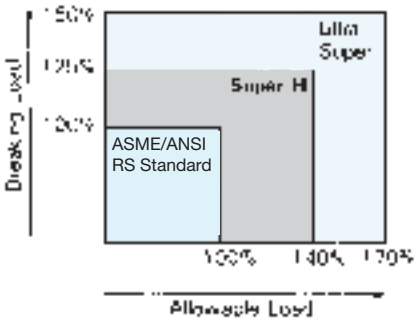
Note:
1. Offset links are not available.
2. Riveted type chain will be provided unless otherwise specified. Cottered type chain will be provided upon request.
3. Press-fit connecting links will be supplied.
4. Carbon steel sprockets with hardened teeth should be used with Super-H Series chain.

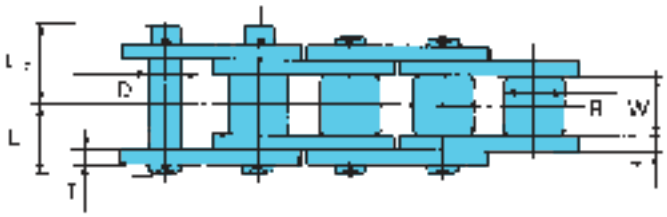
❊5. Refer to page A-42, “Chain Drive Selection.”

Ultra Super Series

U.S. Tsubaki Ultra Super chains have superior strength, excellent durability, greater allowable load, higher breaking load, and are stronger than any other roller chain we manufacture. With 170% higher allowable load than that of ASME/ANSI RS standard chains, you can select up to two chain sizes smaller. U.S. Tsubaki Ultra Super chains will solve your specific driving and conveying problems relating to heavy shock load and/or space limitation.







U.S. TSUBAKI Chain No.	Pitch P	Roller Dia. R	Width Between Roller Link Plates W	Link Plates T	Link Plates H	Pins D	Pins L_1	Pins L_2	Average Tensile Strength lbs.	❊ Maximum Allowable Load lbs.	Approx. Weight lbs./ft.
US100	1.250	.750	.750	.187	1.185	.406	.880	.998	38,500	8,800	3.40
US120	1.500	.875	1.000	.219	1.425	.483	1.085	1.242	55,100	12,100	4.84
US140	1.750	1.000	1.000	.250	1.661	.550	1.161	1.346	70,500	14,300	6.20
US160	2.000	1.125	1.250	.281	1.898	.615	1.358	1.583	88,000	19,140	8.17
US200	2.500	1.562	1.500	.375	2.374	.804	1.691	2.006	149,600	24,200	13.73
US240	3.000	1.875	1.875	.500	2.850	.959	2.157	2.555	220,000	33,900	21.25

Note:
1. RS standard sprockets can be used if the sprocket teeth have been hardened and the sprocket is not of the cast iron type.
2. Chain should be lubricated using:
   a) drip method b) oil bath c) lubrication pump
3. Offset links are not available.
4. Riveted type chains will be supplied unless otherwise specified.
5. Chains cannot be coupled with RS standard chains.

❊ 6. Refer to page A-42, “Chain Drive Selection.”

Chain Drive Selection
Generally, Super Series chains are suggested when the chain speed is less than 160 ft./min. and where the RS roller chain or the ASME/ANSI Heavy Series are not strong enough to meet the application requirements.

1) Tentatively select the chain and sprocket with the same size and number of teeth as used in "Selection for Slow Speed" on page A-23.
2) Calculate the chain speed from the number of teeth of the driving sprocket using equation (A) and check whether the speed is less than 160 ft./min.
3) Calculate the chain tension necessary for the above drive from equation (B).
4) Select the service factor and the chain speed coefficient from Tables I and II.
5) Select the suitable chain and verify that the chain satisfies equation (C).

$$S = \frac{P \cdot N \cdot n}{12} \text{ (ft./min.)} \quad \ldots\ldots\ldots .(A)$$

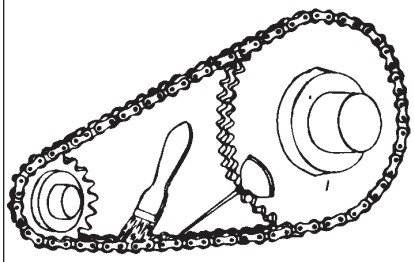
$$T = \frac{33{,}000 \cdot HP}{S} \text{ (lbs.)} \quad \ldots\ldots\ldots .(B)$$

T • Service Factor • Chain Speed Coefficient ≦ Maximum Allowable Load . . . . . (C)

S: chain speed (ft./min.)
P: chain pitch (inch)
N: number of teeth of driving sprocket
n: RPM of driving sprocket
T: chain tension (lbs.)
HP: horsepower to be transmitted (HP)

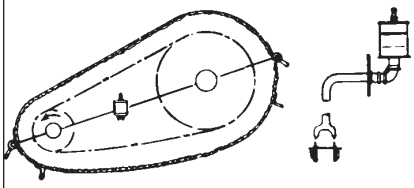
The following three lubricating systems are suggested:

System A



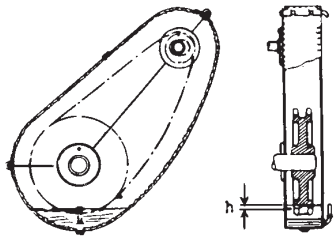
Manual lubrication
The oil is applied with an oil can or brush in the gap between the pin and roller link on the slack side of the chain. It should be applied about every eight hours or as often as necessary to prevent the bearing areas from becoming dry. Suitable chain speed is to be below 50 ft./min.

System B



Drip lubrication
A simple casing can be used. The oil is supplied by a drip feed. Each strand of chain should ordinarily receive 5 to 20 drops of oil per minute. The amount is increased as the speed increases. Suitable chain speed is from 50 to 100 ft./min.

System C



Oil bath lubrication
The chain is installed in a leak-free casing. The oil depth of "h" should be 1/4 to 1/2 inch deep. If the oil is too deep, it will be adversely affected by the heat generated. Suitable chain speed is from 100 to 160 ft./min.

Table I: Service Factor

Type of Impact	Service Factor
Smooth	1.0
Some impact	1.3
Large impact	1.5

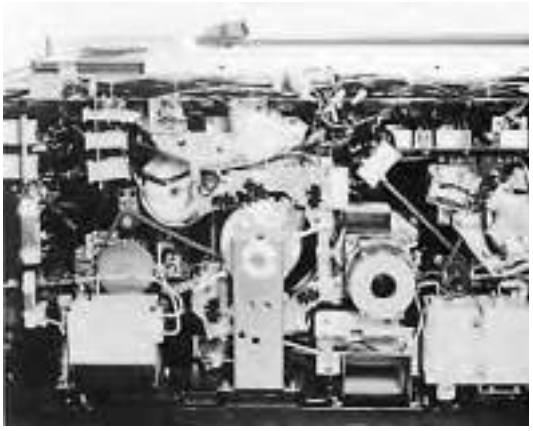
For details, refer to Table I on page A-22.

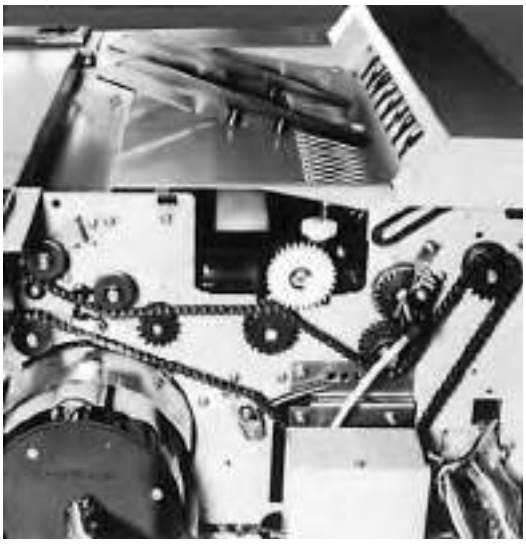
Table II: Chain Speed Coefficient

Chain Speed	Speed Coefficient
Less than 50 ft./min.	1.0
50 ~ 100 ft./min.	1.2
100 ~ 160 ft./min.	1.4

Ultra Miniature Chain

Maximum Allowable Load		Average Tensile Strength
180 lbs.	BF25H	1,170 lbs.
140 lbs.	RS25	1,050 lbs.
70 lbs.	RS15	510 lbs.
11 lbs.	RS11-SS	175 lbs.





Ultra Miniature chain from U.S. Tsubaki is specially designed for applications with extremely limited space. Manufactured to the most exacting specifications, Ultra Miniature chain is perfect for applications requiring quiet, compact, lightweight chain with minimal polygonal action.

U.S. Tsubaki Ultra Miniature chain provides superior performance in a variety of demanding applications such as communications equipment, business machines, medical equipment, photographic equipment, and other electro-mechanical devices. U.S. Tsubaki Ultra Miniature chain is available in four styles to meet the needs of the most challenging small-scale chain applications.

Chain Selection

For smooth low-speed power transmission at speeds less than 160 ft./min., use the formula below to select optimum chain size.

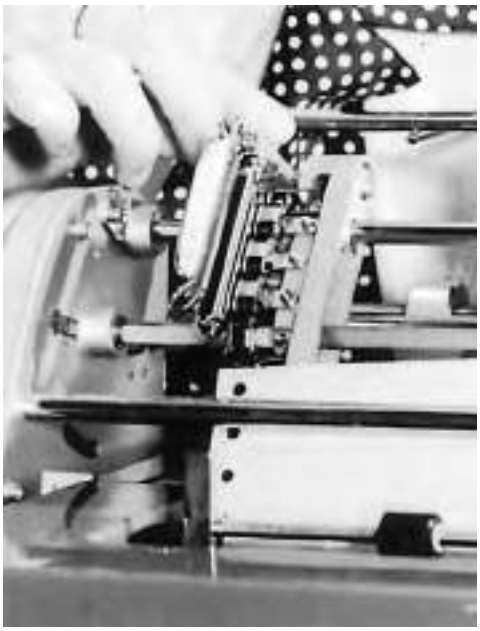
Max. load (lbs.) on chain	X	Service factor	X	Chain speed coefficient	≤	Max. allowable load (lbs.) on chain

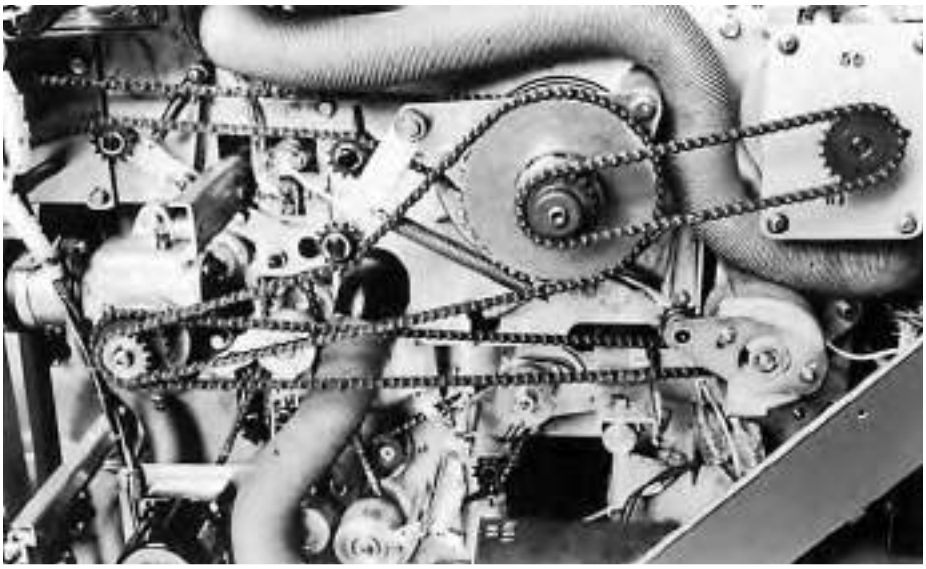
Table I: Service Factor

Type of Impact	Service Factor
Smooth	1.0
Some impact	1.3

Chain Speed Coefficient Table

Chain Speed	Chain Speed Coefficient
0 ~ 50 ft./min.	1.0
50 ~ 100 ft./min.	1.2
100 ~ 160 ft./min.	1.4

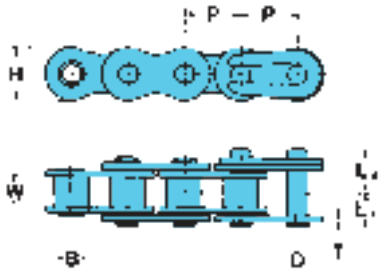




U.S. TSUBAKI MINIATURE CHAIN

RS11SS

U.S. Tsubaki Miniature chain RS11SS is made of 304 stainless steel throughout. This provides superior corrosion resistance and high temperature resistance. The chain is specially designed for use where space is extremely limited, such as in communications equipment, business machines and electro-mechanical devices.



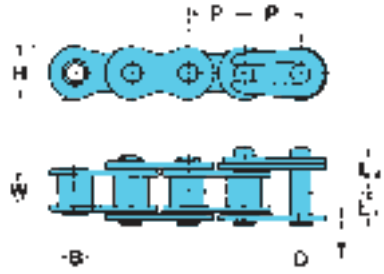
U.S. TSUBAKI Chain No.	Pitch P	Bushing Diameter B	Width Between Inner Link Plates W	Link Plate T	Link Plate H	Pin D	Pin L_1	Pin L_2	Pin L_1+L_2	Average Tensile Strength lbs.	❊Maximum Allowable Load lbs.	Approx. Weight lbs./ft.	Number of Links per 10 ft.
RS11SS	.1475	.090	.072	.015	.138	.062	.090	.125	.214	175	11	.035	814

Note: No offset links available.
❊ Refer to page A-44, “Chain Selection.”

RS15

U.S. Tsubaki RS15 bushed chain is between RS25 and RS11SS in size and is economical for compact applications.

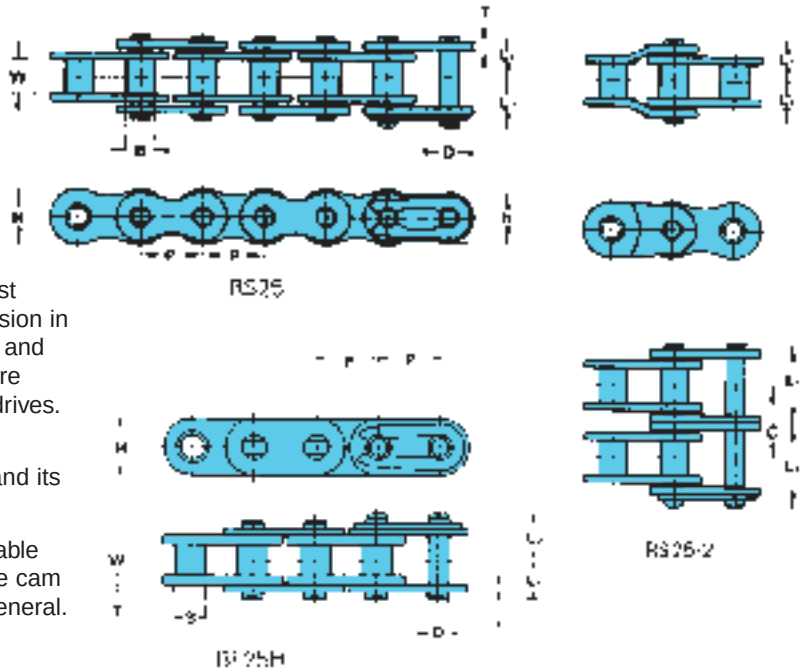
- Strong and precise, this chain is based on RS roller chain production technology.
- Lightweight and compact, it is only half the weight of RS25 which is the smallest ASME/ANSI roller chain.
- All parts are heat-treated for better strength and wear resistance.
- Suitable for industrial data equipment, business machines, electric and electronic equipment, medical instruments, photographic equipment and other devices.



U.S. TSUBAKI Chain No.	Pitch P	Bushing Diameter B	Width Between Inner Link Plates W	Link Plate T	Link Plate H	Pin D	Pin L_1	Pin L_2	Pin L_1+L_2	Average Tensile Strength lbs.	❊Maximum Allowable Load lbs.	Approx. Weight lbs./ft.	Number of Links per 10 ft.
RS15	.1875	.098	.094	.024	.169	.064	.120	.152	.272	510	70	.05	640

Note: No offset links available.
❊ Refer to page A-44, “Chain Selection.”

RS25 • BF25H



RS25/BF25H

U.S. Tsubaki RS25 bushed chain is the smallest ANSI roller chain. It is ideal for power transmission in business machines, electro-optical equipment, and precision and general industrial machines where relatively large space is allowed for miniature drives.

U.S. Tsubaki BF25H bushed chain works with standard sprockets. It is a flat side-bar chain, and its inner link plates are thicker than RS25.

These chains can accommodate a large allowable load and are widely used for driving motorcycle cam shafts and power transmission machinery in general.

U.S. TSUBAKI Chain No.	ANSI No.	Pitch P	Bushing Diameter B	Width Between Inner Link Plates W	Link Plate T	Link Plate t	Link Plate H	Link Plate h	Pin Diameter D
RS25	25	.250	.130	.125	.030	—	.230	.199	.0905
BF25H	—	.250	.130	.125	.039	.030	.230	—	.0905

U.S. TSUBAKI Chain No.	Number of Strands	Pin L_1+L_2	Pin L_1	Pin L_2	Transverse Pitch C	Type of Pin	Minimum Ultimate Strength ANSI Standard lbs.	Average Tensile Strength lbs.	❊ Maximum Allowable Load lbs.	Approx. Weight lbs./ft.	Number of Links per 100 ft.
RS25	1	.339	.150	.189	—	Riveted	780	1,050	140	.09	480
RS25-2	2	.591	.276	.315	.252	Riveted	1,560	2,100	240	.18	480
BF25H	1	.362	.161	.201	—	Riveted	—	1,320	170	.11	480

Note: Only two-pitch offset links are available for RS25 and RS25-2.
No offset links are available for BF25H.
❊ Refer to page A-44, “Chain Selection.”

BS/DIN Roller Chain

These chains are manufactured to International Standards Organization metric dimensions (ISO 606), British Standard (BS 228), and DIN 8187.

They are available in a variety of sizes and types from U.S. Tsubaki and are ideal for use as replacement chains on imported equipment or new machinery manufactured for export.

British Standard chains are manufactured with the same quality materials used in our ASME/ANSI standard chains.

U.S. Tsubaki British Standard chains are available in stainless steel, nickel-plated, NEPTUNE®, and LAMBDA®.

Pin Link

Riveted type
Standard for all sizes of roller chains.

Roller Link

Available for all sizes of roller chains.

Connecting Link

Spring clip type.
Standard for 3/8″ to 1″ pitch chains.

Cotter pin type.
For 1-1/4″ to 2-1/2″ pitch chains.

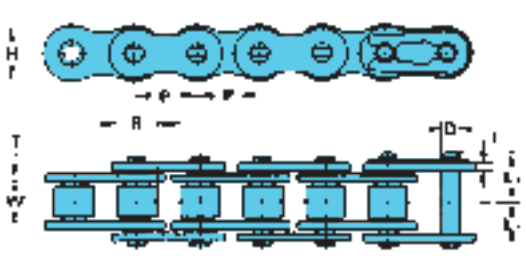
One Pitch Offset Link

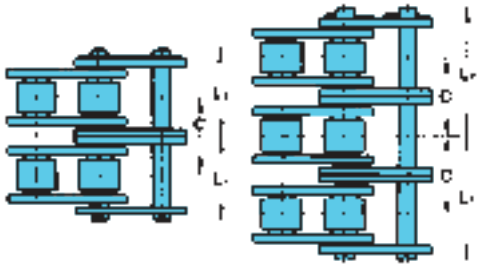
Slip-fit type.
The use of offset links should be avoided whenever possible.

Two Pitch Offset Link

Press-fit and riveted type.
Not available for chain sizes of RS20B and over.

BS/DIN Chain Series





U.S. TSUBAKI Chain No.	ISO BS/DIN No.	Pitch P	Roller Dia. R	Width Between Roller Link Plates W	Pin D	Pin L_1	Pin L_2	Link Plate T	Link Plate t	Link Plate H	Transverse Pitch C	Average Tensile Strength lbs.	Bearing Area (Nominal) inch^2	Approx. Weight lbs./ft.	Number of Links per 10 ft.
SINGLE STRAND															
RF06B ★	06B	.375	.250	.225	.129	.255	.296	.050	.040	.323	—	2,310	.040	.26	320
RS08B	08B	.500	.335	.305	.175	.329	.395	.060	.060	.465	—	4,410	.078	.47	240
RS10B	10B	.625	.400	.380	.200	.370	.449	.060	.060	.579	—	5,840	.104	.64	192
RS12B	12B	.750	.475	.460	.225	.433	.520	.070	.070	.634	—	7,500	.138	.84	160
RS16B	16B	1.000	.625	.670	.326	.705	.783	.156	.125	.827	—	16,500	.326	1.82	120
RS20B	20B	1.250	.750	.770	.401	.791	.912	.177	.138	1.024	—	24,300	.457	2.59	96
RS24B	24B	1.500	1.000	1.000	.576	1.051	1.238	.236	.204	1.315	—	41,900	.859	5.01	80
RS28B	28B	1.750	1.100	1.220	.626	1.278	1.474	.295	.248	1.433	—	48,500	1.147	6.35	68
RS32B	32B	2.000	1.150	1.220	.701	1.264	1.484	.276	.248	1.661	—	63,100	1.257	6.89	60
RS40B	40B	2.500	1.550	1.500	.901	1.545	1.774	.335	.315	2.083	—	88,200	1.978	10.99	48
DOUBLE STRAND															
◆ **RF06B-2** ★	06B-2	.375	.250	.225	.129	.451	.506	.050	.040	.323	.403	4,080	.090	.50	320
◆ **RS08B-2**	08B-2	.500	.335	.305	.175	.603	.669	.060	.060	.465	.548	7,600	.156	.90	240
RS10B-2	10B-2	.625	.400	.380	.200	.699	.773	.060	.060	.579	.653	11,700	.208	1.24	192
RS12B-2	12B-2	.750	.475	.460	.225	.819	.901	.070	.070	.634	.766	15,000	.276	1.68	160
RS16B-2	16B-2	1.000	.625	.670	.326	1.335	1.413	.157	.125	.827	1.255	31,500	.652	3.62	120
RS20B-2	20B-2	1.250	.750	.770	.401	1.509	1.631	.177	.138	1.024	1.435	46,100	.916	5.14	96
RS24B-2	24B-2	1.500	1.000	1.000	.576	2.004	2.191	.236	.204	1.315	1.904	79,800	1.719	9.84	80
RS28B-2	28B-2	1.750	1.100	1.220	.626	2.450	2.646	.295	.248	1.433	2.345	92,400	2.296	12.63	68
RS32B-2	32B-2	2.000	1.150	1.220	.701	2.417	2.636	.276	.248	1.661	2.305	119,900	2.516	13.51	60
RS40B-2	40B-2	2.500	1.550	1.500	.901	2.970	3.197	.335	.315	2.083	2.846	169,300	3.957	21.50	48
TRIPLE STRAND															
◆ **RS08B-3**	08B-3	.500	.335	.305	.175	.876	.943	.060	.060	.465	.548	10,900	.234	1.34	240
RS10B-3	10B-3	.625	.400	.380	.200	1.026	1.100	.060	.060	.579	.653	17,500	.312	1.88	192
RS12B-3	12B-3	.750	.475	.460	.225	1.205	1.283	.070	.070	.634	.766	22,500	.414	2.55	160
RS16B-3	16B-3	1.000	.625	.670	.326	1.963	2.041	.156	.125	.827	1.255	47,000	.978	5.36	120
RS20B-3	20B-3	1.250	.750	.770	.401	2.226	2.349	.177	.138	1.024	1.435	69,200	1.374	7.70	96
RS24B-3	24B-3	1.500	1.000	1.000	.576	2.956	3.142	.236	.204	1.315	1.904	119,500	2.580	14.62	80
RS28B-3	28B-3	1.750	1.100	1.220	.626	3.623	3.820	.295	.248	1.433	2.345	138,500	3.443	18.95	68
RS32B-3	32B-3	2.000	1.150	1.220	.701	3.569	3.789	.276	.248	1.661	2.305	180,100	3.774	20.10	60
RS40B-3	40B-3	2.500	1.550	1.500	.901	4.393	4.621	.335	.315	2.083	2.846	255,300	5.935	32.09	48

Note: ★ Flat shape link plate ○ ○

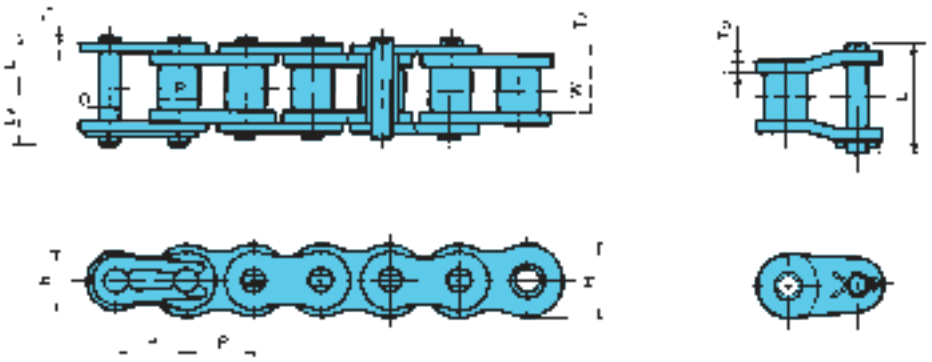
◆ Middle link plate has one solid plate.

Riveted type chain will be supplied unless otherwise specified.

Stainless steel is available.

Refer to Section “B” for BS/DIN attachment specifications.

BS/DIN Drive Lambda Λ®



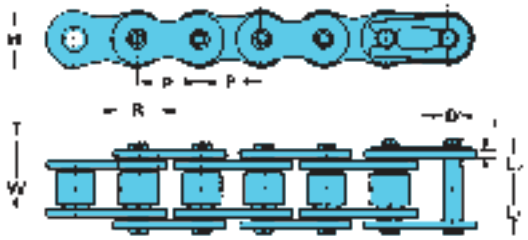
Dimensions – Inches

U.S. TSUBAKI Chain No.	Pitch P	Roller Diameter R	Width Between Roller Link Plates W	Link Plates			
				PLP Thickness T_1	RLP Thickness T_2	RLP Height H	PLP Height h
RSD08B-LAMBDA®	.500	.335	.305	.060	.080	.472	.409
RSD10B-LAMBDA	.625	.400	.380	.080	.080	.591	.512
RSD12B-LAMBDA	.750	.475	.460	.094	.094	.713	.614

U.S. TSUBAKI Chain No.	Pin				Avg. Tensile Strength lbs.	Approx. Weight lbs./ft.
	D	L_1	L_2	L		
RSD08B-LAMBDA	.175	.346	.411	.787	4,230	.47
RSD10B-LAMBDA	.200	.406	.472	.886	6,080	.70
RSD12B-LAMBDA	.225	.486	.565	1.138	9,060	1.01

Note: Although some dimensions differ from British Standard (DIN), the primary dimensions are identical, enabling BS LAMBDA® to engage perfectly with British Standard sprockets.

BS/DIN Stainless Steel



U.S. TSUBAKI Chain No.	ISO BS/DIN No.	Pitch P	Roller Diameter R	Width Between Roller Link Plates W	Pin D	Pin L_1	Pin L_2	Link Plate T	Link Plate t	Link Plate Height (max.) H	Average Tensile Strength lbs.	Bearing Area (Nominal) inch^2	Approx. Weight lbs./ft.
RF06BSS ★	06B	.375	.250	.225	.129	.255	.296	.050	.040	.323	1,430	.040	.26
RS08BSS	08B	.500	.335	.305	.175	.329	.395	.060	.060	.465	2,200	.078	.47
RS10BSS	10B	.625	.400	.380	.200	.370	.449	.060	.060	.579	3,190	.104	.64
RS12BSS	12B	.750	.475	.460	.225	.433	.520	.070	.070	.634	3,740	.138	.84
RS16BSS	16B	1.000	.625	.670	.326	.705	.783	.156	.125	.827	10,560	.326	1.82

Note: ★ Flat shape link plate

Stainless steel roller chains with over 1.00 inch pitch plate are also available upon request.

Double-strand and triple-strand are also available.

U.S. TSUBAKI BS/DIN ROLLER CHAIN

CHAIN DRIVE SELECTION

SELECTION PROCEDURE

1) The following factors must be considered when selecting roller chains for transmission needs.
   - The power to be transmitted.
   - The speed and the diameters of the driving shaft and the driven shaft.
   - The distance between the centers of the shafts.
2) Use Table I to obtain the service factor. (The "Service Factor" table refers to the type of machine and source of power.)
3) Multiply the HP value by the service factor to obtain the design HP value.
4) Use Table III page A-52 to obtain the appropriate chain number and the number of teeth for the small sprocket by referring to the number of revolutions of the high speed shaft (the driving shaft when the speed is reduced; the driven shaft when the speed is increased) and the design HP value. For a smoother chain drive, a smaller pitch chain is suggested. If a single strand chain does not satisfy the transmission requirements, use a multi-strand chain. If the distance between the shafts and the diameter of the sprockets must be relatively small due to space considerations, a multiple strand roller chain with a smaller pitch may be used.
5) After determining the number of teeth for the small sprockets, confirm if the sprocket will meet the shaft diameter requirements.
6) The number of teeth for the large sprocket is determined by multiplying the number of teeth for the small sprocket by the speed ratio. While it is preferable that the number of teeth for the small sprocket be greater than 15, it is suggested that the number of teeth for the large sprocket not exceed 120. By reducing the number of teeth for the small sprocket, the number of teeth for the large sprocket can also be reduced.

Table II: Multiple-Strand Factor

Number of Roller Chain Strand	Multiple-Strand Factor
Double Strand	1.7
Triple Strand	2.5

Number of Pitches of Chain

$$L=\frac{N_1+N_2}{2}+2C+\frac{\left(\frac{N_2-N_1}{6.28}\right)^2}{C}$$

Any fraction of L is counted as one pitch.

Center Distance in Pitches

$$C=\frac{1}{8}\left\{2L-N_1-N_2+\sqrt{(2L-N_1-N_2)^2-\frac{8}{9.86}(N_2-N_1)^2}\right\}$$

L: Number of pitches of chain
N_1: Number of teeth (small sprocket)
N_2: Number of teeth (large sprocket)
C: Center distance in pitches

Chain Speed

$$S=\frac{P \cdot N \cdot n}{12}\ \text{(ft./min.)}$$

S: Chain speed (ft./min.)
P: Chain pitch (inch)
N: Number of teeth of sprocket
n: rpm of the sprocket

Chain Tension from HP

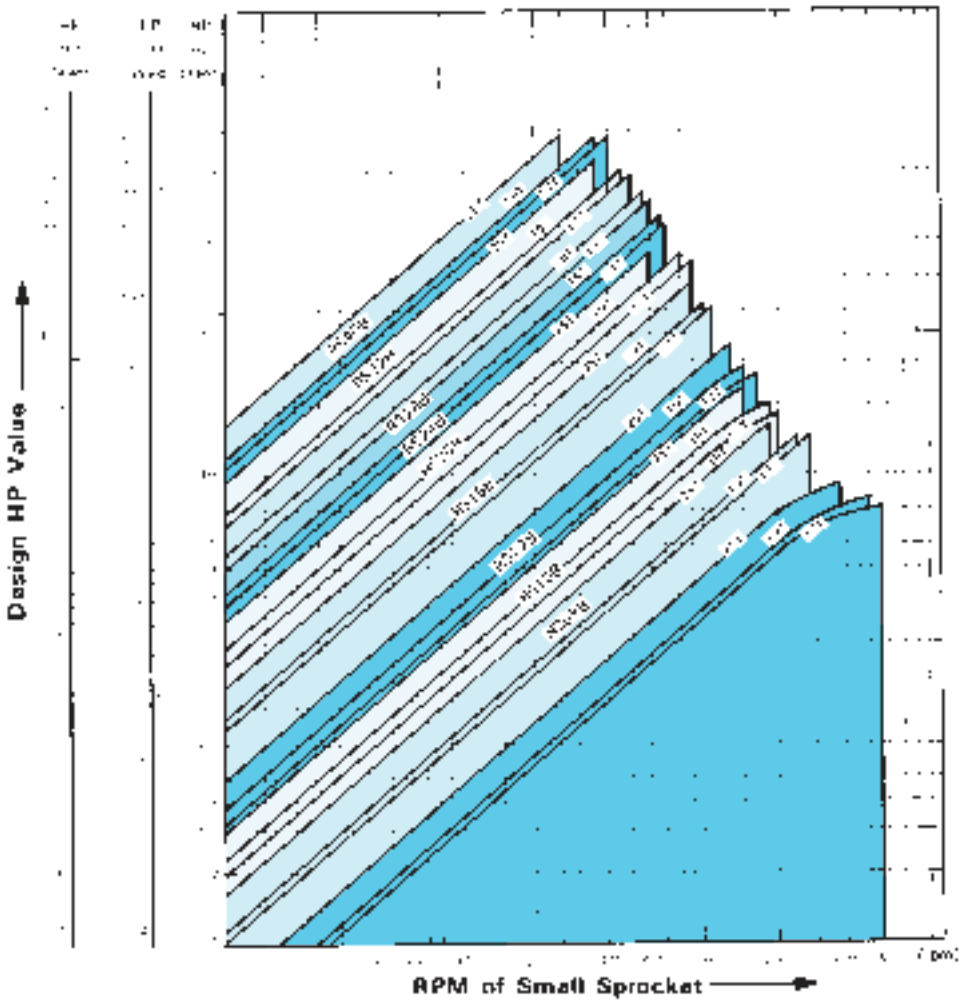
$$T=\frac{33{,}000 \cdot HP}{S}\ \text{(lbs.)}$$

T: Chain tension (lbs.)

Table I: Service Factor

Type of Impact	Machines	Source of Power		
		Electric Motor or Turbine	Internal Combustion Engine	
			With hydraulic drive	Without hydraulic drive
Smooth	Belt conveyors with small load fluctuation, chain conveyors, centrifugal blowers, general textile machines, machines with small load fluctuation.	1.0	1.0	1.2
Some impact	Centrifugal compressors, marine engines, conveyors with some load fluctuation, automatic furnaces, dryers, pulverizers, general machine tools, compressors, general work machines, general paper mills.	1.3	1.2	1.4
Large impact	Presses, construction or mining machines, vibration machines, oil well rigs, rubber mixers, general machines with reverse or impact load.	1.5	1.4	1.7

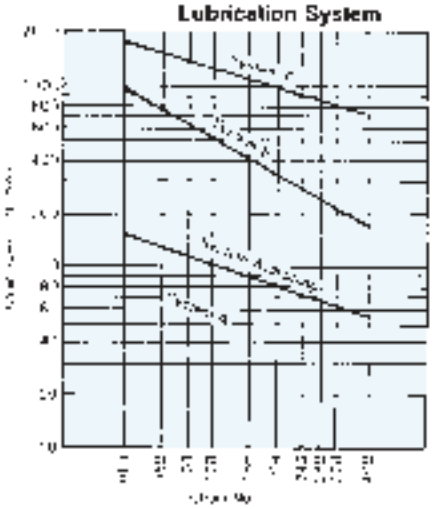
Table III: BS Roller Chain Selection Table



The selection table is based on the following conditions:

1) The chains are operated under ordinary conditions. The ambient temperature range is between 15°F and 140°F. They are not to be used in an atmosphere where abrasive dust or corrosive gas is present or when the humidity is exceptionally high.
2) The two transmission shafts are in a horizontal position and the chains are properly installed.
3) The suggested lubrication system shown on Table IV is used.
4) The load does not change significantly during transmission.
   The "Service Factors" given in Table I are used when the chains are used under various operating conditions. The load conditions will affect the life of the chain. The increase in the horsepower rating of multiple-strand roller chains cannot be calculated simply by multiplying the horsepower rating of one strand by the total number of strands, since the load on each strand is not exactly the same. In order to estimate the service life of a multiple-strand chain, the "Multiple-Strand Factor" given in Table II must be used.

Table IV: Chain Speed and Lubrication System



Note: Refer to page A-77 for details of lubrication system.

Example

Data:
1. Type of application: Centrifugal Blowers
2. Source of power: Electric Motor
3. HP to be transmitted: 40 hp
4. Driving shaft: 600 rpm
5. Driven shaft: 200 rpm
6. Center distance: 19 inches
7. Space limit: Max. 24 inches

Step 1 Use Table I and determine the service factor.
Service factor (SF): 1.0

Step 2 Obtain design HP
Design HP = HP to be transmitted • SF
= 40 hp • 1.0
= 40 hp

Step 3 Obtain the chain size and the number of teeth of the small sprocket from the selection table for 40 hp and 600 rpm.

According to the selection table, the selected chain and sprocket rpms are:
(a) RS12B-3 chain and 25-tooth sprocket
(b) RS16B-2 chain and 17-tooth sprocket
(c) RS16B-1 chain and 25-tooth sprocket

* For (a), the necessary number of teeth for both small and large sprockets are 25 teeth and 75 teeth respectively, since the speed ratio is 1/3 (200/600 rpm). But the outside diameter of both sprockets, 6.3 inches for 25 teeth and 18.3 inches for 75 teeth, exceeds the limitation (6.3 inches + 18.3 inches > 24 inches). Therefore, these sprockets cannot be installed.
* For (c), the necessary number of teeth for both small and large sprockets are 25 teeth (outside dia. 8.4 inches) and 75 teeth (outside dia. 24.4 inches), respectively. It exceeds the space limitation again (8.4 inches + 24.4 inches > 24 inches).
* For (b), the necessary number of teeth for both the small and large sprockets are 17 (outside dia: 5.9 inches) and 51 (outside dia: 16.8 inches). It satisfies the space limitation (5.9 inches + 16.8 inches < 24 inches). A combination of RS16B-2, and 17 teeth and 51 teeth must be used to fulfill all the necessary requirements.

Step 4 Use Table IV to determine the lubrication method.

$$\text{Chain speed (S)} = \frac{P \bullet N \bullet n}{12}$$

$$= \frac{1 \bullet 600 \bullet 17}{12} = 850 \text{ ft./min.}$$

System B is suggested.

Step 5 Obtain the number of pitches of chain (L).

$$= \frac{N_1 + N_2}{2} + 2C + \frac{\left(\frac{N_2 - N_1}{6.28}\right)^2}{C}$$

$$= \frac{17 + 51}{2} + 2 \bullet \frac{19}{1} + \frac{\left(\frac{51 - 17}{6.28}\right)^2}{\frac{19}{1}}$$

$$= 73.35 \longrightarrow 74 \text{ links}$$

Anti-Corrosive Heat Resistant Chain

NEPTUNE® CHAIN
NEPTUNE® chain resists corrosion when exposed to harsh outdoor environments, including seawater. The exclusive **NEPTUNE** surface treatment process gives the chain its unique matte grey color and provides a protective finish that is more corrosion resistant than Nickel-Plated chains. **NEPTUNE** chain has the same high maximum allowable load as our standard carbon steel roller chain.

NICKEL-PLATED CHAIN
Nickel-Plated chains provide acceptable performance where equipment must operate in mildly corrosive environments.

600 AS SERIES
AS Series chains are an excellent choice for drives requiring both corrosion resistance and high load capacity. Link plates are made of 304 stainless steel and the round parts are made of hardened 600 series stainless steel. Of all the stainless steel chains offered by U.S. Tsubaki, **AS Series** has the highest load capacity. Use where stainless steel is required by FDA regulations.

304 SS SERIES
SS Series chains are made completely of 304 stainless steel. **SS Series** has an excellent resistance to corrosion & temperature extremes. It is generally considered non-magnetic, although some permeability can be found in these chains. This is caused by the cold working of the components during the manufacturing process. If more complete non-magnetic permeability is required, we suggest our NS Series.

316 NS SERIES
NS Series chains are made completely of 316 stainless steel. It is the most corrosion resistant standard stainless steel chain offered by U.S. Tsubaki. It also has the highest resistance to temperature extremes, and is sometimes referred to as our *non-magnetic series* because of its extremely low magnetic permeability. The load capacity of 316 **NS Series** is equal to that of our 304 SS Series.

POLY-STEEL CHAIN
Poly-Steel chain is made of molded engineered plastic with 304 stainless steel pin links. This combination effectively incorporates the advantages of both materials into one chain. **Poly-Steel** chain from U.S. Tsubaki has superior wear life, excellent corrosion resistance, and requires no lubrication. This design provides a quiet, lightweight chain for economical solutions to difficult application problems.

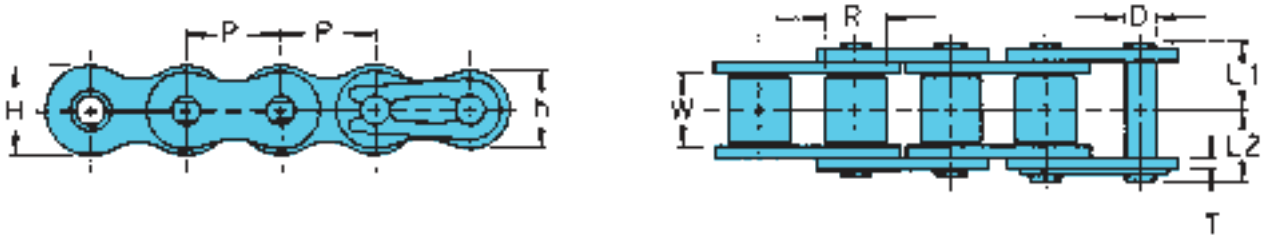
TITANIUM TI SERIES
TI Series chains are made completely of Titanium. Available in sizes RS35TI - RS60TI, **TI Series** brings the unique properties of Titanium to roller chain applications, specifically extreme corrosion resistance in a lightweight chain. Available on a made-to-order basis in the same dimensions as the 304 SS Series. Call U.S. Tsubaki for further details.

NEPTUNE® Chain

Drive Chain

U.S. TSUBAKI Chain Size	Pitch P	Width Between Roller Link Plates W	Roller Diameter R	Link Plate T	Link Plate H	Link Plate h	Pin L_1	Pin L_2	Pin D	Average Tensile Strength lbs.	Max. Allowable Load lbs.	Approx. Weight lbs./ft.
RS35NT	.375	.188	.200	.050	.354	.307	.230	.270	.141	2,530	480	.22
RS40NT	.500	.312	.312	.060	.472	.409	.325	.392	.156	4,290	810	.43
RS50NT	.625	.375	.400	.080	.591	.512	.406	.472	.200	7,050	1,430	.70
RS60NT	.750	.500	.469	.094	.713	.614	.506	.581	.234	9,920	1,980	1.03
RS80NT	1.000	.625	.625	.125	.949	.819	.640	.758	.312	17,640	3,300	1.79
RS100NT	1.250	.750	.750	.156	1.185	1.024	.778	.900	.375	26,460	5,070	2.68

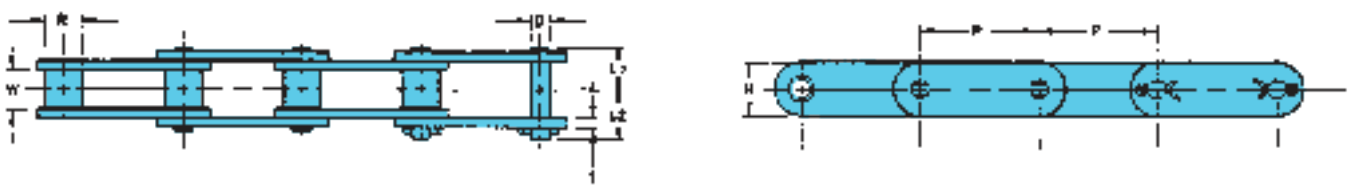
Note: RS40NT ~ RS60NT are provided with clip type connecting links. RS80NT & RS100NT are cottered type. All other links are riveted.



Double Pitch Conveyor Chain

U.S. TSUBAKI Chain Size	Pitch P	Width Between Roller Link Plates W	Roller Diameter R	Pin L_1	Pin L_2	Pin D	Plate H	Plate T	Average Tensile Strength lbs.	Max. Allowable Load lbs.	Approx. Weight lbs./ft.
C2040NT	1.000	.312	.312	.325	.380	.156	.472	.060	3,740	590	.34
C2050NT	1.250	.375	.400	.406	.469	.200	.591	.080	6,170	970	.56
C2060HNT	1.500	.500	.469	.575	.646	.234	.677	.125	9,040	1,410	1.01
C2080HNT	2.000	.625	.625	.720	.823	.312	.906	.156	15,430	2,400	1.78

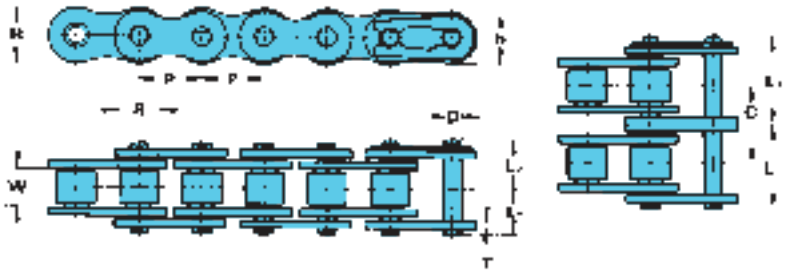
Note: C2040NT ~ C2060HNT are provided with clip type connecting links. C2080HNT is a cottered type. All other links are riveted.



Standard Roller Type

Nickel-Plated Chain

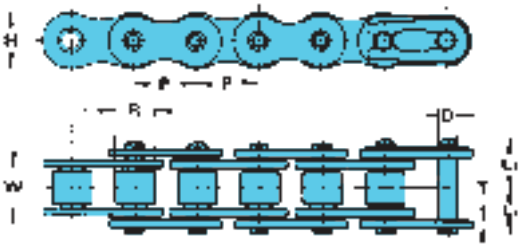
1. RS ROLLER CHAIN



U.S. TSUBAKI Chain No.	Pitch P	Roller Diameter R	Width Between Roller Link Plates W	Pin D	Pin L_1	Pin L_2	Link Plate T	Link Plate H	Link Plate h	Transverse Pitch C	Average Tensile Strength lbs.	Maximum Allowable Load lbs.	Approx. Weight lbs./ft.
SINGLE STRAND													
▲ RS25NP ★	.250	.130	.125	.0905	.150	.189	.030	.230	.199	—	1,050	140	.094
▲ RS35NP ★	.375	.200	.188	.141	.230	.270	.050	.354	.307	—	2,500	350	.220
RS41NP ★	.500	.306	.251	.141	.266	.312	.050	.382	.331	—	2,600	370	.270
RS40NP ★	.500	.312	.312	.156	.325	.392	.060	.472	.409	—	4,250	660	.430
RS50NP ★	.625	.400	.375	.200	.406	.472	.080	.591	.512	—	7,050	1,140	.700
RS60NP	.750	.469	.500	.234	.506	.581	.094	.713	.614	—	9,900	1,630	1.030
RS80NP	1.000	.625	.625	.312	.640	.758	.125	.949	.819	—	16,500	2,900	1.790
RS100NP	1.250	.750	.750	.375	.778	.900	.156	1.185	1.024	—	25,500	4,100	2.680
RS120NP	1.500	.875	1.000	.437	.980	1.138	.187	1.425	1.228	—	35,000	5,200	3.980
DOUBLE STRAND													
RS35NP-2	.375	.200	.188	.141	.439	.469	.050	.354	.307	.399	5,000	590	.460
RS40NP-2	.500	.312	.312	.156	.608	.675	.060	.472	.409	.566	8,500	1,120	.850
RS50NP-2	.625	.400	.375	.200	.762	.833	.080	.591	.512	.713	14,100	1,940	1.390
RS60NP-2	.750	.469	.500	.234	.955	1.053	.094	.713	.614	.897	19,800	2,800	2.040
RS80NP-2	1.000	.625	.625	.312	1.217	1.335	.125	.949	.819	1.153	32,500	4,900	3.540
RS100NP-2	1.250	.750	.750	.375	1.484	1.606	.156	1.185	1.024	1.408	51,000	7,000	5.270
RS120NP-2	1.500	.875	1.000	.437	1.874	2.031	.187	1.425	1.228	1.789	70,000	8,900	7.860

Note: ▲ Rollerless (bushing only) ★ Riveted only
Double strand nickel-plated chains are also available.
Attachment chain is available. Refer to Section "B" for dimensions.

2. BRITISH STANDARD CHAIN

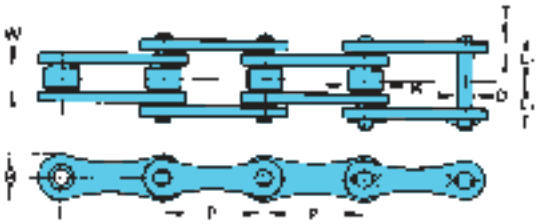


U.S. TSUBAKI Chain No.	ISO BS/DIN No.	Pitch P	Roller Diameter R	Width Between Roller Link Plates W	Pin D	Pin L_1	Pin L_2	Link Plate Height (Max.) H	Average Tensile Strength lbs.	Bearing Area (Nominal) inch^2	Approx. Weight lbs./ft.
RF06BNP ★	06B	.375	.250	.225	.129	.255	.296	.323	2,310	.040	.26
RS08BNP	08B	.500	.335	.305	.175	.329	.395	.465	4,410	.078	.47
RS10BNP	10B	.625	.400	.380	.200	.370	.449	.579	5,840	.104	.64
RS12BNP	12B	.750	.475	.460	.225	.433	.520	.634	7,500	.138	.84
RS16BNP	16B	1.000	.625	.670	.326	.705	.783	.827	16,500	.326	1.82
RS20BNP	20B	1.250	.750	.770	.401	.791	.912	1.024	24,300	.457	2.59
RS24BNP	24B	1.500	1.000	1.000	.576	1.051	1.238	1.315	41,900	.859	5.01
RS28BNP	28B	1.750	1.100	1.220	.626	1.278	1.474	1.433	48,500	1.147	6.35
RS32BNP	32B	2.000	1.150	1.220	.701	1.264	1.484	1.661	63,100	1.257	6.89
RS40BNP	40B	2.500	1.550	1.500	.901	1.545	1.774	2.083	88,200	1.978	10.99

Note: ★ Flat shape link plate ○ ○
Double strand nickel-plated chains are also available.

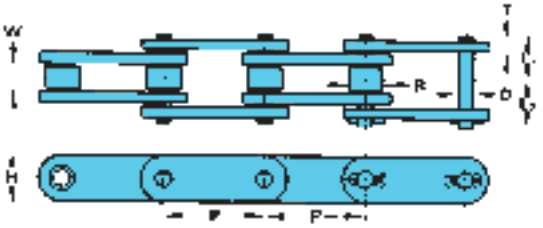
3. DOUBLE PITCH CHAIN

RS Double Pitch Drive Chain

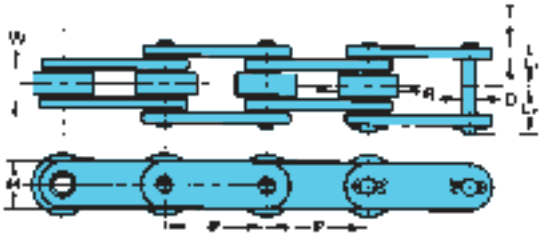


Double Pitch Conveyor Chain

STANDARD ROLLER TYPE



OVERSIZE ROLLER TYPE



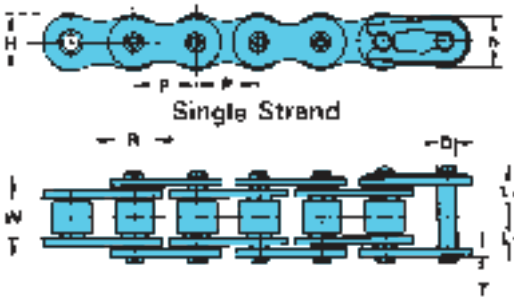
U.S. TSUBAKI Chain No.	Pitch P	Roller Diameter R	Width Between Roller Link Plates W	Pin D	Pin L_1	Pin L_2	Link Plate T	Link Plate H	Average Tensile Strength lbs.	Approx. Weight lbs./ft.	No. of Links per 10 ft.
STANDARD ROLLER TYPE											
A2040NP	1.000	.312	.312	.156	.325	.380	.060	.472	3,700	.26	120
A2050NP	1.250	.400	.375	.200	.406	.469	.080	.591	6,100	.42	96
A2060NP	1.500	.469	.500	.234	.506	.581	.094	.709	8,500	.63	80
A2080NP	2.000	.625	.625	.312	.640	.758	.125	.906	14,500	1.03	60
STANDARD ROLLER TYPE											
C2040NP	1.000	.312	.312	.156	.325	.380	.060	.472	3,700	.34	120
C2050NP	1.250	.400	.375	.200	.406	.469	.080	.591	6,100	.56	96
C2060HNP	1.500	.469	.500	.234	.573	.652	.125	.677	9,000	1.01	80
C2080HNP	2.000	.625	.625	.312	.720	.823	.156	.906	15,400	1.78	60
C2100HNP	2.500	.750	.750	.375	.858	.965	.187	1.126	24,000	2.67	48
OVERSIZE ROLLER TYPE											
C2042NP	1.000	.625	.312	.156	.325	.380	.060	.472	3,700	.58	120
C2052NP	1.250	.750	.375	.200	.406	.469	.080	.591	6,100	.87	96
C2062HNP	1.500	.875	.500	.234	.573	.652	.125	.677	9,000	1.47	80
C2082HNP	2.000	1.125	.625	.312	.720	.823	.156	.906	15,400	2.47	60
C2102HNP	2.500	1.562	.750	.375	.858	.965	.187	1.126	24,000	4.23	48

Note: Attachment chain is available. Refer to Section “B” for dimensions.
Spring clip type connecting links will be provided for A2040NP~A2060NP, C2040NP~C2060HNP and C2042NP~C2062HNP.

Stainless Steel Chain

1. RS ROLLER CHAIN

• Available in **304 SS SERIES**
316 NS SERIES
600 AS SERIES



SS • NS • AS Dimensions

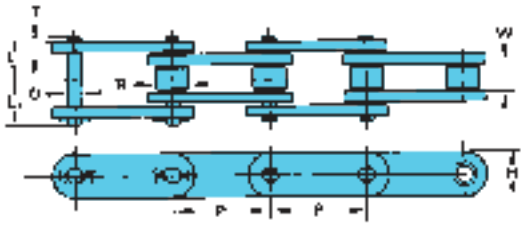
Dimensions in inches

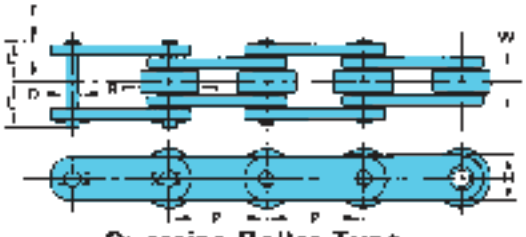
Specifications			Pitch	Width Between Roller Link Plates	Roller Dia.	Link Plate		Pin Dia.	Pin				Maximum Allowable Load lbs.		Approx. Weight lbs./ft.
									SS•NS•LS		AS				
SS	NS	AS	P	W	R	T	H	D	L_1	L_2	L_1	L_2	SS•NS	AS	
RS25SS▲	RS25NS▲	—	.250	.125	.130	.030	.230	.090	.150	.189			26		.09
RS35SS▲	RS35NS▲	RS35AS▲	.375	.188	.200	.050	.354	.141	.238	.281	.238	.281	60	91	.22
RS40SS	RS40NS	RS40AS	.500	.312	.312	.060	.472	.156	.325	.380	.325	.392	99	150	.43
RS50SS	RS50NS	RS50AS	.625	.375	.400	.080	.591	.200	.406	.469	.406	.472	154	231	.70
RS60SS	RS60NS	RS60AS	.750	.500	.469	.094	.713	.234	.506	.600	.506	.581	231	346	1.03
RS80SS	RS80NS	RS80AS	1.000	.625	.625	.125	.949	.312	.638	.768	.638	.768	397	596	1.79
RS100SS	—	—	1.250	.750	.750	.156	1.185	.375	.791	.909			573		2.69

▲ Rollerless

Note: Attachment chain is available. Refer to Section “B” for dimensions.
Titanium Series chain available in sizes RS35-RS60.
Double strand chains are available.

2. DOUBLE PITCH CONVEYOR CHAIN

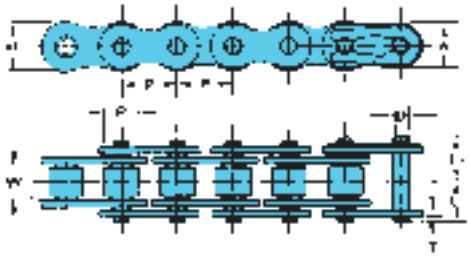




U.S. TSUBAKI Chain No.	Pitch P	Roller Diameter R	Width Between Roller Link Plates W	Pin D	Pin L_1	Pin L_2	Link Plate T	Link Plate H	Maximum Allowable Load lbs.	Approx. Weight lbs./ft.
STANDARD ROLLER TYPE										
C2040AS	1.000	.312	.312	.156	.325	.380	.060	.472	150	.34
C2050AS	1.250	.400	.375	.200	.406	.469	.080	.591	231	.56
C2060HAS	1.500	.469	.500	.234	.573	.652	.125	.677	346	1.01
C2080HAS	2.000	.625	.625	.312	.720	.823	.156	.906	596	1.62
OVERSIZE ROLLER TYPE										
C2042AS	1.000	.625	.312	.156	.325	.380	.060	.472	150	.58
C2052AS	1.250	.750	.375	.200	.406	.469	.080	.591	231	.87
C2062HAS	1.500	.875	.500	.234	.573	.652	.125	.677	346	1.47
C2082HAS	2.000	1.125	.625	.312	.720	.823	.156	.906	596	2.37

Note: 1. Material of oversize roller is 304 stainless steel.
2. Attachment chain is available. Refer to Section “B” for dimensions.

3. BS/DIN ROLLER CHAIN



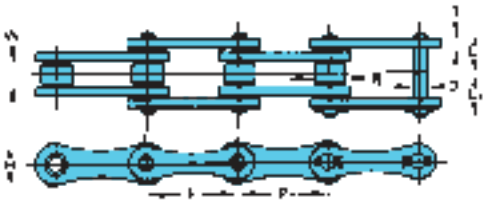
U.S. TSUBAKI Chain No.	ISO BS/DIN No.	Pitch	Roller Diameter	Width Between Roller Link Plates	Pin			Link Plate		Average Tensile Strength lbs.	Bearing Area (Nominal) inch²	Approx. Weight lbs./ft.
		P	R	W	D	L_1	L_2	T	H			
RF06BSS ★	06B	.375	.250	.225	.129	.255	.296	.050	.323	1,430	.040	.26
RS08BSS	08B	.500	.335	.305	.175	.329	.395	.060	.465	2,200	.078	.47
RS10BSS	10B	.625	.400	.380	.200	.370	.449	.060	.579	3,190	.104	.64
RS12BSS	12B	.750	.475	.460	.225	.433	.520	.070	.634	3,740	.138	.84
RS16BSS	16B	1.000	.625	.670	.326	.705	.783	.156	.827	10,560	.326	1.82

Note: ★ Flat shape link plate ○ ○

Stainless steel roller chains with over 1.00 inch pitch are also available upon request. Double-strand and triple-strand are also available.

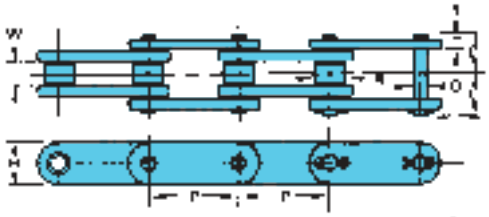
4. DOUBLE PITCH CHAIN

RS Double Pitch Drive Chain

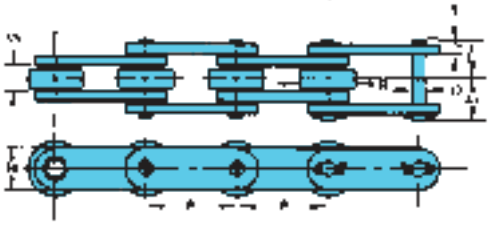


Double Pitch Conveyor Chain

STANDARD ROLLER TYPE



OVERSIZE ROLLER TYPE



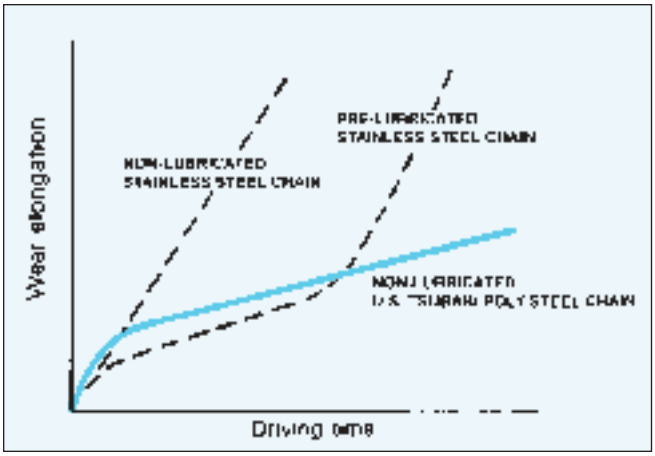
U.S. TSUBAKI Chain No.	Pitch	Roller Diameter	Width Between Roller Link Plates	Pin			Link Plate		Maximum Allowable Load lbs.	Approx. Weight lbs./ft.	No. of Links per 10 ft.
	P	R	W	D	L_1	L_2	T	H			
RS DOUBLE PITCH DRIVE CHAIN											
A2040SS	1.000	.312	.312	.156	.325	.380	.060	.472	99	.26	120
A2050SS	1.250	.400	.375	.200	.406	.469	.080	.591	154	.42	96
A2060SS	1.500	.469	.500	.234	.506	.600	.094	.709	231	.63	80
A2080SS	2.000	.625	.625	.312	.640	.758	.125	.906	397	1.03	60
DOUBLE PITCH CONVEYOR CHAIN STANDARD ROLLER											
C2040SS	1.000	.312	.312	.156	.325	.380	.060	.472	99	.34	120
C2050SS	1.250	.400	.375	.200	.406	.469	.080	.591	154	.56	96
C2060HSS	1.500	.469	.500	.234	.573	.652	.125	.677	231	1.01	80
C2080HSS	2.000	.625	.625	.312	.720	.823	.156	.906	397	1.62	60
DOUBLE PITCH CONVEYOR CHAIN OVERSIZE ROLLER											
C2042SS	1.000	.625	.312	.156	.325	.380	.060	.472	99	.58	120
C2052SS	1.250	.750	.375	.200	.406	.469	.080	.591	154	.87	96
C2062HSS	1.500	.875	.500	.234	.573	.652	.125	.677	231	1.47	80
C2082HSS	2.000	1.125	.625	.312	.720	.823	.156	.906	397	2.37	60

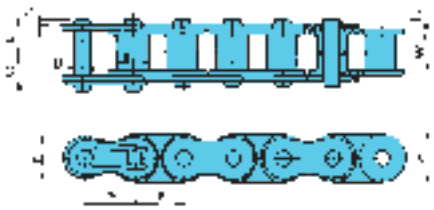
Note: 600 Series stainless steel chains are also available.
Attachment chain is available. Refer to Section “B” for dimensions.
Spring clip type connecting links will be provided for A2040SS~A2060SS, C2040SS~C2060HSS and C2042SS~C2062HSS.

Poly-Steel Chain

U.S. Tsubaki Poly-Steel chains are made to exacting specifications from polyacetal stainless steel.

The combination of polyacetal inner links and 304 stainless steel pins and outer link plates effectively incorporates the advantages of both materials into one chain. U.S. Tsubaki Poly-Steel chains can be used in both driving and conveying applications.





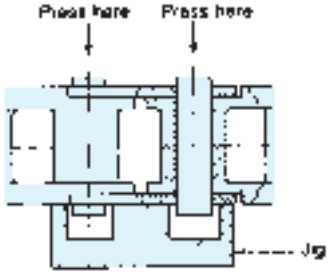
U.S. TSUBAKI Chain No.	Pitch P	Bushing Diameter B	Width Between Roller Link Plates W	Link Plate T_1	Link Plate T_2	Link Plate H	Link Plate h	Pin D	Pin L_1	Pin L_2	Maximum Allowable Load lbs.	Approx. Weight lbs./ft.	Color
RF25PC	.250	.130	.125	.030	.051	.236	.199	.091	.177	.217	18	.06	Brown
RF35PC	.375	.200	.188	.050	.087	.354	.307	.141	.270	.309	40	.15	Brown
RF40PC	.500	.312	.312	.060	.060	.472	.409	.156	.325	.392	99	.26	Brown
RF50PC	.625	.400	.375	.080	.080	.591	.512	.200	.406	.472	154	.39	Brown
RF60PC	.750	.469	.500	.094	.094	.713	.614	.234	.506	.581	198	.55	Brown

Additional Information

1. Offset links are not available. Please use an even number of links.
2. Existing RS standard sprockets can be used.
3. RF40PC to RF60PC use the same connecting links as stainless steel chain. RF25PC and RF35PC use special connecting links.
4. When replacing stainless steel chain with Poly-Steel chain, please check the chain tension. Chain tension should be less than the maximum allowable tension.
5. Ambient temperature range: -14°F ~ 176°F (-10°C ~ 80°C)
6. Maximum chain speed: less than 230 ft./min.
7. Coefficient of sliding friction between chain and guide rail is 0.25 (without lubrication).
8. The guide rail should support the bottom side of the links.
9. The color of the inner links is WHITE.

Connecting and Disconnecting

1. **Disconnect as follows:**
   As shown in the drawing, place the pin link plate on the jig and press down on the pin heads. Please be careful not to apply too much pressure to the plastic portion as there is the possibility of breakage.
2. **Please inquire about our disconnecting jig.**



3. **For connecting, please use a connecting link.**

Corrosion Resistance Guide

1. Highly corrosion resistant
2. Partially corrosion resistant
3. Not corrosion resistant

Substance	Concentration	Temp. °F	AS	SS	NS	TI	PC	PC-SY
Acetic Acid	10%	68	1	1	1	1	1	1
Acetone		68	1	1	1	1	1	3
Alcohol			1	1	1	1	1	1
Aluminum Sulfate	Saturation	68	3	1	1	1	—	—
Ammonia Water		68	1	1	1	1	1	1
Ammonium Chloride	50%	Boiling	3	2	1	1	—	—
Ammonium Nitrate		Boiling	1	1	1	1	2	1
Ammonium Sulfate	Saturation	Boiling	2	1	1	1	—	—
Beer		68	1	1	1	1	1	1
Benzene		68	1	1	1	1	1	1
Boric Acid	50%	Boiling	1	1	1	1	—	—
Butyric Acid		68	1	1	1	1	1	—
Calcium Chloride	Saturation	68	3	2	1	1	2	1
Calcium Hydroxide	20%	Boiling	1	1	1	1	1	1
Calcium Hypochlorite	11-14%	68	3	1	1	1	3	1
Carbolic Acid			1	1	1	1	3	1
Carbon Tetrachlorite (dry)		68	1	1	1	1	1	1
Chlorinated Water			3	3	1	1	3	—
Chlorine Gas (dry)		68	3	2	2	1	—	1
Chlorine Gas (moist)		68	3	3	2	1	—	1
Chromic Acid	5%	68	2	1	1	1	3	1
Citric Acid	50%	68	1	1	1	1	—	1
Coffee		Boiling	1	1	1	1	1	1
Creosote		68	1	1	1	1	—	—
Developing Solution		68	2	1	1	1	1	1
Ethyl Ether		68	1	1	1	1	1	1
Ferric Acid	50%	68	1	1	1	1	3	1
Ferric Chloride	5%	68	3	2	2	1	—	—
Formalin	40%	68	1	1	1	1	—	—
Formic Acid	50%	68	1	1	1	1	3	1
Fruit Juice		68	2	1	1	1	1	1
Gasoline		68	1	1	1	1	1	1
Glycerol		68	1	1	1	1	1	1
Honey			1	1	1	1	1	1
Hydrochloric Acid	2%	68	3	3	3	1	3	1
Hydrogen Peroxide	30%	68	2	1	1	1	3	1
Hydrogen Sulfide (dry)			1	1	1	1	1	1
Hydrogen Sulfide (wet)			3	3	3	1	3	—
Hydroxybenzene		68	1	1	1	1	3	—
Kerosene		68	1	1	1	1	—	—
Ketchup		68	1	1	1	1	1	1
Lactic Acid	10%	68	2	1	1	1	1	1
Lard			1	1	1	1	—	—
Linseed Oil	100%	68	2	1	1	1	1	—
Malic Acid	50%	Boiling	1	1	1	1	1	1
Mayonnaise		68	2	1	1	1	1	1
Milk		68	1	1	1	1	1	1

Substance	Concentration	Temp. °F	AS	SS	NS	TI	PC	PC-SY
Nitric Acid	5%	68	2	1	1	1	3	1
Nitric Acid	65%	68	3	1	1	1	3	1
Nitric Acid	65%	Boiling	3	2	2	1	3	3
Oil (Plant, Mineral)		68	1	1	1	1	1	1
Oleic Acid		68	1	1	1	1	1	—
Oxalic Acid	10%	68	2	1	1	1	—	1
Paraffin		68	1	1	1	1	1	—
Petroleum		68	1	1	1	1	1	1
Phosphate			1	1	1	1	—	—
Phosphoric Acid	5%	68	2	1	1	1	3	1
Phosphoric Acid	10%	68	2	2	2	1	3	1
Picric Acid	Saturation	68	1	1	1	1	—	—
Potassium	Saturation	68	2	1	1	1	—	—
Potassium Bichromate	10%	68	1	1	1	1	1	—
Potassium Chloride	Saturation	68	2	1	1	1	—	—
Potassium Hydroxide	20%	68	1	1	1	1	1	1
Potassium Nitrate	25%	68	1	1	1	1	1	—
Potassium Nitrate	25%	Boiling	3	1	1	1	—	—
Potassium Permanganate	Saturation	68	1	1	1	1	—	1
Sal Ammoniac	50%	Boiling	3	2	1	1	—	—
Sea-Water		68	3	2	1	1	2	1
Soap-and-Water-Solution		68	1	1	1	1	1	—
Sodium Carbonate	Saturation	Boiling	1	1	1	1	—	—
Sodium Chloride	5%	68	2	1	1	1	1	1
Sodium Cyanide		68	—	1	1	1	—	—
Sodium Hydrocarbonate		68	1	1	1	1	1	1
Sodium Hydroxide	25%	68	1	1	1	1	1	—
Sodium Hypochlorite	10%	68	3	3	1	1	3	1
Sodium Perchlorate	10%	Boiling	3	1	1	1	—	—
Sodium Sulfate	Saturation	68	1	1	1	1	—	—
Sodium Thiosulfate	25%	Boiling	1	1	1	1	—	—
Soft Drink		68	1	1	1	1	1	1
Stearic Acid	100%	Boiling	3	3	1	1	3	—
Sugar Solution		68	1	1	1	1	1	1
Sulfuric Acid	5%	68	3	3	1	1	3	1
Sulfur Dioxide		68	3	1	1	1	—	—
Synthetic Detergent			1	1	1	1	1	1
Syrup			1	1	1	1	1	1
Tartaric Acid	10%	68	1	1	1	1	1	1
Turpentine		95	1	1	1	1	—	1
Varnish			1	1	1	1	—	1
Vegetable Juice		68	1	1	1	1	1	1
Vinegar		68	3	2	1	1	2	1
Water			1	1	1	1	1	1
Whiskey		68	1	1	1	1	1	1
Wine		68	1	1	1	1	1	1
Zinc Chloride	50%	68	3	2	2	1	2	1
Zinc Sulfate	25%	68	1	1	1	1	—	1

Key: AS: 600 AS Series SS: 304 SS Series NS: 316 NS Series TI: Titanium TI Series PC: Poly-Steel Chain PC-SY: Poly-Steel Anti-Chemical Series

Note: For information on the corrosion resistance of LS Series Chain, please consult U.S. Tsubaki Engineering.

MATERIALS OF COMPONENT PARTS

	Link Plate	Pin	Bushing	Roller
AS Series	AISI 304	Special (13-7PH)	ASTM631-HT (17-7PH)	ASTM631-HT (17-7PH)
SS Series	AISI 304	AISI 304	AISI 304	AISI 304
NS Series	AISI 316	AISI 316	AISI 316	AISI 316

PH: Precipitation Hardened
The corrosion resistance of special 13-7 PH is equal to that of 17-7 PH.

PERFORMANCE OF ANTI-CORROSIVE CHAINS

	Corrosion Resistance	Temperature Resistance	Magnetism	Wear Resistance
NP Chain	Acceptable for outdoor and decorative applications	14°F~140°F (Never use below -4°F or over 300°F)	Magnetic	Excellent
NEPTUNE® Chain	Excellent for outdoors, exposure to rain, and seawater	14°F~140°F	Magnetic	Excellent
AS Series	Good for general acid, alkali and water	-40°F~750°F (Never use over 930°F)	Magnetic	Good
SS Series	Good for general acid, alkali and water	-40°F~750°F (Never use below -270°F or over 1300°F)	Slightly magnetic due to cold forming of parts	Fair
NS Series	Superior to SS & AS	-40°F~750°F (Never use below -420°F or over 1500°F)	Non-magnetic	Fair

CHAIN SELECTION

General selection is based on bearing pressure between the pin and bushing. Anti-corrosive roller chains are normally intended to be used at slow speed without lubrication. Chain selection should be made based on the bearing pressure as shown below.

	Maximum Allowable Bearing Pressure Between Pin and Bushing	Maximum Operating Speed
AS Series	2,130 psi	230 ft./min.
SS Series	1,420 psi	230 ft./min.
NS Series	1,420 psi	230 ft./min.

Chain selection can be made using the following formula.

Maximum Chain Tension × Service Factor × Speed Coefficient × Temperature Factor ≤ Maximum Allowable Load

Maximum allowable load or maximum bearing pressure as shown above can be doubled only when chain is used in group “1” of the “Corrosion Resistance Guide” on page A-60 and properly lubricated.

MAXIMUM ALLOWABLE LOAD

The chain's maximum allowable load can be obtained by the formula:
(Maximum allowable bearing pressure) • (Bearing area between pin and bushing).

	AS Series	SS Series	NS Series
RS25	—	26 lbs.	26 lbs.
RS35	90 lbs.	60 lbs.	60 lbs.
RS40	150 lbs.	99 lbs.	99 lbs.
RS50	231 lbs.	154 lbs.	154 lbs.
RS60	346 lbs.	231 lbs.	231 lbs.
RS80	596 lbs.	397 lbs.	397 lbs.
RS100	—	573 lbs.	573 lbs.

SERVICE FACTOR

Type of Impact	Service Factor
Smooth transmission	1.0
Transmission with some impact	1.3
Transmission with large impact	1.5

SPEED COEFFICIENT

Chain Speed	Speed Coefficient
0 ~ 50 ft./min.	1.0
50 ~ 100 ft./min.	1.2
100 ~ 160 ft./min.	1.4
160 ~ 230 ft./min.	1.6

TEMPERATURE FACTOR*

Temperature	AS Series	SS Series	NS Series
~ -270°F	**X**	**X**	**X**
-270°F ~ -40°F	**X**	**1.0**	**1.0**
-40°F ~ 750°F	**1.0**	**1.0**	**1.0**
750°F ~ 930°F *	**1.8**	**1.2**	**1.0**
930°F ~ 1,100°F *	**X**	**1.5**	**1.2**
1,100°F ~ 1,300°F *	**X**	**1.8**	**1.5**
1,300°F ~ 1,500°F*	**X**	**X**	**2.0**
1,500°F ~ *	**X**	**X**	**X**

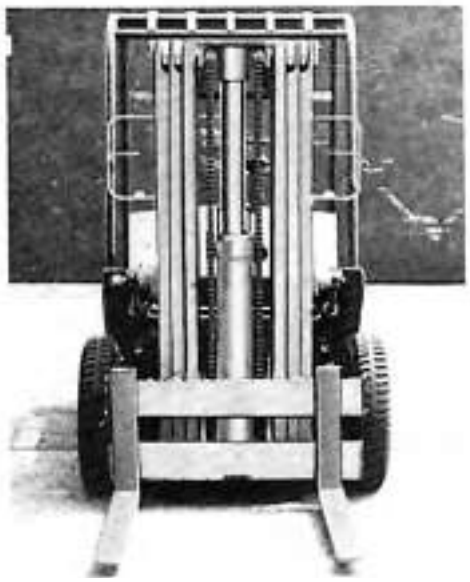
X: Not suggested.

***** Use in temperatures exceeding 750°F requires increased clearances to accommodate thermal expansion. Consult U.S. Tsubaki prior to ordering.

Leaf Chain

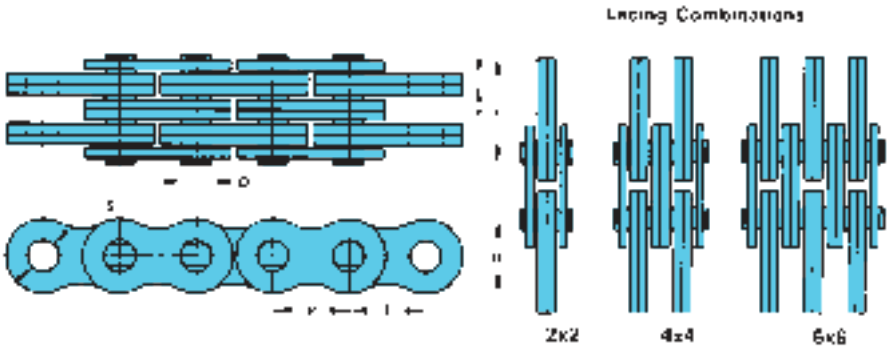
Leaf chains generally have greater tensile strength than roller chains, and run over sheaves rather than sprockets. They are most often used as counterweight chains for machine tools, elevator and oven doors, fork lift truck masts, spinning frames and similar lifting or balancing applications. BL series can, in most instances, replace the older AL series Leaf chains; consult U.S. Tsubaki for interchange information.

These chains are supplied with male or female terminations to allow addition of various clevises as desired.



AL Series

New applications should use BL series chain. AL series was removed from the A.N.S.I. B29.8 Leaf chain standard in 1975.



U.S. TSUBAKI Chain No.	Pitch P	Lacing	Min. Tensile Strength lbs.	Pin D	Pin L	Link Plate T	Link Plate H	Hole Dia. (min.) S	Approx. Weight lbs./ft.
AL422	.500	2x2	3,700	.156	.331	.060	.409	.1578	.25
AL444	.500	4x4	7,500	.156	.585	.060	.409	.1578	.50
AL466	.500	6x6	11,200	.156	.839	.060	.409	.1578	.74
AL522	.625	2x2	6,200	.200	.427	.080	.512	.2019	.42
AL544	.625	4x4	12,300	.200	.762	.080	.512	.2019	.82
AL566	.625	6x6	18,500	.200	1.094	.080	.512	.2019	1.21
AL622	.750	2x2	8,600	.234	.498	.094	.614	.2362	.58
AL644	.750	4x4	17,200	.234	.888	.094	.614	.2362	1.15
AL666	.750	6x6	25,800	.234	1.278	.094	.614	.2362	1.70
AL822	1.000	2x2	14,600	.311	.644	.125	.819	.3138	1.01
AL844	1.000	4x4	29,100	.311	1.173	.125	.819	.3138	2.00
AL866	1.000	6x6	43,600	.311	1.701	.125	.819	.3138	2.97
AL1022	1.250	2x2	22,000	.373	.789	.156	1.024	.3768	1.80
AL1044	1.250	4x4	44,000	.373	1.445	.156	1.024	.3768	3.56
AL1066	1.250	6x6	66,000	.373	2.098	.156	1.024	.3768	5.31
AL1222	1.500	2x2	31,700	.437	.953	.187	1.228	.4386	2.39
AL1244	1.500	4x4	63,400	.437	1.732	.187	1.228	.4386	4.75
AL1266	1.500	6x6	95,000	.437	2.514	.187	1.228	.4386	7.07
AL1444	1.750	4x4	83,600	.500	2.020	.219	1.433	.5016	6.95
AL1466	1.750	6x6	125,400	.500	2.935	.219	1.433	.5016	10.18
AL1644	2.000	4x4	105,800	.562	2.285	.250	1.638	.5638	8.70
AL1666	2.000	6x6	158,000	.562	3.325	.250	1.638	.5638	13.00

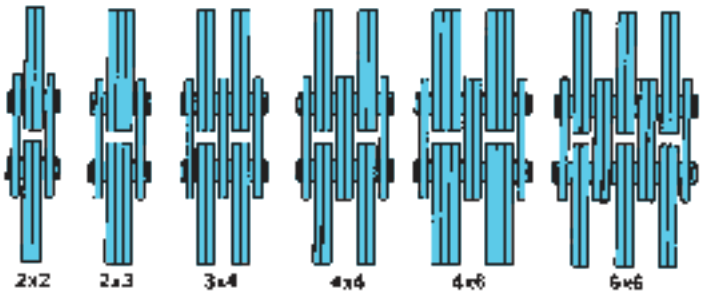
Non-Standard Chain

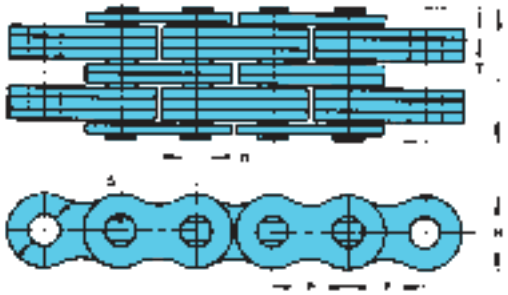
U.S. TSUBAKI Chain No.	Pitch P	Lacing	Min. Tensile Strength lbs.	Pin D	Pin L	Link Plate T	Link Plate H	Hole Dia. (min.) S	Approx. Weight lbs./ft.
BL532 (6H-5)	.625	3x2	7,000	.187	.583	.094	.590	.189	.79

NOTE: BL532 is available only as a replacement chain and should not be specified for new applications or designs.

U.S. TSUBAKI LEAF CHAIN

BL Series





U.S. TSUBAKI Chain No.	Pitch P	Lacing	Min. Tensile Strength lbs.	ANSI Min. Tensile Strength lbs.	Pin D	Pin L	Link Plate T	Link Plate H	Hole Dia. (min.) S	Approx. Weight lbs./ft.
BL422	.500	2x2	5,300	5,000	.200	.427	.080	.472	.2019	.46
BL423	.500	2x3	5,300	5,000	.200	.510	.080	.472	.2019	.56
BL434	.500	3x4	7,900	7,500	.200	.677	.080	.472	.2019	.76
BL444	.500	4x4	10,600	10,000	.200	.764	.080	.472	.2019	.86
BL446	.500	4x6	10,600	10,000	.200	.929	.080	.472	.2019	1.11
BL466	.500	6x6	15,600	15,000	.200	1.094	.080	.472	.2019	1.32
BL522	.625	2x2	8,800	7,500	.234	.498	.094	.591	.2362	.72
BL523	.625	2x3	8,800	7,500	.234	.594	.094	.591	.2362	.85
BL534	.625	3x4	13,200	11,000	.234	.791	.094	.591	.2362	1.14
BL544	.625	4x4	17,600	15,000	.234	.888	.094	.591	.2362	1.27
BL546	.625	4x6	17,600	15,000	.234	1.083	.094	.591	.2362	1.61
BL566	.625	6x6	26,400	22,500	.234	1.278	.094	.591	.2362	1.88
BL622	.750	2x2	14,300	11,000	.312	.645	.125	.713	.3138	1.13
BL623	.750	2x3	14,300	11,000	.312	.778	.125	.713	.3138	1.37
BL634	.750	3x4	21,500	17,000	.312	1.041	.125	.713	.3138	1.90
BL644	.750	4x4	28,500	22,000	.312	1.173	.125	.713	.3138	2.14
BL646	.750	4x6	28,500	22,000	.312	1.437	.125	.713	.3138	2.69
BL666	.750	6x6	43,000	33,000	.312	1.701	.125	.713	.3138	3.18
BL822	1.000	2x2	23,100	19,000	.375	.794	.156	.949	.3768	1.74
BL823	1.000	2x3	23,100	19,000	.375	.953	.156	.949	.3768	2.15
BL834	1.000	3x4	34,800	29,000	.375	1.281	.156	.949	.3768	2.98
BL844	1.000	4x4	46,200	38,000	.375	1.453	.156	.949	.3768	3.39
BL846	1.000	4x6	46,200	38,000	.375	1.772	.156	.949	.3768	4.25
BL866	1.000	6x6	69,500	57,000	.375	2.098	.156	.949	.3768	5.07
BL1022	1.250	2x2	31,700	26,000	.437	.944	.187	1.185	.4386	2.53
BL1023	1.250	2x3	31,700	26,000	.437	1.138	.187	1.185	.4386	3.15
BL1034	1.250	3x4	48,500	41,000	.437	1.530	.187	1.185	.4386	4.40
BL1044	1.250	4x4	63,400	52,000	.437	1.708	.187	1.185	.4386	5.03
BL1046	1.250	4x6	63,400	52,000	.437	2.114	.187	1.185	.4386	6.24
BL1066	1.250	6x6	95,200	78,000	.437	2.514	.187	1.185	.4386	7.50
BL1222	1.500	2x2	41,800	34,000	.500	1.104	.219	1.425	.5016	3.25
BL1223	1.500	2x3	41,800	34,000	.500	1.335	.219	1.425	.5016	4.39
BL1234	1.500	3x4	67,200	55,000	.500	1.791	.219	1.425	.5016	6.11
BL1244	1.500	4x4	83,600	68,000	.500	2.020	.219	1.425	.5016	6.98
BL1246	1.500	4x6	83,600	68,000	.500	2.478	.219	1.425	.5016	8.07
BL1266	1.500	6x6	125,600	102,000	.500	2.936	.219	1.425	.5016	9.80
BL1422	1.750	2x2	52,900	43,000	.562	1.245	.250	1.661	.5638	4.91
BL1423	1.750	2x3	52,900	43,000	.562	1.504	.250	1.661	.5638	6.09
BL1434	1.750	3x4	87,000	71,000	.562	2.024	.250	1.661	.5638	7.61
BL1444	1.750	4x4	105,800	86,000	.562	2.285	.250	1.661	.5638	8.71
BL1446	1.750	4x6	105,800	86,000	.562	2.805	.250	1.661	.5638	12.10
BL1466	1.750	6x6	158,700	130,000	.562	3.325	.250	1.661	.5638	15.13
BL1622	2.000	2x2	79,300	65,000	.687	1.401	.281	1.898	.6886	6.61
BL1623	2.000	2x3	79,300	65,000	.687	1.703	.281	1.898	.6886	8.17
BL1634	2.000	3x4	124,500	99,000	.687	2.299	.281	1.898	.6886	11.39
BL1644	2.000	4x4	158,600	130,000	.687	2.593	.281	1.898	.6886	12.75
BL1646	2.000	4x6	158,600	130,000	.687	3.191	.281	1.898	.6886	16.19
BL1666	2.000	6x6	238,300	195,030	.687	3.785	.281	1.898	.6886	19.31
BL2022	2.500	2x2	119,000	97,500						
BL2023	2.500	2x3	119,000	97,500						
BL2034	2.500	3x4	178,800	146,000						
BL2044	2.500	4x4	238,500	195,000						
BL2046	2.500	4x6	238,500	195,000						
BL2066	2.500	6x6	357,800	292,500						

CONSULT U.S. TSUBAKI ENGINEERING

AL Series, BL Series

SELECTION

Step 1

From the Application Table below, determine the type of chain and service factor.

Application Table

Type of Chain	Shock	Applications	Service Factor	Chain Speed ft./min.
AL series	Moderate	Suspension of counterweights	1.0	Less than 100
AL and BL series		Fork lift	1.3	
BL series	Heavy	Mining machinery Construction equipment	1.5	

Step 2

Multiply the required working load by the service factor and safety factor below to obtain the design tensile strength.

Safety Factor

Type of Chain	Safety Factor	Chain Speed ft./min.	Maximum Number of Reciprocations
AL series	12	Less than 100	Less than 100 per day
BL series	9	Less than 100	Less than 1,000 per day

Step 3

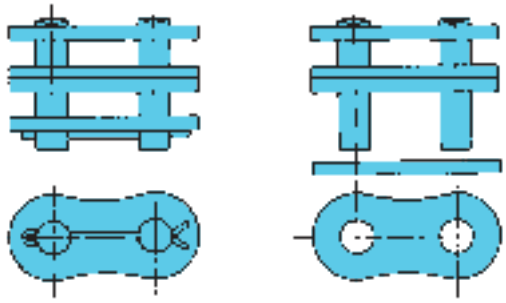
From the chain list, select a chain having a tensile strength not less than that obtained in Step 2.

Working Load* X Service Factor X Safety Factor ≤ Minimum Tensile Strength

*Working Load including weights of attachments, inertia force and impact force.

When ordering, specify your requirements.

- For odd numbers of pitches inner links at both ends will be provided as standard.
- For even numbers of pitches a clevis connector or press fit and rivet outer link can be furnished.
- Clevis connector or press fit and rivet outer links are both available from stock in popular sizes.



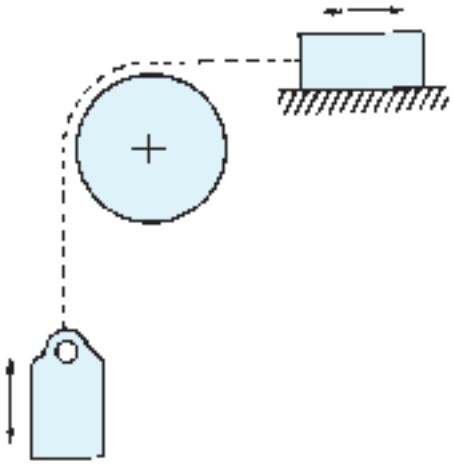
Connection with Clevis:

1. When an inner link is used for the end, a clevis pin is normally supplied by the clevis manufacturer.
2. When an outer link is used for the end, the press fit outer link provides the most integrity.

U.S. TSUBAKI LEAF CHAIN

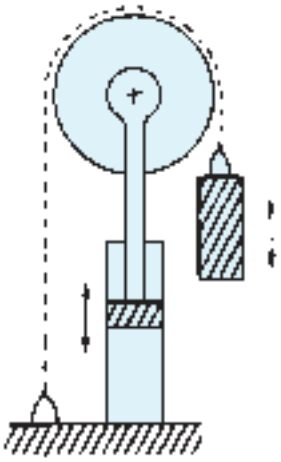
TYPICAL APPLICATIONS

[A]



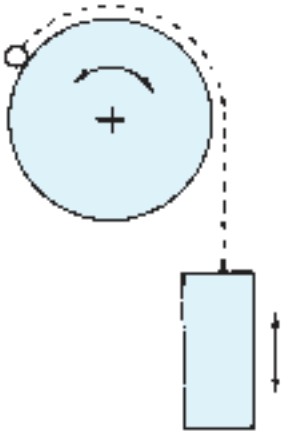
For counterweights of heavy machine tools — planers, multi-spindle drills, etc.

[B]



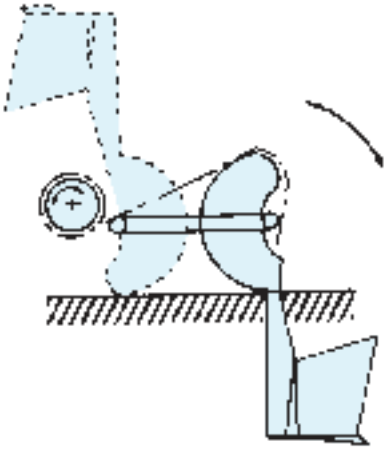
For increasing the travel distance on hydraulic lifts.

[C]



For suspension of a counterweight for the arm of drills or similar machine tool elements.

[D]



For transmitting reciprocating motion or lift.

GENERAL CAUTIONS

1. Use lengths of factory assembled chain. Do not build lengths from individual components.

2. Do not attempt to rework damaged chains by replacing only the components obviously faulty. The entire chain may be compromised and should be discarded.

3. Never electroplate assembled Leaf chain or its components. Plating could result in failure from hydrogen embrittlement.

4. Welding should not be performed on any chain or component. Welding spatter should never be allowed to come in contact with chain or components.

5. Leaf chains are manufactured exclusively from heat treated steels and, therefore, must not be annealed. If heating a chain with a cutting torch is absolutely necessary for removal, the chain should not be reused.

6. Joining chains together should only be done by the chain manufacturer.

7. The Minimum Ultimate Strength of a chain means the minimum load at which it will break when subjected to a destructive tensile test. It does not mean working load.

8. Chains from different manufacturers should not be used in the same application.

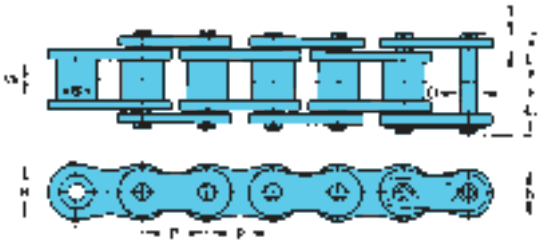
Specialty Chain

U.S. Tsubaki Specialty Chain

U.S. Tsubaki is the world leader in providing specialty chains for the most demanding applications. In addition to industry leading made-to-order capabilities, U.S. Tsubaki offers a number of “standard” specialty chains.

- **Lube-Free chain** — High quality lubricant is impregnated into the sintered metal bushings for applications where normal lubrication is not practical.
- **FX chain** — Increased clearance between pins and bushings allows for added chain flexibility with excellent durability.
- **Rollerless chain** — Designed and manufactured to withstand continued wearing.
- **Wrench chain** — Extra long pins serve as tension linkages to provide a secure hold for pipe wrenches.
- **Laminated Block chain** — Manufactured with 304 stainless steel, it directly replaces solid block chain in light load, low speed applications.
- **Agriculture chain** — With higher tensile strength, longer life, and smoother operation than malleable chains, U.S. Tsubaki offers MR and RF types for agriculture applications.

Lube-Free Chain



For use where normal lubrication is not practical, i.e., food processing equipment, packaging machines, printing and binding equipment, and textile machines.
High quality lubricant is impregnated into the sintered metal bushings. Joint movement between the pin and bushing releases the necessary volume of oil to the pin surface and other parts, thereby minimizing chain elongation and eliminating the risk of chain seizure from insufficient lubrication.

See our Drive Series LAMBDA® (page A-25) and Conveyor Series LAMBDA chains (page B-11) for additional specifications on other lube-free chains.

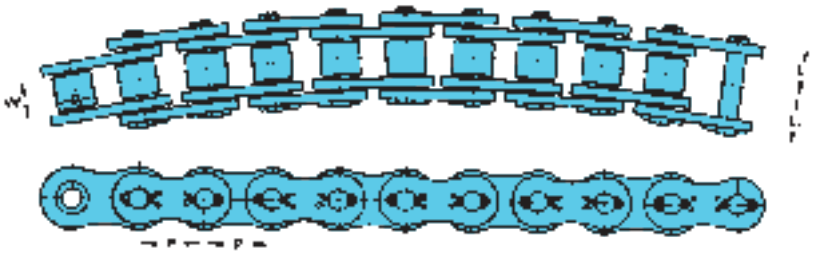
U.S. TSUBAKI	Pitch	Bushing Diameter	Width Between Inner Link Plates	Pin			Link Plate			Average Tensile Strength lbs.	Approx. Weight lbs./ft.
Chain No.	P	B	W	D	L_1	L_2	T	H	h		
RS40SL	.500	.312	.297	.156	.325	.392	.060	.472	.409	3,300	.43
RS50SL	.625	.400	.359	.200	.406	.472	.080	.591	.512	5,200	.70
RS60SL	.750	.469	.485	.234	.506	.581	.094	.713	.614	7,400	1.03

FX Chain

FX CHAINS

U.S. Tsubaki FX chains feature excellent durability and flexibility for tough applications such as in concrete mixers, earth moving equipment, and mining machines.

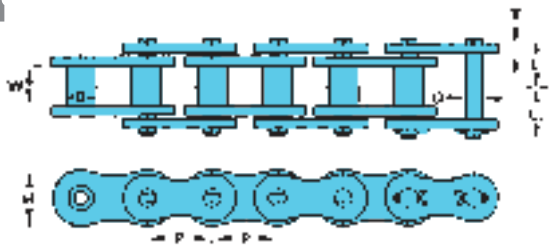
1. FX chains are interchangeable with ASME/ANSI standard chains and can operate on the same ASME/ANSI standard sprocket.
2. Increased clearance between pins and bushings allows the chains to accommodate a 4 inch lateral side bow and an 8 degree twist per 4 feet of chain.



U.S. TSUBAKI	Pitch	Roller Diameter	Width Between Roller Link Plates	Pin		Average Tensile Strength lbs.	Approx. Weight lbs./ft.
Chain No.	P	R	W	L_1	L_2		
RS100FX	1.250	.750	.750	.778	.900	24,000	2.51
RS120FX	1.500	.875	1.000	.980	1.138	34,000	3.69
RS140FX	1.750	1.000	1.000	1.059	1.248	46,000	5.00
RS160FX	2.000	1.125	1.250	1.254	1.451	58,000	6.53
RS180FX	2.250	1.406	1.406	1.404	1.671	72,000	8.69

Rollerless Chain

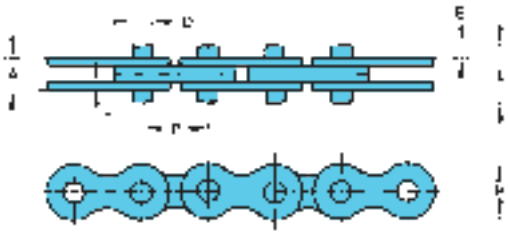
Rollerless chains are ideal for tension linkage applications and are designed and manufactured to withstand continual wearing action.



U.S. TSUBAKI	Pitch	Bushing Diameter	Width Between Inner Link Plates	Pin			Link Plate		Average Tensile Strength lbs.	Approx. Weight lbs./ft.
Chain No.	P	B	W	D	L_1	L_2	T	H		
RS65	.750	.330	.500	.234	.506	.581	.094	.713	9,800	.81
RS85	1.000	.448	.625	.312	.640	.758	.125	.949	17,200	1.41
RS105	1.250	.533	.750	.375	.778	.900	.156	1.185	25,500	2.08
RS125	1.500	.627	1.000	.437	.980	1.138	.187	1.425	36,300	3.04

Wrench Chain

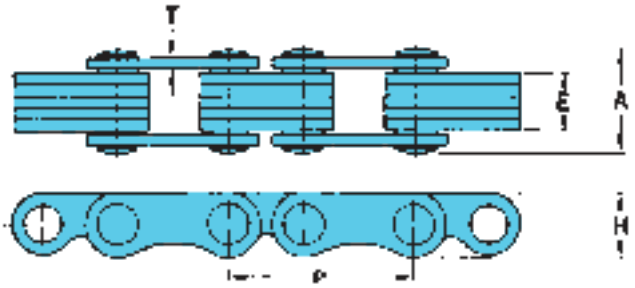
U.S. Tsubaki Wrench chains have extra long pins extending beyond both sides of the chain. They serve as tension linkages for holding pipes securely in pipe wrenches.



U.S. TSUBAKI	Pitch	Lacing	Pin			Link Plate		Width Over Link Plate	Average Tensile Strength lbs.	Approx. Weight lbs./ft.
Chain No.	P		D	L	E	T	H	A		
50WR	.625	2x2	.200	.559	.114	.080	.512	.331	6,750	.45
60WR	.750	2x2	.234	.787	.197	.094	.614	.394	9,000	.62

Laminated Block Chain

Laminated Block chain is used in light load, low speed applications. The chain is made entirely of 304 stainless steel. It is available in a variety of sizes, and it directly replaces Solid Block chain.



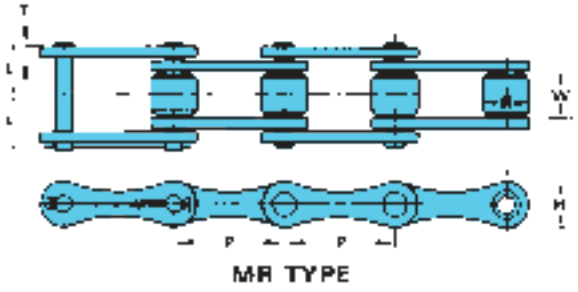
U.S. TSUBAKI Laminated Block Chain (304SS)	Pitch P	Block Width E	Link Plate T	Width A	Height H	Weight lbs./ft.
T502LSS	1.000	.188	.060	.375	.325	.3
T503LSS	1.000	.250	.060	.437	.325	.3
T504LSS	1.000	.312	.060	.562	.325	.4
T505LSS	1.000	.375	.060	.625	.325	.4
T506LSS	1.000	.500	.060	.750	.325	.5

Agriculture Chain

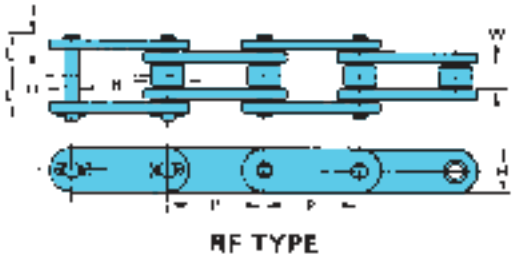
U.S. Tsubaki offers both MR type and RF type steel roller chains for agricultural applications.

MR type steel roller chains have been designed to replace malleable chains. These chains can be used with the existing sprockets for malleable chains.

They have higher tensile strength, longer life, and provide smoother operation for drives and conveyors than malleable chains. U.S. Tsubaki MR type steel roller chains with various attachments can also be used for material handling operations.



U.S. Tsubaki RF type steel roller chains have greater wear resistance and higher tensile strength than MR type steel roller chains.



U.S. TSUBAKI Chain No.	Pitch P	Roller Diameter R	Width Between Roller link Plates W	Pin D	Pin L_1	Pin L_2	Link Plate T	Link Plate H	Min. Tensile Strength lbs.	Approx. Weight lbs./ft.
MR32	1.150	.450	.625	.175	.514	.569	.060	.500	1,980	.50
MR42	1.375	.562	.750	.275	.663	.750	.098	.750	6,600	1.08
MR52	1.500	.600	.875	.225	.724	.819	.098	.640	4,400	1.06
MR55	1.630	.700	.875	.225	.724	.819	.098	.650	6,380	1.10
MR45	1.630	.600	.875	.225	.724	.819	.098	.650	4,400	.97
MR62	1.650	.750	1.000	.225	.789	.817	.098	.660	6,380	1.26
CA550	1.630	.661	.795	.281	.683	.821	.106	.787	11,200	1.31
CA620	1.654	.696	.984	.281	.829	.951	.125	.787	11,200	1.60

See page B-28 for attachment specifications.

Chain Tools

Punches

Chain No.	Primary Punch	Secondary Punch
RS40 ~ RS60	S-1	D-1
RS80 ~ RS120	S-2	D-2
RS140 ~ RS240	S-3	D-3

Chain No.	Riveting Punch
RS40	RV-1
RS50	RV-2
RS60	RV-3
RS80	RV-4

Chain Vises

Model CV-1

Model CV-2

Model CV-3

Strands \ Chain No.	RS40	RS50	RS60	RS80	RS100	RS120	RS140	RS160	RS180	RS200	RS240
1		CV-1									
2			CV-2				CV-3				
3								Not in Stock			

Model No.	L	H	B min. ~ max.
CV-1	3.94	2.56	3.70 ~ 4.53
CV-2	7.09	4.33	4.72 ~ 5.94
CV-3	7.87	6.69	7.09 ~ 8.66

indicates CV-1 indicates CV-2 indicates CV-3

Chain Breakers

Model D

Model C

Model No.	D-35	D-60	D-120	CS - C3
Chain No.	RS25 ~ RS60	RS60 ~ RS100	RS120 ~ RS160	RS160 ~ RS240

Note: CS - C3 Made-To-Order.

Chain Pullers

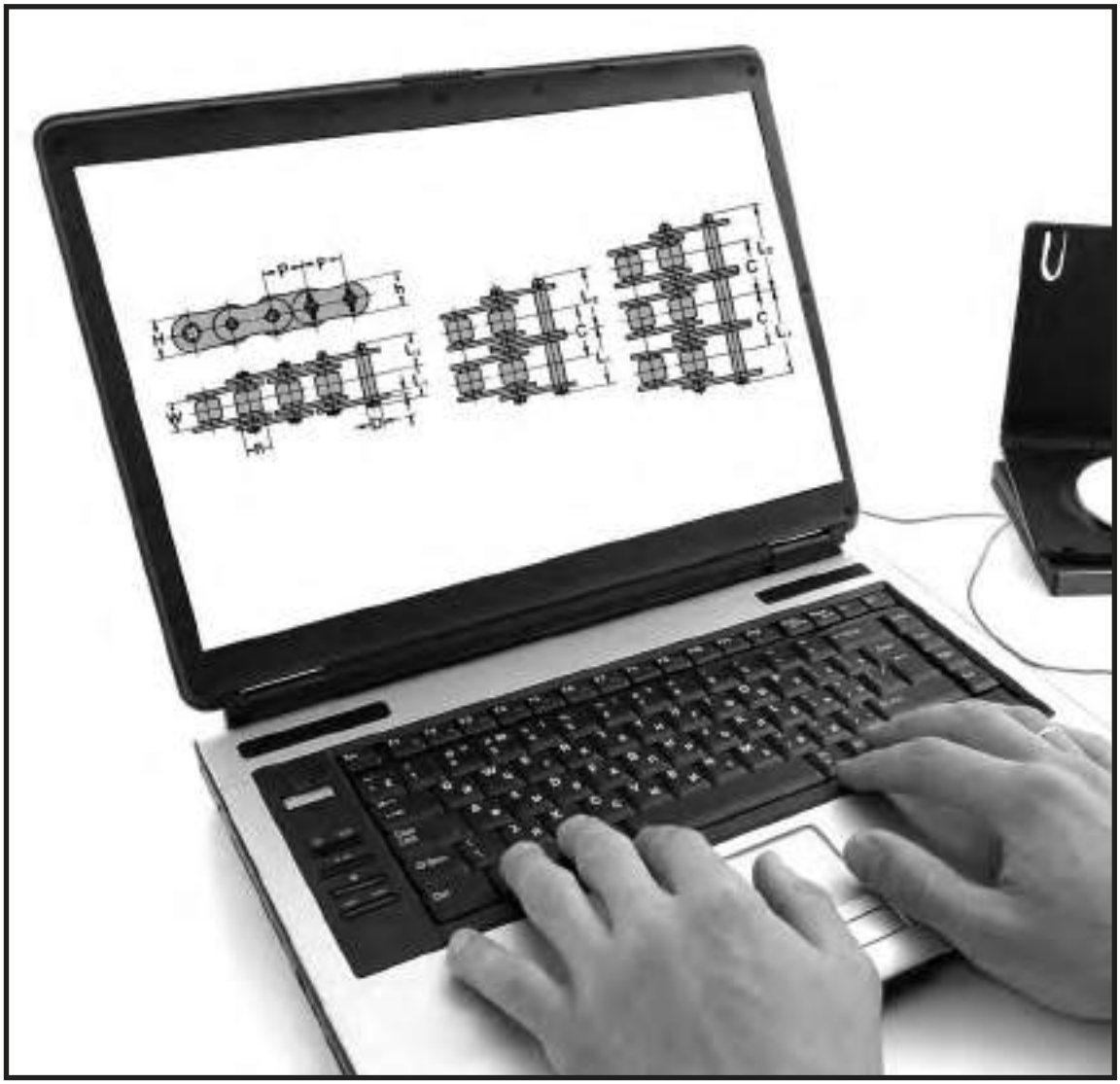
P-35

P-60

P-80

Model No.	P-35	P-60	P-80
Chain No.	RS35 ~ RS60	RS40 ~ RS80	RS80 ~ RS240

Engineering Information



Speed Ratio and Chain Wrap

The speed ratio of the roller chain can range up to 7:1 under normal operating conditions. However, a speed ratio of 10:1 is possible if the speed is very slow. Chain wrap on the small sprocket must be at least 120 degrees.

Distance Between Shafts

Sprockets can be separated by any distance as long as their teeth do not touch. Optimum distance is 30 to 50 times the pitch of the chain used except when there is a pulsating load. In such cases, the distance should be up to 20 times the pitch of the chain used.

Position

Roller chains are ideally installed horizontally. When chains are installed at angles approaching the vertical, they stretch quickly and may slip off the sprockets. In such cases the sprockets should be adjusted properly.

Slack

Generally, the slack of a roller chain should be on the lower side (see Fig. A). Adequate slack (SS') is 4% of the span for normal drives. In the following cases, the slack should be about 2% of the span.

a. Vertical drive or close to vertical drive.
b. Center distance between two shafts is greater than 3 ft.
c. Chain is operated under heavy load and high frequency of on and off drive.
d. Direction of the drive is often changed.

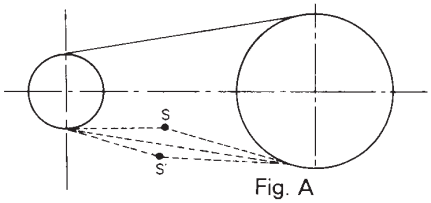


Fig. A

Position of Sprocket

The two shafts should be parallel and preferably in a horizontal position. Sprockets should be firmly installed. (See Figs. B and C)
Use a straight edge to check that the two sprockets are installed along the same horizontal plane.

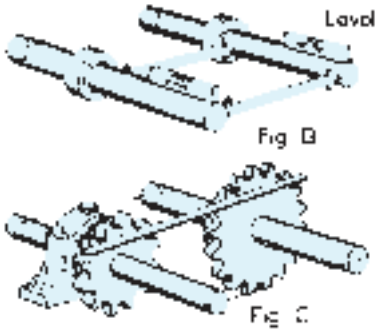
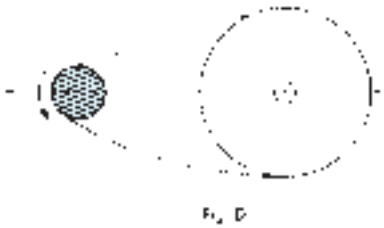


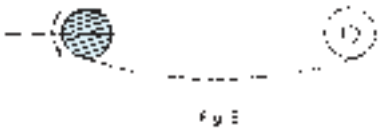
Fig. B

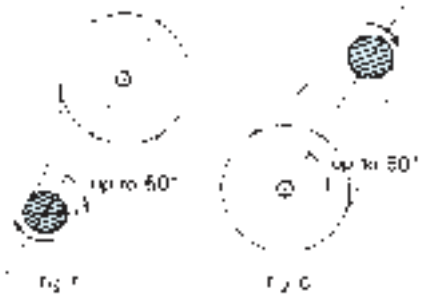
Fig. C

Arrangement

When designing roller chain drives, the centerline of both sprockets should be close to horizontal (see Figs. D and E). The angle of inclination can be up to 60 degrees as shown in Figs. F and G.
If installation is close to vertical, it is desirable to install an idler or a guide stopper to maintain smooth engagement of the chain and sprocket.



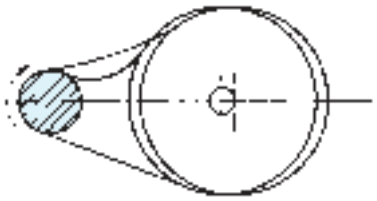




Attention should be paid to the following arrangements.

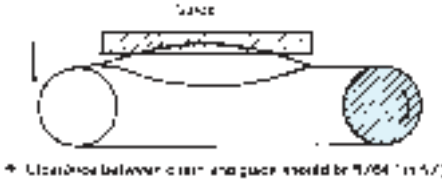
If the slack side is on the top, it is necessary to eliminate excessive chain slack.

A-1. When the center distance is short, chain slack should be adjusted by increasing the center distance.

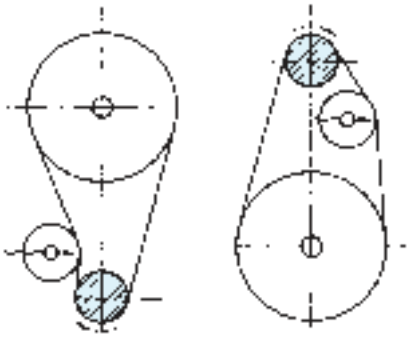


A-2. When the center distance is long, chain slack should be adjusted by installing an idler.

B. If vibration occurs due to high chain speed, install a guide.



C. If the centerline is vertical, install an idler which functions automatically to eliminate extra chain slack. If the driving shaft is on the lower side, an idler must be installed.



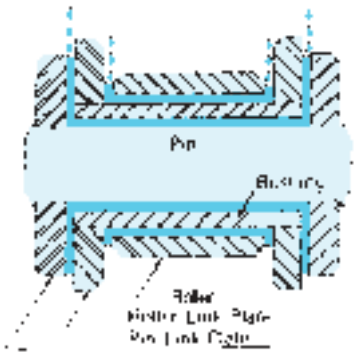
LUBRICATION

Lubrication Increases the Service Life

One of the most important factors in getting the best possible performance out of your roller chain is proper lubrication. No matter how well a transmission system is designed, if it is not properly lubricated, its service life will be shortened.

Lubrication

Wear between the pin and bushing causes the roller chain to stretch. These parts should, therefore, be well lubricated. The gap between the pin link plate and the roller link plate on the slack side of the chain should be filled with oil. This oil forms a film which minimizes wear on the pin and bushing, thus increasing the chain's service life. It also reduces noise and acts as a coolant when the chain runs at high speeds.



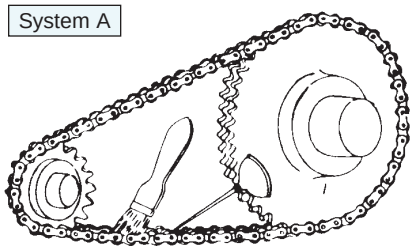
Suggested Lubricants

Only high quality oil should be used to lubricate the roller chain. Neither heavy oil nor grease is suitable. The viscosity of the oil used will depend on the chain size, chain speed and ambient temperature. The lubricants suggested for specific temperature ranges are given in the following table.

Lubricating System	A, B				C			
Ambient Temperature Range / Chain No.	14°F – 32°F	32°F – 104°F	104°F – 122°F	122°F – 140°F	14°F – 32°F	32°F – 104°F	104°F – 122°F	122°F – 140°F
RS50 or less	SAE 10	SAE 20	SAE 30	SAE 40	SAE 10	SAE 20	SAE 30	SAE 40
RS60 and RS80	SAE 20	SAE 30	SAE 40	SAE 50				
RS100					SAE 20	SAE 30	SAE 40	SAE 50
RS120 or more	SAE 30	SAE 40	SAE 50					

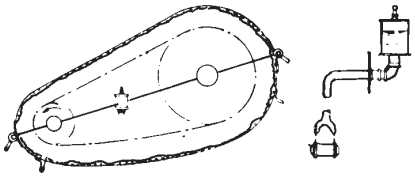
The following three lubricating systems are suggested:

System A



Manual Lubrication

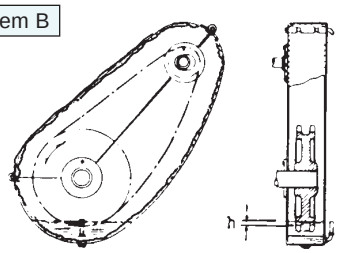
Oil is applied with an oil filler or brush in the gap between the pin link and roller link on the slack side of the chain. It should be applied about every eight hours or as often as necessary to prevent the bearing area of the chain from becoming dry.
Always turn off & lockout the power switch before lubricating or servicing a chain system.



Drip Lubrication

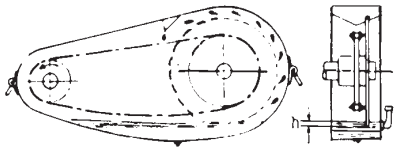
A simple casing can be used. The oil is supplied by drip feed. Each strand of chain should ordinarily receive 5 to 20 drops of oil per minute, according to increases in the chain speed.

System B



Oil Bath Lubrication

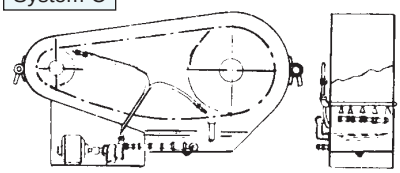
The chain is installed in a leak-free casing. The oil depth "h" should be 1/4 to 1/2 inch deep. If the oil is too deep, the oil will be adversely affected by the heat generated.



Lubrication by Slinger Disc

Install the slinger disc in a leak-free oil casing. Oil is splashed on the chain. The circumferential speed should be at least 700 ft./min. If the width of the chain is greater than 5 inches, attach slinger discs to both sides. The oil depth of "h" should be from 1/2 to 1 inch deep. The chain should not pass through the oil.

System C



Lubrication Using a Pump

Use a leak-free casing. A pump is used to circulate the oil which is then cooled.
The number of supply holes should equal Z+1 where Z is the number of strands of chain. The amount of oil supplied to each hole is constant.

Chain Speed (ft./min.)	Chain Number			
	RS60 and under	RS80 RS100	RS120 RS140	RS160 and over
1,600 ~ 2,600	0.26 gal./min.	0.40 gal./min.	0.53 gal./min.	0.66 gal./min.
2,600 ~ 3,600	0.53 gal./min.	0.66 gal./min.	0.79 gal./min.	0.92 gal./min.
3,600 ~ 4,600	0.79 gal./min.	0.92 gal./min.	1.06 gal./min.	1.19 gal./min.

Regardless of the lubricating system used, the roller chain must be washed periodically with petroleum or gasoline. Examine the pin and bushing after removing the chain. Any damage or reddish-brown color on their surfaces indicate that the system is not being adequately lubricated.

TROUBLESHOOTING GUIDE

Problem	Possible Causes	What to Do
Excessive Noise	• Misalignment of sprockets • Loose casings or bearings • Too little or too much slack • Chain and/or sprocket wear • Inadequate lubrication or no lubrication • Chain pitch size too large	• Realign sprockets and shafts • Tighten set-bolts • Adjust centers or idler take-up • Replace chain and/or sprocket • Lubricate properly • Check chain drive selection
Chain Vibration	• Resonance to the vibration cycle of machine to be installed • High load fluctuation	• Change vibration cycle of chain or machine • Use torque converter or fluid coupling
Wear on inside of link plate and one side of sprocket teeth	• Misalignment	• Realign sprockets and shafts
Chain climbs sprockets	• Excessive chain wear • Excessive chain slack • Heavy overload	• Replace chain • Adjust centers or idler take-up • Reduce load or install stronger chain
Broken pins, bushings or rollers	• Chain speed too high for pitch and sprocket size • Heavy shock or suddenly applied loads • Material build-up in sprocket tooth pockets • Inadequate lubrication • Chain or sprocket corrosion	• Use shorter pitch chain or install larger diameter sprockets • Reduce shock load or install stronger chain • Remove material build-up or install side gashed sprockets • Lubricate properly • Install anti-corrosive chain or sprockets
Chain clings to sprocket	• Center distance too big or high load fluctuation • Excessive chain slack • Excessive chain wear	• Adjust the center distance or install idler take-up • Same as above • Replace chain
Chain gets stiff	• Misalignment • Inadequate lubrication • Corrosion • Excessive load • Material build-up in chain joint • Peening of link plate edges	• Realign sprockets and shafts • Lubricate properly • Replace with anti-corrosive chain • Reduce load or replace with chain of suitable strength • Shield drive from foreign matter • Check for chain interference
Breakage of link plate	• Subjected to shock load • Vibration • Moment of load inertia is too big	• Reduce shock (e.g., install a shock absorber) • Install a device to absorb vibration (e.g., tensioner idler wheel) • Chain section should be checked (increase number of strands or select next larger size chain)

ASME/ANSI SPROCKET DIMENSIONS

No. of Teeth	RS25 ¼″ Pitch		RS35 ⅜″ Pitch		RS40, RS41 ½″ Pitch		RS50 ⅝″ Pitch		RS60 ¾″ Pitch		RS80 1″ Pitch	
	Pitch Dia.	❊ Outside Dia.	Pitch Dia.	❊ Outside Dia.	Pitch Dia.	❊ Outside Dia.	Pitch Dia.	❊ Outside Dia.	Pitch Dia.	❊ Outside Dia.	Pitch Dia.	❊ Outside Dia.
9	.731	.837	1.096	1.256	1.462	1.674	1.827	2.092	2.193	2.511	2.924	3.347
10	.809	.919	1.214	1.380	1.618	1.839	2.023	2.299	2.427	2.758	3.236	3.678
11	.887	1.002	1.331	1.502	1.775	2.003	2.219	2.504	2.662	3.004	3.549	4.006
12	.966	1.083	1.449	1.625	1.932	2.166	2.415	2.708	2.898	3.249	3.864	4.332
13	1.045	1.167	1.567	1.747	2.089	2.329	2.612	2.911	3.134	3.493	4.179	4.657
14	1.123	1.246	1.685	1.868	2.247	2.491	2.809	3.113	3.371	3.736	4.494	4.982
15	1.202	1.326	1.804	1.990	2.405	2.652	3.006	3.315	3.607	3.979	4.810	5.305
16	1.281	1.407	1.922	2.111	2.563	2.814	3.204	3.517	3.844	4.221	5.126	5.627
17	1.361	1.487	2.041	2.231	2.721	2.975	3.401	3.719	4.082	4.462	5.442	5.950
18	1.440	1.568	2.159	2.352	2.879	3.135	3.599	3.920	4.319	4.704	5.759	6.271
19	1.519	1.648	2.278	2.473	3.038	3.296	3.797	4.120	4.557	4.945	6.076	6.593
20	1.598	1.729	2.397	2.593	3.196	3.457	3.995	4.321	4.794	5.185	6.392	6.914
21	1.677	1.809	2.516	2.713	3.355	3.617	4.193	4.522	5.032	5.426	6.710	7.235
22	1.757	1.889	2.635	2.833	3.513	3.778	4.392	4.722	5.270	5.666	7.027	7.555
23	1.836	1.969	2.754	2.954	3.672	3.938	4.590	4.922	5.508	5.907	7.344	7.875
24	1.915	2.049	2.873	3.074	3.831	4.098	4.788	5.122	5.746	6.147	7.661	8.196
25	1.995	2.129	2.992	3.194	3.989	4.258	4.987	5.322	5.984	6.387	7.979	8.516
26	2.074	2.209	3.111	3.314	4.148	4.418	5.185	5.522	6.222	6.627	8.296	8.836
27	2.153	2.289	3.230	3.434	4.307	4.578	5.384	5.722	6.460	6.867	8.614	9.156
28	2.233	2.369	3.349	3.554	4.466	4.738	5.582	5.922	6.699	7.107	8.931	9.475
29	2.312	2.449	3.468	3.673	4.625	4.897	5.781	6.122	6.937	7.346	9.249	9.795
30	2.392	2.529	3.588	3.793	4.783	5.057	5.979	6.321	7.175	7.586	9.567	10.114
31	2.471	2.609	3.707	3.913	4.942	5.217	6.178	6.521	7.413	7.825	9.885	10.434
32	2.551	2.688	3.826	4.033	5.101	5.377	6.376	6.721	7.652	8.065	10.202	10.753
33	2.630	2.768	3.945	4.152	5.260	5.536	6.575	6.920	7.890	8.304	10.520	11.072
34	2.710	2.848	4.064	4.272	5.419	5.696	6.774	7.120	8.128	8.544	10.838	11.392
35	2.789	2.928	4.183	4.392	5.578	5.855	6.972	7.319	8.367	8.783	11.156	11.711
36	2.869	3.008	4.303	4.511	5.737	6.015	7.171	7.519	8.605	9.022	11.474	12.030
37	2.948	3.087	4.422	4.631	5.896	6.175	7.370	7.718	8.844	9.262	11.792	12.349
38	3.028	3.167	4.541	4.751	6.055	6.334	7.568	7.918	9.082	9.501	12.110	12.668
39	3.107	3.247	4.660	4.871	6.214	6.494	7.767	8.117	9.321	9.740	12.428	12.987
40	3.187	3.327	4.780	4.990	6.373	6.653	7.966	8.316	9.559	9.980	12.745	13.306
41	3.266	3.406	4.899	5.110	6.532	6.813	8.165	8.516	9.798	10.219	13.063	13.625
42	3.346	3.486	5.018	5.229	6.691	6.972	8.363	8.715	10.036	10.458	13.381	13.944
43	3.425	3.566	5.137	5.349	6.850	7.131	8.562	8.914	10.275	10.697	13.700	14.263
44	3.505	3.646	5.257	5.468	7.009	7.291	8.761	9.114	10.513	10.936	14.018	14.582
45	3.584	3.725	5.376	5.588	7.168	7.451	8.960	9.313	10.752	11.176	14.336	14.901
46	3.664	3.805	5.495	5.708	7.327	7.609	9.159	9.512	10.990	11.415	14.654	15.219
47	3.743	3.885	5.614	5.827	7.486	7.769	9.357	9.711	11.229	11.654	14.972	15.538
48	3.823	3.964	5.734	5.947	7.645	7.928	9.556	9.911	11.467	11.893	15.290	15.857
49	3.902	4.044	5.853	6.066	7.804	8.088	9.755	10.111	11.706	12.132	15.608	16.176
50	3.982	4.124	5.972	6.186	7.963	8.247	9.954	10.309	11.944	12.371	15.928	16.495
51	4.061	4.203	6.091	6.305	8.122	8.407	10.153	10.508	12.183	12.610	16.244	16.813
52	4.141	4.283	6.211	6.425	8.281	8.566	10.351	10.707	12.422	12.849	16.562	17.132
53	4.220	4.363	6.330	6.544	8.440	8.725	10.550	10.907	12.660	13.088	16.880	17.451
54	4.330	4.442	6.449	6.664	8.599	8.885	10.749	11.106	12.899	13.327	17.198	17.769
55	4.379	4.522	6.569	6.783	8.758	9.044	10.948	11.305	13.137	13.566	17.517	18.088
56	4.459	4.602	6.688	6.903	8.917	9.203	11.147	11.504	13.376	13.805	17.835	18.406
57	4.538	4.681	6.807	7.022	9.076	9.363	11.346	11.703	13.615	14.044	18.153	18.725
58	4.618	4.761	6.927	7.142	9.236	9.522	11.544	11.902	13.853	14.283	18.471	19.044
59	4.697	4.841	7.046	7.261	9.395	9.681	11.743	12.102	14.092	14.522	18.739	19.363
60	4.777	4.920	7.165	7.381	9.554	9.841	11.942	12.301	14.330	14.761	19.107	19.681
61	4.857	5.000	7.284	7.500	9.713	10.000	12.141	12.500	14.569	15.000	19.426	20.000
62	4.936	5.080	7.404	7.619	9.872	10.159	12.340	12.699	14.808	15.238	19.744	20.318
63	5.016	5.159	7.523	7.739	10.031	10.318	12.539	12.898	15.046	15.477	20.062	20.637

❊ Outside diameter dimensions are nominal. Note: Bottom diameter = pitch diameter – chain roller diameter

No. of Teeth	RS25 ¼″ Pitch		RS35 ⅜″ Pitch		RS40, RS41 ½″ Pitch		RS50 ⅝″ Pitch		RS60 ¾″ Pitch		RS80 1″ Pitch	
	Pitch Dia.	❊ Outside Dia.	Pitch Dia.	❊ Outside Dia.	Pitch Dia.	❊ Outside Dia.	Pitch Dia.	❊ Outside Dia.	Pitch Dia.	❊ Outside Dia.	Pitch Dia.	❊ Outside Dia.
64	5.095	5.239	7.642	7.858	10.190	10.478	12.738	13.097	15.285	15.716	20.380	20.955
65	5.175	5.319	7.762	7.978	10.349	10.637	12.936	13.296	15.524	15.955	20.698	21.274
66	5.254	5.398	7.881	8.097	10.508	10.796	13.135	13.495	15.762	16.194	21.016	21.593
67	5.334	5.478	8.000	8.217	10.667	10.956	13.334	13.694	16.001	16.433	21.335	21.911
68	5.413	5.558	8.120	8.336	10.826	11.115	13.533	13.893	16.240	16.672	21.653	22.230
69	5.493	5.637	8.239	8.456	10.986	11.274	13.732	14.092	16.478	16.911	21.971	22.548
70	5.572	5.717	8.358	8.575	11.145	11.434	13.931	14.292	16.717	17.150	22.289	22.867
71	5.652	5.796	8.478	8.694	11.304	11.593	14.130	14.491	16.956	17.388	22.607	23.185
72	5.732	5.876	8.597	8.814	11.463	11.752	14.328	14.690	17.194	17.628	22.926	23.504
73	5.811	5.956	8.716	8.933	11.622	11.911	14.527	14.889	17.433	17.866	23.244	23.822
74	5.891	6.035	8.836	9.053	11.781	12.071	14.726	15.088	17.672	18.105	23.562	24.141
75	5.970	6.115	8.955	9.172	11.940	12.229	14.925	15.287	17.910	18.344	23.880	24.459
76	6.050	6.195	9.074	9.292	12.099	12.389	15.124	15.486	18.149	18.583	24.198	24.778
77	6.129	6.274	9.194	9.411	12.258	12.548	15.323	15.685	18.387	18.822	24.517	25.096
78	6.209	6.354	9.313	9.531	12.417	12.708	15.522	15.884	18.626	19.061	24.835	25.415
79	6.288	6.433	9.432	9.650	12.577	12.867	15.721	16.083	18.865	19.299	25.153	25.733
80	6.368	6.513	9.552	9.770	12.736	13.026	15.920	16.282	19.104	19.539	25.471	26.052
81	6.448	6.593	9.671	9.889	12.895	13.185	16.118	16.481	19.342	19.777	25.790	26.370
82	6.527	6.672	9.790	10.008	13.054	13.345	16.317	16.681	19.581	20.016	26.108	26.689
83	6.607	6.752	9.910	10.128	13.213	13.504	16.516	16.879	19.820	20.255	26.426	27.007
84	6.686	6.832	10.029	10.247	13.372	13.663	16.715	17.079	20.058	20.494	26.744	27.326
85	6.766	6.911	10.148	10.367	13.531	13.822	16.914	17.277	20.297	20.733	27.063	27.644
86	6.845	6.991	10.268	10.486	13.690	13.981	17.113	17.476	20.536	20.791	27.381	27.962
87	6.925	7.070	10.387	10.605	13.849	14.141	17.312	17.676	20.774	21.210	27.699	28.281
88	7.004	7.150	10.506	10.725	14.009	14.299	17.511	17.874	21.013	21.449	28.017	28.599
89	7.084	7.230	10.626	10.844	14.168	14.459	17.710	18.074	21.252	21.688	28.335	28.918
90	7.164	7.309	10.745	10.964	14.327	14.618	17.909	18.272	21.490	21.927	28.654	29.236
91	7.243	7.389	10.864	11.083	14.486	14.777	18.107	18.471	21.729	22.165	28.972	29.554
92	7.323	7.468	10.984	11.202	14.645	14.937	18.306	18.671	21.968	22.404	29.290	29.873
93	7.402	7.548	11.103	11.322	14.804	15.096	18.505	18.869	22.206	22.643	29.608	30.191
94	7.482	7.628	11.223	11.441	14.963	15.255	18.704	19.069	22.445	22.882	29.927	30.510
95	7.561	7.707	11.342	11.561	15.122	15.414	18.903	19.267	22.684	23.121	30.245	30.828
96	7.641	7.787	11.461	11.680	15.282	15.573	19.102	19.466	22.922	23.359	30.563	31.146
97	7.720	7.866	11.581	11.799	15.441	15.733	19.301	19.666	23.161	23.598	30.881	31.465
98	7.800	7.946	11.700	11.919	15.600	15.892	19.500	19.864	23.400	23.837	31.200	31.783
99	7.880	8.026	11.819	12.038	15.759	16.051	19.699	20.064	23.638	24.076	31.518	32.102
100	7.959	8.105	11.939	12.158	15.918	16.210	19.898	20.262	23.877	24.315	31.836	32.420
101	8.039	8.185	12.058	12.277	16.077	16.370	20.097	20.462	24.116	24.554	32.154	32.739
102	8.118	8.264	12.177	12.396	16.236	16.529	20.295	20.661	24.355	24.793	32.473	33.058
103	8.198	8.344	12.297	12.516	16.395	16.688	20.494	20.860	24.593	25.032	32.791	33.376
104	8.277	8.424	12.416	12.635	16.555	16.847	20.693	21.059	24.832	25.271	33.109	33.695
105	8.357	8.503	12.535	12.755	16.714	17.006	20.892	21.258	25.071	25.510	33.428	34.013
106	8.437	8.583	12.655	12.874	16.873	17.166	21.091	21.457	25.309	25.749	33.746	34.332
107	8.516	8.662	12.774	12.994	17.032	17.325	21.290	21.656	25.548	25.987	34.064	34.650
108	8.596	8.742	12.893	13.113	17.191	17.484	21.489	21.854	25.787	26.226	34.382	34.968
109	8.675	8.822	13.013	13.232	17.350	17.643	21.688	22.054	26.025	26.465	34.701	35.287
110	8.755	8.901	13.132	13.352	17.509	17.803	21.887	22.253	26.264	26.704	35.019	35.605
111	8.834	8.981	13.251	13.471	17.669	17.962	22.086	22.452	26.503	26.943	35.337	35.924
112	8.914	9.060	13.371	13.591	17.828	18.122	22.285	22.651	26.742	27.182	35.655	36.243
113	8.994	9.140	13.490	13.710	17.987	18.280	22.484	22.850	26.980	27.421	35.974	36.561
114	9.073	9.220	13.609	13.830	18.146	18.440	22.682	23.049	27.219	27.660	36.292	36.879
115	9.153	9.299	13.729	13.948	18.305	18.597	22.881	23.246	27.458	27.896	36.610	37.194
116	9.232	9.379	13.848	14.068	18.464	18.757	23.080	23.447	27.696	28.136	36.929	37.515
117	9.312	9.458	13.968	14.187	18.623	18.917	23.279	23.647	27.935	28.376	37.247	37.835
118	9.391	9.538	14.087	14.307	18.783	19.077	23.478	23.846	28.174	28.615	37.565	38.135
119	9.471	9.662	14.206	14.427	18.942	19.235	23.677	24.045	28.413	28.853	37.883	38.471
120	9.550	9.679	14.326	14.545	19.101	19.394	23.876	24.243	28.651	29.091	38.202	38.789

❊ Outside diameter dimensions are nominal.

Note: Bottom diameter = pitch diameter – chain roller diameter

ASME/ANSI SPROCKET DIMENSIONS

No. of Teeth	RS100 1¼″ Pitch		RS120 1½″ Pitch		RS140 1¾″ Pitch		RS160 2″ Pitch		RS200 2½″ Pitch		RS240 3″ Pitch	
	Pitch Dia.	❊ Outside Dia.	Pitch Dia.	❊ Outside Dia.	Pitch Dia.	❊ Outside Dia.	Pitch Dia.	❊ Outside Dia.	Pitch Dia.	❊ Outside Dia.	Pitch Dia.	❊ Outside Dia.
9	3.655	4.184	4.386	5.021	5.117	5.858	5.848	6.695	7.310	8.367	8.771	10.044
10	4.045	4.597	4.854	5.516	5.663	6.436	6.472	7.355	8.090	9.195	9.708	11.034
11	4.437	5.007	5.324	6.008	6.212	7.010	7.099	8.011	8.872	10.015	10.649	12.018
12	4.830	5.415	5.796	6.498	6.762	7.581	7.727	8.664	9.660	10.830	11.591	12.996
13	5.223	5.821	6.268	6.986	7.313	8.150	8.357	9.314	10.447	11.642	12.536	13.971
14	5.617	6.227	6.741	7.472	7.864	8.718	8.988	9.963	11.235	12.455	13.482	14.943
15	6.012	6.631	7.215	7.957	8.417	9.283	9.620	10.609	12.025	13.262	14.429	15.912
16	6.407	7.034	7.689	8.441	8.970	9.848	10.252	11.255	12.815	14.067	15.377	16.881
17	6.803	7.437	8.163	8.924	9.524	10.411	10.885	11.899	13.605	14.872	16.327	17.847
18	7.198	7.839	8.638	9.407	10.078	10.975	11.518	12.543	14.397	15.677	17.276	18.813
19	7.594	8.241	9.113	9.889	10.632	11.537	12.151	13.185	15.190	16.482	18.227	19.779
20	7.991	8.642	9.589	10.370	11.187	12.099	12.785	13.828	15.982	17.285	19.177	20.742
21	8.387	9.043	10.064	10.851	11.742	12.660	13.419	14.470	16.775	18.087	20.129	21.705
22	8.783	9.444	10.540	11.332	12.297	13.221	14.053	15.110	17.567	18.887	21.080	22.665
23	9.180	9.844	11.016	11.813	12.852	13.782	14.688	15.751	18.360	19.687	22.032	23.628
24	9.577	10.245	11.492	12.294	13.407	14.343	15.323	16.392	19.152	20.490	22.984	24.588
25	9.973	10.645	11.968	12.774	13.963	14.903	15.958	17.032	19.947	21.290	23.936	25.548
26	10.370	11.045	12.444	13.254	14.518	15.463	16.593	17.671	20.740	22.090	24.889	26.508
27	10.767	11.444	12.921	13.733	15.074	16.022	17.228	18.311	21.535	22.890	25.841	27.468
28	11.164	11.844	13.397	14.213	15.630	16.582	17.863	18.951	22.330	23.687	26.794	28.425
29	11.561	12.244	13.874	14.692	16.186	17.141	18.498	19.590	23.122	24.487	27.747	29.385
30	11.958	12.643	14.350	15.172	16.742	17.700	19.134	20.229	23.917	25.285	28.700	30.342
31	12.356	13.043	14.827	15.651	17.298	18.259	19.769	20.868	24.712	26.085	29.654	31.302
32	12.753	13.442	15.303	16.130	17.854	18.818	20.405	21.506	25.505	26.882	30.607	32.259
33	13.150	13.841	15.780	16.609	18.410	19.377	21.040	22.145	26.300	27.680	31.560	33.219
34	13.547	14.240	16.257	17.088	18.966	19.936	21.676	22.784	27.095	28.480	32.514	34.176
35	13.945	14.639	16.734	17.566	19.523	20.494	22.312	23.422	27.890	29.277	33.467	35.133
36	14.342	15.038	17.211	18.045	20.079	21.052	22.947	24.060	28.685	30.075	34.421	36.090
37	14.740	15.437	17.687	18.524	20.635	21.611	23.583	24.698	29.480	30.872	35.375	37.047
38	15.137	15.835	18.164	19.002	21.192	22.169	24.219	25.336	30.275	31.670	36.329	38.004
39	15.534	16.234	18.641	19.481	21.748	22.728	24.855	25.975	31.070	32.467	37.283	38.961
40	15.932	16.633	19.118	19.959	22.305	23.286	25.491	26.613	31.865	33.265	38.237	39.918
41	16.329	17.032	19.595	20.438	22.861	23.844	26.127	27.251	32.660	34.062	39.191	40.875
42	16.727	17.430	20.072	20.916	23.418	24.402	26.763	27.888	33.455	34.860	40.145	41.832
43	17.124	17.829	20.549	21.394	23.974	24.960	27.399	28.526	34.250	35.657	41.099	42.789
44	17.522	18.227	21.026	21.873	24.531	25.518	28.035	29.164	35.045	36.455	42.053	43.746
45	17.919	18.626	21.503	22.351	25.087	26.076	28.671	29.802	35.840	37.252	43.007	44.703
46	18.317	19.024	21.980	22.829	25.644	26.634	29.307	30.439	36.635	38.047	43.961	45.657
47	18.715	19.423	22.458	23.308	26.201	27.192	29.943	31.077	37.430	38.845	44.915	46.614
48	19.112	19.821	22.935	23.786	26.757	27.750	30.580	31.714	38.225	39.642	45.869	47.571
49	19.510	20.219	23.412	24.264	27.314	28.308	31.216	32.352	39.020	40.440	46.824	48.528
50	19.908	20.618	23.889	24.742	27.871	28.865	31.852	32.989	39.815	41.237	47.778	49.485
51	20.305	21.017	24.366	25.220	28.427	29.423	32.488	33.626	40.610	42.032	48.732	50.439
52	20.703	21.415	24.843	25.698	28.984	29.980	33.124	34.263	41.405	42.830	49.687	51.396
53	21.100	21.813	25.320	26.176	29.541	30.538	33.761	34.901	42.200	43.627	50.641	52.353
54	21.498	22.212	25.798	26.654	30.097	31.096	34.397	35.539	42.996	44.422	51.595	53.307
55	21.896	22.610	26.275	27.132	30.654	31.654	35.033	36.176	43.792	45.220	52.550	54.264
56	22.293	23.008	26.752	27.610	31.211	32.211	35.669	36.813	44.587	46.015	53.504	55.221
57	22.691	23.407	27.229	28.088	31.768	32.769	36.306	37.451	45.382	46.812	54.458	56.175
58	23.089	23.805	27.707	28.566	32.324	33.327	36.942	38.088	46.177	47.610	55.413	57.132
59	23.486	24.203	28.184	29.044	32.881	33.885	37.578	38.725	46.972	48.407	56.368	58.089
60	23.884	24.601	28.661	29.522	33.438	34.442	38.215	39.362	47.767	49.202	57.322	59.043
61	24.282	25.000	29.138	30.000	33.995	35.000	38.851	39.999	48.565	50.000	58.277	60.000
62	24.680	25.397	29.616	30.477	34.551	35.557	39.487	40.636	49.360	50.795	59.231	60.954
63	25.077	25.796	30.093	30.955	35.108	36.114	40.124	41.274	50.155	51.592	60.185	61.911

❊ Outside diameter dimensions are nominal.

Note: Bottom diameter = pitch diameter – chain roller diameter

No. of Teeth	RS100 1¼″ Pitch		RS120 1½″ Pitch		RS140 1¾″ Pitch		RS160 2″ Pitch		RS200 2½″ Pitch		RS240 3″ Pitch	
	Pitch Dia.	❊ Outside Dia.	Pitch Dia.	❊ Outside Dia.	Pitch Dia.	❊ Outside Dia.	Pitch Dia.	❊ Outside Dia.	Pitch Dia.	❊ Outside Dia.	Pitch Dia.	❊ Outside Dia.
64	25.475	26.194	30.570	31.433	35.665	36.672	40.760	41.911	50.950	52.387	61.140	62.868
65	25.873	26.593	31.047	31.911	36.222	37.229	41.396	42.548	51.745	53.185	62.095	63.822
66	26.271	26.991	31.525	32.389	36.779	37.787	42.033	43.185	52.540	53.982	63.049	64.779
67	26.668	27.389	32.002	32.867	37.336	38.345	42.669	43.822	53.337	54.777	64.004	65.733
68	27.066	27.787	32.479	33.345	37.892	38.902	43.306	44.459	54.132	55.575	64.958	66.690
69	27.464	28.185	32.957	33.822	38.449	39.459	43.942	45.096	54.927	56.370	65.913	67.644
70	27.862	28.584	33.434	34.301	39.006	40.017	44.578	45.734	55.722	57.167	66.868	68.601
71	28.259	28.981	33.911	34.778	39.563	40.574	45.215	46.370	56.517	57.962	67.822	69.555
72	28.657	29.380	34.388	35.256	40.120	41.132	45.851	47.008	57.315	58.760	68.777	70.512
73	29.055	29.778	34.866	35.733	40.677	41.689	46.488	47.644	58.110	59.555	69.731	71.466
74	29.453	30.176	35.343	36.212	41.234	42.247	47.124	48.282	58.905	60.352	70.686	72.423
75	29.850	30.574	35.820	36.689	41.790	42.803	47.760	48.918	59.700	61.147	71.641	73.377
76	30.248	30.973	36.298	37.167	42.347	43.362	48.397	49.556	60.495	61.945	72.595	74.334
77	30.646	31.370	36.775	37.644	42.904	43.918	49.033	50.192	61.292	62.741	73.550	75.288
78	31.044	31.769	37.252	38.123	43.461	44.476	49.670	50.830	62.087	63.537	74.505	76.245
79	31.441	32.166	37.730	38.600	44.018	45.033	50.306	51.466	62.882	64.332	75.459	77.199
80	31.839	32.565	38.207	39.078	44.575	45.591	50.943	52.104	63.677	65.130	76.414	78.156
81	32.237	32.963	38.684	39.555	45.132	46.148	51.579	52.740	64.475	65.925	77.369	79.110
82	32.635	33.361	39.162	40.034	45.689	46.706	52.216	53.378	65.270	66.722	78.323	80.067
83	33.033	33.759	39.639	40.511	46.246	47.262	52.852	54.014	66.065	67.517	79.278	81.021
84	33.430	34.158	40.116	40.989	46.803	47.821	53.489	54.652	66.860	68.315	80.233	81.978
85	33.828	34.555	40.594	41.466	47.359	48.377	54.125	55.288	67.657	69.110	81.188	82.932
86	34.226	34.953	41.071	41.943	47.916	48.934	54.761	55.924	68.452	69.905	82.142	83.886
87	34.624	35.351	41.548	42.422	48.473	49.492	55.398	56.562	69.247	70.702	83.097	84.843
88	35.022	35.749	42.026	42.899	49.030	50.048	56.034	57.198	70.042	71.497	84.052	85.797
89	35.419	36.148	42.503	43.377	49.587	50.607	56.671	57.836	70.837	72.295	85.006	86.754
90	35.817	36.545	42.981	43.854	50.144	51.163	57.307	58.472	71.635	73.090	85.961	87.708
91	36.215	36.943	43.458	44.331	50.701	51.720	57.944	59.108	72.430	73.885	86.916	88.665
92	36.613	37.341	43.935	44.810	51.258	52.278	58.580	59.746	73.225	74.682	87.871	89.619
93	37.011	37.739	44.413	45.287	51.814	52.834	59.216	60.382	74.020	75.477	88.825	90.576
94	37.408	38.138	44.890	45.765	52.371	53.393	59.853	61.020	74.815	76.275	89.780	91.530
95	37.806	38.535	45.367	46.242	52.928	53.949	60.489	61.656	75.612	77.070	90.735	92.484
96	38.204	38.933	45.845	46.719	53.485	54.506	61.126	62.292	76.407	77.865	91.690	93.441
97	38.602	39.331	46.322	47.198	54.042	55.064	61.762	62.930	77.202	78.662	92.645	94.395
98	39.000	39.729	46.800	47.675	54.499	55.620	62.399	63.566	77.997	79.457	93.599	95.352
99	39.397	40.128	47.277	48.153	55.156	56.179	63.035	64.204	78.795	80.255	94.554	96.306
100	39.795	40.525	47.754	48.630	55.713	56.735	63.672	64.840	79.590	81.050	95.509	97.263
101	40.193	40.924	48.232	49.109	56.270	57.294	64.309	65.478	80.385	81.847	96.464	98.217
102	40.591	41.322	48.709	49.586	56.827	57.851	64.945	66.115	81.182	82.642	97.418	99.171
103	40.989	41.720	49.187	50.064	57.384	58.408	65.582	66.752	81.977	83.440	98.373	100.128
104	41.387	42.118	49.664	50.542	57.941	58.966	66.218	67.389	82.772	84.235	99.328	101.082
105	41.784	42.517	50.141	51.020	58.498	59.523	66.855	68.027	83.567	85.030	100.283	102.039
106	42.182	42.915	50.619	51.498	59.055	60.081	67.492	68.664	84.365	85.827	101.238	102.993
107	42.580	43.312	51.096	51.975	59.612	60.637	68.128	69.299	85.160	86.622	102.192	103.947
108	42.978	43.710	51.574	52.452	60.169	61.194	68.765	69.936	85.955	87.420	103.147	104.904
109	43.376	44.108	52.051	52.930	60.726	61.751	69.401	70.573	86.752	88.215	104.102	105.858
110	43.774	44.506	52.528	53.408	61.283	62.309	70.038	71.210	87.547	89.012	105.056	106.815
111	44.171	44.905	53.006	53.886	61.840	62.867	70.674	71.848	88.342	89.807	106.011	107.769
112	44.569	45.304	53.483	54.364	62.397	63.425	71.311	72.486	89.137	90.602	106.967	108.723
113	44.967	45.701	53.960	54.841	62.954	63.982	71.948	73.122	89.935	91.400	107.921	109.680
114	45.365	46.099	54.438	55.319	63.511	64.539	72.584	73.759	90.730	92.195	108.876	110.634
115	45.763	46.493	54.915	55.792	64.068	65.090	73.220	74.388	91.525	92.992	109.831	111.591
116	46.161	46.893	55.393	56.272	64.625	65.651	73.857	75.030	92.322	93.787	110.786	112.545
117	46.558	47.293	55.870	56.752	65.182	66.210	74.494	75.669	93.117	94.582	111.740	113.499
118	46.956	47.691	56.348	57.230	65.739	66.768	75.130	76.306	93.912	95.380	112.695	114.456
119	47.354	48.089	56.825	57.707	66.296	67.325	75.767	76.943	94.707	96.175	113.650	115.410
120	47.752	48.486	57.302	58.183	66.853	67.880	76.403	77.577	95.502	96.970	114.605	116.364

❊ Outside diameter dimensions are nominal.

Note: Bottom diameter = pitch diameter – chain roller diameter

U.S. TSUBAKI ENGINEERING INFORMATION

PITCH CONVERSION TABLE — NO. OF PITCHES CONVERTED INTO FEET

No. of Pitches	Chain No. RS25 ¼″	RS35 ⅜″	RS40, RS41 ½″	RS50 ⅝″	RS60 ¾″	RS80 1″	RS100 1¼″	RS120 1½″	RS140 1¾″	RS160 2″	RS200 2½″	RS240 3″	Length of Pitches
	Chain Length (ft.)												
1	0.0208	0.0313	0.0417	0.0521	0.0625	0.0833	0.1042	0.1250	0.1458	0.1667	0.2083	0.2500	1
2	0.0416	0.0625	0.0833	0.1042	0.1250	0.1667	0.2083	0.2500	0.2917	0.3333	0.4147	0.5000	2
3	0.0625	0.0938	0.1250	0.1563	0.1875	0.2500	0.3125	0.3750	0.4375	0.5000	0.6250	0.7500	3
4	0.0833	0.1250	0.1667	0.2083	0.2500	0.3333	0.4167	0.5000	0.5883	0.6667	0.8333	1.0000	4
5	0.1041	0.1563	0.2083	0.2604	0.3125	0.4167	0.5208	0.6250	0.7222	0.8333	1.0417	1.2500	5
6	0.1250	0.1875	0.2500	0.3125	0.3750	0.5000	0.6250	0.7500	0.8750	1.0000	1.2500	1.5000	6
7	0.1458	0.2188	0.2917	0.3646	0.4375	0.5833	0.7992	0.8750	1.0208	1.1667	1.4583	1.7500	7
8	0.1666	0.2500	0.3333	0.4167	0.5000	0.6667	0.8333	1.0000	1.1667	1.3333	1.6667	2.0000	8
9	0.1875	0.2813	0.3750	0.4688	0.5625	0.7500	0.9375	1.1259	1.3125	1.5000	1.8750	2.2500	9
10	0.2083	0.3125	0.4167	0.5208	0.6250	0.8333	1.0417	1.2500	1.4583	1.6667	2.0833	2.5000	10
11	0.2292	0.3438	0.4594	0.5729	0.6875	0.9167	1.1458	1.3750	1.6041	1.8333	2.2917	2.7500	11
12	0.2500	0.3750	0.5000	0.6250	0.7500	1.0000	1.2500	1.5000	1.7500	2.0000	2.5000	3.0000	12
13	0.2708	0.4063	0.5417	0.6771	0.8125	1.0833	1.3542	1.6250	1.8958	2.1667	2.7083	3.2500	13
14	0.2916	0.4375	0.5833	0.7292	0.8750	1.1667	1.4583	1.7500	2.0417	2.3333	2.9167	3.5000	14
15	0.3125	0.4688	0.6250	0.7813	0.9375	1.2500	1.5625	1.8750	2.1875	2.5000	3.1250	3.7500	15
16	0.3333	0.5000	0.6667	0.8333	1.0000	1.3333	1.6667	2.0000	2.3333	2.6667	3.3333	4.0000	16
17	0.3542	0.5313	0.7084	0.8854	1.0625	1.4167	1.7708	2.1250	2.4791	2.8333	3.5417	4.2500	17
18	0.3750	0.5625	0.7500	0.9375	1.1250	1.5000	1.8750	2.2500	2.7250	3.0000	3.7500	4.5000	18
19	0.3958	0.5938	0.7917	0.9896	1.1875	1.5833	1.9792	2.3750	2.7708	3.1667	3.9583	4.7500	19
20	0.4166	0.6250	0.8333	1.0417	1.2500	1.6667	2.0833	2.5000	2.9167	3.3333	4.1667	5.0000	20
21	0.4375	0.6563	0.8750	1.0938	1.3125	1.7500	2.1875	2.6250	3.0625	3.5000	4.3750	5.2500	21
22	0.4583	0.6875	0.9167	1.1458	1.3750	1.8333	2.2917	2.7500	3.2083	3.6667	4.5833	5.5000	22
23	0.4792	0.7188	0.9584	1.1979	1.4375	1.9166	2.3958	2.8750	3.3541	3.8333	4.7917	5.7500	23
24	0.5000	0.7500	1.0000	1.2500	1.5000	2.0000	2.5000	3.0000	3.5000	4.0000	5.0000	6.0000	24
25	0.5208	0.7813	1.0417	1.3021	1.5625	2.0833	2.6042	3.1250	3.6458	4.1667	5.2083	6.2500	25
26	0.5416	0.8125	1.0833	1.3541	1.6250	2.1667	2.7083	3.2500	3.7917	4.3333	5.4167	6.5000	26
27	0.5625	0.8438	1.1250	1.4062	1.6875	2.2500	2.8125	3.3750	3.9375	4.5000	5.6250	6.7500	27
28	0.5833	0.8750	1.1667	1.4583	1.7600	2.3333	2.9167	3.5000	4.0833	4.6667	5.8333	7.0000	28
29	0.6024	0.9063	1.2084	1.5104	1.8125	2.4167	3.0208	3.6250	4.2291	4.8333	6.0417	7.2500	29
30	0.6250	0.9375	1.2500	1.5625	1.8750	2.5000	3.1250	3.7500	4.3750	5.0000	6.2500	7.5000	30
31	0.6458	0.9688	1.2917	1.6164	1.9375	2.5883	3.2292	3.8750	4.5208	5.1667	6.4583	7.7500	31
32	0.6667	1.0000	1.3333	1.6667	2.0000	2.6667	3.3333	4.0000	4.6667	5.3333	6.6667	8.0000	32
33	0.6875	1.0313	1.3750	1.7188	2.0625	2.7500	3.4375	4.1250	4.8125	5.5000	6.8790	8.2500	33
34	0.7083	1.0625	1.4167	1.7708	2.1250	2.8333	3.5417	4.2500	4.9583	5.6667	7.0833	8.5000	34
35	0.7292	1.0938	1.4584	1.8229	2.1875	2.9167	3.6459	4.3750	5.1041	5.8333	7.2917	8.7500	35
36	0.7500	1.1250	1.5000	1.8750	2.2500	3.0000	3.7500	4.5000	5.2500	6.0000	7.5000	9.0000	36
37	0.7708	1.1563	1.5417	1.9271	2.3125	3.0833	3.8542	4.6250	5.3958	6.1667	7.7083	9.2500	37
38	0.7916	1.1875	1.5833	1.9791	2.3750	3.1667	3.9583	4.7500	5.5417	6.3333	7.9167	9.5000	38
39	0.8125	1.2188	1.6250	2.0312	2.4375	3.2500	4.0625	4.8750	5.6875	6.5000	8.1250	9.7500	39
40	0.8333	1.2500	1.6667	2.0833	2.5000	3.3333	4.1667	5.0000	5.8333	6.6667	8.3333	10.0000	40
41	0.8542	1.2813	1.7084	2.1354	2.5625	3.4167	4.2709	5.1250	5.9791	6.8333	8.5417	10.2500	41
42	0.8750	1.3125	1.7500	2.1875	2.6250	3.5000	4.3750	5.2500	6.1250	7.0000	8.7500	10.5000	42
43	0.8958	1.3438	1.7917	2.2396	2.6875	3.5833	4.4792	5.3750	6.2708	7.1667	8.9583	10.7500	43
44	0.9166	1.3750	1.8333	2.2916	2.7500	3.6667	4.5833	5.5000	6.4167	7.3333	9.1667	11.0000	44
45	0.9375	1.4063	1.8750	2.3437	2.8125	3.7500	4.6875	5.6250	6.5625	7.5000	9.3750	11.2500	45
46	0.9583	1.4375	1.9167	2.3958	2.8750	3.8333	4.7917	5.7500	6.7083	7.6667	9.5833	11.5000	46
47	0.9792	1.4688	1.9584	2.4479	2.9375	3.9167	4.8959	5.8750	6.8541	7.8333	9.7917	11.7500	47
48	1.0000	1.5000	2.0000	2.5000	3.0000	4.0000	5.0000	6.0000	7.0000	8.0000	10.0000	12.0000	48
49	1.0208	1.5313	2.0417	2.5521	3.0625	4.0833	5.1042	6.1250	7.1458	8.1667	10.2083	12.2500	49
50	1.0416	1.5625	2.0833	2.6042	3.1250	4.1667	5.2083	6.2500	7.2917	8.3333	10.4167	12.5000	50

PITCH CONVERSION TABLE — NO. OF PITCHES CONVERTED INTO FEET

No. of Pitches	Chain No. RS25 ¼″	RS35 ⅜″	RS40, RS41 ½″	RS50 ⅝″	RS60 ¾″	RS80 1″	RS100 1¼″	RS120 1½″	RS140 1¾″	RS160 2″	RS200 2½″	RS240 3″	No. of Pitches
	Chain Length (ft.)												
51	1.0625	1.5938	2.1250	2.6563	3.1875	4.2500	5.3125	6.3750	7.4375	8.5000	10.6250	12.7500	51
52	1.0833	1.6250	2.1667	2.7083	3.2500	4.3333	5.4167	6.5000	7.5833	8.6667	10.8333	13.0000	52
53	1.1042	1.6563	2.2084	2.7604	3.3125	4.4167	5.5209	6.6250	7.7291	8.8333	11.0417	13.2500	53
54	1.1250	1.6875	2.2500	2.8125	3.3750	4.5000	5.6250	6.7500	7.8750	9.0000	11.2500	13.5000	54
55	1.1458	1.7188	2.2917	2.8647	3.4375	4.5833	5.7292	6.8750	8.0208	9.1667	11.4583	13.7500	55
56	1.1666	1.7500	2.3333	2.9167	3.5000	4.6667	5.8333	7.0000	8.1667	9.3333	11.6667	14.0000	56
57	1.1375	1.7813	2.3750	2.9688	3.5625	4.7500	5.9375	7.1250	8.3125	9.5000	11.8750	14.2500	57
58	1.2083	1.8125	2.4167	3.0208	3.6250	4.8333	6.0417	7.2500	8.4583	9.6667	12.0833	14.5000	58
59	1.2292	1.8438	2.4584	3.0729	3.6870	4.9166	6.1459	7.3750	8.6041	9.8333	12.1917	14.7500	59
60	1.2500	1.8750	2.5000	3.1250	3.7500	5.0000	6.2500	7.5000	8.7500	10.0000	12.5000	15.0000	60
61	1.2708	1.9063	2.5417	3.1771	3.8125	5.0833	6.3542	7.6250	8.8958	10.1667	12.7083	15.2500	61
62	1.2916	1.9375	2.5833	3.2292	3.8750	5.1667	6.5583	7.7500	9.0417	10.3333	12.9167	15.5000	62
63	1.3125	1.9688	2.6250	3.2813	3.9375	5.2500	6.6625	7.8750	9.1875	10.5000	13.1350	15.7500	63
64	1.3333	2.0000	2.6667	3.3333	4.0000	5.3333	6.7667	8.0000	9.3333	10.6667	13.3333	16.0000	64
65	1.3542	2.0313	2.7084	3.3854	4.0625	5.4167	6.8709	8.1250	9.4791	10.8333	13.5417	16.2500	65
66	1.3750	2.0625	2.7500	3.4375	4.1250	5.5000	6.9750	8.2500	9.6250	11.0000	13.7500	16.5000	66
67	1.3958	2.0938	2.7917	3.4897	4.1875	5.5883	6.0792	8.3750	9.7708	11.1667	13.9583	16.7500	67
68	1.4166	2.1250	2.8333	3.5417	4.2500	5.6667	7.1833	8.5000	9.9167	11.3333	14.1667	17.0000	68
69	1.4375	2.1563	2.8750	3.5938	4.3125	5.7500	7.2875	8.6250	10.0625	11.5000	14.3750	17.2500	69
70	1.4583	2.1875	2.9167	3.6458	4.3750	5.8333	7.3917	8.7500	10.2083	11.6667	14.5833	17.5000	70
71	1.4792	2.2188	2.9584	3.6979	4.4375	5.9167	7.3950	8.8750	10.3541	11.8333	14.7917	17.7500	71
72	1.5000	2.2500	3.0000	3.7500	4.5000	6.0000	7.5000	9.0000	10.5000	12.0000	15.0000	18.0000	72
73	1.5208	2.2813	3.0417	3.8021	4.5625	6.0833	7.6042	9.1250	10.6458	12.1667	15.2083	18.2500	73
74	1.5416	2.3125	3.0833	3.8541	4.6250	6.1667	7.7083	9.2500	10.7917	12.3333	15.4167	18.5000	74
75	1.5525	2.3438	3.1250	3.9062	4.6875	6.2500	7.8125	9.3750	10.9375	12.5000	15.6250	18.7500	75
76	1.5831	2.3750	3.1667	3.9583	4.7500	6.3333	7.9167	9.5000	11.0833	12.6667	15.8333	19.0000	76
77	1.6039	2.4063	3.2084	4.0104	4.8125	6.4167	8.0209	9.6250	11.2291	12.8333	16.0417	19.2500	77
78	1.6247	2.4375	3.2500	4.0625	4.8750	6.5000	8.1250	9.7500	11.3750	13.0000	16.2500	19.5000	78
79	1.6456	2.4688	3.2917	4.1146	4.9375	6.5833	8.2282	9.8750	11.5208	13.1667	16.4583	19.7500	79
80	1.6664	2.5000	3.3333	4.1667	5.0000	6.6667	8.3333	10.0000	11.6667	13.3333	16.6667	20.0000	80
81	1.6872	2.5313	3.3750	4.2188	5.0625	6.7500	8.4375	10.1250	11.8125	13.5000	16.8750	20.2500	81
82	1.7081	2.5625	3.4167	4.2700	5.1250	6.8333	8.5417	10.2500	11.9583	13.6667	17.0833	20.5000	82
83	1.7289	2.5938	3.4584	4.3230	5.1875	6.9167	8.6459	10.3750	12.1041	13.8333	17.2917	20.7500	83
84	1.7497	2.6250	3.5000	4.3750	5.2500	7.0000	8.7500	10.5000	12.2500	14.0000	17.5000	21.0000	84
85	1.7706	2.6563	3.5417	4.4271	5.3125	7.0833	8.8542	10.6250	12.3958	14.1667	17.7083	21.2500	85
86	1.7914	2.6875	3.5833	4.4792	5.3750	7.1667	8.9583	10.7500	12.5417	14.3333	17.9167	21.5000	86
87	1.8122	2.7188	3.6250	4.5313	5.4375	7.2500	9.0625	10.8750	12.6875	14.5000	18.1250	21.7500	87
88	1.8330	2.7500	3.6667	4.5834	5.5000	7.3333	9.1667	11.0000	12.8333	14.6667	18.3333	22.0000	88
89	1.8539	2.7813	3.7084	4.6355	5.5625	7.4167	9.2709	11.1250	12.9791	14.8333	18.5417	22.2500	89
90	1.8747	2.8125	3.7500	4.6875	5.6250	7.5000	9.3750	11.2500	13.1250	15.0000	18.7500	22.5000	90
91	1.8955	2.8438	3.7917	4.7396	5.6875	7.5833	9.4792	11.3750	13.2708	15.1667	18.9583	22.7500	91
92	1.9164	2.8750	3.8333	4.7917	5.7500	7.6667	9.5833	11.5000	13.4167	15.3333	19.1667	23.0000	92
93	1.9372	2.9063	3.8750	4.8438	5.8125	7.7500	9.6875	11.6250	13.5625	15.5000	19.3750	23.2500	93
94	1.9580	2.9375	3.9167	4.8958	5.8750	7.8333	9.7917	11.7500	13.7083	15.6667	19.5833	23.5000	94
95	1.9789	2.9688	3.9584	4.9479	5.9375	7.9167	9.8959	11.8750	13.8541	15.8333	19.7917	23.7500	95
96	1.9997	3.0000	4.0000	5.0000	6.0000	8.0000	10.0000	12.0000	14.0000	16.0000	20.0000	24.0000	96
97	2.0205	3.0313	4.0417	5.0521	6.0625	8.0833	10.1042	12.1250	14.1458	16.1667	20.2083	24.2500	97
98	2.0413	3.0625	4.0833	5.1042	6.1250	8.1667	10.2083	12.2500	14.2917	16.3333	20.4167	24.5000	98
99	2.0622	3.0938	4.1250	5.1563	6.1875	8.2500	10.3125	12.3750	14.4375	16.5000	20.6250	24.7500	99
100	2.0830	3.1250	4.1667	5.2083	6.2500	8.3333	10.4167	12.5000	14.5833	16.6667	20.8333	25.0000	100

⚠ WARNING

USE CARE TO PREVENT INJURY COMPLY WITH FOLLOWING TO AVOID SERIOUS PERSONAL INJURY:

1. Guards must be provided on all chain and sprocket installations in accordance with provisions of ANSI/ASME B15.1 — 2000 “Safety Standards for Mechanical Power Transmission Apparatus,” and ANSI/ASME B20.1 — 2006 “Safety Standards for Conveyors and Related Equipment,” or other applicable safety standards. When revisions of these standards are published, the updated edition shall apply.

2. Always lock out the power switch before installing, removing, lubricating or servicing a chain system.

3. When connecting or disconnecting chain:
   a. Eye protection is required. Wear safety glasses, protective clothing, gloves and safety shoes.
   b. Support the chain to prevent uncontrolled movement of chain and parts.
   c. Use of pressing equipment is suggested. Tools must be in good condition and properly used.
   d. Do not attempt to connect or disconnect chain unless you understand chain construction, including the correct direction for pin/rivet removal or insertion.
   e. Do not attempt to rework damaged chains by replacing only the components obviously faulty. The entire chain may be compromised, and it should be discarded.

4. Other cautions:
   a. **Alterations and Repairs** to chains should be made only by qualified personnel with parts and components authorized by U.S. Tsubaki.
   b. **Electroplating of Assembled Chains** is not condoned. Plating of assembled chains could result in failure from hydrogen embrittlement.
   c. **Inspect Chains** for shipment damage before installation. During operation, all chain systems should be inspected on a regular schedule. Visually check for worn, damaged and broken parts caused by improper installation or maintenance, abnormal stress, temperature, humidity, abrasion or corrosion, possible interference with other system components and improper lubrication. (For correct lubrication procedures and systems, see the Engineering Section.)
   d. **Heating Chain** with a cutting torch is not suggested unless absolutely necessary for removal. If cut in such a manner, it should not be reused.
   e. **Welding** should not be performed on any chain or component.
   f. **Average Ultimate Strength** of a chain means the average load at which it will break when subjected to a destructive tensile test. *It does not mean working load.* For complete information, contact U.S. Tsubaki Engineering.
   g. **Product Dimensions** in this catalog are subject to changes and are intended for general reference only. For exact current dimensions, request certified prints from U.S. Tsubaki.

NOTES

NOTES

U.S. TSUBAKI CONVEYOR CHAINS

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Standard Attachment Chain

RS ROLLER CHAIN ATTACHMENTS

U.S. Tsubaki RS single pitch roller chains may be adapted for conveying duties by the addition of attachments. The standard types of attachments include bent or straight type attachments on one or both sides, extended pin, and wide contour attachments. A wide variety of assembled chain and components are stocked for quick delivery service.

RS attachment chains are available in carbon steel, nickel-plated, NEPTUNE®, and stainless steel.

RS Attachment Chain

A-1 Attachment

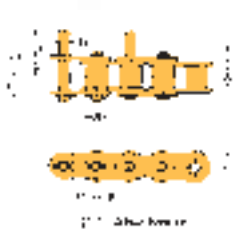
K-1 Attachment

SA-1 Attachment

SK-1 Attachment

D-1 Attachment

D-3 Attachment

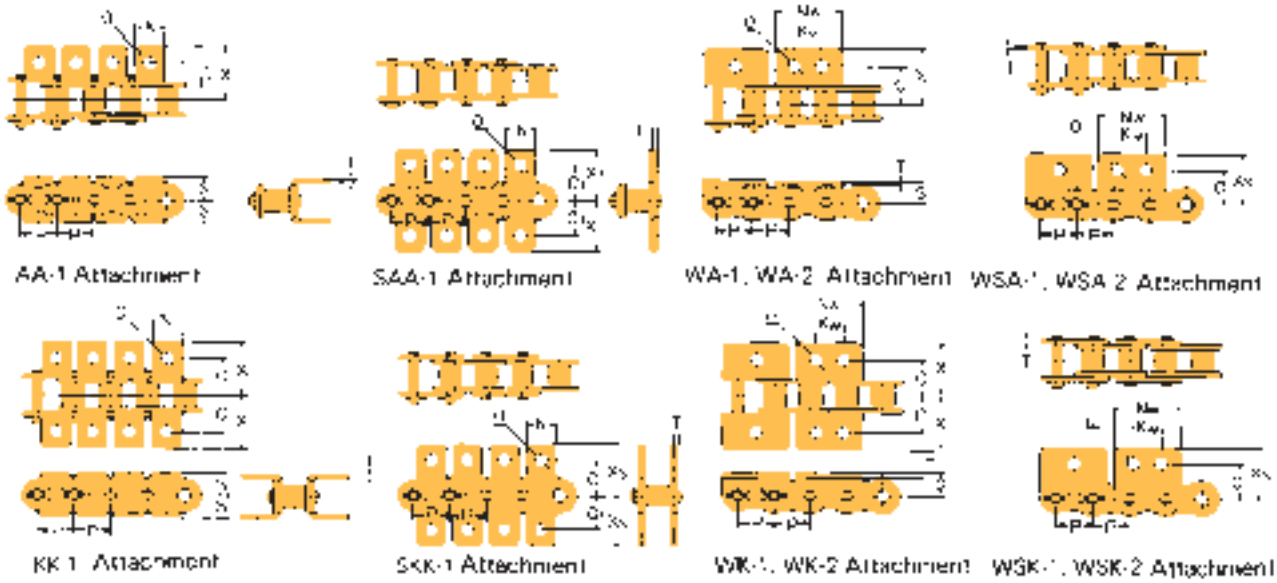


U.S. TSUBAKI Chain No.	Pitch P	Width Between Roller Link Plates W	Roller Dia. R	Pin D	Pin L_1	Pin L_2	Link Plate H	Link Plate T	Average Tensile Strength lbs.	Max. Allowable Load lbs.	Approx. Weight lbs./ft.	No. of Links per 10 ft.
RS25 ▲	.250	.125	❊ .130	.090	.150	.189	.230	.030	926	143	.094	480
RS35 ▲	.375	.188	❊ .200	.141	.230	.270	.354	.050	2,120	342	.22	320
RS41	.500	.250	.306	.141	.266	.313	.386	.050	2,120	353	.27	240
RS40	.500	.312	.312	.156	.325	.392	.472	.060	3,750	595	.43	240
RS50	.625	.375	.400	.200	.406	.472	.591	.080	6,170	970	.70	192
RS60	.750	.500	.469	.234	.506	.581	.713	.094	9,040	1,410	1.03	160
RS80	1.000	.625	.625	.312	.640	.758	.949	.125	15,400	2,400	1.79	120
RS100	1.250	.750	.750	.375	.778	.900	1.185	.156	24,300	3,840	2.68	96
RS120	1.500	1.000	.875	.437	.980	1.138	1.425	.187	34,000	5,380	3.98	80
RS140	1.750	1.000	1.000	.500	1.059	1.248	1.661	.221	45,900	7,280	5.03	68
RS160	2.000	1.250	1.125	.562	1.254	1.451	1.898	.250	58,000	9,190	6.79	60

U.S. TSUBAKI Chain No.	Attachment C	Attachment C_1	Attachment N	Attachment O	Attachment S	Attachment X	Attachment X_s	Attachment L_3	Attachment L_4	Additional Weight per Attachment lbs./att. A•SA	Additional Weight per Attachment lbs./att. K•SK	Additional Weight per Attachment lbs./att. D-1
RS25 ▲	.281	.313	.220	.134	.187	.421	.459	—	—	.001	.002	—
RS35 ▲	.375	.375	.311	.102	.250	.563	.573	.375	.575	.002	.004	.002
RS41	.469	.500	.375	.141	.281	.646	.656	.375	.608	.004	.007	.002
RS40	.500	.500	.375	.141	.315	.701	.685	.375	.661	.004	.009	.002
RS50	.625	.625	.500	.205	.406	.921	.907	.469	.827	.007	.013	.004
RS60	.750	.720	.626	.205	.469	1.110	1.057	.563	1.018	.015	.031	.007
RS80	1.000	.969	.752	.268	.625	1.441	1.396	.752	1.335	.029	.057	.015
RS100	1.250	1.252	1.000	.342	.780	1.768	1.732	.937	1.648	.057	.115	.027
RS120	1.500	1.437	1.126	.386	.906	2.197	2.081	1.126	2.024	.097	.194	.044
RS140	1.750	1.750	1.375	.448	1.125	2.420	2.437	1.311	2.264	.157	.313	.066
RS160	2.000	2.000	1.500	.516	1.250	2.840	2.750	1.500	2.654	.214	.428	.099

▲Rollerless ❊Bushing Diameter Spring clip type connecting links will be provided for RS25 to RS60 unless otherwise specified.

Additional Attachments



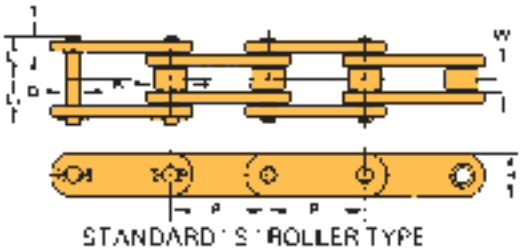
U.S. TSUBAKI Chain No.	Pitch P	Attachment C	Attachment C_1	Attachment N	Attachment O	Attachment S	Attachment T	Attachment X	Attachment Xs	Attachment Nw	Attachment Kw	Additional Weight per Attachment lbs./att. AA,SAA	KK,SKK	WA,WSA	WK,WSK
RS40	.500	.500	.500	.375	.141	.315	.060	.701	.685	0.97	.500	.007	.014	.007	.014
RS50	.625	.625	.625	.500	.205	.406	.080	.921	.907	1.21	.625	.013	.026	.015	.030
RS60	.750	.750	.720	.626	.205	.469	.094	1.110	1.057	1.46	.750	.031	.062	.026	.052
RS80	1.000	1.000	.969	.752	.268	.625	.125	1.441	1.396	1.94	1.000	.057	.114	.062	.124
RS100	1.250	1.250	1.252	1.000	.342	.780	.156	1.768	1.732	2.41	1.250	.121	.242	.121	.242

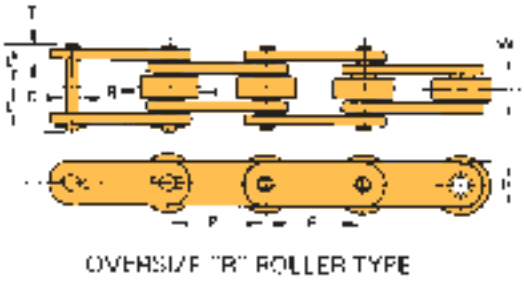
Note: Spring clip type connecting links will be provided for RS40 to RS60 unless otherwise specified.

Double Pitch Attachment Chain

DOUBLE PITCH ROLLER CHAIN ATTACHMENTS

U.S. Tsubaki Double Pitch conveyor chains are available with standard bent or straight type attachments on one or both sides. Extended pin attachments are also available from our Service Centers. Many assembled chains and components are stocked for quick delivery.





A-1 Attachment

K-2 Attachment

SA-1 Attachment

SK-2 Attachment

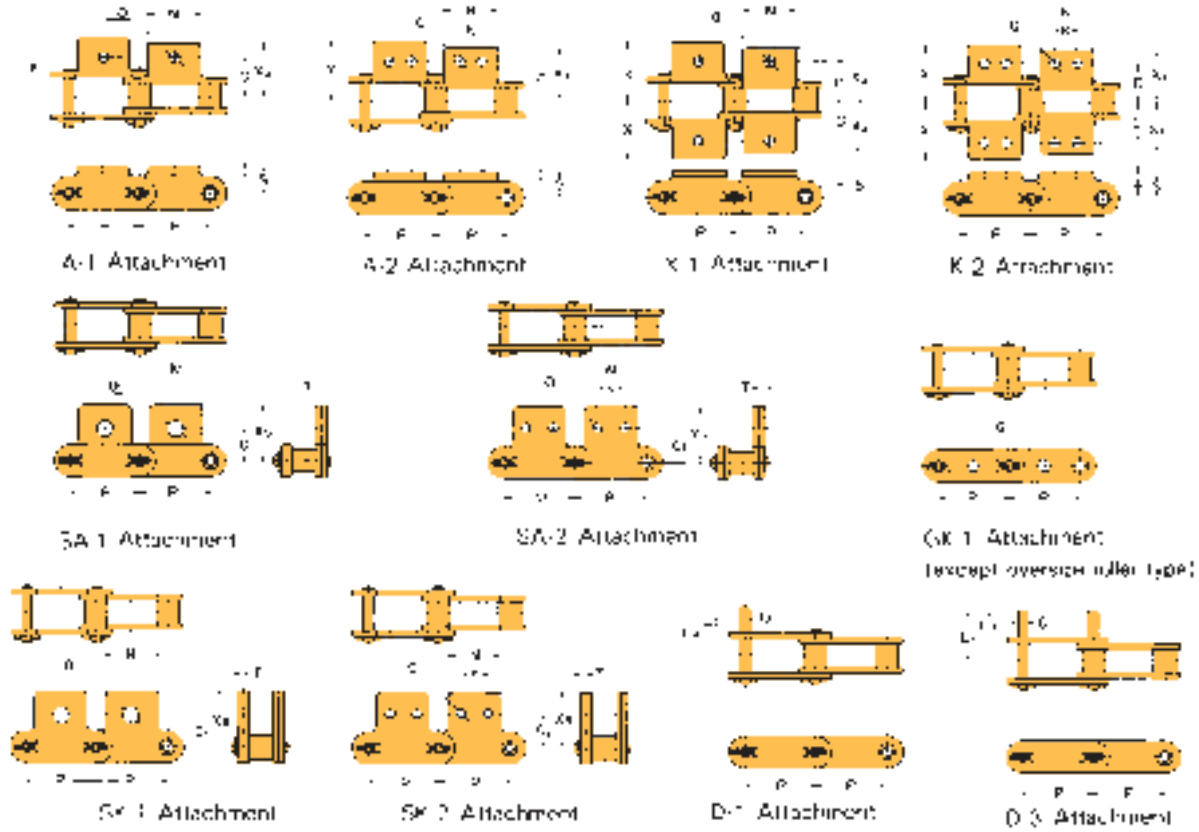
D-3 Attachment

GK-1 Attachment

U.S. TSUBAKI Chain No.	Pitch P	Roller Diameter R	Width Between Roller Link Plates W	Pin D	Pin L_1	Pin L_2	Link Plate T	Link Plate H	Average Tensile Strength lbs.	Max. Allowable Load lbs.	Approx. Weight lbs. / ft.	Additional Weight per Attachment lbs./att. A & SA Att.	Additional Weight per Attachment lbs./att. K & SK Att.	Additional Weight per Attachment lbs./att. D-1 Att.
STANDARD ROLLER TYPE														
C2040	1.000	.312	.312	.156	.325	.392	.060	.472	3,750	595	.34	.007	.013	.002
C2050	1.250	.400	.375	.200	.406	.472	.080	.591	6,170	970	.56	.013	.026	.004
C2060H	1.500	.469	.500	.234	.573	.652	.125	.677	9,040	1,410	1.01	.037	.075	.007
C2080H	2.000	.625	.625	.312	.720	.823	.156	.906	15,400	2,400	1.62	.071	.141	.015
C2100H	2.500	.750	.750	.375	.830	.980	.187	1.15	24,300	3,840	2.38	.132	.265	.026
C2120H	3.000	.875	1.000	.437	1.030	1.210	.219	1.37	34,000	5,380	3.41	.221	.441	—
C2160H	4.000	1.125	1.250	.563	1.337	1.514	.281	1.87	58,000	9,190	6.02	.448	.895	—
OVERSIZE ROLLER TYPE														
C2042	1.000	.625	.312	.156	.325	.392	.060	.472	3,750	595	.58	.007	.013	.002
C2052	1.250	.750	.375	.200	.406	.472	.080	.591	6,170	970	.87	.013	.026	.004
C2062H	1.500	.875	.500	.234	.573	.652	.125	.677	9,040	1,410	1.47	.037	.075	.007
C2082H	2.000	1.125	.625	.312	.720	.823	.156	.906	15,400	2,400	2.37	.071	.142	.015
C2102H	2.500	1.562	.750	.375	.830	.980	.187	1.15	24,300	3,840	3.90	.132	.265	.026
C2122H	3.000	1.750	1.000	.437	1.030	1.210	.219	1.37	34,000	5,380	5.46	.221	.441	—
C2162H	4.000	2.250	1.250	.563	1.337	1.514	.281	1.87	58,000	9,190	9.21	.448	.895	—

Note: 1. Heavy side plates are used for C2060H, C2062H and up.
2. Spring clip type connecting links will be provided for C2040 ~ C2060H and C2042 ~ C2062H, unless otherwise specified.

■ Attachments

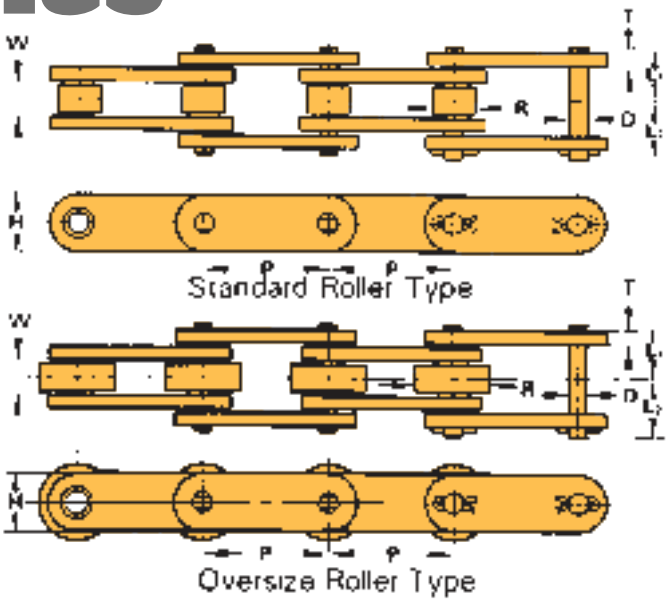


U.S. TSUBAKI	A-1, A-2, K-1 and K-2 Attachments							SA-1, SA-2, SK-1 and SK-2 Attachments								D and GK-1 Attachments			
Chain No.	X	X_2	C	S	K	N	O	Xs	C_1	C_2	K	N	O	O_1	T	D	L_3	L_4	G
C2040	.760	.693	.500	.358	.374	.752	.142	.780	.437	.535	.374	.752	.142	.205	.060	.156	.374	.663	.161
C2050	.953	.866	.626	.437	.469	.937	.205	.969	.563	.626	.469	.937	.205	.268	.080	.200	.469	.833	.201
C2060H	1.240	1.110	.844	.579	.563	1.126	.205	1.205	.689	.752	.563	1.126	.205	.343	.125	.234	.563	1.083	.240
C2080H	1.602	1.441	1.094	.752	.752	1.500	.268	1.594	.874	1.000	.752	1.500	.268	.406	.156	.312	.752	1.401	.319
C2100H	1.950	1.760	1.312	.922	.937	1.875	.323	1.984	1.125	1.250	.938	1.875	.323	.516	.187	.375	.937	1.687	—
C2120H	2.390	2.110	1.562	1.093	1.125	2.250	.386	2.361	1.312	1.468	1.125	2.250	.386	.578	.219	.437	1.125	2.062	—
C2160H	3.060	2.760	2.062	1.437	1.500	3.000	.516	3.093	1.750	2.000	1.500	3.000	.516	.771	.281	.562	1.500	2.718	—

Note: 1. Attachments for standard roller type chain and for oversize roller type chain have the same dimensions except for G.
2. Attachments can be spaced as desired upon request.
For even number of spacing, attachments will be fitted on pin link unless otherwise specified.
3. Spring clip type connecting links will be provided for C2040 ~ C2060H and C2042 ~ C2062H.
4. Dimensions O, O_1 and G show actual hole diameter.

Conveyor Series

DOUBLE PITCH ROLLER CHAINS



These chains provide a high quality conveying medium for material handling equipment, road building machinery, textile machinery, farming implements, baking, packaging, and bottling equipment.

U.S. TSUBAKI Chain No.	Pitch P	Roller Diameter R	Width Between Roller Link Plates W	Pin D	Pin L_1	Pin L_2	Link Plate T	Link Plate H	Average Tensile Strength lbs.	Max. Allowable Load lbs.	Approx. Weight lbs./ft.	No. of Links per 10 ft.
STANDARD ROLLER TYPE												
C2040	1.000	.312	.312	.156	.325	.380	.060	.472	3,750	595	.34	120
C2050	1.250	.400	.375	.200	.406	.469	.080	.591	6,170	970	.56	96
C2060H	1.500	.469	.500	.234	.573	.652	.125	.677	9,040	1,410	1.01	80
C2080H	2.000	.625	.625	.312	.720	.823	.156	.906	15,400	2,400	1.62	60
C2100H	2.500	.750	.750	.375	.858	.965	.187	1.126	24,300	3,840	2.38	48
C2120H	3.000	.875	1.000	.437	1.061	1.203	.219	1.354	34,000	5,380	3.41	40
C2160H	4.000	1.125	1.250	.562	1.337	1.514	.281	1.898	58,000	9,190	6.02	30
OVERSIZE ROLLER TYPE												
C2042	1.000	.625	.312	.156	.325	.380	.060	.472	3,750	595	.58	120
C2052	1.250	.750	.375	.200	.406	.469	.080	.591	6,170	970	.87	96
C2062H	1.500	.875	.500	.234	.573	.652	.125	.677	9,040	1,410	1.47	80
C2082H	2.000	1.125	.625	.312	.720	.823	.156	.906	15,400	2,400	2.37	60
C2102H	2.500	1.562	.750	.375	.858	.965	.187	1.126	24,300	3,840	3.90	48
C2122H	3.000	1.750	1.000	.437	1.061	1.203	.219	1.354	34,000	5,380	5.46	40
C2162H	4.000	2.250	1.250	.562	1.337	1.514	.281	1.898	58,000	9,190	9.21	30

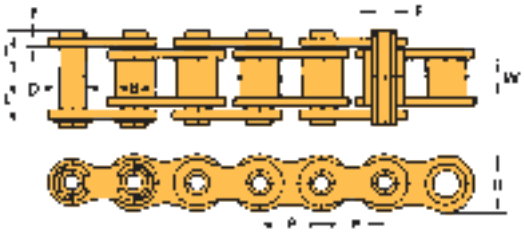
Note: 1. Refer to pages B-3 and B-4 for chains with attachments.
2. Heavy side plates are used for C2060(2)H and up.
3. Spring clip type connecting links will be provided for C2040 ~ C2060H and C2042 ~ C2062H, unless otherwise specified.

❊ **Sprockets for RS and Double Pitch Roller Conveyor Chain.**
There are special sprockets for RS and Double Pitch Roller Conveyor Chains. However, ANSI standard sprockets may be used if the roller is a standard small roller and the number of sprocket teeth is greater than 30. Contact U.S. Tsubaki for details of special sprockets.

Hollow Pin Chain

RS TYPE

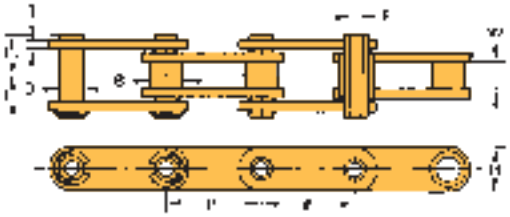
Standard attachments are available for U.S. Tsubaki Hollow Pin chain in both single and double pitch types. Cross rods may be inserted into any link without disassembling the chain.



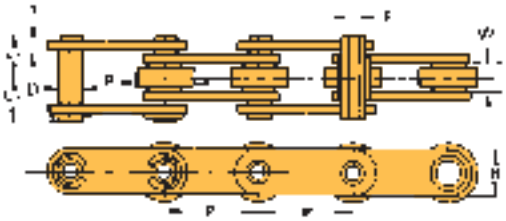
RS Type (Single pitch type)

U.S. TSUBAKI Chain No.	Pitch P	Width Between Inner Link Plates W	Bushing Diameter B	Pin D	Pin F	Pin L_1	Pin L_2	Link Plate T	Link Plate H	Average Tensile Strength lbs.	Maximum Allowable Load lbs.	Approx. Weight lbs./ft.
RS40HP	.500	.312	.312	.224	.157	.315	.374	.060	.472	2,430	397	.36
RS50HP	.625	.375	.400	.284	.202	.396	.459	.080	.591	4,410	705	.58
RS60HP	.750	.500	.469	.330	.236	.494	.561	.094	.713	5,950	948	.85
RS80HP	1.000	.625	.625	.448	.316	.640	.701	.125	.949	10,800	1,720	1.60

DOUBLE PITCH TYPE



Double Pitch Type – Standard rollerless type



Double Pitch Type – Oversize roller type

U.S. TSUBAKI Chain No.	Pitch P	Width Between Inner Link Plates W	Bushing Diameter B	Roller Diameter R	Pin D	Pin F	Pin L_1	Pin L_2	Link Plate T	Link Plate H	Average Tensile Strength lbs.	Maximum Allowable Load lbs.	Approx. Weight lbs./ft.
DOUBLE PITCH TYPE - STANDARD ROLLER													
C2040HP	1.000	.312	.312	—	.224	.157	.315	.374	.060	.472	2,430	397	.31
C2050HP	1.250	.375	.400	—	.284	.202	.396	.459	.080	.591	4,410	705	.50
C2060HP	1.500	.500	.469	—	.330	.236	.494	.561	.094	.677	5,950	948	.93
C2080HP	2.000	.625	.625	—	.448	.316	.640	.701	.125	.906	10,800	1,720	1.21
DOUBLE PITCH TYPE - OVERSIZE ROLLER													
C2042HP	1.000	.312	—	.625	.224	.157	.315	.374	.060	.472	2,430	397	.55
C2052HP	1.250	.375	—	.750	.284	.202	.396	.459	.080	.591	4,410	705	.81
C2062HP	1.500	.500	—	.875	.330	.236	.494	.561	.094	.677	5,950	948	1.38
C2082HP	2.000	.625	—	1.125	.448	.316	.640	.701	.125	.906	10,800	1,720	1.89

Curved Attachment Chain

CURVED CHAIN

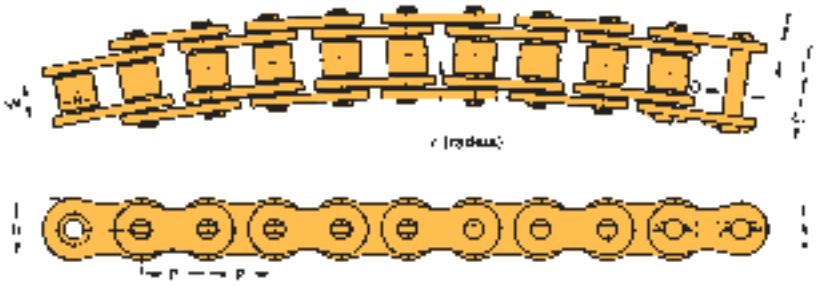
U.S. Tsubaki Curved chain has additional clearance between the pins and bushings and between the roller links and pin link plates to permit extra flexibility and greater lateral displacement. The basic dimensions of this chain are the same as those of ASME/ANSI standard roller chain.

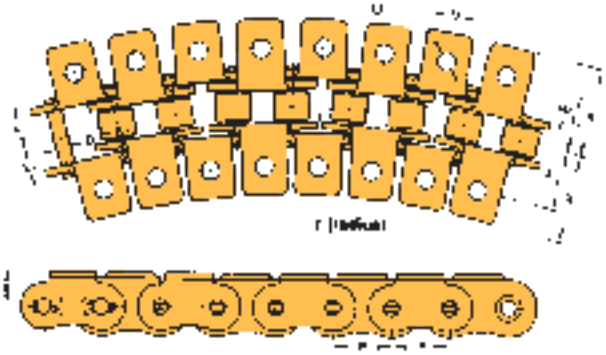
•Available in Carbon Steel or Stainless Steel.

NOTE: U.S. Tsubaki's unique design of the curved chain does not taper the pin diameter, which allows the pin diameter to be uniform throughout.

U.S. TSUBAKI Chain No.	Pitch P	Roller Diameter R	Width Between Roller Link Plates W	Pin D	Pin L_1	Pin L_2	Pin $L_1 + L_2$	Link Plate T	Link Plate H	Link Plate h	Min. Radius of Side Bow inches r
RS35CU▲	.375	.200	.188	.125	.238	.301	.539	.050	.354	.307	10
RS40CU	.500	.312	.312	.156	.333	.384	.717	.060	.472	.409	14
RS50CU	.625	.400	.375	.200	.417	.488	.905	.080	.591	.512	16
RS60CU	.750	.469	.500	.234	.522	.593	1.115	.094	.713	.614	20
RS80CU	1.000	.625	.625	.312	.659	.789	1.448	.125	.949	.819	24

NOTE: ▲ Rollerless (bushing only)

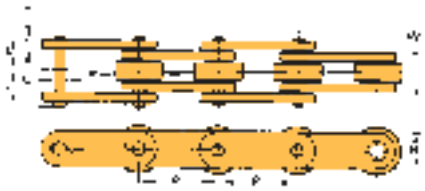




U.S. TSUBAKI Chain No.	Average Tensile Strength lbs.	Maximum Allowable Load lbs.	Approx. Weight lbs./ft.	Attachment C	Attachment N	Attachment O	Attachment S	Attachment X	Additional Weight per Attachment lbs./att. A Att.	Additional Weight per Attachment lbs./att. K Att.
RS35CU▲	1,800	210	.22	.375	.311	.102	.250	.571	.0017	.0034
RS40CU	3,480	420	.41	.500	.374	.141	.315	.709	.0044	.0088
RS50CU	5,420	640	.68	.626	.500	.205	.406	.933	.0066	.0132
RS60CU	7,830	900	.94	.750	.625	.205	.469	1.122	.0154	.0308
RS80CU	13,840	1,560	1.66	1.000	.752	.268	.626	1.461	.0287	.0574

NOTE: ▲ Rollerless (bushing only)

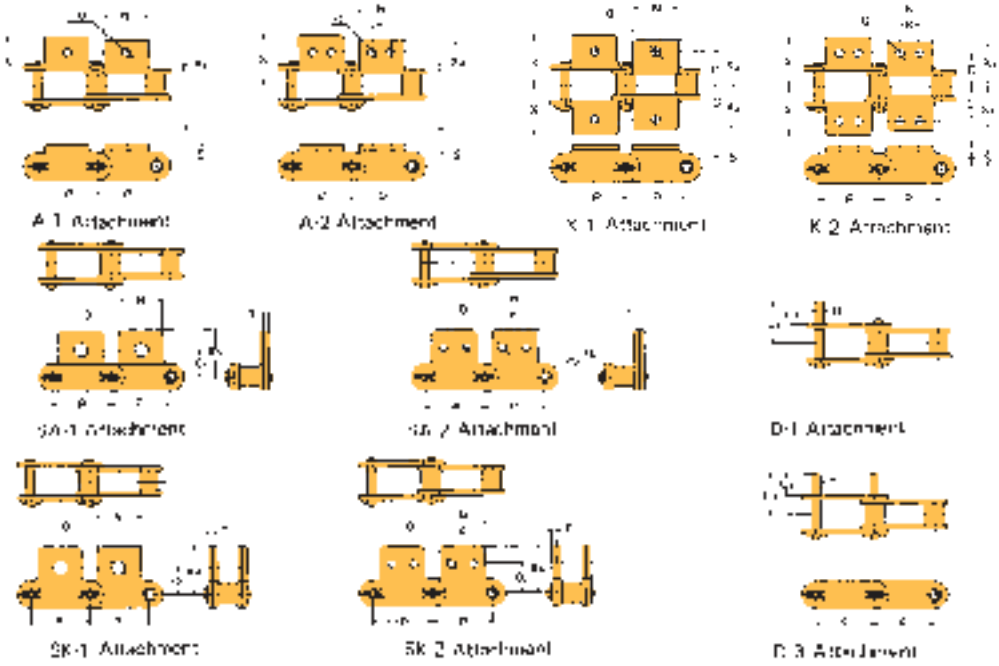
Double Pitch Chain with Large Plastic Rollers



This chain with plastic (polyacetal resin) rollers offers smooth, quiet operation and long wear life. It is available from our factory on a made to order basis. Stainless steel chain with plastic rollers is also available for those applications where corrosion resistance is required.

U.S. TSUBAKI Chain No.	Pitch P	Roller Dia. R	Width Between Roller Link Plates W	Pin D	Pin L_1	Pin L_2	Pin L_1+L_2 RIV.	Pin L_1+L_2 COT.	Link Plate Thickness T	Link Plate Height H	Average Tensile Strength lbs.	Maximum Allowable Load lbs.	Maximum Allowable Roller Load lbs./roller	Approx. Weight lbs./ft.	Number of Links per 10 ft.
C2042D	1.00	.625	.312	.156	.325	.392	.650	.717	.060	.472	3,700	100	44	0.33	120
C2052D	1.25	.750	.375	.200	.406	.472	.812	.878	.080	.591	6,100	154	66	0.57	96
C2062HD	1.50	.875	.500	.234	.573	.652	1.146	1.225	.125	.677	9,000	231	110	0.98	80
C2082HD	2.00	1.125	.625	.312	.720	.823	1.440	1.543	.156	.906	15,400	397	200	1.77	60
C2102HD	2.50	1.562	.750	.375	.830	.980	1.660	1.810	.187	1.150	24,000	573	286	2.52	48
C2042SSD	1.00	.625	.312	.156	.325	.392	.650	.717	.060	.472	2,600	100	44	0.33	120
C2052SSD	1.25	.750	.375	.200	.406	.472	.812	.878	.080	.591	4,400	154	66	0.57	96
C2062HSSD	1.50	.875	.500	.234	.573	.652	1.146	1.225	.125	.677	6,200	231	110	0.98	80
C2082HSSD	2.00	1.125	.625	.312	.720	.823	1.440	1.543	.156	.906	11,400	397	200	1.77	60
C2102HSSD	2.50	1.562	.750	.375	.858	.965	1.716	1.823	.187	1.126	13,200	573	286	2.52	48

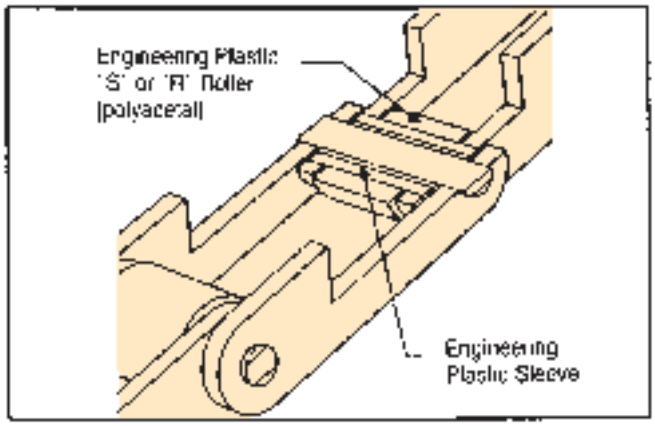
■ Attachments

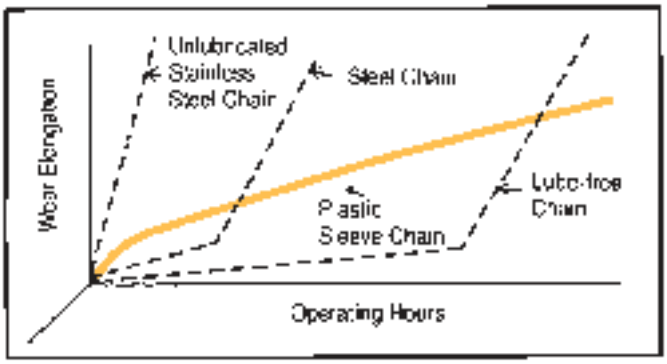


U.S. TSUBAKI Base Chain No.	Pitch P	C	C_1	C_2	K	N	O	O_1	S	T	X	X_2	X_S	D	L_3	L_4	Additional Weight Per Att. (lbs.) A, SA Att.	K, SK Att.	D Att.
C2042D	1.00	.500	.437	.535	.374	.752	.142	.205	.358	.060	.760	.693	.780	.156	.374	.663	.0066	.0132	.0022
C2052D	1.25	.626	.563	.626	.469	.937	.205	.268	.437	.080	.953	.866	.969	.200	.469	.827	.0132	.0264	.0044
C2062HD	1.50	.844	.689	.752	.563	1.126	.205	.343	.579	.125	1.240	1.110	1.205	.234	.563	1.081	.0374	.0748	.0066
C2082HD	2.00	1.094	.874	1.000	.752	1.500	.268	.406	.752	.156	1.602	1.441	1.594	.312	.752	1.398	.0704	.1408	.0154
C2102HD	2.50	1.312	1.125	1.250	.938	1.875	.323	.516	.922	.187	1.950	1.650	1.984	.375	.937	1.687	.1320	.2640	.0264

Note: 1. Spring clip type connecting links will be provided for C2042D ~ C2062HD. 2. Attachments are also available for stainless steel chain.

Plastic Sleeve Chain



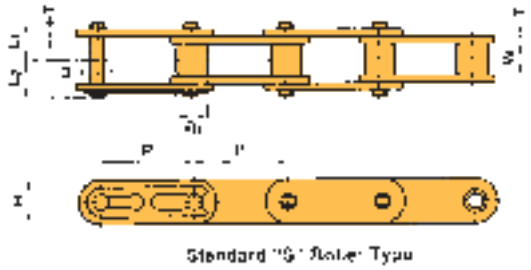


The main characteristic of this chain is that it has an engineering plastic sleeve between the pin and bushing.
The engineering plastic roller is also available in combination with the engineering plastic sleeve.

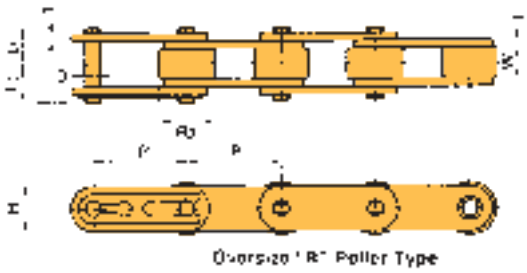
1. The use of self-lubricating engineering plastic sleeves eliminates the need for lubrication.
2. Excellent wear resistance ensures long life.
3. Since no metal dust is generated from contact between the engineering plastic parts and the steel parts, your environment and equipment are kept clean. When using the stainless steel chain series, corrosion resistance is also increased.
4. The use of engineering plastic rollers results in significant weight reduction compared to all stainless steel chain (small “S” roller type: 15% less, oversize “R” roller type: 40% less).
5. With the use of engineering plastic sleeves and rollers, quiet operation is ensured (7 ~ 10 d_B lower than stainless steel chain).
6. RS40, RS50 and RS60 with plastic sleeves are available upon request. Contact U.S. Tsubaki for details.

Standard Series : Engineering plastic roller and sleeve, other components steel.

Stainless Steel Series : Engineering plastic roller and sleeve, other components 304 stainless steel.



Standard "S" Roller Type



Oversize "R" Roller Type

U.S. TSUBAKI Base Chain No.		Chain Pitch P	Width Between Inner Link Plates W	Roller Diameter "S"Roller R_1	Roller Diameter "R" Roller R_2	Link Plate Width H	Link Plate Thickness T	Maximum Allowable Tension lbs.	Allowable Roller Load lbs./roller Plastic "R" Roller	Allowable Roller Load lbs./roller Plastic "S" Roller	Approx.Weight lbs./ft. Plastic "R" Roller	Approx.Weight lbs./ft. Plastic "S" Roller
CS2040	CS2042(D)	1.000	.312	.312	.625	.472	.060	100	44	4	.336	.296
CS2050	CS2052(D)	1.250	.375	.400	.750	.591	.080	154	66	7	.544	.511
CS2060	CS2062(D)	1.500	.500	.469	.875	.677	.125	231	110	11	.974	.914

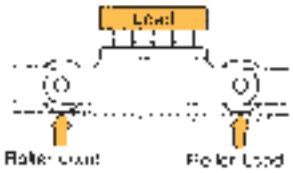
Note: 1. Attachment chains are also available. 2. Stainless Steel chain is also available.
3. Dimensions of chains and attachments are the same as those for standard double pitch chains.

1. Allowable Roller Load

Allowable load that can be supported by one roller (without lubrication):

Table 1 Allowable Roller Load lbs./roller

Chain size	Plastic "R" Roller	Plastic "S" Roller
CS2040	44	4
CS2050	66	7
CS2060	110	11



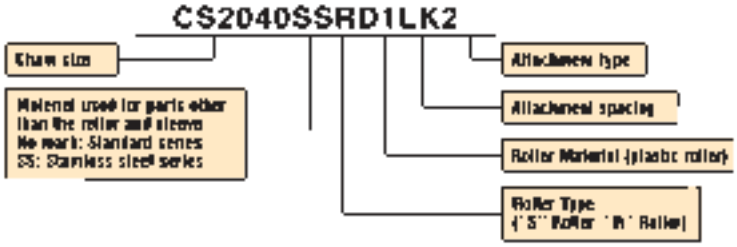
2. Coefficient of rolling friction between chain and guide (without lubrication):

Table 2 Coefficient of Rolling Friction

Roller Type	Coefficient of Friction
Plastic "R" Roller	.08
Plastic "S" Roller	.12

3. **Maximum Chain Speed:** less than 230 ft./min.
4. **Ambient Temperature Range:** -14°F ~ 176°F
5. **When the chain will be exposed to chemicals, please consult U.S. Tsubaki.**

■ Model Identification



Conveyor Lambda Λ® Chain

Lube-free Conveyor Chain

- Maintenance-free
- Even longer wear life
- Increased operating temperatures

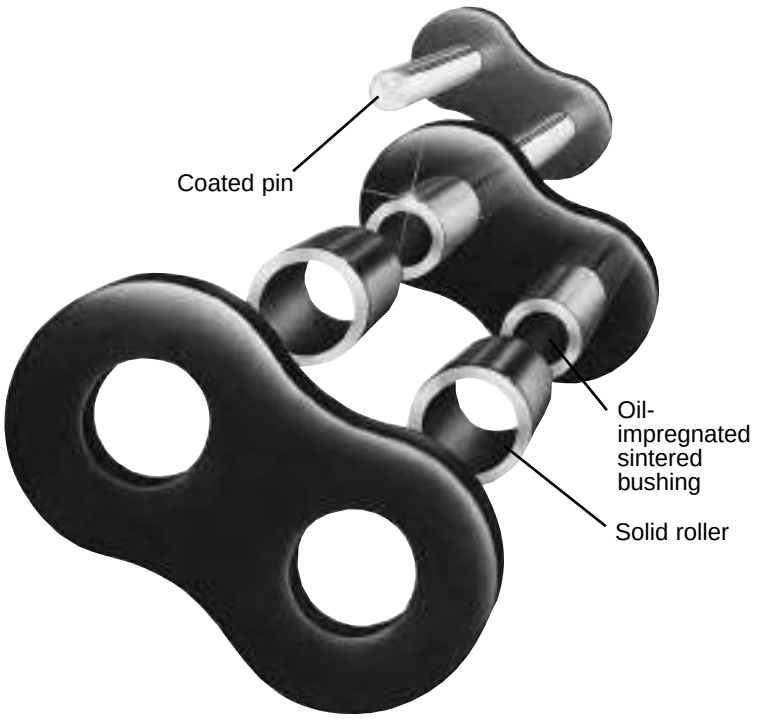
LAMBDA® Conveyor Chain means real savings for your operation

- Reduce maintenance costs
- Eliminate product contamination
- Reduce downtime
- Increase sprocket life

LAMBDA Conveyor Chain is ideal for “clean” applications, where machines and conveyed materials must be free from contact with oil, or when lubrication is difficult. If product contamination is a concern, if lubrication is difficult, or if you simply want to reduce maintenance costs, choose LAMBDA Chain from U.S. Tsubaki.

Select the LAMBDA Chain that’s right for your operation

Standard LAMBDA Conveyor Chain works in temperatures up to 302°F, with a wide range of sizes and types for special applications.

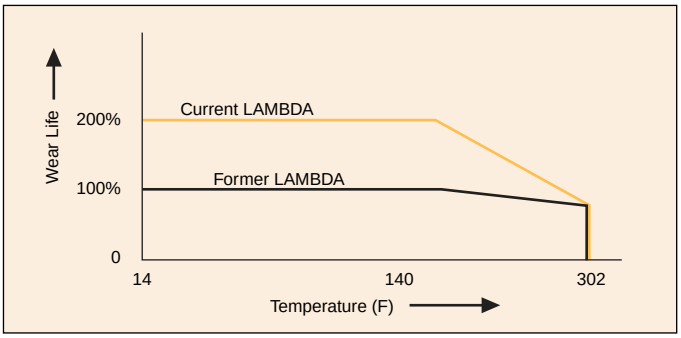


Unique Patented Design

Better than ever for lube-free applications

- Outlasts our former LAMBDA Chain up to twice as long in temperatures up to 140°F.
- Cost-effective, maintenance-free conveyor chain for your applications.
- A variety of attachments to meet your needs.
- Outstanding performance in temperatures up to 302°F.

Conveyor LAMBDA



Standard Single Pitch Conveyor LAMBDA®

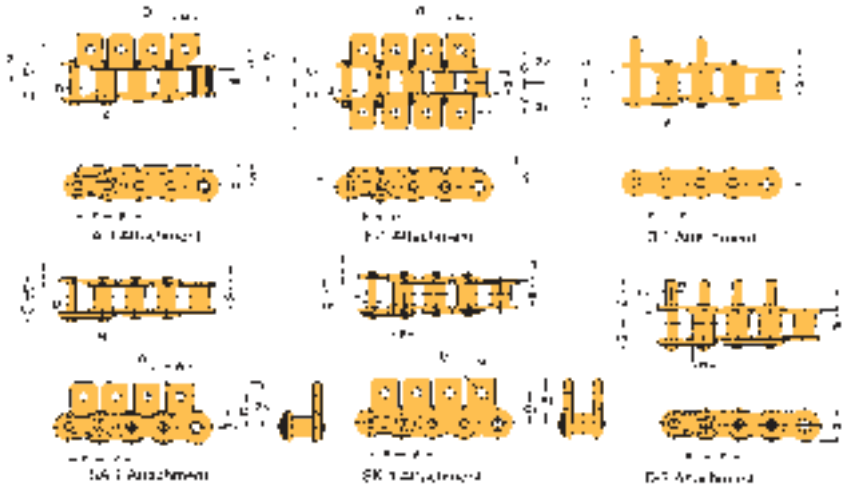
LAMBDA for conveyor applications.

- Operates in temperatures up to 302°F
- Cost-effective, lube-free conveyor chain for your operation
- A variety of attachments for industry specific applications

Nickel-Plated Single Pitch Conveyor LAMBDA

LAMBDA for corrosion resistance in conveyor applications.

- Operates in temperatures up to 302°F
- Ideal for mildly corrosive environments
- Long-lasting and lube-free



Single Pitch Conveyor LAMBDA®

Chain Number		Pitch	Roller Dia.	Width Between Roller Link Plates	Link Plates			From Pin Head to C.L.	From Pin End to C.L.	Average Tensile Strength	Maximum Allowable Load	Approx. Weight
Standard	Nickel-Plated	P	R	W	Thickness T	Height H	Dia. D	L_1	L_2	lbs.	lbs.	lbs./ft.
RSC35-LAMBDA▲	RSC35NP-LAMBDA▲	.375	❊.200	.188	.050	.354	.118	.230	.270	2,115	342	0.22
RSC40-LAMBDA	RSC40NP-LAMBDA	.500	.312	.312	.060	.472	.156	.325	.392	3,530	595	0.43
RSC50-LAMBDA	RSC50NP-LAMBDA	.625	.400	.375	.080	.591	.200	.406	.472	5,730	970	0.70
RSC60-LAMBDA	RSC60NP-LAMBDA	.750	.469	.500	.094	.713	.234	.506	.581	8,380	1,410	1.03
RSC80-LAMBDA	RSC80NP-LAMBDA	1.000	.625	.625	.125	.949	.312	.640	.758	14,300	2,400	1.79
RSC100-LAMBDA	RSC100NP-LAMBDA	1.250	.750	.750	.157	1.185	.375	.778	.900	22,500	3,840	2.69

Chain Number		Attachment Dimensions												Additional weight per attachment (lbs.)		
Standard	Nickel-Plated	P	C	C_1	N	O	S	X	X_2	X_S	L_3	L_4	D	A&SA Att.	K&SK Att.	D Att.
RSC35-LAMBDA▲	RSC35NP-LAMBDA▲	.375	.375	.375	.311	.102	.250	.563	.563	.573	.375	.575	.118	.002	.004	.002
RSC40-LAMBDA	RSC40NP-LAMBDA	.500	.500	.500	.375	.141	.315	.701	.701	.685	.375	.661	.156	.004	.008	.002
RSC50-LAMBDA	RSC50NP-LAMBDA	.625	.625	.625	.500	.205	.406	.922	.922	.906	.469	.827	.200	.006	.013	.004
RSC60-LAMBDA	RSC60NP-LAMBDA	.750	.750	.719	.625	.205	.469	1.110	1.110	1.057	.563	1.018	.234	.015	.030	.006
RSC80-LAMBDA	RSC80NP-LAMBDA	1.000	1.000	.969	.752	.268	.625	1.441	1.441	1.396	.752	1.335	.312	.028	.057	.154
RSC100-LAMBDA	RSC100NP-LAMBDA	1.250	1.250	1.252	1.000	.343	.780	1.768	1.768	1.732	.937	1.644	.375	.057	.114	.264

Notes:

1. Conveyor LAMBDA should not be used in drive applications. It is designed for conveyor applications where the speeds are generally lower and the center distances are longer than those found in drive applications. Conveyor series LAMBDA, except for RSC35-LAMBDA, has the same dimensions and the same working load as our standard attachment chain and the same link plate thickness as standard. RS35 standard connecting links cannot be used for RSC35-LAMBDA due to the difference in pin diameter.
2. Drive LAMBDA and Conveyor LAMBDA chains cannot be intercoupled.
3. Connecting links for RSC80-LAMBDA ~ RSC100-LAMBDA and RSC80NP-LAMBDA ~ RSC100NP-LAMBDA have cottered pins.
4. RSC35-LAMBDA lasts up to 5 times longer than standard roller chain without additional lubrication.

▲ Rollerless
❊ Bushing Diameter

Double Pitch Conveyor LAMBDA®

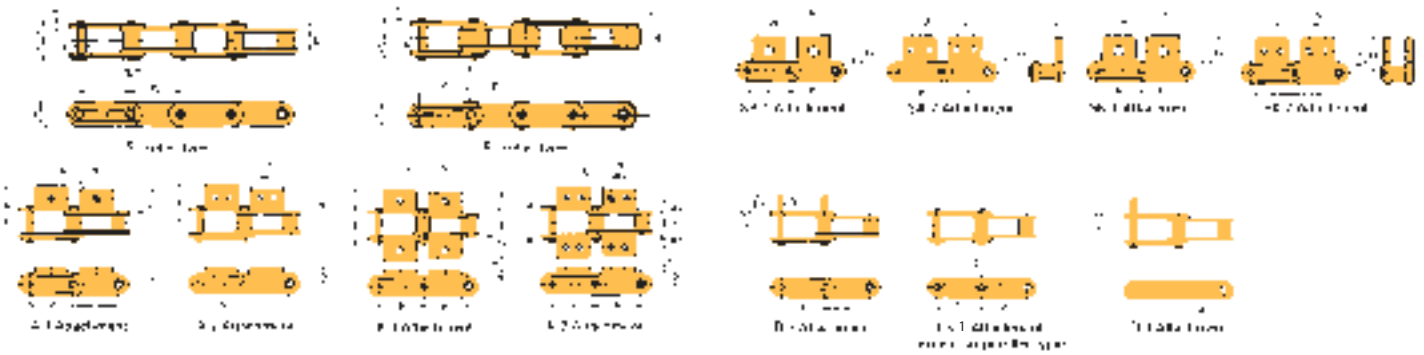
Chain Number		Pitch	Roller Dia.		Width Between Roller Link Plates	Pin			Link Plate	
Standard	Nickel-Plated	P	"S" Roller R_1	"R" Roller R_2	W	Dia D	Length L_1	L_2	Thickness T	Height H
C2040-LAMBDA	C2040NP-LAMBDA	1.000	.312	.625	.312	.156	.325	.392	.060	.472
C2050-LAMBDA	C2050NP-LAMBDA	1.250	.400	.750	.375	.200	.406	.472	.080	.591
C2060H-LAMBDA	C2060HNP-LAMBDA	1.500	.469	.875	.500	.234	.573	.652	.125	.677
C2080H-LAMBDA	C2080HNP-LAMBDA	2.000	.625	1.125	.625	.312	.720	.823	.156	.906
C2100H-LAMBDA	C2100HNP-LAMBDA	2.500	.750	1.562	.750	.375	.858	.964	.187	1.125

Chain Number		Attachment Dimensions														
Standard	Nickel-Plated	C	C_1	C_2	K	N	O	O_1	S	T	X	X_2	X_s	D	L_3	L_4	G
C2040-LAMBDA	C2040NP-LAMBDA	.500	.437	.535	.374	.752	.142	.205	.358	.060	.760	.693	.780	.156	.374	.663	.161
C2050-LAMBDA	C2050NP-LAMBDA	.626	.563	.626	.469	.937	.205	.268	.437	.080	.953	.866	.969	.200	.469	.833	.201
C2060H-LAMBDA	C2060HNP-LAMBDA	.844	.689	.752	.563	1.126	.205	.343	.579	.125	1.240	1.110	1.205	.234	.563	1.083	.240
C2080H-LAMBDA	C2080HNP-LAMBDA	1.094	.874	1.000	.752	1.500	.268	.406	.752	.156	1.602	1.441	1.594	.312	.752	1.401	.319
C2100H-LAMBDA	C2100HNP-LAMBDA	1.312	1.125	1.250	.938	1.874	.323	.516	.922	.187	1.950	1.768	1.984	.375	.937	1.709	.398

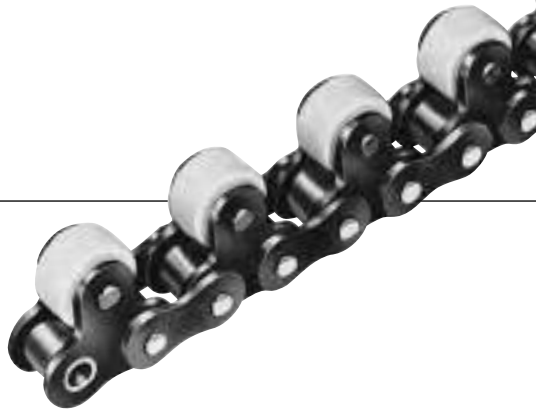
Chain Number		Average Tensile Strength lbs.	Maximum Allowable Load lbs.	Approx. Weight lbs./ft.		Additional weight per attachment (lbs.)		
Standard	Nickel-Plated			"S" Roller	"R" Roller	A&SA Att	K&SK Att	D Att
C2040-LAMBDA	C2040NP-LAMBDA	3,530	595	0.34	0.58	.006	.013	.002
C2050-LAMBDA	C2050NP-LAMBDA	5,730	970	0.56	0.87	.013	.026	.004
C2060H-LAMBDA	C2060HNP-LAMBDA	8,380	1,410	1.01	1.47	.037	.074	.006
C2080H-LAMBDA	C2080HNP-LAMBDA	14,300	2,400	1.62	2.37	.070	.140	.015
C2100H-LAMBDA	C2100HNP-LAMBDA	22,500	3,840	2.38	3.91	.132	.264	.026

Notes:

1. Conveyor LAMBDA should not be used in drive applications. It is designed for conveyor applications where the speeds are generally lower and the center distances are longer than those found in drive applications. Conveyor series LAMBDA has the same dimensions and the same working load as our standard attachment chain. All link plates have the same thickness as standard.
2. Drive LAMBDA and Conveyor LAMBDA chains cannot be intercoupled.
3. Connecting links for C2080H-LAMBDA ~ C2100H-LAMBDA and C2080HNP-LAMBDA ~ C2100HNP-LAMBDA have cottered pins.



Plastic Top Roller Conveyor LAMBDA®



LAMBDA for accumulating conveyors.

- Narrow width accumulating chain
- Lube-free operation
- Operates in temperatures up to 176°F (due to plastic components)

Single Pitch Top Roller Conveyor LAMBDA®

Chain Number	Pitch P	Width Between Roller Link Plates W	Roller Dia. R	Pin D	Pin L_1	Pin L_2	Link Plate H	Link Plate T
RSC40-LAMBDA-TRP	.500	.312	.312	.156	.325	.392	.472	.060
RSC50-LAMBDA-TRP	.625	.375	.400	.200	.406	.472	.591	.080
RSC60-LAMBDA-TRP	.750	.500	.469	.234	.506	.581	.713	.094

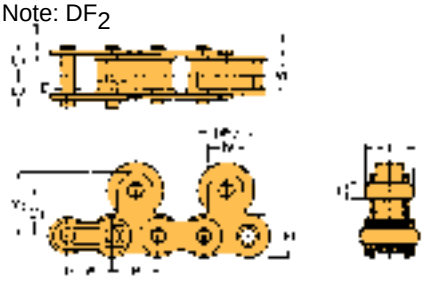
Chain Number	Attachment Dimensions DF_1	DF_2	C_S	N	X_S	ℓ	ℓ_1	ℓ_2	d	Approx. Weight lbs./ft. At Every Link	At Every Second Link
RSC40-LAMBDA-TRP	.433	.625	.500	.374	.687	.520	.325	.380	.156	0.62	0.57
RSC50-LAMBDA-TRP	.591	.750	.626	.500	.876	.638	.406	.469	.200	1.05	0.93
RSC60-LAMBDA-TRP	.709	.875	.720	.626	1.033	.811	.506	.600	.234	1.55	1.36

Double Pitch Top Roller Conveyor LAMBDA®

Chain Number	Pitch P	Width Between Roller Link Plates W	Roller Dia. R "S" roller	Roller Dia. R "R" roller	Pin D	Pin L_1	Pin L_2	Link Plate H	Link Plate T
C2040-LAMBDA-TRP	1.00	.312	.312	.625	.156	.325	.392	.472	.060
C2050-LAMBDA-TRP	1.25	.375	.400	.750	.200	.406	.472	.591	.080
C2060H-LAMBDA-TRP	1.50	.500	.469	.875	.234	.573	.652	.677	.125

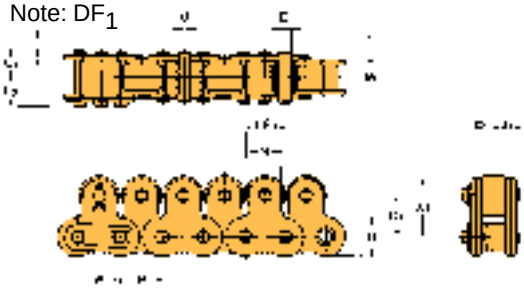
Chain Number	Attachment Dimensions D_F	C_S	X_S	ℓ_1	ℓ_2	d	Approx. Weight lbs./ft. "S" Roller	"R" Roller
C2040-LAMBDA-TRP	.625	.591	.827	.333	.396	.205	0.61	0.85
C2050-LAMBDA-TRP	.750	.748	1.043	.413	.508	.240	0.97	1.28
C2060H-LAMBDA-TRP	.875	.906	1.244	.581	.699	.318	1.86	2.33

When top rollers are spaced more than every second link.
Note: DF_2

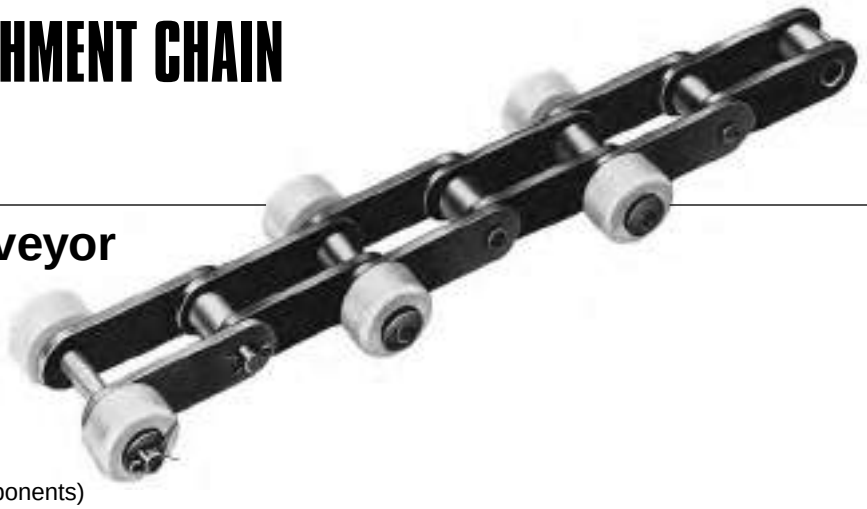


Connecting link is clip type.

When top rollers are spaced every link.
Note: DF_1



Plastic Outboard Roller Conveyor LAMBDA®



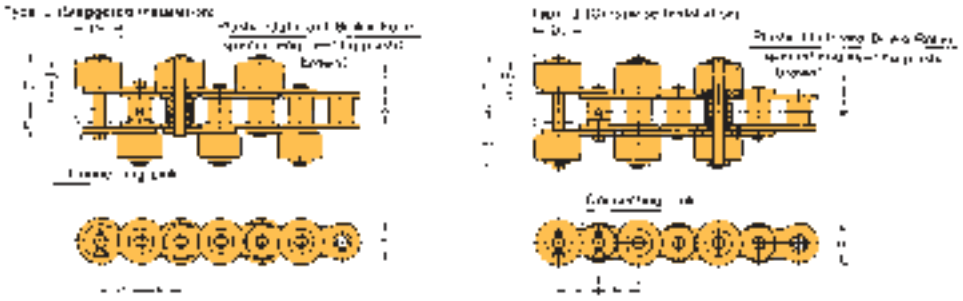
LAMBDA for accumulating conveyors.

- Lube-free with a low center of gravity
- Long wear life
- Operates in temperatures up to 176°F (due to plastic components)

Single Pitch Plastic Outboard Roller Conveyor LAMBDA®

Chain Number	Pitch P	Roller Dia. R	Width Between Roller Link Plates W	Link T	Link H	Pin D	Pin L_1	Pin L_2	Pin L_3	Outboard Roller D_s	Outboard Roller H_s	Approx. Weight lbs./ft.
RSC40-LAMBDA-PSR	.500	.312	.312	.059	.472	.156	.380	.705	.760	.625	.307	0.63
RSC50-LAMBDA-PSR	.625	.400	.375	.079	.591	.200	.469	.850	.913	.750	.370	0.95
RSC60-LAMBDA-PSR	.750	.469	.500	.094	.713	.234	.600	1.100	1.195	.875	.496	1.42

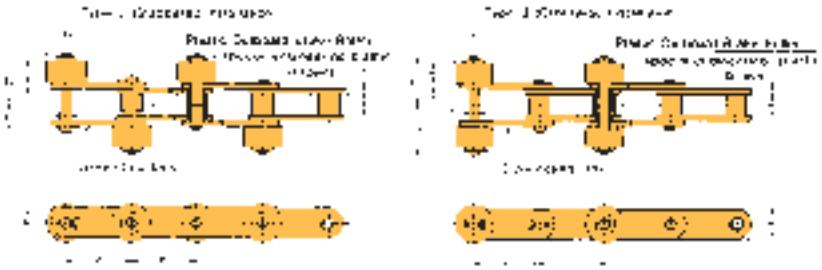
Note: For staggered outboard roller installation, the plastic brake rollers are spaced every third link alternating from right to left. For crosswise outboard roller installation, they are spaced in pairs every sixth link. These configurations are standard.



Double Pitch Plastic Outboard Roller Conveyor LAMBDA®

Chain Number	Roller Type	Pitch P	Roller Dia. R	Width Between Roller Link Plates W	Link T	Link H	Pin D	Pin L_1	Pin L_2	Pin L_3	Outboard Roller D_s	Outboard Roller H_s	Approx. Weight lbs./ft.
C2040-LAMBDA-PSR	S	1.00	.312	.312	.059	.472	.156	.380	.705	.760	.625	.307	0.44
C2050-LAMBDA-PSR	S	1.25	.400	.375	.079	.591	.200	.469	.850	.913	.750	.370	0.69
C2060H-LAMBDA-PSR	S	1.50	.469	.500	.126	.677	.234	.667	1.167	1.262	.875	.496	1.21
C2042-LAMBDA-PSR	R	1.00	.625	.312	.059	.472	.156	.380	.909	.965	.906	.512	0.83
C2052-LAMBDA-PSR	R	1.25	.750	.375	.079	.591	.200	.469	.996	1.063	1.063	.512	1.14
C2062H-LAMBDA-PSR	R	1.50	.875	.500	.126	.677	.234	.667	1.183	1.278	1.181	.512	1.77

This diagram shows standard “S” rollers (rollers at chain center) drawn in solid and oversized “R” rollers in dotted lines.



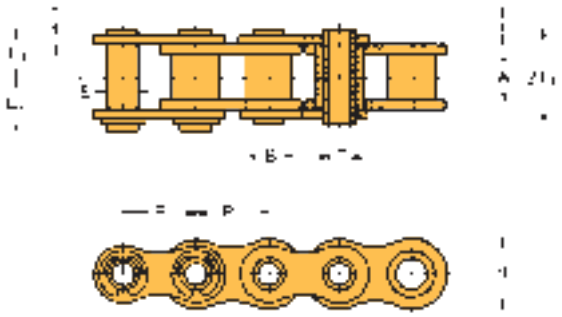
Hollow Pin Conveyor LAMBDA®

LAMBDA for hollow pin applications.

- Attachments or crossrods can be inserted at any pitch spacing
- Single and double pitch sizes available

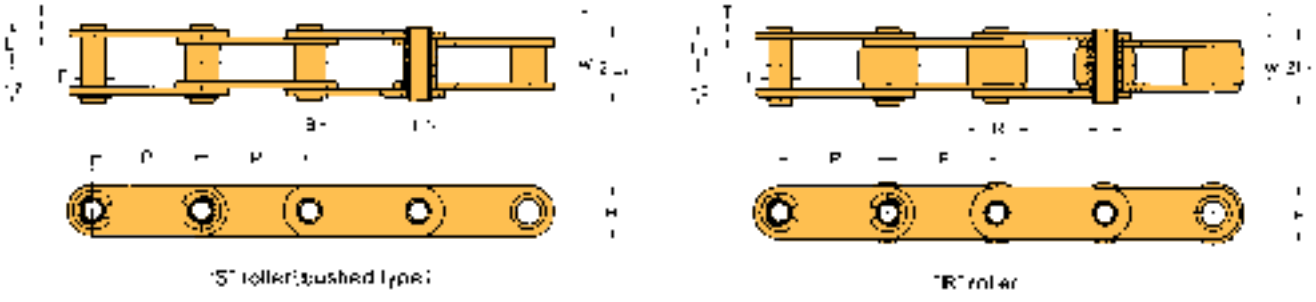
Single Pitch Hollow Pin Conveyor LAMBDA®

Chain Number	Pitch P	Width Between Bushing Link Plates W	Bushing Dia. B	Pin: Outer Dia. E	Pin: Inner Dia. F(MIN)	Pin: L_1	Pin: L_2	Link Plate: Height H	Link Plate: Thickness T	Average Tensile Strength lbs.	Maximum Allowable Load lbs.	Approx. Weight lbs./ft.
RSC40HP-LAMBDA	.500	.312	.312	.224	.157	.315	.374	.472	.060	2,430	331	0.36
RSC50HP-LAMBDA	.625	.375	.400	.284	.202	.396	.459	.591	.080	4,410	573	0.58
RSC60HP-LAMBDA	.750	.500	.469	.330	.236	.494	.561	.713	.094	5,950	772	0.85



Double Pitch Hollow Pin Conveyor LAMBDA®

Chain Number	Pitch P	Width Between Roller Link Plates W	"S" Roller Bush Dia. B	"R" Roller R	Pin: Outer Dia. E	Pin: Inner Dia. F(MIN)	Pin: L_1	Pin: L_2	Link Plate: Height H	Link Plate: Thickness T	Average Tensile Strength lbs.	Maximum Allowable Load lbs.	Approx. Weight lbs./ft.: Bushed Type	Approx. Weight lbs./ft.: "R" Roller Type
C2040HP-LAMBDA	1.000	.312	.312	.625	.224	.157	.315	.374	.472	.060	2,430	331	0.31	0.55
C2050HP-LAMBDA	1.250	.375	.400	.750	.284	.202	.396	.459	.591	.080	4,410	573	0.50	0.81
C2060HP-LAMBDA	1.500	.500	.469	.875	.330	.236	.494	.561	.677	.094	5,950	772	0.93	1.38



U.S. TSUBAKI STANDARD ATTACHMENT CHAIN

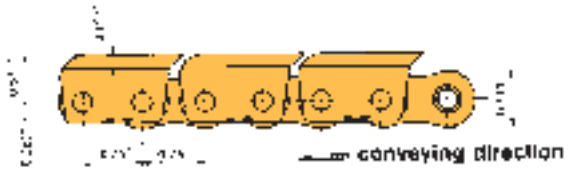
TN/TS Top Plate Conveyor LAMBDA®

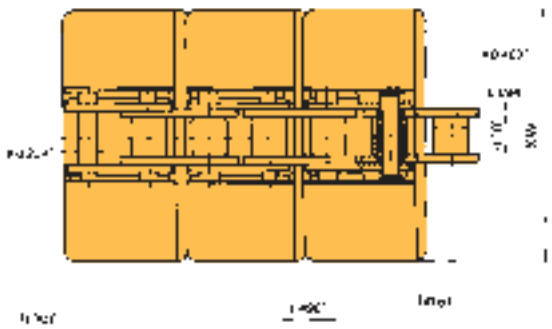
LAMBDA for special conveyor applications.

- Plastic or stainless steel snap-on top plate for optimal performance
- Nickel-plated base chain for mildly corrosive environments
- TN Series operates up to 176°F (due to plastic components)
- TS Series operates in temperatures up to 302°F

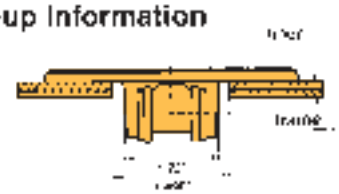
PLASTIC TOP PLATE
TN SERIES

Chain Number	Top Plate Width XW	Approx. Weight lbs./ft.	Maximum Allowable Conveying Load lbs.
TN826NP-LAMBDA	3.25	1.41	1,410
TN1016NP-LAMBDA	4.00	1.48	1,410
TN1143NP-LAMBDA	4.50	1.55	1,410
TN1270NP-LAMBDA	5.00	1.61	1,410
TN1905NP-LAMBDA	7.50	1.88	1,410





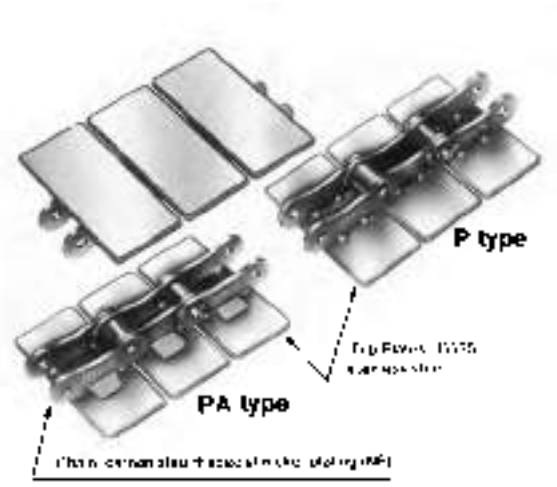
Guide Rail
Set-up Information

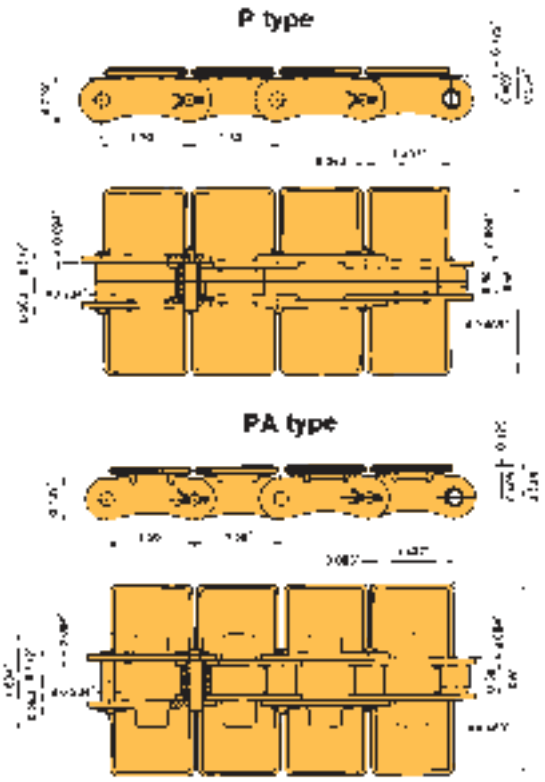


STAINLESS STEEL TOP PLATE
TS SERIES

Chain Number		Top Plate Width	Approx. Weight lbs./ft.		Maximum Allowable Load
P	PA	XW	P	PA	lbs.
TS635NP-P-LAMBDA	TS635NP-PA-LAMBDA	2.50	1.8	2.0	660
TS762NP-P-LAMBDA		3.00	2.0	—	660
TS826NP-P-LAMBDA	TS826NP-PA-LAMBDA	3.25	2.2	2.4	660
TS950NP-P-LAMBDA	TS950NP-PA-LAMBDA	3.74	2.4	2.6	660
TS1016NP-P-LAMBDA		4.00	2.5	—	660
TS1100NP-P-LAMBDA	TS1100NP-PA-LAMBDA	4.33	2.6	2.8	660
TS1143NP-P-LAMBDA	TS1143NP-PA-LAMBDA	4.50	2.7	2.9	660
TS1270NP-P-LAMBDA		5.00	2.9	—	660
TS1524NP-P-LAMBDA	TS1524NP-PA-LAMBDA	6.00	3.3	3.5	660
TS1905NP-P-LAMBDA	TS1905NP-PA-LAMBDA	7.50	3.9	4.1	660

Note: Consult U.S. Tsubaki for sprocket selection.





Stock Attachments

For economical conveyor design, U.S. Tsubaki standard stock attachments are available. Stock attachments are available for pin links, roller links, and connecting links. Please refer to the Attachment Chain Specifications sheet for order placement.

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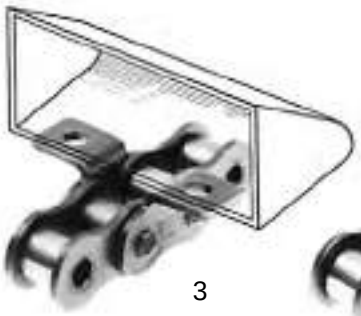
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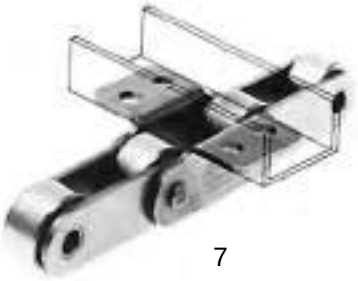
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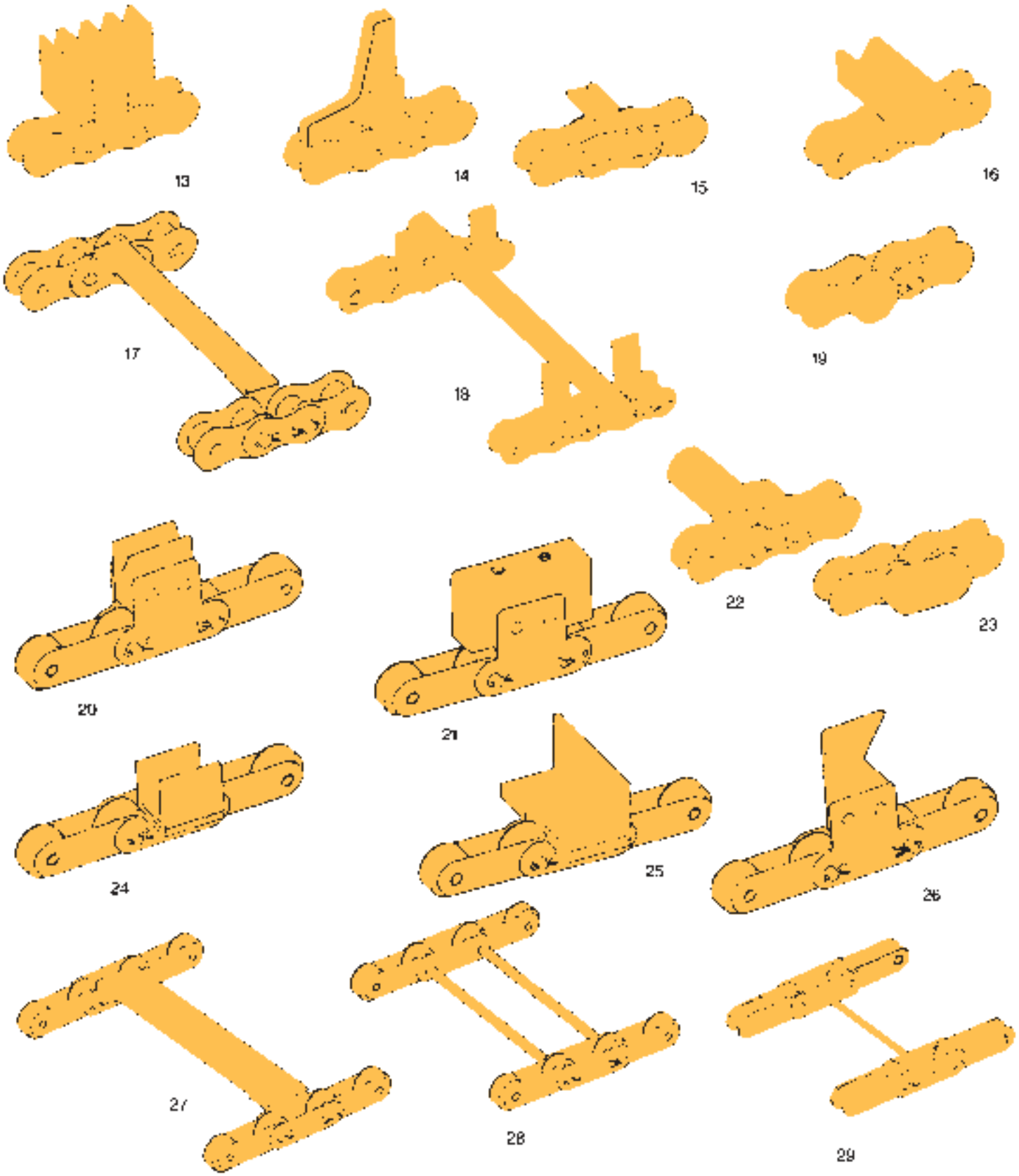
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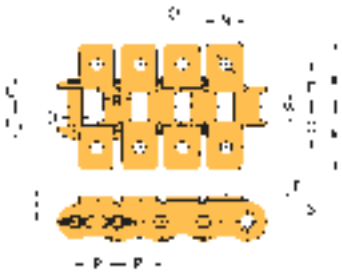
BS/DIN Chain Series
(ISO 606)

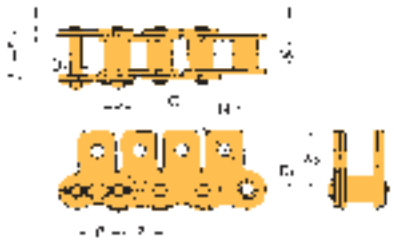
Dimensions: inch

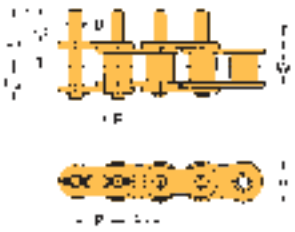
U.S. TSUBAKI Chain No.	ISO "B" Number	Pitch P	Roller Diameter R	Width Between Roller Link Plates W	Pin D	Pin L_1	Pin L_2	Offset Pin L
RS08B	08B	.500	.335	0.305	0.175	0.328	0.395	0.724
RS10B	10B	.625	.400	0.379	0.200	0.370	0.448	0.830
RS12B	12B	.750	.475	0.459	0.225	0.433	0.519	0.976
RS16B	16B	1.000	.625	0.670	0.325	0.704	0.783	1.531

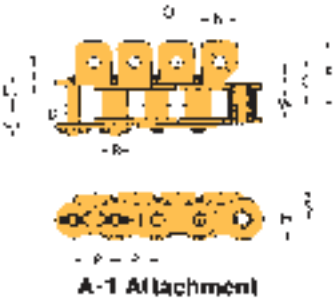
Dimensions: inch

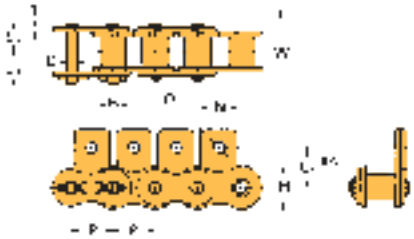
U.S. TSUBAKI Chain No.	Link Plate h	Link Plate H	Link Plate t	Link Plate T	ISO "B" Tensile Strength lbs.	Minimum Tensile Strength lbs.	Approx. Weight lbs./ft.	Number of Pitches per Unit
RS08B	0.429	0.464	0.060	0.060	4,000	4,000	0.50	240
RS10B	0.539	0.578	0.060	0.060	5,000	5,000	0.68	192
RS12B	0.633	0.633	0.070	0.070	6,500	6,500	0.90	160
RS16B	0.826	0.826	0.125	0.156	7,500	14,300	1.90	120

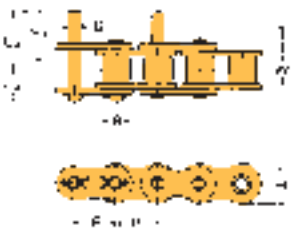

K-1 Attachment


SK-1 Attachment


D-3 Attachment


A-1 Attachment

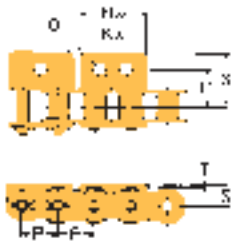

SA-1 Attachment


O-1 Attachment

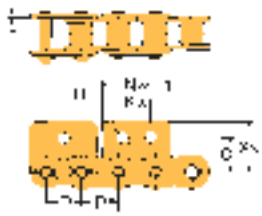
Dimensions: inch

U.S. TSUBAKI Chain No.	C	C_1	N	O	S	X	X_s	D	L_3	L_4
RS08B	0.468	0.500	0.448	0.165	0.350	0.750	0.759	0.175	0.374	0.667
RS10B	0.625	0.625	0.500	0.196	0.401	0.875	0.901	0.200	0.468	0.799
RS12B	0.750	0.874	0.649	0.279	0.531	1.175	1.271	0.225	0.562	0.956
RS16B	0.937	0.937	0.948	0.263	0.598	1.470	1.358	0.325	0.751	1.389

BS/DIN Chain Series
(ISO 606)



WA-1, WA-2 Attachment



WSA-1, WSA-2 Attachment

WK-1, WK-2 Attachment

WSK-1, WSK-2 Attachment

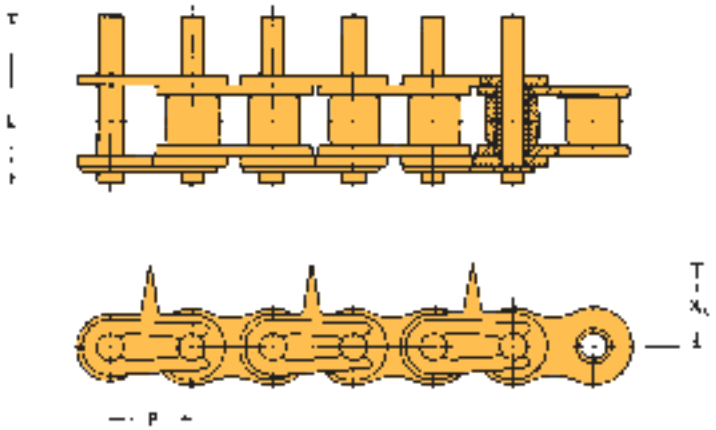
Dimensions: inch

U.S. TSUBAKI Chain No.	C	C_1	O	S	X	X_s	N_W	K_W
RS08B	0.500	0.515	0.192	0.350	0.799	0.814	0.968	0.500
RS10B	0.625	0.653	0.196	0.401	0.899	0.929	1.181	0.625
RS12B	0.687	0.692	0.216	0.448	1.009	1.015	1.370	0.751
RS16B	1.125	1.023	0.318	0.625	1.545	1.444	1.811	1.000

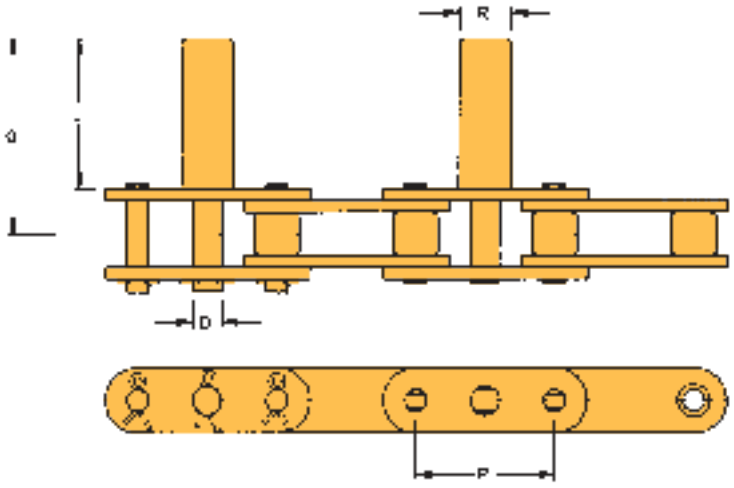
Stock Specialty Attachment Chain

AVAILABLE FOR IMMEDIATE DELIVERY

U.S. Tsubaki offers a full line of industry specific specialty chains FROM STOCK. This section illustrates many that are available for immediate delivery from our convenient Service Centers. Other specialty chains are available on a made-to-order basis.

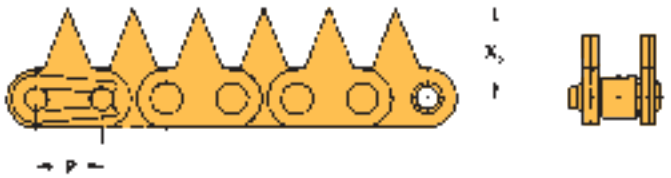


U.S. TSUBAKI Description	Pitch P	L	X_S	Wt. lbs./ft.
50 SPIKE CHAIN	.625	1.298	.688	.8

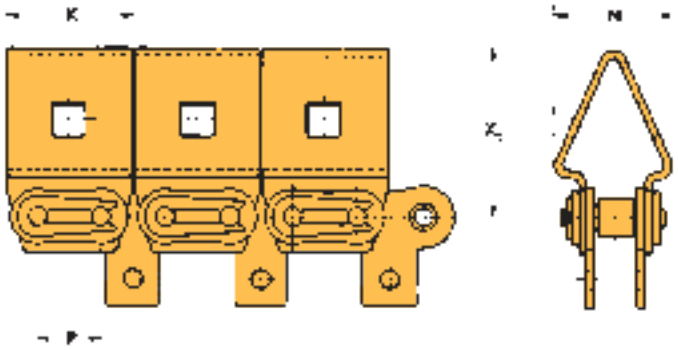


U.S. TSUBAKI Description	Pitch P	R	L	G	D	Wt. lbs./ft.
C2060H RIV with D-5 on Pin Link - 1/2 inch pin	1.500	.500	1.625	2.140	.313	1.2
C2060H RIV with D-5 on Pin Link - 9/16 inch pin	1.500	.563	1.625	2.140	.313	1.2

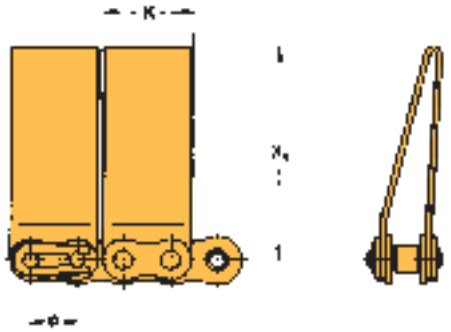
Available from stock in Carbon Steel and 304 Stainless Steel.



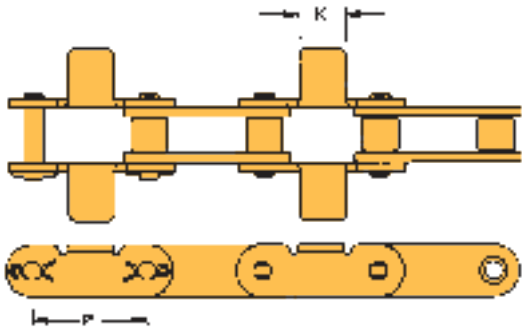
U.S. TSUBAKI Description	Pitch P	X_S	Wt. lbs./ft.
40 SS STICKER (304)	.500	.685	.5



U.S. TSUBAKI Description	Pitch P	X_S	K	N	Wt. lbs./ft.
40 BINDERY	.500	1.354	.988	.858	1.2



U.S. TSUBAKI Description	Pitch P	X_S	K	Wt. lbs./ft.
40 SS TENT - 1″	.500	.813	.900	.8
40 SS TENT - 2.5″	.500	2.250	.900	.9



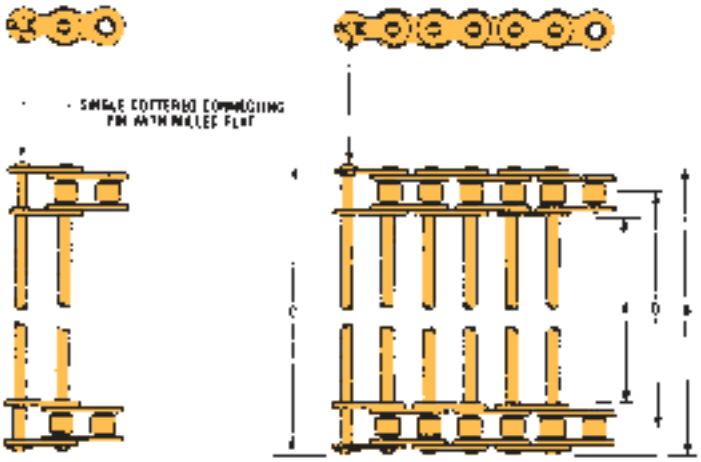
U.S. TSUBAKI Description	Pitch P	K	Wt. lbs./ft.
C2050CU RIV with special K-O	1.250	.500	.7

Crossrod Conveyor Chain

Crossrod conveyor chain consists of two parallel strands of standard RS40 or RS50 chains, joined by crossrods on every link. RS40 chain is used for light loads such as conveying bread through coolers, wrappers and slicers. RS50 chain is for heavier loads. When sanitary, noncorrosive qualities are required, crossrods can be stainless steel.

The connecting pins have milled flats and fit into a D-shaped hole in the link plate to prevent pin rotation and give longer life. Chains are furnished in five-foot sections and run on standard ASME/ANSI sprockets. Removable two-pitch link sections are available for repair.

Ordering Information. Chains are available in carbon steel and stainless steel. Crossrods may be ordered in spring steel or stainless steel. One connecting pin is supplied with each chain section for connection. Additional pins may be ordered separately. Specify chain number and material combination desired. All sprockets should be ordered in pairs with key-ways in line to evenly distribute loads to both chains.



Two-Pitch Connecting Link

Crossroad Conveyor Chain Section

RS 40 Chain with .500 Pitch, .156" Pin Diameter

Dimensions in inches

U.S. TSUBAKI Chain Number	Nominal Width	Plate to Plate Width A	Overall Riveted B	From Pin Head to End C	Roller C.L. to C.L. D	Average Weight lbs./ft.
P329-12	12	11.25	12.44	12.51	11.812	2.0
P329-15	15	14.25	15.44	15.51	14.812	2.6
P329-18	18	17.25	18.44	18.51	17.812	3.1
P329-21	21	20.25	21.44	21.51	20.812	3.4
P329-24	24	23.25	24.44	24.51	23.812	3.8
P329-30	30	29.25	30.44	30.51	29.812	4.7

RS 50 Chain with .625 Pitch, .200" Pin Diameter

Dimensions in inches

U.S. TSUBAKI Chain Number	Nominal Width	Plate to Plate Width A	Overall Riveted B	From Pin Head to End C	Roller C.L. to C.L. D	Average Weight lbs./ft.
P800-12	12	11.10	12.60	12.67	11.812	2.2
P800-15	15	14.10	15.60	15.67	14.812	2.8
P800-18	18	17.10	18.60	18.67	17.812	3.3
P800-21	21	20.10	21.60	21.67	20.812	3.6
P800-24	24	23.10	24.60	24.67	23.812	4.1
P800-30	30	29.10	30.60	30.67	29.812	4.9

Single Cottered Connecting Pins

Dimensions in inches

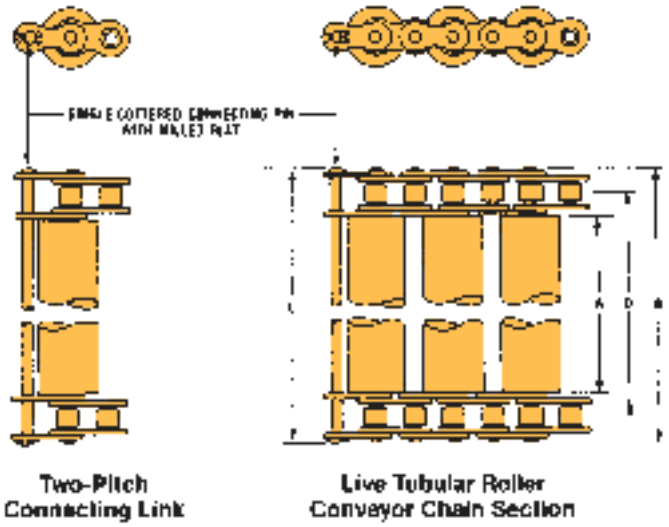
U.S. TSUBAKI Chain RS40	RS50	Nominal Width
P329-CP12	P800-CP12	12
P329-CP15	P800-CP15	15
P329-CP18	P800-CP18	18
P329-CP21	P800-CP21	21
P329-CP24	P800-CP24	24
P329-CP30	P800-CP30	30

Two-Pitch Connecting Links

Dimensions in inches

U.S. TSUBAKI Chain RS40	RS50	Nominal Width
P329-RS12	P800-RS12	12
P329-RS15	P800-RS15	15
P329-RS18	P800-RS18	18
P329-RS21	P800-RS21	21
P329-RS24	P800-RS24	24
P329-RS30	P800-RS30	30

Live Tubular Roller Chain



This chain consists of two parallel strands of RS40 chain with 3/4″ diameter live tubular rollers on 1″ spacing. The chains can be placed at the end or any intermediate point of a line where variations in speed or stoppage of conveyed goods may occur. Placed next to slicing or wrapping machines, they act as accumulators.

Each chain is assembled with connecting pins acting as tie bars every 12″. The pins have milled flats and fit into a D-shaped hole in the link plate to prevent pin rotation and give longer life. Chains are furnished in ten-foot sections. The tubular rollers rotate on either oil-impregnated iron or plastic bearings. Removable two-pitch connecting links are available.

Ordering Information. Chains, connecting links and rollers are also available plated or in stainless steel. Either a plastic or an oil-impregnated bearing must also be specified. Chains and connecting links are ordered separately. One connecting pin is supplied with each chain section or connecting link. Additional pins may be ordered separately. Specify chain number and the material/bearing combination desired.

RS 40 Chain with .500 Pitch, .750″ Roller Diameter
Dimensions in inches

U.S. TSUBAKI Chain Number	Nominal Width	Plate to Plate Width A	Overall Riveted B	From Pin Head to End C	Roller C.L. to C.L. D	Average Weight lbs./ft.
TP329-12	12	11.25	12.44	12.51	11.812	4.3
TP329-15	15	14.25	15.44	15.51	14.812	5.3
TP329-18	18	17.25	18.44	18.51	17.812	6.2
TP329-21	21	20.25	21.44	21.51	20.812	7.2
TP329-24	24	23.25	24.44	24.51	23.812	7.6
TP329-30	30	29.25	30.44	30.51	29.812	9.1

Single Cottered Connecting Pins
Dimensions in inches

U.S. TSUBAKI Chain Number	Nominal Width
TP329-CP12	12
TP329-CP15	15
TP329-CP18	18
TP329-CP21	21
TP329-CP24	24
TP329-CP30	30

Two-Pitch Connecting Links
Dimensions in inches

U.S. TSUBAKI Chain Number	Nominal Width
TP329-RS12	12
TP329-RS15	15
TP329-RS18	18
TP329-RS21	21
TP329-RS24	24
TP329-RS30	30

Agriculture Attachment Chain

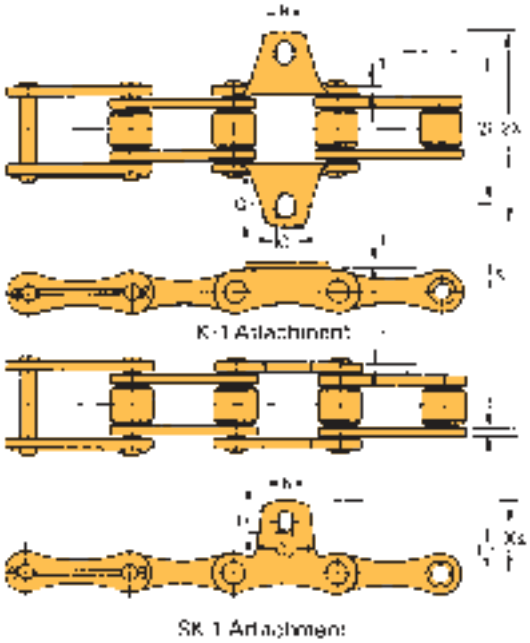
AGRICULTURE ATTACHMENT CHAIN

Roller Link with A-1 Attachment | Roller Link with K-1 Attachment | Pin Link with A-1 Attachment | Pin Link with K-1 Attachment

Roller Link with SA-1 Attachment | Roller Link with SK-1 Attachment | Pin Link with SA-1 Attachment | Pin Link with SK-1 Attachment

U.S. Tsubaki Agriculture Attachment chain is designed specifically for farm equipment. These attachments are built with the same high quality carbon steel as U.S. Tsubaki long-lasting drive chain.

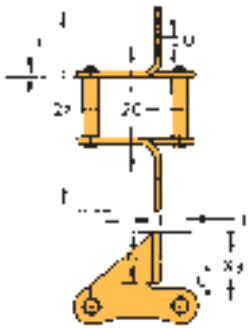
Agriculture Attachment chain is manufactured to industry specifications on a made-to-order basis. Additional attachment styles are available. Please contact U.S. Tsubaki for information on the special attachments.



U.S. TSUBAKI Chain No.	Pitch P	Attachment 2C	C_1	N	O_1	O_2	S	T	2X	Xs	Additional Weight per "A" Attachment lbs./att.
MR32	1.150	1.687	.681	.669	.268	.205	.339	.059	2.358	1.020	.007
MR42	1.375	2.126	.929	.929	.398	.272	.551	.098	2.953	1.346	.029
MR52	1.500	2.311	.870	.630	.335	.272	.449	.098	3.012	1.213	.022
MR55	1.630	2.126	.780	.866	.398	.272	.449	.098	2.913	1.177	.026
MR45	1.630	2.126	.780	.866	.398	.272	.449	.098	2.913	1.177	.022
MR62	1.654	2.626	.969	.945	.520	.272	.449	.098	3.752	1.520	.024

Note: Attachments for CA550 and CA620 are available on a made-to-order basis to suit conveyor and agricultural applications.

"SD" ATTACHMENT PIN LINKS



U.S. TSUBAKI Chain No.	Pitch P	Attachment 2C	C_1	J	N	O	T	2X	Xs	Additional Weight per "A" Attachment lbs./att.
MR52	1.150	2.283	.787	.039	.630	.260	.098	3.386	1.102	.040
MR55	1.630	2.283	.787	.039	.630	.260	.098	3.386	1.102	.042
MR45	1.630	2.283	.787	.039	.630	.260	.098	3.386	1.102	.042

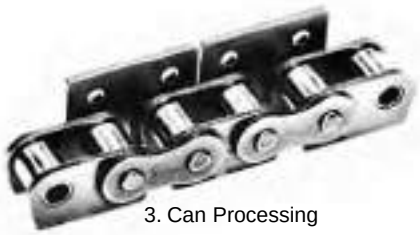
Note: When ordering chains with attachments, specify chain number, attachment spacing, and style of attachments (e.g., A-1, K-1, SA-1, SK-1, or SD).

Made-to-Order Specials

U.S. Tsubaki will design and manufacture special attachment chain to your specifications. This section illustrates some of the special chain assemblies that can be supplied on a made-to-order basis.

1. Packaging equipment

2. Special roller chain for coupling



3. Can Processing

4. Roller conveyor

5. Processing in poultry industry

6. Slat conveyor for electronic industry

7. Steel wire production

8. Conveying electronic parts

9. Slat conveyors in the food industry

10. Sanitary products processing

11. Conveying capacitors

12. Bar conveyor

13. Book binding

14. Conveying capacitors

15. Water sewage systems

Special attachments will be designed and manufactured as required.
Please specify chain size and details of the required attachment when inquiring.

U.S. Tsubaki Hi-Tech and Specialty Attachment chains.
In addition to the attachment chains shown in this general catalog, we offer a large variety of Specialty Attachment chains. Refer to our U.S. Tsubaki Attachment Chain Catalog No. LI0666 for additional selections.

16. Flow conveyor

17. Wood making machinery

18. Hauling

19. Hard-board processing

20. Packaging process

21. Conveying bottles

22. Conveying small parts, such as miniature motors

23. Plywood machinery

24. Conveying cartons

25. Thermoforming

26. Plywood machinery

27. Poultry processing

28. Packaging equipment

29. Packaging equipment

30. Poultry processing

U.S. TSUBAKI ATTACHMENT CHAIN FOR SPECIALTY APPLICATIONS

Special attachments will be designed and manufactured as required.
Please specify chain size and details of the required attachment when inquiring.

31. Cane harvester

32. Confectionary machinery

33. Corn harvester machinery

34. Conveying bottles

35. Oven chain

36. Smokehouse products processing

37. Mail bag vertical conveyor

38. Free Flow conveyor

39. Paper packaging

40. Dairy products processing

41. Copy machinery

42. Glass forming

Special attachments will be designed and manufactured as required.
Please specify chain size and details of the required attachment when inquiring.

U.S. Tsubaki Hi-Tech and Specialty Attachment chains.
In addition to the attachment chains shown in this general catalog, we offer a large variety of Specialty Attachment chains. Refer to our U.S. Tsubaki Attachment Chain Catalog No. LI0666 for additional selections.

43. Conveying cartons

44. Vacuum packaging

45. Conveying electric parts

46. Electric printed circuit boards

47. Ice scraper

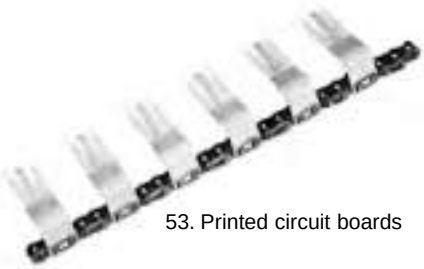
48. Bread cooling

49. Pin oven chain

50. Oven chain

51. Conveying tin plates

52. Bottle conveyor



53. Printed circuit boards

54. Vegetable processing

U.S. TSUBAKI ATTACHMENT CHAIN FOR SPECIALTY APPLICATIONS

Special attachments will be designed and manufactured as required.
Please specify chain size and details of the required attachment when inquiring.

55. Printing

56. Book binding

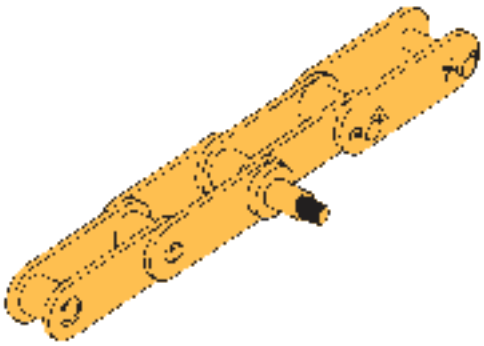
57. Printing

58. Packaging equipment

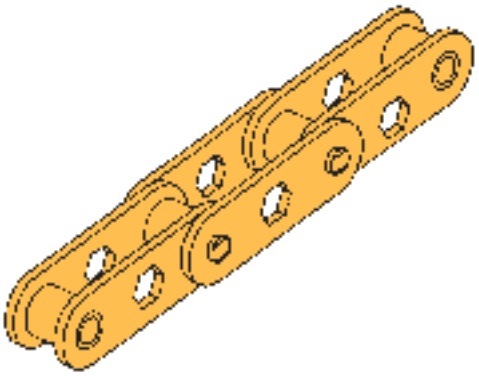
59. Ice cream bar processing

Special attachments will be designed and manufactured as required.
Please specify chain size and details of the required attachment when inquiring.

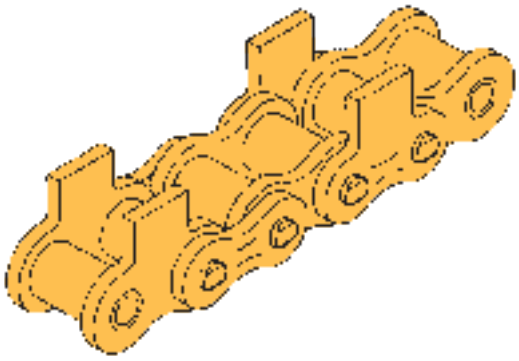
U.S. Tsubaki Hi-Tech and Specialty Attachment chains.
In addition to the attachment chains shown in this general catalog, we offer a large variety of Specialty Attachment chains. Refer to our U.S. Tsubaki Attachment Chain Catalog No. LI0666 for additional selections.



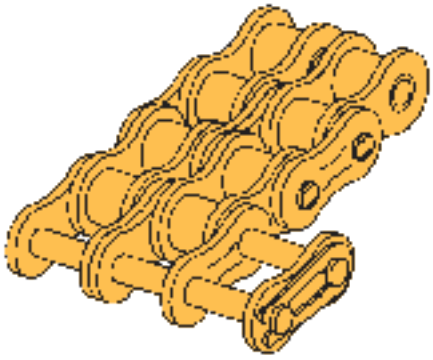
60. Vacuum packaging equipment



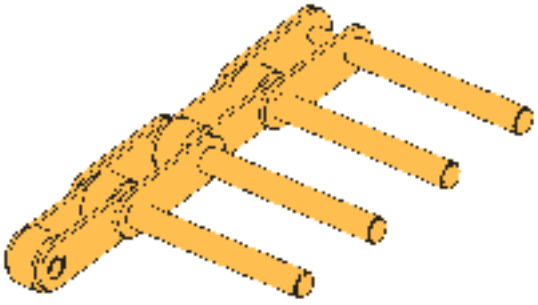
61. Hex axle conveyor



62. Food processing equipment



63. Packaging equipment



64. Final process conveyor

SELECTION PROCEDURE

Attachment Chain Selection Guide

U.S. Tsubaki ASME/ANSI single and double pitch roller chain is widely used for conveyor service. The following procedure is useful for economical and quick chain selection.

Step 1 : Confirm the operating conditions of the conveyor
Step 2 : Tentatively select the chain size
Step 3 : Calculate the design chain tension (actual chain tension)
Step 4 : Verify the chain selection
Step 5 : Verify the allowable roller load

Step 1 **Confirm the operating conditions of the conveyor**

The following information is needed to design a chain conveyor.

① Type of conveyor (slat conveyor, bucket elevator, etc.)
② Method of chain travel (horizontal, inclined, or vertical conveyor)
③ Type, weight, and size of materials to be conveyed
④ Weight of materials to be transported per foot of conveyor length
⑤ Conveyor speed
⑥ Conveyor length
⑦ Lubrication
⑧ Considerations for special environments

Step 2 **Tentatively select chain size**

To tentatively select the chain size, estimate the chain tension (T) by the following formula. A chain with an allowable load equal to or over the above calculated chain tension may be tentatively selected.

T (lbs.) $= M_T \cdot f \cdot k_1$ ····· (1)

M_T : Total weight of material conveyed (lbs.)
f : Coefficient of friction, sliding and/or rolling (f_1 and/or f_2 of Table I and II)
k_1 : Chain speed coefficient (Table III)

Step 3 **Calculate chain tension**

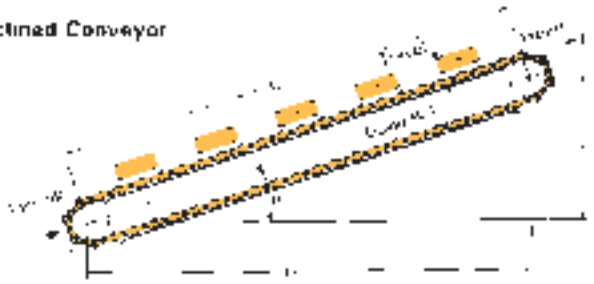
Next, the chain tension should be calculated using the actual weight of the conveyor chain and material conveyed, as shown below.

1. Chain rolling

■Horizontal Conveyor

$T = (M + 2w)fC \cdots$ ····· (2)

■Inclined Conveyor



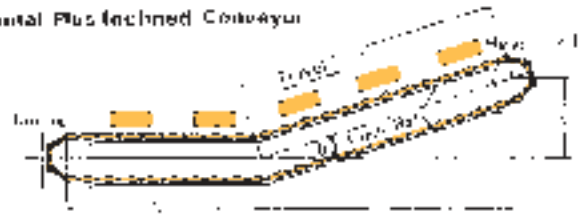
$T = (M + w)(H\cos\theta + C\sin\theta) - (w\cos\theta - C\sin\theta)$ ····· (3)

Where $w\cos\theta - C\sin\theta \geq 0$

or $T = (M + w)(V - fH) + (w(fH - V)) \cdots$ ····· (4)

Where $w(fH - V) \geq 0$

■Horizontal Plus Inclined Conveyor



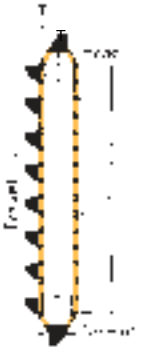
$T = (M + 2w)fC_1 + (M - w)(H\cos\theta + C\sin\theta)$
$- w(H\cos\theta - C\sin\theta) \cdots$ ····· (5)

Where $H\cos\theta - C\sin\theta \geq 0$

or $T = (M - 2w)fC_1 + (M + w)(V + fH) + (w(H - V)$

Where $H - V \geq 0$ ····· (6)

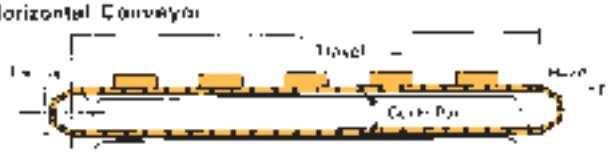
■Vertical Conveyor



$T = (M + w)V \cdots$ ····· (7)

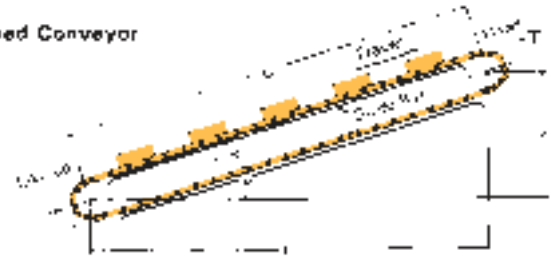
2. Chain sliding

■Horizontal Conveyor



$$T = (M + w)(f_1 C \cos\theta + f_2 C \sin\theta) + 1.1 w (f_1 C \cos\theta - f_2 C \sin\theta) \quad \cdots\cdots (9)$$

■Inclined Conveyor



$$T = (M + w)(f_1 C \cos\theta + C \sin\theta + f_2 H) + 1.1 w (f_1 C \cos\theta - C \sin\theta + f_2 H) \quad \cdots\cdots (10)$$

Where $f_1 C \cos\theta - C \sin\theta + f_2 H = V$, $f_1 C \cos\theta - C \sin\theta + f_2 H - V = 0$

$$\text{or } T = (M + w)(V + f_2 H) + 1.1 w (f_1 H - V) \quad \cdots\cdots (10)'$$

Where $f_1 H - V = 0$, $1.1 w (f_1 H - V) = 0$

■Horizontal Conveyor for Top Roller Chain and Plastic Outboard Roller Chain

$$T = f_1 (M + 1.1 w) + 2.1 w \frac{f_1 - f_2}{2} C \quad \cdots\cdots (11)$$

3. Calculate the required power

Calculate the required power to drive the conveyor from the following formula.

■Horizontal and /or Inclined Conveyor

$$HP = \frac{T \cdot S}{33{,}000 \cdot \eta} \quad \cdots\cdots (12)$$

■Vertical Conveyor

$$HP = \frac{M \cdot V \cdot S}{33{,}000 \cdot \eta} \quad \cdots\cdots (13)$$

Where

T = Chain tension (lbs.)
w = Weight of chain and attachments per ft (lbs./ft.)
M = Weight of material conveyed per ft (lbs./ft.)
V = Vertical center distance of conveyor (ft.)
H = Horizontal center distance of conveyor (ft.)
C = Center distance between sprocket (ft.)
f_1 = Coefficient of rolling friction between chain and guide rail (Table I)
f_2 = Coefficient of sliding friction between chain and guide rail (Table II)
η = Transmission efficiency
$S = \text{Speed} = \frac{P \cdot N \cdot n}{12}$ (ft./min.)
P = Chain pitch (inch)
N = Number of teeth
n = Sprocket speed (rpm)

Table I : Coefficient of Rolling Friction (f_1)

Type of Roller	Dry	Lubricated
Oversize "R" roller type	0.12	0.08
Standard "S" roller type	0.21	0.14
Top roller type	0.09	0.06

Table II : Coefficient of Sliding Friction (f_2)

Dry	Lubricated
0.3	0.2

Step 4 **Verify chain selection**

Multiply the chain tension (T) by the chain speed coefficient (K_1) listed in Table III and verify the following formula.

$T \bullet K_1 \leq$ Max. allowable load of the chain . . . . . (14)

Table III : Chain Speed Coefficient (K_1)

Chain Speed (ft./min)	Speed Factor (K_1)
0 ~ 50	1.0
50 ~ 100	1.2
100 ~ 160	1.4
160 ~ 230	1.6
230 ~ 300	2.2
300 ~ 360	2.8
360 ~ 400	3.2

When the design chain tension ($T \bullet K_1$) is over the allowable load or much less than it, try the same steps again for the next bigger or smaller chain size to select a more suitable chain.

Step 5 **Verify the allowable roller load**

When the load is carried on the rollers, the total weight of the chain and load per roller should not exceed the allowable roller load shown in Table IV.

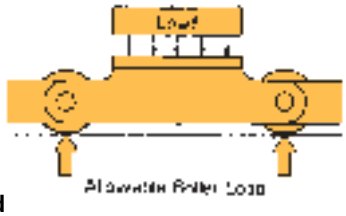


Table IV : Allowable Roller Load

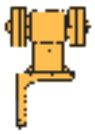
Chain No.		Allowable Roller Load lbs./roller		
		Oversize Roller	Plastic Oversize Roller	Standard Roller
C2040	RS40	143	44	33
C2050	RS50	220	66	44
C2060H	RS60	350	110	66
C2080H	RS80	590	198	120
C2100H	RS100	880	286	180
C2120H	RS120	1,320	—	260
—	RS140	—	—	300
C2160H	RS160	2,160	—	430

Note: Oversize "R" rollers are available only for double pitch roller chains.

U.S. Tsubaki Hi-Tech and Specialty Attachment chains.
In addition to the attachment chains shown in this general catalog, we offer a large variety of Specialty Attachment chains. Refer to our U.S. Tsubaki Attachment Chain Catalog No. LI0666 for additional selections.

General Engineering Information

Method of chain travel and type of rollers

Method of Chain Travel	Type of Roller	Features
Chain Rolling (Horizontal or Vertical)	**Oversize "R" roller type** • Heavy in chain weight • Greater allowable roller load • Less roller wear	• Smooth operation • Less vibration • Lower friction and less power required • Generally used for: conveyor lengths over 35 ft. conveyor speeds over 70 ft./min.
Chain Rolling 	**Standard "S" roller type** • Light weight • Lower allowable roller load	• Generally used for: conveyor lengths less than 35 ft. conveyor speeds less than 70 ft./min.
Chain Sliding (Double Pitch chain)		• Suitable for impact and dirty conditions • Economical • Impact resistant • Greater power required

Points to consider:

1) For long conveyors, use take-up devices to eliminate chain slack. Take-up stroke = (center distance between sprockets • 0.02) + catenary sag allowance.
2) Chain must always be engaged with at least 3 sprocket teeth.
3) When two or more strands of conveyor chain operate, all sprocket teeth on the head shaft should be aligned. The chain may be matched at the factory for uniform length and attachment alignment for accurate multiple strand operation.

Considerations for Use in Special Environments

ANSI standard and double pitch conveyor chain can be operated normally in ambient temperatures between 15°F and 140°F without trouble.

When the chain is operated in very low or high temperatures, or in an abrasive or corrosive atmosphere, the following should be taken into account.

1. Under very low or high temperatures:
   Chain must be selected in a different manner when it is operated in freezing chambers, cold areas, when it passes through a heat-treatment furnace, or is affected by heat from the material conveyed.

U.S. Tsubaki Hi-Tech and Specialty Attachment chains.
In addition to the attachment chains shown in this general catalog, we offer a large variety of Specialty Attachment chains. Refer to our U.S. Tsubaki Attachment Chain Catalog No. LI0666 for additional selections.

Environmental Temperatures and Points of Concern

Temperatures	Chain Selection	Caution
-60° F ～-20° F	• Under -20°F or lower conditions, ASME/ANSI 304 stainless steel chains and 600 series stainless steel chains are suggested. • Carbon chains are not suggested.	(1) Low temperature embrittlement may occur on link plates of carbon steel chain. (2) Freezing of lubricant. (3) Rust due to condensation. (4) Seizure due to freezing.
-20° F ～15° F	The chain should be selected on the basis of the corrected working load, below.	
140° F ～300° F	Special lubrication is required.	
300° F ～480° F	The chain should be selected on the basis of the corrected working load, below. Selection of the next larger pitch chain over the originally selected one is suggested.	(1) Excessive wear due to decrease of hardness of pin and bushing. (2) Poor lubrication due to deterioration of lube.
480°F～	ASME/ANSI 304 stainless steel chain and ASME/ANSI 600 series stainless steel chain are suggested.	

Table V: Corrected Working Load

Temperature	Corrected Working Load	
-20° F ~ -4° F	(Max. allowable load in catalog)	x 0.25
-4° F ~ 15° F	(Max. allowable load in catalog)	x 0.3
15° F ~ 300° F	(Max. allowable load in catalog)	x 1.0
300° F ~ 390° F	(Max. allowable load in catalog)	x 0.75
390° F ~ 480° F	(Max. allowable load in catalog)	x 0.5

2. In wet conditions:
   When chain is exposed to water, e.g., in a sterilizer or water screen, excessive wear due to insufficient lubrication and rust may shorten chain life. In these cases, a larger chain size provides less bearing pressure and stainless steel or plated chain will provide rust prevention.

3. In corrosive conditions:
   When chain is exposed to an acidic or alkaline solution or operated in a corrosive atmosphere, excessive wear may occur due to chemical corrosion on the chain parts in addition to mechanical wear.

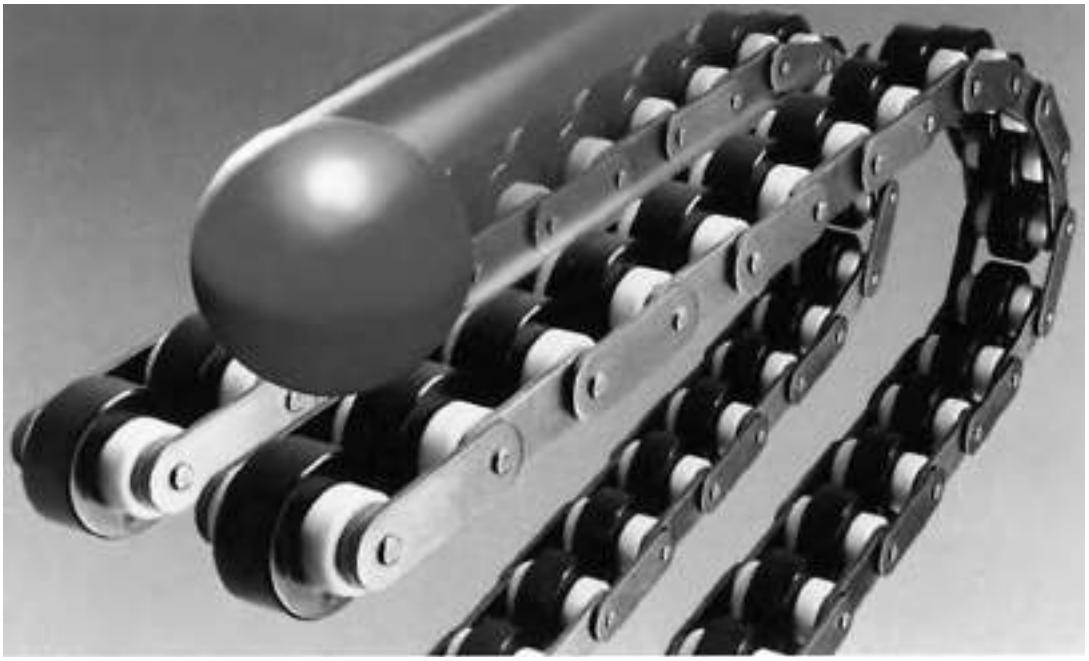
   Hydrogen embrittlement may also occur in an acidic atmosphere. Roller chain is more easily affected by acid than alkali. In special cases, electro-chemical corrosion may occur on the chain due to sea or mine water. Refer to the table on page A-60 “Corrosion Resistance Guide”, for the corrosion resistance of stainless steel.

4. In dusty conditions:
   When conveyor chain is operated in dusty conditions, i.e., in the presence of coke, metal powder, and sand, the chain wears very quickly because foreign material gets between the parts of the chain and also the engaging surfaces of the sprocket teeth and chain.

   In such cases, select a larger chain size to reduce the bearing pressure or choose a chain especially designed for high wear resistance.

The foregoing information is intended to provide general guidelines for conveyor chain selection. Please consult with U.S. Tsubaki for specific application problems.

Free Flow Chain



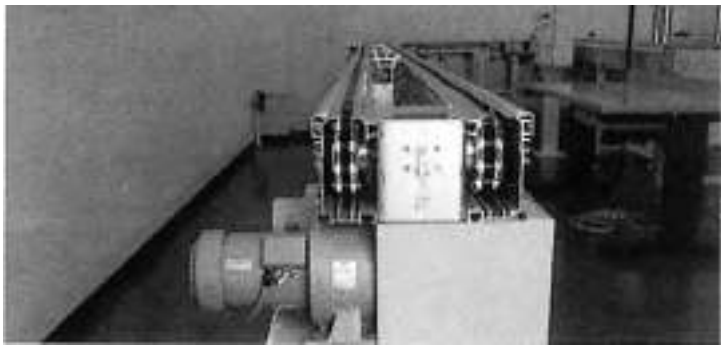
Free Flow Conveyor – this is a conveyor system where the speed of conveyed objects can be freely controlled and stopped at any time and at any position for accumulation or for performing a job at a station without stopping in the conveyor.

A typical application is, for example, an assembly or accumulation conveyor used in the electronics industry to transport consumer products such as TVs, VCRs, and radios, etc. Technical innovation in this field is very fast. To produce hi-tech products quickly, hi-tech assembly lines using quick and accurate chains are necessary.

U.S. Tsubaki has developed the most advanced chains for Free Flow conveyors drawing on U.S. Tsubaki's technological expertise and long experience as a leader in worldwide chain manufacturing. U.S. Tsubaki Free Flow chains have many advantages.

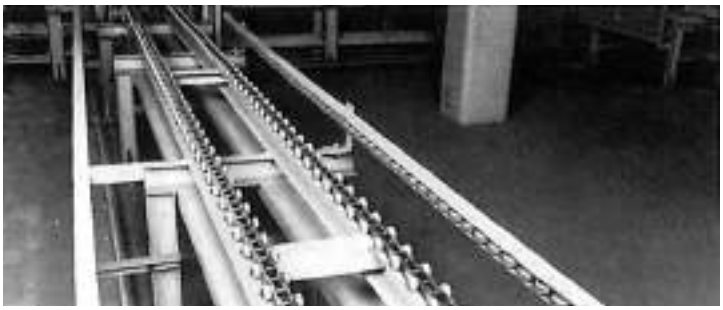
- Maintenance-free, long life
- Economical
- Quiet operation
- Clean and anti-corrosive
- Wide selection

■ DOUBLE PLUS® CHAIN



Quiet operation is one advantage of using U.S. Tsubaki DOUBLE PLUS® chain. Because materials transported on the chain move 2.5 times faster than the chain itself, motor speeds can be reduced, cutting down on noise and costs. Safety is ensured by the extra-large, engineering plastic center rollers which allow for installation of a chain cover. The original design of U.S. Tsubaki's aluminum guide rail is standardized for easy installation. Steel roller DOUBLE PLUS is available for high load or high temperature applications.

■ OUTBOARD ROLLER: SIDE AND TOP ROLLER CHAINS



The Outboard series consists of both side and top roller chains. Outboard roller construction makes for a highly compact conveyor system. Since a large number of rollers can be installed, a conveyor can easily be made where small objects are placed directly on the chain. Quick start-up is also possible by ordering a chain with plastic brakes.

■ ROLLER TABLE

Line pressure is notably reduced during accumulation because of the low roll-friction coefficient on the plastic rollers (between 0.06 and 0.10). This low roll-friction coefficient protects the conveyed object from damage. In addition, smooth transfer to the next line is ensured by the plastic rollers and special attachments with the same surface height.

DOUBLE PLUS® Chain

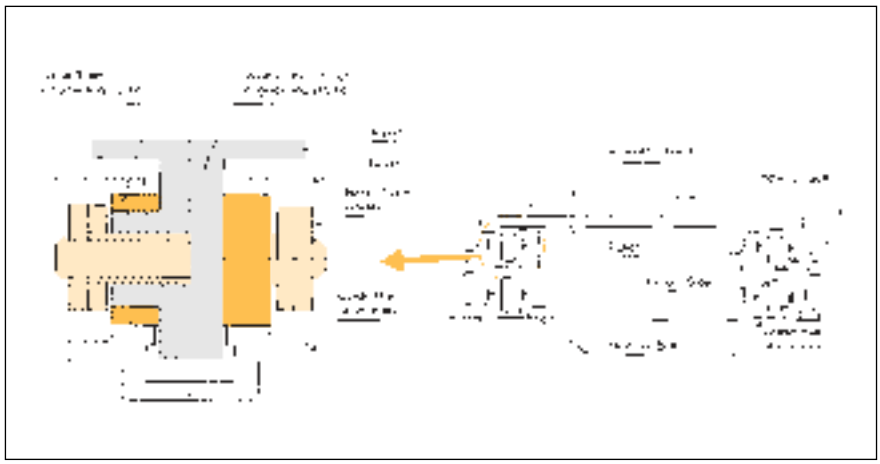
- **Standard DOUBLE PLUS Chain**
- **DOUBLE PLUS Chain with Snap Covers**

■ **Quiet**
■ **Safe**
■ **Quick Start Up**
■ **Wide Selection**

DOUBLE PLUS chain is available with guide rails, pallet guides, and sprockets.

The best solution for preventing jamming.
On conveyor lines, small parts, like nuts and bolts, can fall into the gaps between the guides and rollers, causing the chain to jam. U.S. Tsubaki DOUBLE PLUS chain with Snap Covers minimizes the gaps between the rollers and guide rails, eliminating chain jams caused by parts falling into the conveyor.

Construction



■ **How U.S. Tsubaki DOUBLE PLUS chain works**

- **When Conveying**

Friction between the larger center roller and the small rollers allows them to rotate together in unison. The difference in diameter of the rollers causes the speed of the conveyed object to be approximately **2.5 times** the speed of the chain.

- **When Accumulating**

The large roller rotates freely in the opposite direction of the small roller allowing conveyed objects to accumulate. We call this **free flow** conveying.

Model Identification

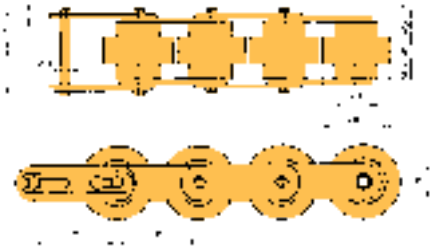
C2040 VRP– □ □ –A– □ □

- C2040: Chain Size
- VRP: Plastic roller type; VR: Steel roller type
- □ □: HCP: Hard chrome plated; SS: Stainless steel
- A: Roller Combination code for plastic (“A”, “B”, “C”, or “D”)
- □ □: SC: Snap Covers

Choose the right rollers for your operation.

SERIES:	SIZE OF ROLLER: SMALL	LARGE	SERIES BENEFITS:
A	*Color:* Gray	Brown	Maximum Allowable Tension
	Feature: Standard	Standard	
B	*Color:* Off-White	Brown	Quick Start-up
	Feature: High friction plastic	Standard	
C	*Color:* Gray	Black	Volume Resistivity of 10^6 Ω x cm
	Feature: Standard	Electro-conductive Plastic	
D	*Color:* Off-White	Black	Quick Start-up AND Volume Resistivity of 10^6 Ω x cm
	Feature: High friction plastic	Electro-conductive Plastic	

In addition to carbon steel, hard chrome plating, ULTRA WP® and stainless steel are available.



Standard DOUBLE PLUS® CHAIN

DOUBLE PLUS® CHAIN with SNAP COVERS

Note: For DOUBLE PLUS® chain with SNAP COVERS

- These base chains are specialized for SNAP COVERS.
- The SNAP COVERS cannot be attached to the standard type of DOUBLE PLUS chain.
- Offset links are not available for DOUBLE PLUS with SNAP COVERS.

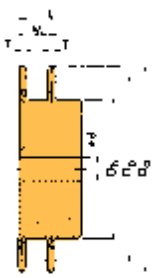
DOUBLE PLUS® CHAIN

Chain No.	P	R	R_1	W_1	W_2	t	T	H	D	L_1	L_2	Approx. Weight lbs./ft. Plastic Roller	Steel Roller
C2030VR & VRP C2030VR-SC & VRP-SC	0.75	0.469	0.720	0.315	0.157	0.060	0.060	0.354	0.141	0.474	0.522	0.40	0.94
C2040VR & VRP C2040VR-SC & VRP-SC	1.00	0.625	0.969	0.406	0.224	0.080	0.060	0.472	0.156	0.622	0.669	0.67	1.68
C2050VR & VRP C2050VR-SC & VRP-SC	1.25	0.750	1.205	0.512	0.280	0.094	0.080	0.591	0.200	0.770	0.837	0.94	2.49
C2060VR & VRP C2060VR-SC & VRP-SC	1.50	0.875	1.441	0.610	0.335	0.125	0.125	0.677	0.234	0.964	1.039	1.34	3.76
C2080VRP C2080VRP-SC	2.00	1.125	1.890	0.787	0.591	0.156	0.156	0.906	0.312	1.409	1.496	2.62	—

- Steel roller type (VR series) is available for 14°F ~ 302°F
- Plastic roller type (VRP series) is available for 14°F ~ 140°F
- C2080VRP has cottered connecting link.

Sprockets for DOUBLE PLUS® CHAIN (For DOUBLE PLUS "VR," "VRP," "VR-SC," & "VRP-SC")

Sprocket No.	Hub Type	Number of Teeth	Pitch Dia. D_p	Outer Dia. D_O	Tooth Thickness T	Stock Bore Dia. d	Hub Dia. D_h	Hub Length L	M	Approx. Weight lbs.
C2030VRP-10T-SC	B	10	2.427	2.480	0.118	0.500	1.457	0.984	0.602	0.44
C2040VRP-10T-SC	B	10	3.236	3.346	0.157	0.630	2.047	1.575	0.803	1.76
C2050VRP-10T-SC	B	10	4.045	4.213	0.197	0.630	2.598	1.772	1.004	3.31
C2060VRP-10T-SC	B	10	4.854	5.039	0.236	0.748	3.189	1.969	1.201	5.52
C2080VRP-10T-SC	B	10	6.472	6.772	0.472	0.906	4.331	2.638	1.870	15.40



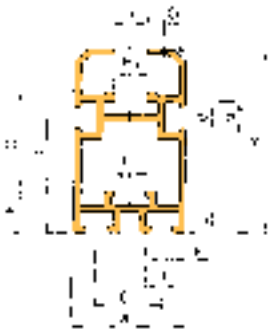
DOUBLE PLUS® Guide Rails

Aluminum Guide Rail Dimensional Data
Standard and Steel Rail Inserts (For DOUBLE PLUS "VR," "VRP," "VR-SC," & "VRP-SC")

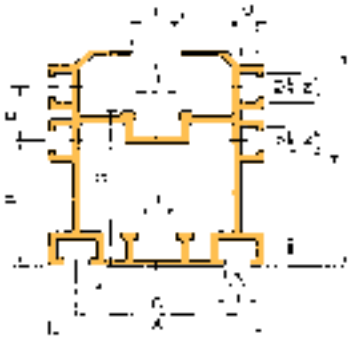
Guide Rail No.	A	B	C	D	E	F	G	H_1	H_2	I	J	K	L	M	N	O	Standard Length ft.	Approx. Weight lbs../ft.
C2030VRP-R3L	1.38	2.36	0.807	1.494	—	0.55	1.268	0.350	0.366	0.390	0.413	0.256	0.197	0.256	0.413	0.197	9.84	0.94
C2030VRP-R3LS	1.38	2.36	0.807	1.494	—	0.55	1.268	0.350	0.366	0.390	0.413	0.256	0.197	0.256	0.413	0.197	9.84	1.48
C2040VRP-R4L	2.48	2.60	1.752	1.388	0.728	0.51	1.374	0.449	0.472	0.531	0.531	0.335	0.295	0.256	0.413	0.197	13.12	1.75
C2040VRP-R4LS	2.48	2.60	1.752	1.388	0.728	0.51	1.374	0.449	0.472	0.531	0.531	0.335	0.295	0.256	0.413	0.197	13.12	2.49
C2050VRP-R4L	3.07	3.15	2.185	1.644	0.906	0.59	1.693	0.56	0.59	0.65	0.689	0.413	0.35	0.335	0.531	0.295	13.12	2.42
C2050VRP-R4LS	3.07	3.15	2.185	1.644	0.906	0.59	1.693	0.56	0.59	0.65	0.689	0.413	0.35	0.335	0.531	0.295	13.12	3.36
C2050VRP-R3H	3.15	5.51	2.26	4.01	0.906	0.59	4.06	0.56	0.59	0.65	0.689	0.413	0.35	0.335	0.531	0.295	9.84	3.36
C2050VRP-R3HS	3.15	5.51	2.26	4.01	0.906	0.59	4.06	0.56	0.59	0.65	0.689	0.413	0.35	0.335	0.531	0.295	9.84	4.23
C2060VRP-R4L	3.74	3.58	2.854	2.018	0.925	0.59	1.988	0.677	0.709	0.768	0.689	0.413	0.354	0.335	0.531	0.295	13.12	2.82
C2060VRP-R4LS	3.74	3.58	2.854	2.018	0.925	0.59	1.988	0.677	0.709	0.768	0.689	0.413	0.354	0.335	0.531	0.295	13.12	3.96
C2060VRP-R4K	3.74	3.58	2.854	1.821	0.925	0.59	1.988	0.677	0.709	0.768	0.689	0.413	0.354	0.335	0.531	0.295	13.12	2.69
C2080VRP-R3LS	3.94	4.92	2.76	3.15	0.47	0.94	2.68	0.91	0.91	0.98	0.689	0.413	0.35	0.335	0.531	0.295	9.84	6.65

Note: The steel rail is fixed to the frame with bolts.

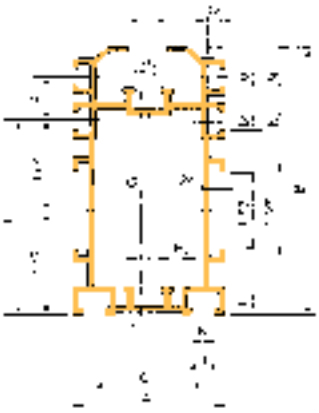
C2030VRP-R3L



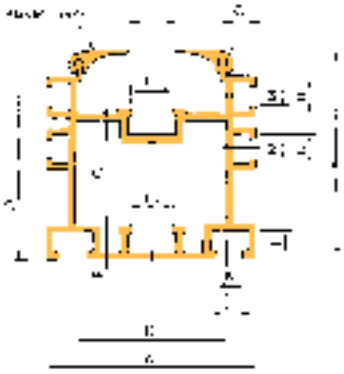
C2040VRP-R4L
C2050VRP-R4L
C2060VRP-R4L



C2050VRP-R3H

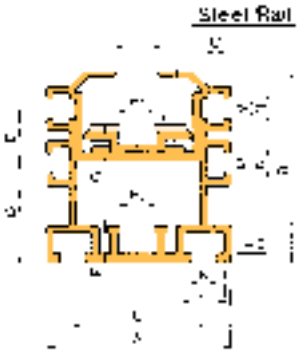


C2060VRP-R4K

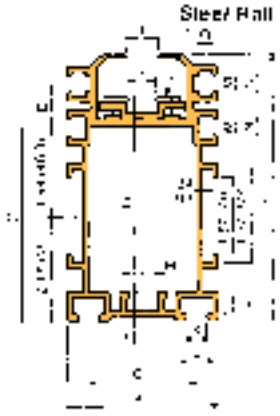


C2030VRP-R3LS

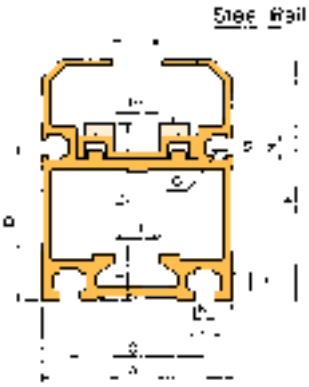
C2040VRP-R4LS
C2050VRP-R4LS
C2060VRP-R4LS



C2050VRP-R3HS



C2080VRP-R3LS



Pallet Guide Rails

C2030VRP-PGR

C2040VRP-PGR

C2050VRP-PGR

C2060VRP-PGR

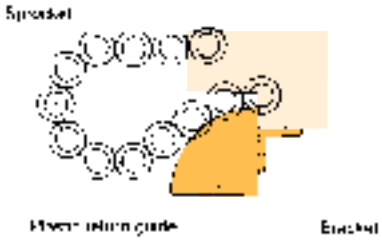
C2080VRP-PGR

Pallet Guide Rail Dimensional Data

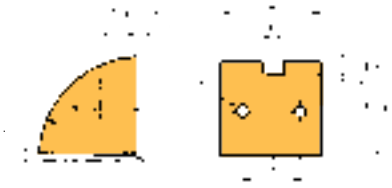
Guide Rail No.	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	Standard Length ft.	Approx. Weight lbs./ft.
C2030VRP-PGR	0.60	2.89	0.49	2.51	1.02	0.94	1.50	0.28	0.70	0.33	0.22	0.47	0.22	0.33	0.08	0.20	0.37	0.18	0.24	—	0.20	9.84	0.6
C2040VRP-PGR	0.68	3.27	0.57	2.88	0.71	0.87	2.12	0.28	0.71	0.41	0.26	0.47	0.26	0.41	0.08	0.22	0.39	0.26	0.22	0.08	0.22	13.12	1.0
C2050VRP-PGR	0.88	3.94	0.77	3.50	0.91	0.98	2.55	0.35	0.81	0.53	0.33	0.59	0.33	0.53	0.12	0.30	0.53	0.45	0.20	0.10	0.30	13.12	1.5
C2060VRP-PGR	0.88	4.57	0.77	4.13	1.26	1.12	2.94	0.35	0.81	0.53	0.33	0.59	0.33	0.53	0.14	0.30	0.55	0.45	0.20	0.39	0.28	13.12	1.7
C2080VRP-PGR	0.88	6.10	0.77	5.67	2.46	2.46	3.15	0.35	0.81	0.53	0.33	0.59	0.33	0.53	0.16	0.30	0.57	0.45	0.16	0.12	0.30	9.84	2.4

*Plastic bumpers must be ordered separately.
Sizes C2030 ~ C2060 are available in stock, C2080 by special order.

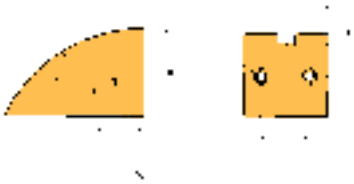
Plastic Return Guides and Brackets



Plastic Return Guides and Brackets



Plastic Return Guides



Plastic Return Guides for DOUBLE PLUS® with Snap Covers

Bracket

Plastic Return Guide Dimensional Data

Guide No.	A	B	C	D	E	F	G	H	I	r	R
C2030VRP-RG	1.34	0.35	0.87	0.24	1.22	M6	—	2.24	—	2.13	2.36
C2040VRP-RG	1.97	0.47	1.18	0.31	1.18	M8	—	2.24	—	2.05	2.36
C2050VRP-RG	2.20	0.59	1.38	0.39	1.26	M8	—	2.24	—	1.97	2.36
C2050VRP-RG-SC	2.20	0.59	1.38	0.39	1.26	M8	3.56	2.24	1.69	3.54	3.94
C2060VRP-RG	2.36	0.71	1.54	0.49	1.26	M8	—	2.24	—	1.87	2.36
C2060VRP-RG-SC	2.36	0.71	1.54	0.49	1.26	M8	3.56	2.24	1.69	3.44	3.94
C2080VRP-RG	2.76	0.91	1.77	0.59	1.61	M8	—	3.03	—	2.56	3.15
C2080VRP-RG-SC	2.76	0.91	1.77	0.59	1.61	M8	5.50	3.03	3.46	5.91	6.50

Note: Specify SC type for use with Snap Cover DOUBLE PLUS®.
For chain sizes C2030VRP-SC and C2040VRP-SC, use standard plastic return guide.

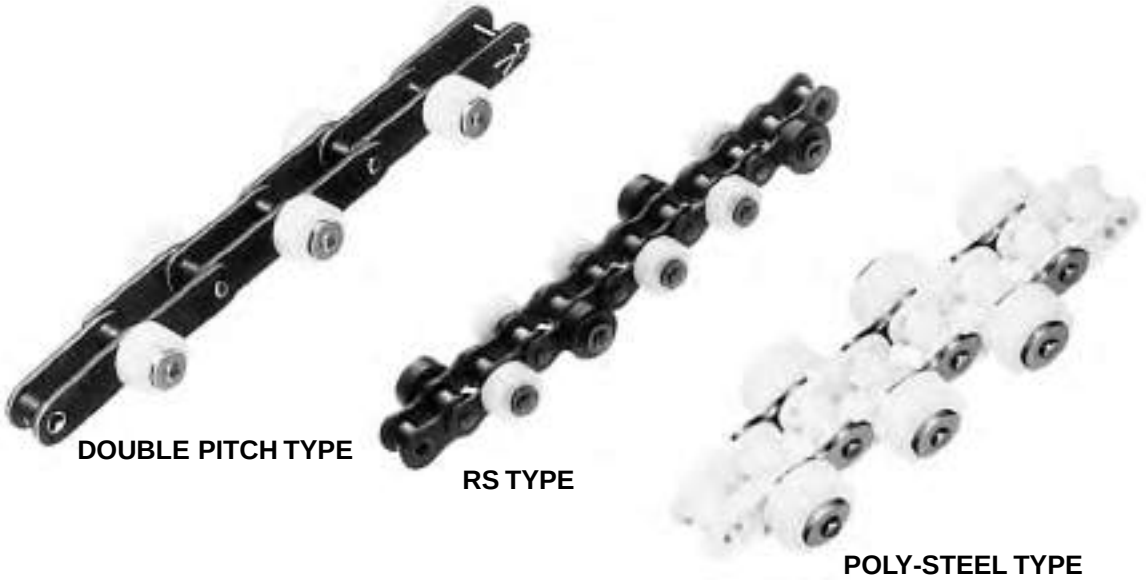
Bracket Dimensional Data

Chain No.	A	B	C	D	E	F	G	O_1	O_2	T	Mounting Bolt Size
C2030VRP-GB	1.34	0.236	0.87	0.807	0.26	0.71	0.98	0.256	0.256	0.12	M6 X 20 ℓ
C2040VRP-GB	2.36	0.591	1.18	1.752	0.30	0.79	1.18	0.335	0.335	0.12	M8 X 20 ℓ
C2050VRP-GB	2.99	0.807	1.38	2.185	0.40	0.94	1.38	0.413	0.335	0.16	M8 X 20 ℓ
C2060VRP-GB	3.70	1.083	1.54	2.854	0.42	0.94	1.38	0.413	0.335	0.16	M8 X 20 ℓ
C2080VRP-GB	3.94	1.083	1.77	2.756	0.59	0.94	1.38	0.413	0.335	0.16	M8 X 20 ℓ

Outboard Roller Chain Series

Side Roller

- Highly compact
- Wide selection
- Quick start up



DOUBLE PITCH TYPE

RS TYPE

POLY-STEEL TYPE

Side Roller Chain Series

Standard Specifications			Variations
Series	**Base Chain**	**Side Roller**	**Base Chain**
Regular Series	• Carbon steel chain • Carbon steel chain with plastic oversize “R” rollers	• Carbon steel • Engineering plastic (white) • Engineering plastic (white) plus Special engineering plastic brake (brown)	• Stainless steel • Nickel-Plated & NEPTUNE®
Electro-conductive Series	• Carbon steel chain • Carbon steel chain with plastic oversize “R” rollers	• Special engineering plastic (black) • Special engineering plastic (black) plus Special engineering plastic brake (brown)	• Stainless steel • Nickel-Plated & NEPTUNE®
Poly-steel Series	• Stainless steel and Engineering plastic (white)	• Engineering plastic (white) • Engineering plastic (white) plus Special engineering plastic brake (brown)	• Chemical Resistant • Electro-Conductive
Guide Attachment Series	• Carbon steel chain • Carbon steel chain with plastic oversize “R” rollers	Can be made with any of the above	• Stainless steel • Nickel-Plated & NEPTUNE®

Note: Consult U.S. Tsubaki when using plastic brake outboard rollers on plated chains.

■ Model Identification

When ordering, please indicate spacing for installing brakes and guide attachments.

C2040 SS R-D 1L PSR E-T-RP

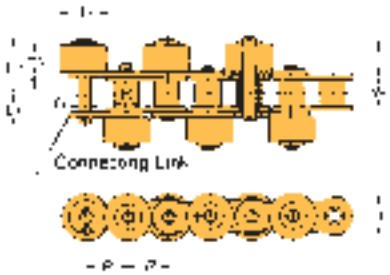
- Chain size
- Base chain specification
  - No code: steel
  - NP: nickel-plated
  - SS: stainless steel
- Roller type of base chain
  - R: oversize “R” roller
  - S: standard “S” roller
- Roller material of base chain
  - No code: steel
  - D: plastic roller
- Spacing of outboard roller: 1L: at every link; 2L: at every 2nd link
- Material of outboard roller: PSR: plastic outboard roller; SR: steel outboard roller
- Engineering plastic outboard roller specifications: E: electro-conductive series
- Outboard roller installation: T: staggered; H: crosswise
- Outboard roller pin type: RP: rivet (standard); CP: cotter pin

Note: Plastic Brake Outboard Roller must be specific.

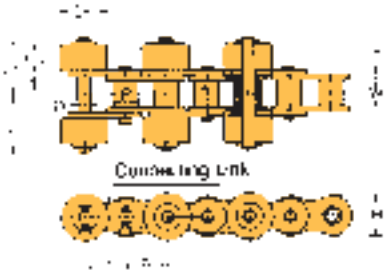
■ Regular and electro-conductive series without brake

RS Type

Type I (Staggered Installation)



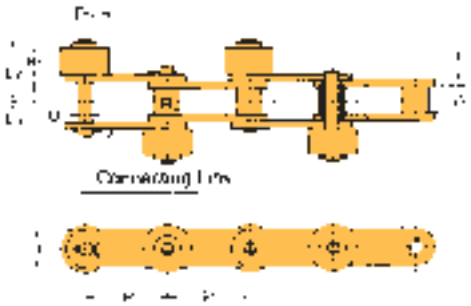
Type II (Crosswise Installation)



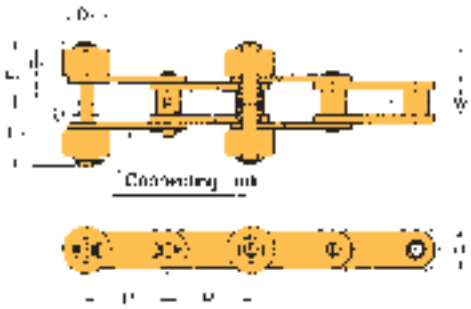
Double Pitch Type

The diagram shows the standard “S” roller (roller at chain center) drawn in solid lines and the oversize “R” roller in dotted lines.

Type I (Staggered Installation)



Type II (Crosswise Installation)



RS Type

U.S. TSUBAKI Chain No.		Pitch	Roller Diameter	Width Between Roller Link Plates	Link Plate		Pin				Outboard Roller		Approximate Weight lbs./ft.	
Regular Series	Electro-Conductive Series	P	R	W	T	H	D	L_1	L_2	L_3	D_S	H_S	Plastic Outboard Roller	Steel Outboard Roller
RS40-PSR	RS40-PSRE	.500	.312	.312	.060	.472	.156	.380	.705	.760	.625	.307	.63	1.12
RS50-PSR	RS50-PSRE	.625	.400	.375	.080	.591	.200	.469	.850	.913	.750	.370	.95	1.63
RS60-PSR	RS60-PSRE	.750	.469	.500	.094	.713	.234	.600	1.100	1.195	.875	.496	1.42	2.44
RS80-PSR	RS80-PSRE	1.000	.625	.625	.125	.949	.312	.758	1.380	1.494	1.125	.622	2.40	3.98
RS100-PSR	–	1.250	.750	.750	.156	1.185	.375	.900	1.675	1.797	1.563	.748	3.74	6.73

Note: 1. Weights listed are for staggered outboard roller installation at every link, or crosswise outboard roller installation at every second link.
2. Cottered type connecting links will be provided.

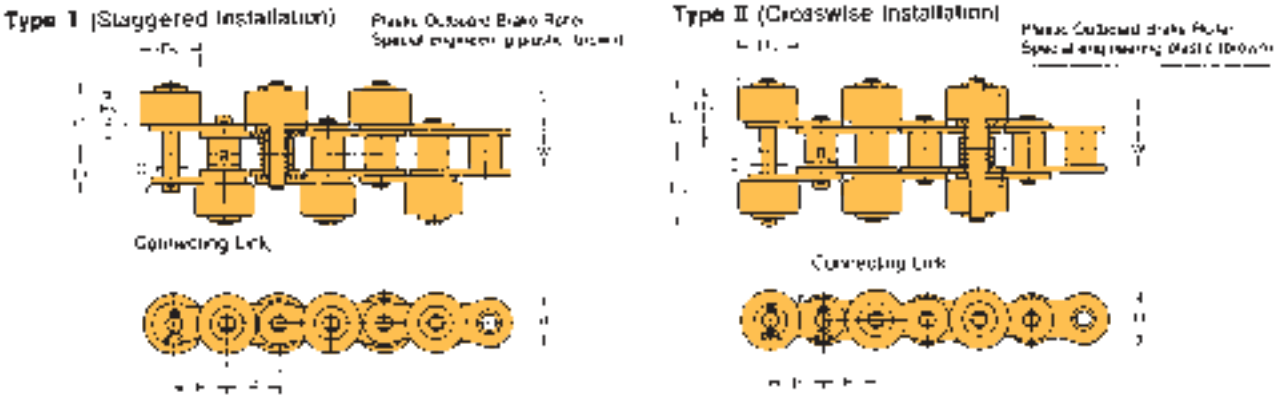
Double Pitch Type

U.S. TSUBAKI Chain No.		Pitch	Roller Diameter	Width Between Roller Link Plates	Link Plate		Pin				Outboard Roller		Approximate Weight lbs./ft.		
Regular Series	Electro-Conductive Series	P	R	W	T	H	D	L_1	L_2	L_3	D_S	H_S	Carbon steel chain with plastic outboard roller	Plastic roller chain with plastic outboard roller	Carbon steel chain with steel outboard roller
C2040-PSR	C2040-PSRE	1.00	.312	.312	.060	.472	.156	.380	.705	.760	.625	.307	.44	–	.69
C2050-PSR	C2050-PSRE	1.25	.400	.375	.080	.591	.200	.469	.850	.913	.750	.370	.69	–	1.03
C2060H-PSR	C2060H-PSRE	1.50	.469	.500	.125	.677	.234	.667	1.167	1.262	.875	.496	1.21	–	1.72
C2080H-PSR	C2080H-PSRE	2.00	.625	.625	.156	.906	.312	.825	1.443	1.561	1.125	.622	2.10	–	2.89
C2100H-PSR	–	2.50	.750	.750	.187	1.126	.375	.965	1.740	1.862	1.563	.748	3.21	–	4.70
C2042-PSR	C2042-PSRE	1.00	.625	.312	.060	.472	.156	.380	.909	.965	.906	.512	.83	.60	–
C2052-PSR	C2052-PSRE	1.25	.750	.375	.080	.591	.200	.469	.996	1.063	1.063	.512	1.14	.83	–
C2062H-PSR	C2062H-PSRE	1.50	.875	.500	.125	.677	.234	.667	1.167	1.262	1.181	.496	1.77	1.30	–

Note: 1. Weights listed are for staggered outboard roller installation at every link, or crosswise outboard roller installation at every second link.
2. Cottered type connecting links will be provided.

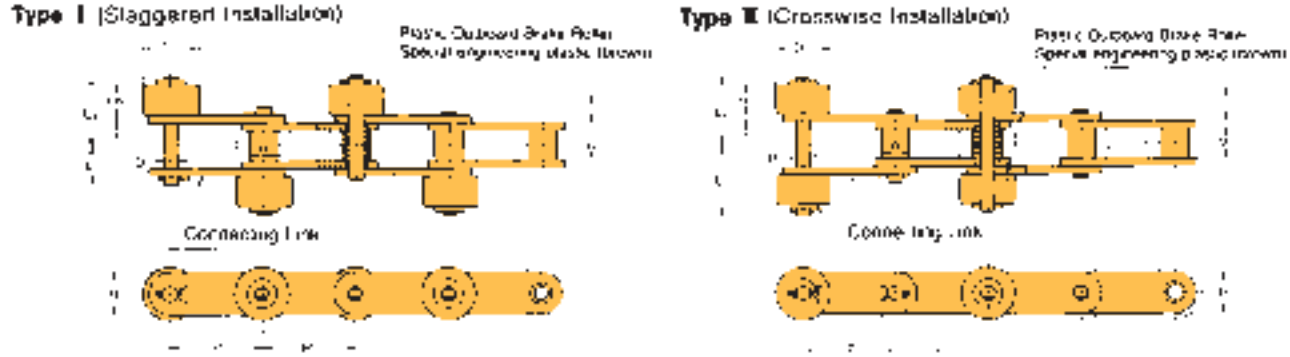
■ Regular and electro-conductive series with brake

RS Type



Double Pitch Type

The diagram shows the standard “S” roller (roller at chain center) drawn in solid lines and the oversize “R” roller in dotted lines.



RS Type

U.S. TSUBAKI Chain No.	Pitch P	Roller Diameter R	Width Between Roller Link Plates W	Link Plate T	Link Plate H	Pin D	Pin L_1	Pin L_2	Pin L_3	Outboard Roller D_s	Outboard Roller H_s	Approximate Weight lbs./ft. Plastic Outboard Roller	Approximate Weight lbs./ft. Steel Outboard Roller
RS40-PSR	.500	.312	.312	.060	.472	.156	.380	.705	.760	.625	.307	.63	1.12
RS50-PSR	.625	.400	.375	.080	.591	.200	.469	.850	.913	.750	.370	.95	1.63
RS60-PSR	.750	.469	.500	.094	.713	.234	.600	1.100	1.195	.875	.469	1.42	2.44

Note: 1. Weights listed are for staggered outboard roller installation at every link, or crosswise outboard roller installation at every second link.
2. For staggered outboard roller installation, the plastic brake rollers are spaced every third link alternating right side and left side. For crosswise outboard roller installation, they are spaced in pairs every sixth link. These configurations are standard.

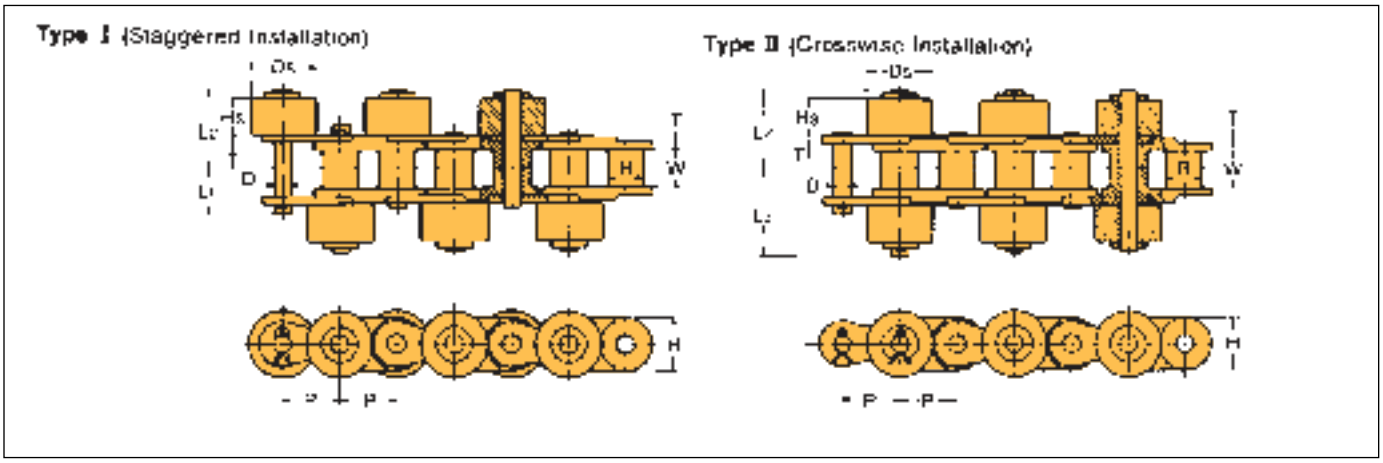
Double Pitch Type

U.S. TSUBAKI Chain No.	Pitch P	Roller Diameter R	Width Between Roller Link Plates W	Link Plate T	Link Plate H	Pin D	Pin L_1	Pin L_2	Pin L_3	Outboard Roller D_S	Outboard Roller H_S	Approximate Weight lbs./ft. Carbon steel chain with plastic outboard roller	Approximate Weight lbs./ft. Plastic roller chain with plastic outboard roller	Approximate Weight lbs./ft. Carbon steel chain with steel outboard roller
C2040-PSR	1.000	.312	.312	.060	.472	.156	.380	.705	.780	.625	.307	.44	–	.69
C2050-PSR	1.250	.400	.375	.080	.591	.200	.469	.850	.913	.750	.370	.69	–	1.03
C2060H-PSR	1.500	.469	.500	.125	.677	.234	.667	1.167	1.262	.875	.496	1.21	–	1.72
C2042-PSR	1.000	.625	.312	.060	.472	.156	.380	.909	.965	.906	.512	.83	.60	–
C2052-PSR	1.250	.750	.375	.080	.591	.200	.469	.996	1.063	1.063	.512	1.14	.83	–
C2062H-PSR	1.500	.875	.500	.125	.677	.234	.667	1.167	1.261	1.181	.496	1.77	1.30	–

Note: 1. Weights listed are for staggered outboard roller installation at every link, or crosswise outboard roller installation at every second link.
2. For staggered outboard roller installation, the plastic brake rollers are spaced every third link alternating right side and left side. For crosswise outboard roller installation, they are spaced in pairs every sixth link. These configurations are standard.

■ Poly-Steel Series

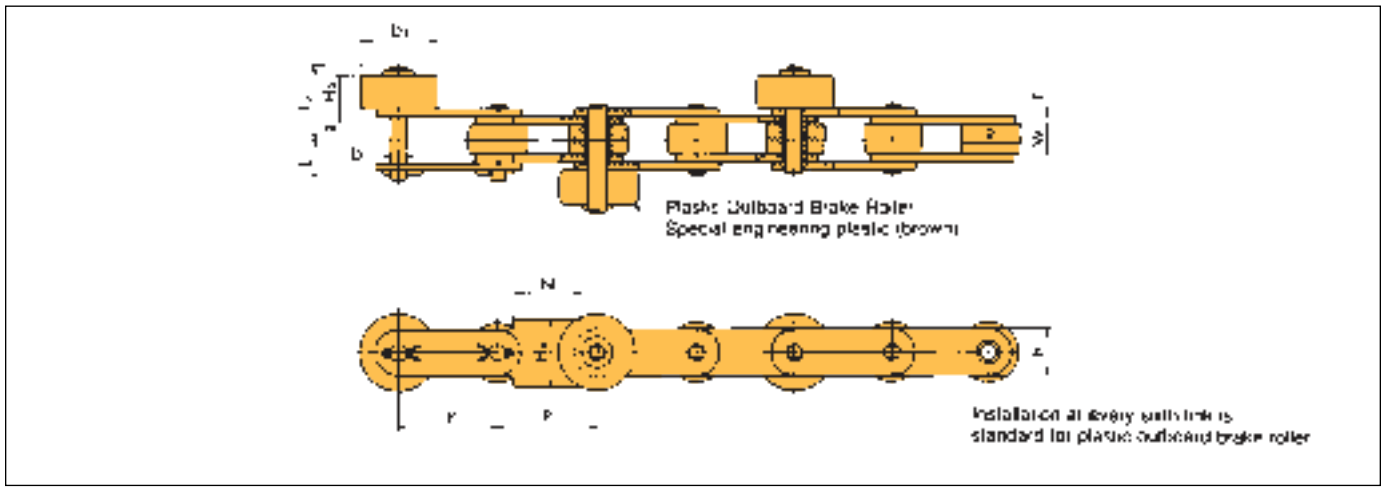
This is a light-weight, low-noise chain. In addition, it is maintenance free since no lubrication is required. Outboard roller construction makes for a highly compact conveyor. The ability to flex backwards adds to this by allowing easy layout on the return side to save space. All parts are made of stainless steel except the outboard rollers and inner links.



U.S. TSUBAKI Chain No.	Pitch P	Roller Diameter R	Width Between Roller Link Plates W	Link Plate		Pin				Outboard Roller		Approximate Weight lbs./ft.
				T	H	D	L_1	L_2	L_3	D_S	H_S	
RF40PC-PSR	.500	.312	.312	.060	.472	.156	.380	.705	.760	.625	.307	.46
RF50PC-PSR	.625	.400	.375	.080	.591	.200	.469	.850	.913	.750	.370	.65
RF60PC-PSR	.750	.469	.500	.094	.713	.234	.600	1.100	1.195	.875	.496	.94

■ Guide Attachment Series

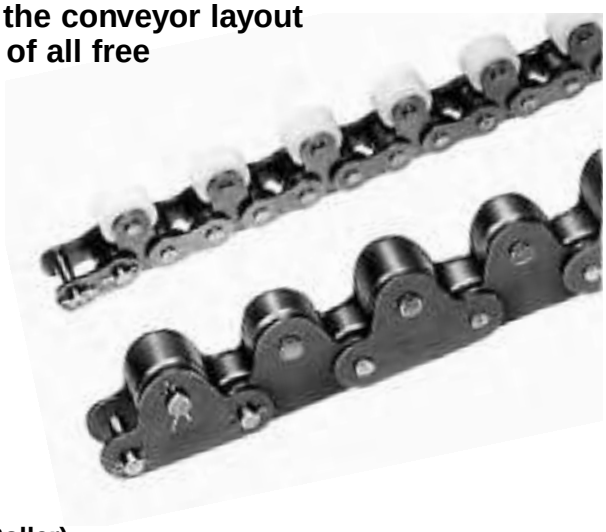
The attachment is designed to prevent meandering. Plastic brake rollers can also be installed.



U.S. TSUBAKI Chain No.	Pitch P	Roller Diameter R	Width Between Roller Link Plates W	Link Plate		Pin			Outboard Roller		Guide Attachment		Approximate Weight lbs./ft.	
				H	T	D	L_1	L_2	D_S	H_S	N	H_A	Plastic Outboard Roller	Steel Outboard Roller
C2042-SG	1.000	.625	.312	.472	.060	.156	.380	.909	.906	.512	.650	.748	.71	1.15
C2052-SG	1.250	.750	.375	.591	.080	.200	.469	.996	1.063	.512	.787	.945	1.01	1.49
C2062H-SG	1.500	.875	.500	.677	.125	.234	.667	1.167	1.181	.496	1.000	1.063	1.62	2.12

Top Roller Chain

Selection of free flow chain should be based upon the conveyor layout and the size of the conveyed load. Load capacities of all free flow chains are given in the engineering section.



Top Roller Chain

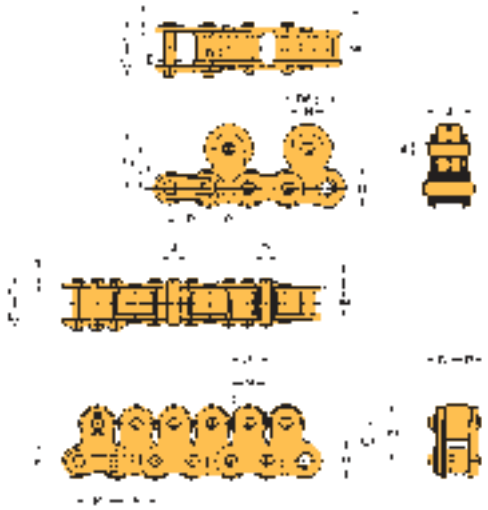
Standardized Specifications			Variations
Series	Base Chain	Top Roller	Base Chain
Regular Series	Steel	Steel	Stainless steel Nickel-Plated & NEPTUNE®
Plastic Top Roller Series	Steel	Engineering plastic	
Plastic Roller Series	Steel + plastic Oversize roller	Engineering plastic	
***Double Strand Top Roller Series**	Steel	Steel	
***Guide Attachment Series**	Steel	Steel or engineering plastic	

* For more information, please contact U.S. Tsubaki.

■ Single Strand RS Type (Regular Series, Plastic Top Roller)

When top rollers are spaced more than every second link:

When top rollers are spaced at every link:



1. Top rollers for regular series are heat-treated.
2. Spring clip type connecting links will be provided for RS40~RS60 unless otherwise specified.

U.S. TSUBAKI Chain No.			Width Between Roller Link Plates	Roller Diameter	Pin			Link Plate		Approximate Weight lbs./ft.			
										Regular Series		Plastic Top Roller Series	
Regular Series	Plastic Top Roller Series	Pitch P	W	R	D	L_1	L_2	H	T	At Every Link	At Every Second Link	At Every Link	At Every Second Link
RS40-TR	RS40-TRP	.500	.312	.312	.156	.325	.392	.472	.060	1.23	.95	.62	.57
RS50-TR	RS50-TRP	.625	.375	.400	.200	.406	.472	.591	.080	1.61	1.46	1.05	.93
RS60-TR	RS60-TRP	.750	.500	.469	.234	.506	.581	.713	.094	2.42	2.14	1.55	1.36
RS80-TR	RS80-TRP	1.000	.625	.625	.312	.640	.758	.949	.125	4.09	3.54	2.62	2.31
RS100-TR	RS100-TRP	1.250	.750	.750	.375	.778	.900	1.185	.156	6.25	5.95	4.07	3.64

U.S. TSUBAKI Chain No.		Attachment Dimensions								
Regular Series	Plastic Top Roller Series	DF_1	DF_2	C_S	N	X_s	ℓ	ℓ_1	ℓ_2	d
RS40-TR	RS40-TRP	.433	.625	.500	.374	.687	.520	.325	.380	.156
RS50-TR	RS50-TRP	.591	.750	.626	.500	.876	.638	.406	.469	.200
RS60-TR	RS60-TRP	.709	.875	.720	.626	1.033	.811	.506	.600	.234
RS80-TR	RS80-TRP	.945	1.125	.969	.752	1.344	1.012	.640	.758	.312
RS100-TR	RS100-TRP	1.181	1.563	1.252	1.000	1.752	1.220	.778	.900	.376

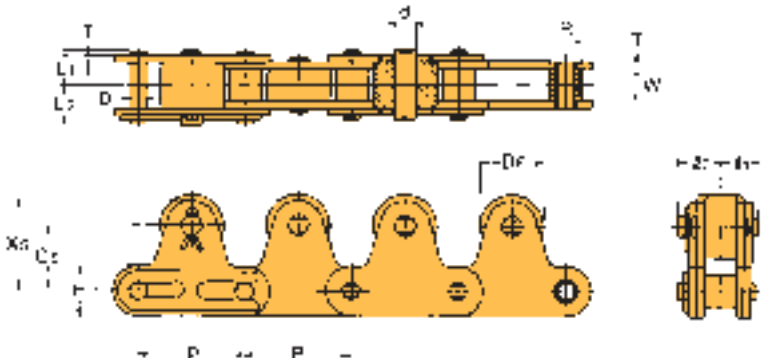
■ Model Identification

RS40 - 1L TR P

- RS40 - Chain size
- 1L - Top roller spacing
- TR - Installed with top roller
- P - Plastic top roller

■ Single Strand Double Pitch Type

(Regular Series, Plastic Top Roller Series, Plastic Roller Series)



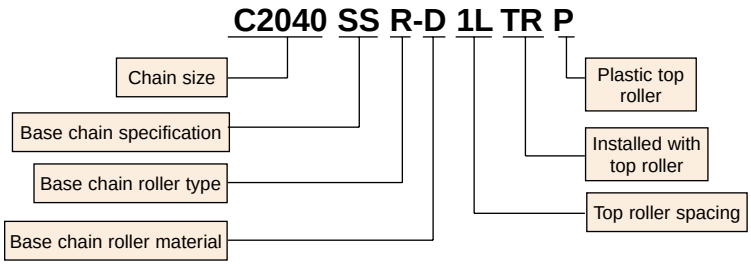
1. Spring clip type connecting links will be provided for C2040 ~ C2060H unless otherwise specified.
2. The dimensions, except for roller diameter, are the same as both standard roller “S” type and oversize roller “R” type.
3. For even number spacing, top rollers will be fitted on roller link unless otherwise specified.

U.S. TSUBAKI Chain No.	Pitch P	Width Between Roller Link Plates W	Roller Diameter R		Pin			Link Plate		Approximate Weight lbs./ft.				
										Regular Series		Plastic Top Roller Series		Plastic Roller Chain Series
			“S” Roller	“R” Roller	D	L_1	L_2	H	T	“S” Roller	“R” Roller	“S” Roller	“R” Roller	
C2040-TR	1.00	.312	.312	.625	.156	.325	.392	.472	.060	.89	1.14	.61	.85	.62
C2050-TR	1.25	.375	.400	.750	.200	.406	.472	.591	.080	1.37	1.68	.97	1.28	.96
C2060H-TR	1.50	.500	.469	.875	.234	.573	.652	.677	.125	2.47	2.93	1.86	2.33	1.85
C2080H-TR	2.00	.625	.625	1.125	.312	.720	.823	.906	.156	3.80	4.54	2.88	3.63	3.04
C2100H-TR	2.50	.750	.750	1.563	.375	.858	.965	1.126	.187	6.12	7.64	4.37	5.89	4.44

U.S. TSUBAKI Chain No.	Attachment Dimensions					
	D_F	C_S	X_S	ℓ_1	ℓ_2	d
C2040-TR	.625	.591	.827	.325	.380	.156
C2050-TR	.750	.748	1.043	.406	.469	.200
C2060H-TR	.875	.906	1.244	.573	.667	.234
C2080H-TR	1.125	1.142	1.594	.728	.839	.446
C2100H-TR	1.563	1.394	1.957	.870	1.071	.572

Note: Weights listed apply when top rollers are fitted at every link.

■ Model Identification



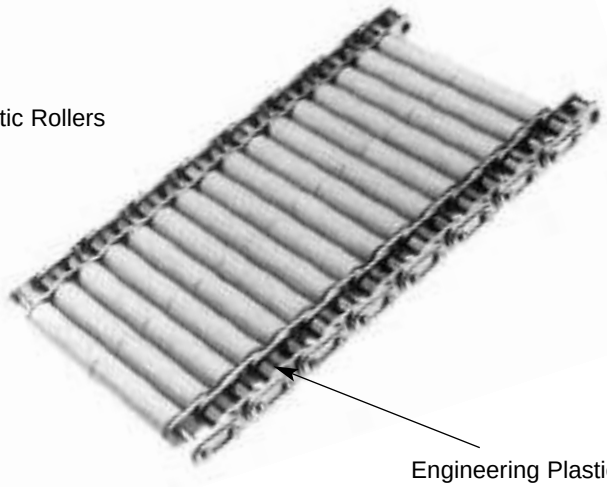
Roller Table

- Does not damage conveyed materials
- Transfers materials smoothly to other lines
- Wide selection available in a variety of designs
- Easy to assemble and disassemble
- RT type Roller Table chain provides a low friction alternative to table top chain
- ST type Roller Table chain allows your product to be loaded and unloaded at right angles to the conveyor flow
- Standard sprockets can be used

U.S. Patent

Engineering Plastic Rollers

ST Series



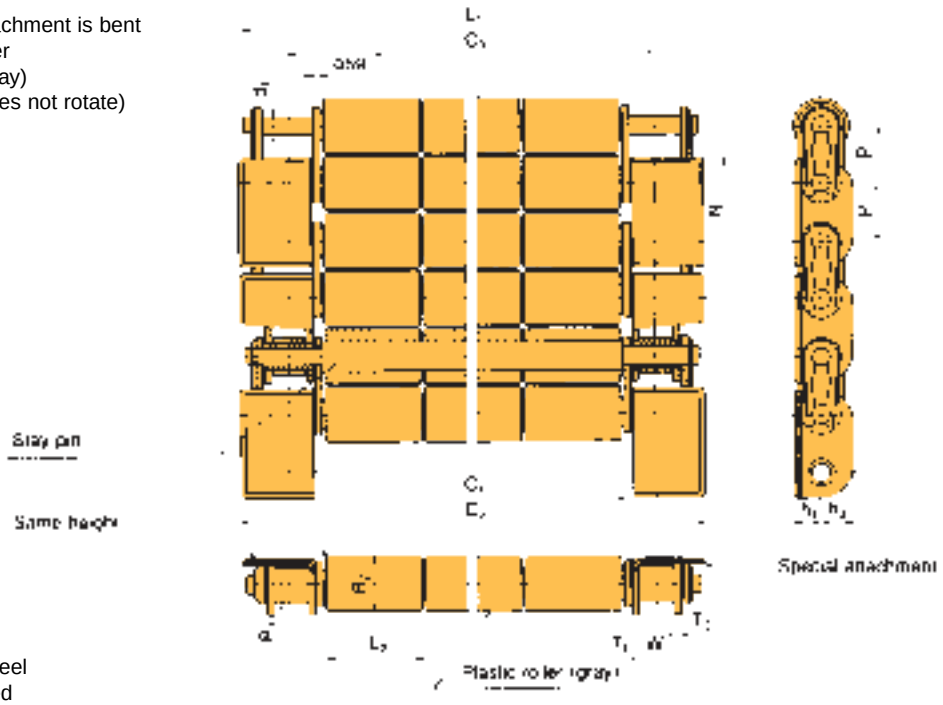
RT Series

Engineering Plastic Rollers

■ Roller Table-ST type

U.S. Patent

The special attachment is bent
to height of roller
Plastic roller (gray)
Stay pin (pin does not rotate)



SS: Stainless steel
NP: Nickel-plated

*Maximum allowable conveying load varies depending upon the width of the roller table and the machine length.

■ Common Dimensions

Series	Pitch P	Width Between Roller Link Plates W	Roller Diameter R_1	Attachment Height h_1	Link plate Height h_2	Attachment Width N	Attachment Plate Thickness T_1	Link Plate Thickness T_2	Pin Diameter d_1	Plastic Roller Diameter R_2	Plastic Roller Length L_2	Maximum Allowable Conveying Load lbs./ft.[2]
ST400	.500	.313	.313	.224	.276	.961	.047	.059	.154	.472	.984	51
ST500	.625	.375	.400	.280	.335	1.201	.059	.079	.200	.591	.984	72

Note: Please use sprockets that have more than 23 teeth.

■ Dimensions

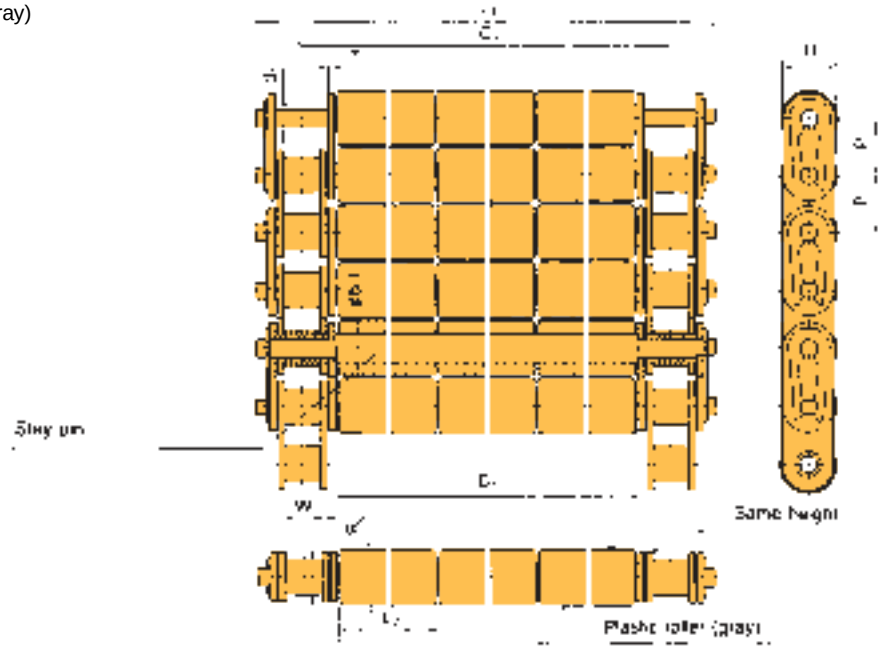
U.S. TSUBAKI Roller Table No.	Effective Width C_1	Overall Width C_2	Center Distance Between Two Chains C_3	Pin Overall Length L_1	Approximate Weight lbs./ft.
ST404SS	3.984	5.433	4.551	5.339	2.97
ST406SS	5.953	7.402	6.520	7.307	3.88
ST408SS	7.921	9.370	8.488	9.276	4.79
ST410SS	9.890	11.339	10.457	11.244	5.70
ST412SS	11.858	13.307	12.425	13.213	6.60
ST414SS	13.827	15.276	14.393	15.181	7.51
ST416SS	15.795	17.244	16.362	17.150	8.41

■ Dimensions

U.S. TSUBAKI Roller Table No.	Effective Width C_1	Overall Width C_2	Center Distance Between Two Chains C_3	Pin Overall Length L_1	Approximate Weight lbs./ft.
ST504SS	3.984	5.717	4.685	5.622	4.14
ST506SS	5.953	7.658	6.654	7.591	5.43
ST508SS	7.921	9.654	8.622	9.559	6.64
ST510SS	9.890	11.622	10.591	11.528	7.89
ST512SS	11.858	13.591	12.559	13.496	9.14
ST514SS	13.827	15.559	14.528	15.465	10.39
ST516SS	15.795	17.528	16.496	17.433	11.63
ST518SS	17.764	19.496	18.465	19.402	12.89
ST520SS	19.732	21.465	20.433	21.370	14.14
ST522SS	21.701	23.433	22.402	23.339	15.39
ST524SS	23.669	25.402	24.370	25.307	16.64

■ Roller Table – RT Types

Stay pin (pin does not rotate)
Plastic roller (gray)



Both sides of chain: stainless steel

U.S. TSUBAKI Roller Table No.	Pitch P	Width Between Roller Link Plates W	Roller Diameter R_1	Link Plate H	Link Plate T	Pin d_1	Pin L_1	Plastic Roller R_2	Plastic Roller L_2	Effective Width C_1	Center Distance Between Two Chains C_3	Maximum Allowable Conveying Load lbs./ft.²	Approx. Weight lbs./ft.
RT404SS	.500	.313	.313	.437	.059	.154	5.339	.480	1.969	3.984	4.551	41	2.710
RT408SS							9.276			7.921	8.488		4.540
RT412SS							13.213			11.858	12.425		6.370
RT416SS							17.150			15.795	16.362		8.210
RT504SS	.625	.375	.400	.547	.079	.200	5.622	.598	1.969	3.984	4.685	61	3.900
RT508SS							9.559			7.921	8.622		6.370
RT512SS							13.496			11.858	12.559		8.850
RT516SS							17.433			15.796	16.496		11.350
RT520SS							21.370			19.732	20.433		13.800
RT524SS							25.307			23.669	24.370		16.280
RT604SS	.750	.500	.469	.661	.094	.235	6.047	.720	1.969	3.984	4.882	61	4.520
RT608SS							9.984			7.921	8.819		6.980
RT612SS							13.921			11.858	12.756		9.430
RT616SS							17.858			15.795	16.693		11.880
RT620SS							21.795			19.732	20.630		14.330
RT624SS							25.732			23.669	24.567		16.780

I. Selection Procedure for DOUBLE PLUS®, Outboard Roller and Top Roller Chain

1) Confirmation of operating conditions for free flow conveyor

The following information is needed in order to select an appropriate chain for free flow conveyor:

① Material weight, dimension and quantity of the conveyed object (including pallet)
② Conveyor speed
③ Conveyor length (the length for accumulating and transferring portion respectively)
④ Lubrication requirements and environment

2) Tentative selection of chain size

$T = W_T \bullet f \bullet K$

W_T: Total weight of conveyed object except chain (lbs.)
f: Coefficient of friction $f = f_2+f_3$ (See page B-57, Tables 4 and 5 or Table 8)
K: Chain speed coefficient (See page B-57, Table 6)

Note: In the case where two matched strands are to be operated, the chain's maximum allowable tension (shown in Table 7, page B-57) should be compared with T • 0.6 to decide the chain type and size.

3) Confirmation of the maximum allowable roller load

The maximum allowable roller load for conveyed objects should not exceed the figures shown in Table 1. However, maximum allowable roller load for the base chain should be checked using Table 2.

Table 1 Maximum Allowable Roller Load for Conveyed Objects

This is the load at 2 strands for DOUBLE PLUS chain

(lbs/.ft.)

Chain Type	Type of Guide rail	C2030VRP	C2040VRP	C2050VRP	C2060VRP	C2080VRP
DOUBLE PLUS Chain	Aluminum	26	40	53	67	–
	Aluminum with steel rail	53	80	107	134	201

Note: When using aluminum frame with steel rail, the maximum allowable load for VR series is twice that of VRP series.

(lbs./roller)

Chain	Type of Roller for transfer	RS40 C2040	RS50 C2050	RS60 C2060	RS80 C2080	RS100 C2100
Outboard Roller Chain	Plastic out-board roller	11	15	30	55	66
	Steel out-board roller	33	44	66	121	176
Top Roller Chain (Single Strand)	Plastic top roller	11	15	30	55	66
	Steel top roller	33	44	66	121	176

Table 2 Maximum Allowable Roller Load of Base Chain

(lbs./roller)

Type of Roller on Base Chain		RS40 C2040	RS50 C2050	RS60 C2060	RS80 C2080	RS100 C2100
Steel Roller	"S" roller	33	44	66	121	176
	"R" roller	143	220	352	594	880
Plastic Roller	"S" roller	4	7	11	–	–
	"R" roller	44	66	110	198	286
Poly-Steel		4	9	13	–	–

Note: The above figures for Poly-Steel show the maximum allowable load per plastic inner link.

4) Calculation of maximum chain tension (T)

$$T = (W_1 + M)\,L_1f_1 + W_2L_2f_2 + (W_2 + M)\,L_2f_3 + 1.1\,M\,(L_1 + L_2)\,f_1$$

5) Calculation of required power (HP)

$$Hp = \frac{TV \bullet 1.1}{33{,}000\eta}$$

P: Maximum number of pallets on conveyor
T: Maximum chain tension (lbs.)
L_2: Length of accumulating portion (ft.)
W_2: Weight of conveyed objects in accumulating portion (lbs./ft.)
L_1: Length of conveying portion (ft.)
W_1: Weight of conveyed objects in conveying portion (lbs./ft.)
f_1: Coefficient of friction between chain and rail when conveying
f_2: Coefficient of friction between chain and conveyed object when accumulating
f_3: Coefficient of friction between chain and rail when accumulating
M: Weight of chain and slat, etc. (lbs./ft.)
Hp: Required power (Hp)
V: Chain speed (ft./min.)
η: Transmission efficiency of drive unit
ℓ: Length of pallet

Calculate the maximum chain tension (T) with the following formula referring to Table 3 and Tables 4 and 5 (or Table 8) on page B-57.

$$T = (W_1 + M)\,L_1f_1 + W_2L_2f_2 + (W_2 + M)\,L_2f_3 + 1.1\,M\,(L_1 + L_2)\,f_1$$

In general, free flow conveyor should have two matched strands of chain and in this case, the chain weight should be for two strands of chain. T, calculated with the above formula, is the maximum chain tension for two strands of chain.

Table 3 f_1: Coefficient of Friction between Chain and Rail when Conveying

Chain Type	Type of Roller on Base Chain		Dry	Lubricated
DOUBLE PLUS Chain	Regular and high friction type		0.08	–
Outboard Roller Chain	Steel roller	"S" roller	0.21	0.14
		"R" roller	0.12	0.08
	Plastic roller	"S" roller	0.12	–
		"R" roller	0.08	–
Top Roller Chain	Poly -Steel		0.25	–
	Steel roller	"S" roller	0.21	0.14
		"R" roller	0.12	0.08

Note: These factors are for your reference only.

Table 4 f_2: Coefficient of Friction between Chain and Conveyed Object when Accumulating

Chain Type	Type of Roller on Base Chain	Dry	Lubricated
DOUBLE PLUS® Chain	Regular type	0.10	–
	High friction type	0.15	–
Outboard Roller Chain	Plastic outboard roller	0.06	–
	Plastic brake outboard roller	0.10	–
	Steel outboard roller	0.09	0.06
Top Roller chain	Plastic top roller	0.06	–
	Steel top roller	0.09	0.06

Note: These factors are for your reference only.

Table 5 f_3: Coefficient of Friction between Chain and Rail when Accumulating

Chain Type	Type of Roller on Base Chain	Dry	Lubricated
DOUBLE PLUS Chain	Regular type	0.20	–
	High friction type	0.25	–

Note: For all chains except the DOUBLE PLUS Chain, f_3 equals f_1. These factors are for your reference only.

Table 6 Chain Speed Coefficient

Chain Speed ft./min.	Chain Speed Coefficient (K)
0 ~ 50	1.0
50 ~ 100	1.2
100 ~ 160	1.4
160 ~ 230	1.6
230 ~ 300	2.2
300 ~ 360	2.8
360 ~ 400	3.2

Note: These factors are for your reference only.

Suggested chain speed is as follows:
DOUBLE PLUS Chain: 50 ft./min. or less
Plastic Roller Chain: 230 ft./min. or less
Poly-Steel Chain: 230 ft./min. or less
When chain speed exceeds the above, consult U.S. Tsubaki.

6) Determination of Chain Size

Multiply the maximum chain tension (T) by the chain speed coefficient (K) listed in Table 6 and verify with the following formula.

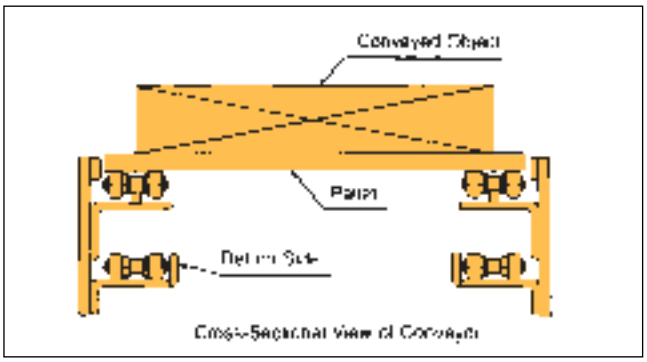
$T \bullet K \leq$ Maximum allowable chain tension

Note: Where there are two matched strands, the maximum chain tension should be $T \bullet 0.6 \leq$ Maximum allowable chain tension.

■ Ambient Temperature Range

Suggested ambient temperature range is between 14°F and 140°F, for which standard lubrication is suggested. Special lubrication is required for temperatures between 140°F and 300°F. For temperatures above 300°F, please consult U.S. Tsubaki.

■ Use of Chain Guide



Note: 1) When using plastic brake outboard roller chain, the rollers of the base chain on the return side should be supported by the rail in the same way as the conveying side.
2) When using Poly-Steel chain with outboard rollers, the guide should support the bottom surface of the links.

Table 7 Maximum Allowable Chain Tension (lbs.)

Chain type	Type of Roller on Base Chain	C2030	RS40 C2040	RS50 C2050	RS60 C2060	RS80 C2080	RS100 C2100
DOUBLE PLUS® Chain	Regular type	120	200	310	460	1,190	–
	High friction type	60	100	155	230	595	–
	Stainless Steel type	60	100	155	230	595	–
	Steel roller type	220	350	550	840	–	–
Outboard Roller Chain	Steel roller	–	595	970	1,410	2,400	3,835
	Plastic roller	–	100	155	230	400	575
	Poly-Steel	–	100	155	200	–	–
Top Roller Chain (single strand)	Steel roller	–	595	970	1,410	2,400	3,835
	Plastic roller	–	100	155	230	400	575

Table 8 Coefficient of Friction DOUBLE PLUS "VR" Steel Roller

Coefficient of Friction	Double Pitch DOUBLE PLUS steel roller		Large size DOUBLE PLUS	
	Lubrication	Non-lubrication	Lubrication	Non-lubrication
f_1 Coefficient of friction between chain and rail when conveying	0.05	0.05	0.05	0.05
f_2 Coefficient of friction between chain and conveyed object when accumulating	0.10	0.15	0.10	0.15
f_3 Coefficient of friction between chain and rail when accumulating	0.10	0.25	0.05	0.15

Note: • These factors are for your reference only.
• We suggest lubricating steel roller and VR type chains.

7) Selection Procedure Example for DOUBLE PLUS® Chain

i) Confirm operating conditions for conveyor.
Conveyor length: 30 ft.
Dimensions of conveyed object: 1.5 ft. square
Weight of conveyed object: 53 lbs./piece
53 lbs./piece ÷ 1.5 ft. = 35.3 lbs./ft.
Conveyed product speed: 30 ft./min.
Chain speed: 12 ft./min.
Full conveyor accumulating
Quantity of conveyed object: 20 pieces
Dry, in-plant use, normal operating temperatures (up to 77°F)

ii) Select initial chain size.
Using the calculation method in Step 2 on page B-56:

$T_T = W_T \bullet (f_2 + f_3) \bullet K$
$T_T = (35.3 \text{ lbs./ft.} \bullet 30 \text{ ft.}) \bullet (0.1 + 0.2) \bullet 1.0 = 318 \text{ lbs.}$
$T_s = 318 \text{ lbs.} \bullet 0.6 = 190.8 \text{ lbs.}$
Note: Presume two strands of chain, each loaded by 0.6 of the total.

Based on these calculations, C2040VRP-A chain is the preliminary choice, but this selection must be confirmed.

Note: C2040VRP-A weight/ft. = 0.67 lbs./ft. per strand (1.34 lbs./ft. for two strands).

iii) Confirm the maximum allowable roller load.
By consulting Table 1 on page B-56, you find that for C2040VRP-A, the maximum allowable roller load is 40 lbs./ft. for aluminum rail.

In this example, the weight of the conveyed object is 35.3 lbs./ft. Therefore, C2040VRP-A can cover roller load.

iv) Confirm total chain tension.
Using the calculation method of total chain tension (T_T):

$T_T = (0 + 1.34) \bullet 0 \bullet 0.08 + 35.3 \bullet 30 \bullet 0.10 + (35.3 + 1.34) \bullet 30 \bullet 0.20 + 1.1 \bullet 1.34 \bullet (0 + 30) \bullet 0.08$

$T_T = 329$ lbs.

$T_S = T_T \bullet 0.6 = 197$ lbs. per strand

Now determine chain size.
Multiply the chain tension (T_S) by the chain speed coefficient (K) listed in Table 6 on page B-57, confirm with the following formula:

$T_S \bullet K \leq$ Maximum allowable chain tension (Table 7).
$197 \bullet 1.0 \leq 200$ (C2040VRP regular plastic)

In this example, we would choose C2040VRP-A Chain.

v) Calculate required power.
*Presume gearmotor efficiency (η) = 0.8

$$HP = \frac{329 \text{ lbs.} \bullet 12 \text{ ft./min.} \bullet 1.1}{33{,}000 \bullet 0.8} = 0.17 = 1/4 \text{ HP motor}$$

- This calculation sample is for your reference only.

II. DESIGN GUIDELINES FOR DOUBLE PLUS® CHAIN

i) Dimensions for both ends of the conveyor.

A typical arrangement of DOUBLE PLUS® components is illustrated in Fig. 1. The bracket is used to mount the plastic return guide to the aluminum guide rail, allowing the chain to flow smoothly between the sprocket and guide rail. See Table 9a for dimensions.

Figure 1–Typical arrangement of DOUBLE PLUS® components

Table 9a. Conveyor End Dimensions

Chain No.	Z	L_1	L_2 (Driver side)	L_2 (Driven side)	H
C2030VRP-R3L & R3LS	0.839	1.57	8.27	3.15	0.98
C2040VRP-R4L & R4LS	0.579	1.97	11.81	3.94	0.98
C2050VRP-R4L & R4LS	0.634	2.36	13.39	4.72	1.18
C2050VRP-R3H & R3HS	3.000	2.36	13.39	4.72	1.18
C2060VRP-R4K & R4LS	0.587	2.76	16.93	5.12	1.57
C2080VRP-R3LS	0.945	3.94	21.65	7.87	2.36

ii) Screws, bolts, height of conveyor.
The values for L shown in Table 9b and Fig. 2 vary because of the plastic bumper wall thickness tolerance.

Connecting the aluminum guide rail
Connect the aluminum guide rails by aligning the V groove shown by arrow A in Fig. 2.

Installing the pallet guide rail
Drill holes using the V groove as a guide, shown by arrow B in Fig. 2, and install the pallet guide rail using socket head cap screws from Table 9b.

Figure 2–Location of screws, bolts

Table 9b. Screws, Bolts, Height of Conveyor

Rail No.	1	2	3	4	5	H	L
C2030VRP-R3L &R3LS	M6 x 10 ℓ	M6	M5	M6	M5	2.42	0.57
C2040VRP-R4L & R4LS	M6 x 12 ℓ	M6	M6	M8	M6	2.68	1.12
C2050VRP-R4L & R4LS	M8 x 20 ℓ	M8	M8	M10	M8	3.25	1.42
C2050VRP-R3H & R3HS	M8 x 20 ℓ	M8	M8	M10	M8	5.61	1.46
C2060VRP-R4K & R4L & R4LS	M8 x 20 ℓ	M8	M8	M10	M8	3.74	1.75
C2080VRP-R3LS	M8 x 25 ℓ	M8	M8	M10	M8	5.12	1.85

iii) Nominal spacing of conveyor supports.
Proper operation of DOUBLE PLUS® Chain is maintained by controlling the amount of deflection of the aluminum guide rail. This deflection is determined from the weight of the conveyed goods and the second moment of area, shown in Table 9c. To control deflection, supports should be spaced as shown in Fig. 3, in accordance with the following equation:

Determining support spacing

$$\ell\ (\text{in.}) = \left[\frac{384 \cdot E \cdot I \cdot d \cdot 12}{5 \cdot 0.6 \cdot W}\right]^{1/4}$$

ℓ = spacing support (inches)
E = Young's Modulus = 9.956×10^6 lbs./in.
I = Second moment of area = in.^4 (See Table 9c.)
d = Deflection = 0.079 in.
W = Total conveyed weight = lbs./ft.

Note: The total conveyed weight (W) is not always distributed evenly between the two conveyor strands. This is taken into account with the factor 0.6.

Figure 3–Nominal spacing of conveyor supports (ℓ)

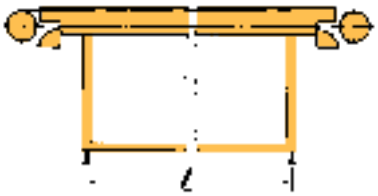


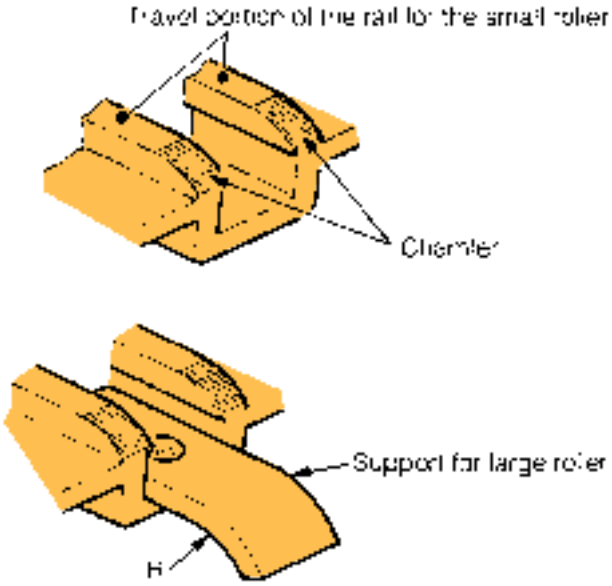
Table 9c. Second Moment of Area

	Rail No.	Second moment of area (I) in.^4
Aluminum Guide Rail	C2030VRP-R3L	0.41148
	C2040VRP-R4L	0.96545
	C2050VRP-R4L	2.01905
	C2050VRP-R3H	9.80904
	C2060VRP-R4L	3.24668
	C2060VRP-R4K	2.60692
Aluminum Frame with Steel Rail	C2030VRP-R3LS	0.42815
	C2040VRP-R4LS	1.06460
	C2050VRP-R4LS	2.29735
	C2050VRP-R3HS	10.62133
	C2060VRP-R4LS	4.12657
	C2080VRP-R3LS	8.66648

iv) Finishing the ends of the conveying side.

Put a chamfer on the ends of the upper rail that the chain's small rollers travel on (Fig. 4).

Figure 4–Location of Chamfer



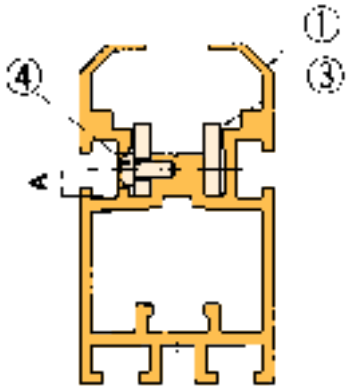
It is possible to prevent the chain's large roller from dipping at the chamfered portion by installing a support for the large roller on the ends of the rail on the driven side.

v) Aluminum frame with steel rail.

(1) Two basic constructions are used when building guide rail with aluminum frame and steel rail:

For C2030VRP-R3LS, a steel rail (no. 3) is arranged in the vertical position and lock screws (no. 4) are secured into the frame (no. 1) from both sides (see Fig. 5a). See Table 9d on page B-60 for dimensions and hardware.

Figure 5a–Cross section of C2030VRP-R3LS



For C2040 ~ C2080 DOUBLE PLUS® Guide Rails with Steel Inserts:
Lock screws (no. 4) are secured through the inner rail (no. 2), which anchors the steel rail (no. 3) to the frame (no. 1) (see Fig. 5b). See Table 9d for dimensions and hardware.

Figure 5b–Cross section of C2040VRP-C2080VRP frame with steel rail

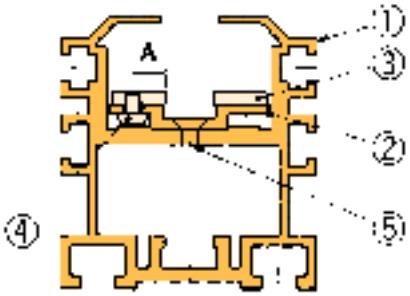
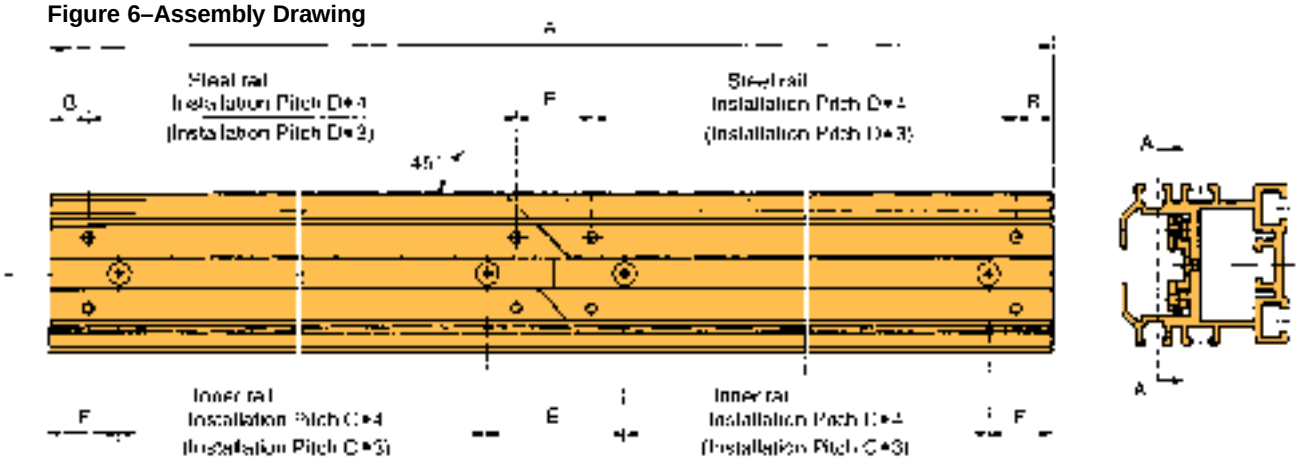


Table 9d. Aluminum Frame with Steel Rail

Rail No.	Steel rail (Part No. 3) Dimensions (Plate thickness x width) inches	Steel rail (Part No. 3) "A" dimension inches	Installation screws for steel rail (Part No. 4). philips pan head machine screws	Installation screws for steel rail (Part No. 5). philips flat head machine screws
C2030VRP-R3LS	.12 x .51	.187	M3 x 7 ℓ	—
C2040VRP-R4LS	.12 x .51	.315	M4 x 5 ℓ	M4 x 6 ℓ
C2050VRP-R4LS	.12 x .51	.315	M4 x 6 ℓ	M4 x 6 ℓ
C2050VRP-R3HS	.12 x .51	.315	M4 x 6 ℓ	M4 x 6 ℓ
C2060VRP-R4LS	.12 x .51	.315	M4 x 6 ℓ	M4 x 6 ℓ
C2080VRP-R3LS	.24 x .63	.413	M5 x 8 ℓ	M6 x 10 ℓ

(2) Assembly drawing
When joining rail sections to form a longer conveyor, please refer to Fig. 6.

Figure 6–Assembly Drawing



1) The steel rail is cut at an angle of 45° at the center portion of the main rail.
2) The installation spacing for C2030VRP-R3LS steel rail is the same as that for C2050VRP-R3HS and C2080VRP-R3LS.
3) Dimensions in parentheses refer to C2050 ~ C2080-R3LS.

Table 9e. Steel Rail Assembly Dimensions

Rail No.	A	B	C	D	E	F
C2040VRP-R4LS	157.5	1.18	19.09	19.09	2.36	1.18
C2050VRP-R4LS	157.5	1.18	19.09	19.09	2.36	1.18
C2060VRP-R4LS	157.5	1.18	19.09	19.09	2.36	1.18
C2050VRP-R3LS	118.1	0.59	18.90	19.09	2.36	1.18
C2080VRP-R3LS	118.1	0.59	18.90	19.09	2.36	1.18

(3) Important points when handling steel guide rail

• When cutting the guide rail with steel rail

1) Cut anywhere other than the central portion or screwed portions of the rail.
2) Insert lock screws into the steel rail and inner rail along with the inner rail and main rail at 0.6 ~ 1.2 in. from the cut end.
3) Machine all parts individually.
4) Completely remove all burrs before reassembly.

Note: Use screws according to Table 9d on page B-60 when reassembling the conveyor.

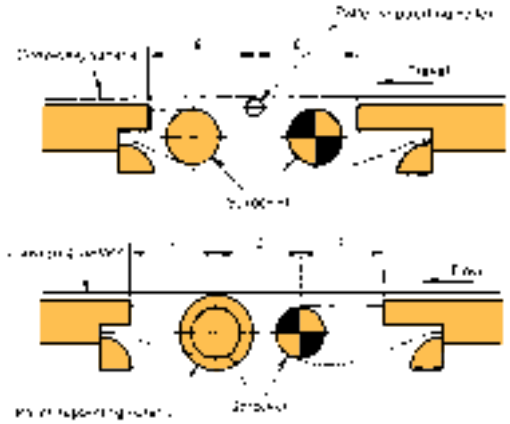
• When connecting the rail

After connecting the rail, put small chamfers on the mating faces of the steel rail in both directions where steps occur. These prevent the chain rollers from getting caught.

vi) Transferring objects between conveyors.

To convey pallets in a stable condition at the transfer portion of the conveyor, install a roller between the two conveyors or the shafts of the sprockets (see Fig. 7). Be sure that the distance ℓ from the ends of the rail to the roller that supports the pallets is less than 1/2.5 times the pallet length in the conveying direction.

Figure 7–Install a roller as shown for a straight line transfer



vii) Take-up.

The amount of take-up ℓ = (L • 0.02) + marginal length (0.02 = Allowable chain wear elongation 2%)

Allow for some sagging (up to 10% of the span) in the chain on the bottom of the driver sprocket. Adjust the take-up so that the slack does not exceed the values in Table 9f. (see Fig. 8.) The total arc of contact between the chain and sprocket should be more than 130°. If take-up cannot be set up as shown in Fig. 9 due to space limitations, refer to Fig. 10.

Table 9f. Chain Slack for DOUBLE PLUS®

Chain size	Normal slack inches	Maximum slack inches
C2030	.10	2.95
C2040	1.38	4.13
C2050	1.57	4.72
C2060	1.97	5.90
C2080	2.56	7.48

Figure 8–Slack tolerance

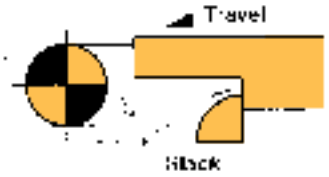


Figure 9–Take-up arrangement

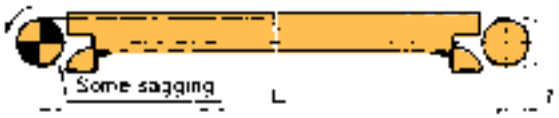


Figure 10–Take-up arrangement for limited space

viii) Maximum conveyor length.

DOUBLE PLUS® Chain operates well on conveyors with lengths not exceeding 50 ft. When conveyor distances are greater than 50 ft., make several shorter conveyors in line. If you require one continuous system longer than 50 ft., consult U.S. Tsubaki.

ix) For DOUBLE PLUS® Chain with Snap Covers.

When using the arrangement as shown in Fig. 11, be aware that the sprocket cannot engage the chain from the top surface of the snap covers. When bending the chain toward the snap cover side, do not bend beyond the R dimension of the plastic return guide (see page B-46). Snap covers and installation are shown in Figs. 12 and 13.

Figure 11–Take-up arrangement for limited space for DOUBLE PLUS® with Snap Covers

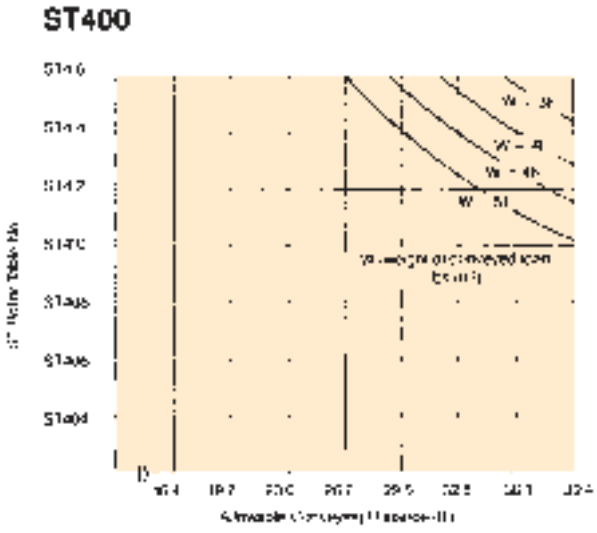
Figure 12–Snap covers for outer and inner links

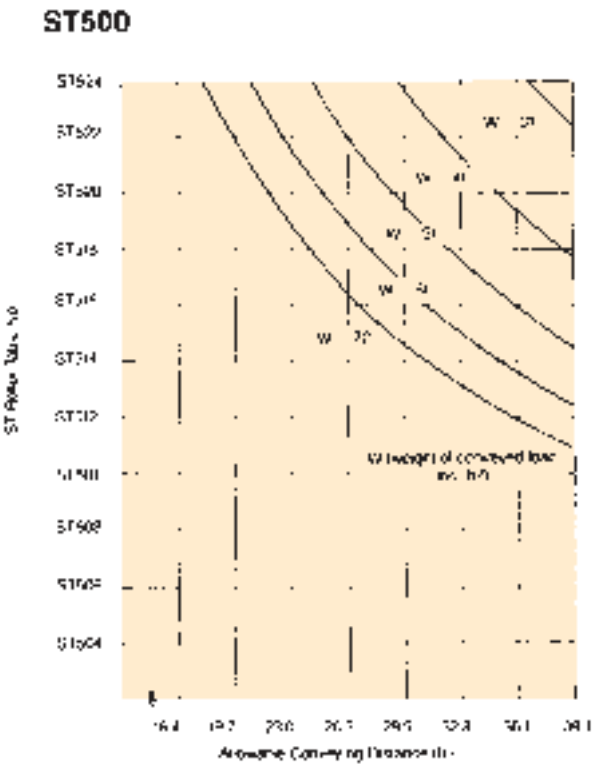
Figure 13–Proper installation of snap covers

III. Selection Procedure for Roller Table

Determine the Roller Table size with the following capability graphs:

ST Roller Table Conveyor Capability Graph

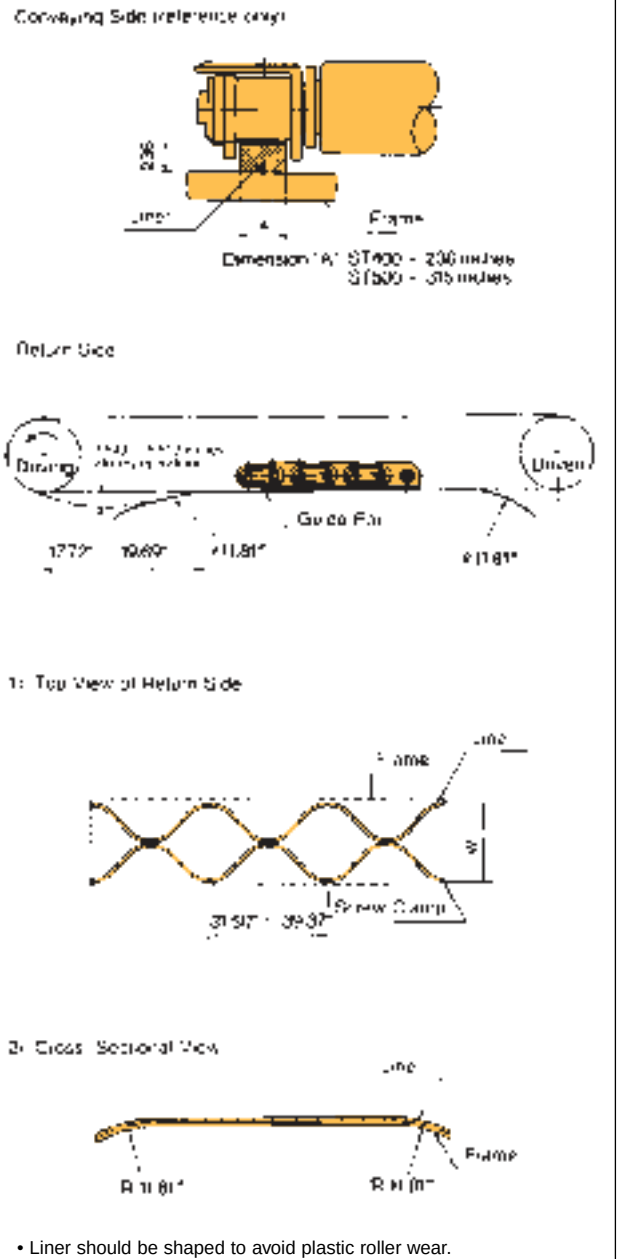




How to use the graph:
If W equals 61 lbs./ft.² and the conveyor length equals 32.8 ft., Roller Table numbers ST514 to ST504 can be used.
W [Weight of conveyed load (lbs./ft.²)]

$$= \frac{\text{Weight of conveyed object (lbs.)}}{\text{Base area of conveyed object (ft.}^2\text{)}}$$

Guide for ST Roller Table

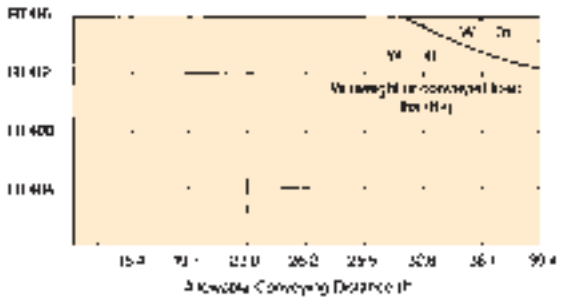


- Liner should be shaped to avoid plastic roller wear.
- Liner width (W_1) should be C_1 (effective width) minus (0.394 inches).
- Material of liner should be high polymer polyethylene.

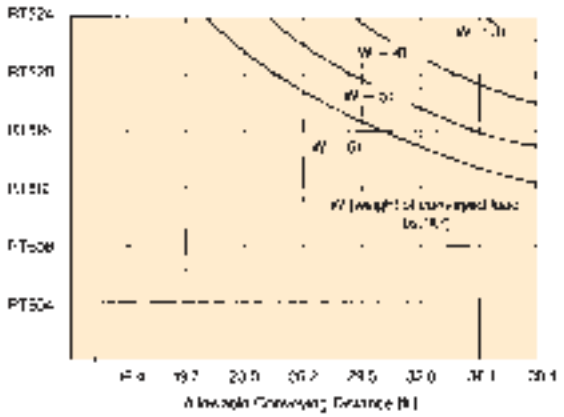
■ **Roller Table speed should not exceed 160 ft./min.**

RT Roller Table Conveyor Capability Graph

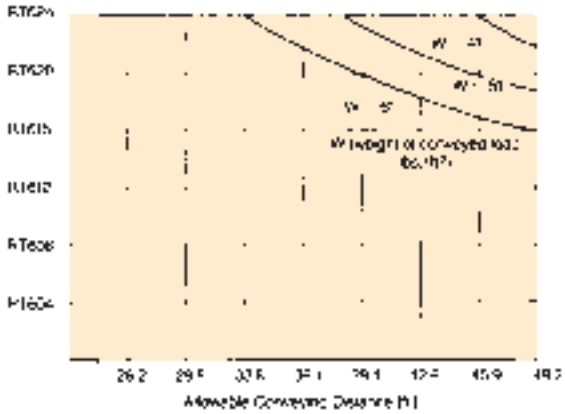
RT400



RT500



RT600



Use these graphs in the same way as for ST Roller Table.

Guide for RT Roller Table

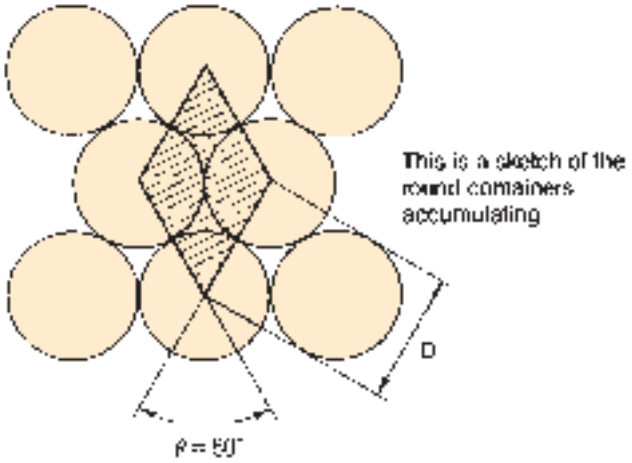
■ Conveying Side

■ Return Side

Note: Material of liner should be high polymer polyethylene.

■ **RT Roller Table speed should not exceed 160 ft./min.**

How to calculate the carrying capacity (for round containers)

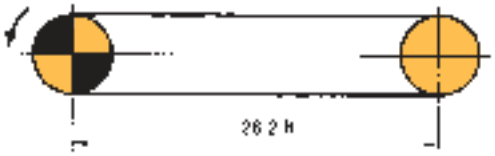


$$W = \frac{\omega \cdot 144 \cdot 10^2}{D^2 \sin 60°} \text{ (lbs./ft.}^2\text{)}$$

W: Carrying capacity (lbs./ft.^{2})
ω : Weight of material (lbs./p)
D : Diameter of conveyed material (inch)

Selection Procedure Example

Specifications



Conveyor length: 26.2 ft.
Weight of conveyed object: 44 lbs.
Dimensions of conveyed object: 0.98 ft. • 0.66 ft. • 0.33 ft.

Selection

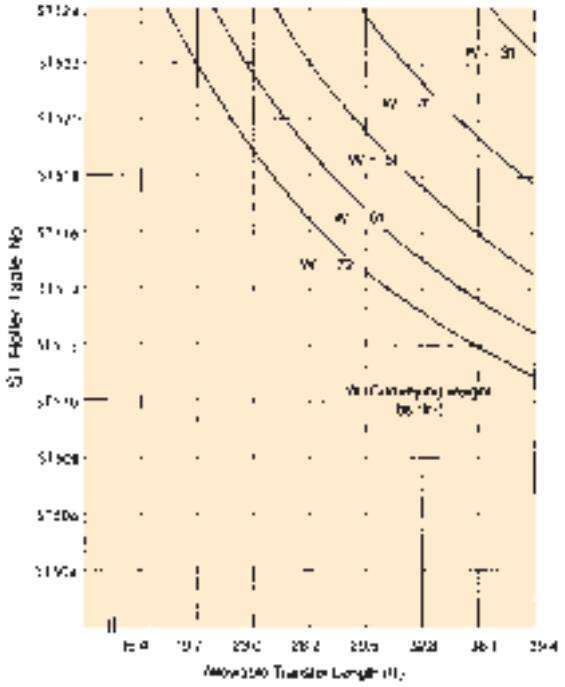
For smooth conveying and to provide “side-through” transfer lines select ST type.

From the ST Roller Table conveyor capability graph on page B-62:

$$W = \frac{44}{.98 \bullet .66} = 68 \text{ lbs./ft.}^2$$

If W = 68 lbs./ft.^{2} and the conveyor length is 26.2 ft., ST504 ~ ST516 Roller Table is the appropriate choice according to the following table.

ST500



Determine the chain-width (C_1) using the dimension diagram on pages B-54 and B-55.

In this example, ST510SS (NP) Roller Table chain with chain-width (C_1) (9.890″) was deemed appropriate for conveyed objects with the above dimensions.

Top Chain

U.S. Tsubaki Top chain is ideal for continuous conveying applications such as bottling, canning and packaging of beverages, food, drugs, chemicals and cosmetics, and for conveying machine parts.

U.S. Tsubaki Top chain is available in a wide variety of types, materials and designs to meet the particular needs of every customer.

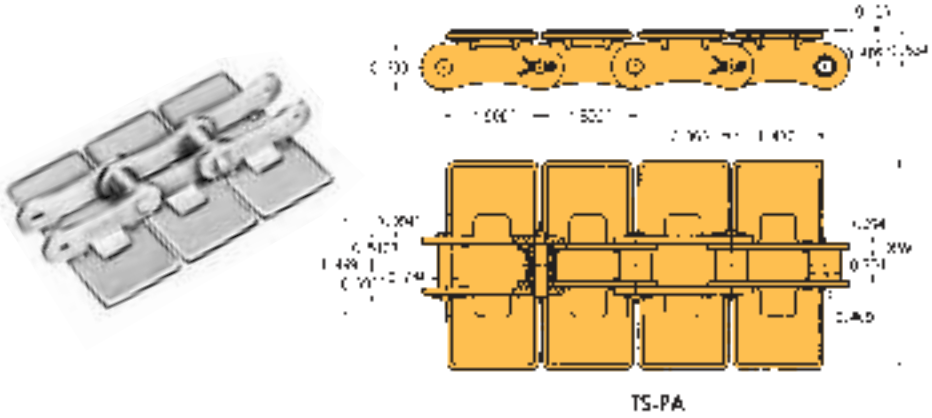
TS Top Chain Linear Movement

U.S. Tsubaki TS Top chain consists of top plates (made of 430 stainless steel) and steel roller chain identical to A2060. The top plates are projection welded to the link plate of the chain. The welded strength provides reliable operation.
TS Top chain is specially designed for use in packaging, bottling and labeling equipment.

- Installed horizontally over vertical sprockets.
- Chain can be disconnected at any joint for easy installation and maintenance.
- Provides dependable trouble free service.
- Wear resistant.
- Sprockets for C2060 can be used.
- Two types are available, namely, TS-PA and TS-P.

■ TS-PA type

- TS-PA-SS all 304 stainless steel.
- TS-PA-CS carbon steel hardened chain with 430 stainless steel top plate.

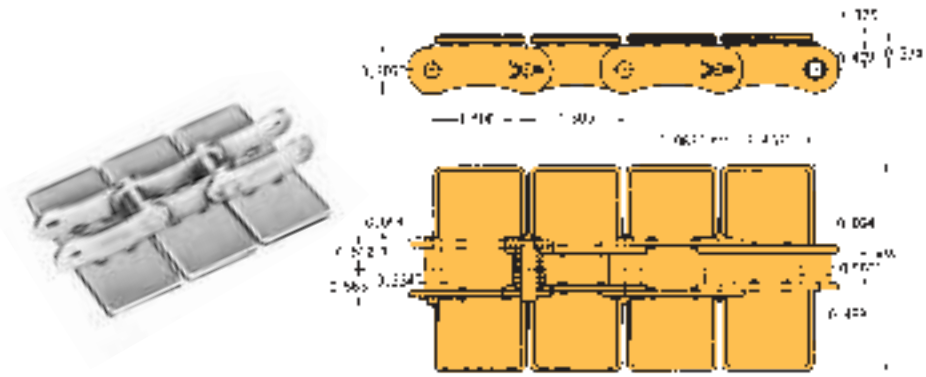


TS-PA

U.S. TSUBAKI Chain No.	Slat Width XW	Approx. Weight lbs./ft.
TS635-PA	2.50	2.10
TS762-PA	3.00	2.20
TS826-PA	3.25	2.40
TS950-PA	3.74	2.60
TS1016-PA	4.00	2.80
TS1100-PA	4.33	2.90
TS1143-PA	4.50	3.00
TS1270-PA	5.00	3.10
TS1524-PA	6.00	3.50
TS1905-PA	7.50	4.10

■ TS-P type

- TS-P-SS all 304 stainless steel.
- TS-P-CS carbon steel hardened chain with 430 stainless steel top plate.

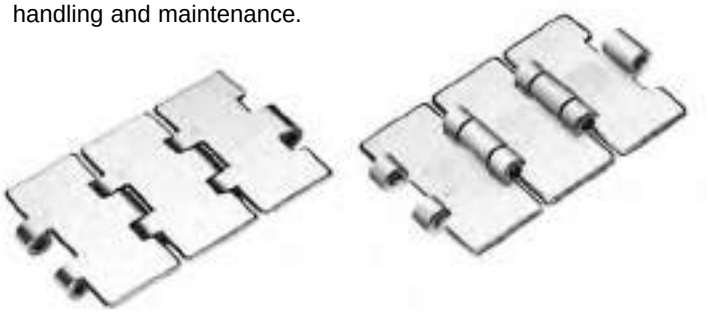


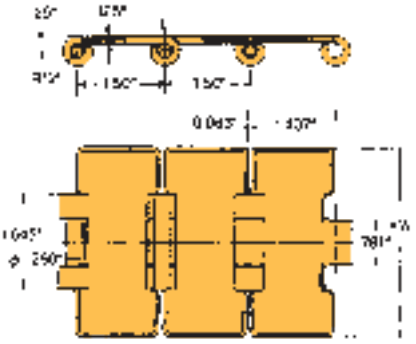
U.S. TSUBAKI Chain No.	Slat Width XW	Approx. Weight lbs./ft.
TS550-P	2.16	1.70
TS635-P	2.50	1.80
TS762-P	3.00	2.00
TS826-P	3.25	2.30
TS950-P	3.74	2.40
TS1016-P	4.00	2.60
TS1100-P	4.33	2.70
TS1143-P	4.50	2.80
TS1270-P	5.00	2.90
TS1524-P	6.00	3.40
TS1905-P	7.50	4.00

Note: 304 stainless steel top plates are available. Nickel-plated are also available.
Consult U.S. Tsubaki for sprocket selection.

TT Top Chain Linear Movement

TT Slatop chain is made of only two parts – stainless steel top plates with rolled hinges, and pins. This extremely simple construction ensures high strength and a long service life. In addition, the chains pick up fewer impurities and remain clean longer. The result is highly simplified handling and maintenance.





■ **TT-N**
Top plates are made of 430 stainless steel.
Pins are made of 304 stainless steel.

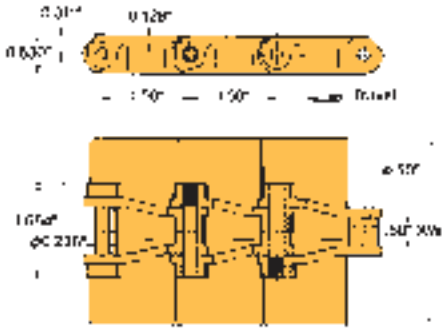
■ **TT-SS**
All parts are made of 304 stainless steel.

U.S. TSUBAKI Chain No.	Slat Width XW	Approx. Weight lbs./ft.
TT635-SS	2.50	1.50
TT762-SS	3.00	1.70
TT826-SS	3.25	1.80
TT1016-SS	4.00	2.10
TT1143-SS	4.50	2.40
TT1270-SS	5.00	2.60
TT1524-SS	6.00	3.00
TT1905-SS	7.50	3.60

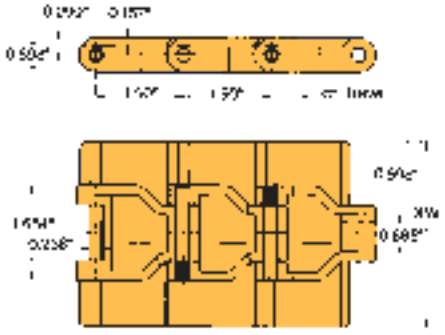
TP Top Chain Linear Movement

U.S. Tsubaki TP Top chain consists of polyacetal resin top plates formed with each link and 304 stainless steel pins.
The uniquely shaped top plate along with U.S. Tsubaki technology ensures high strength and maximum chain life.
U.S. Tsubaki TP Top chain can be easily assembled and disassembled.
Maintenance is minimal.

TP-I



TP-II



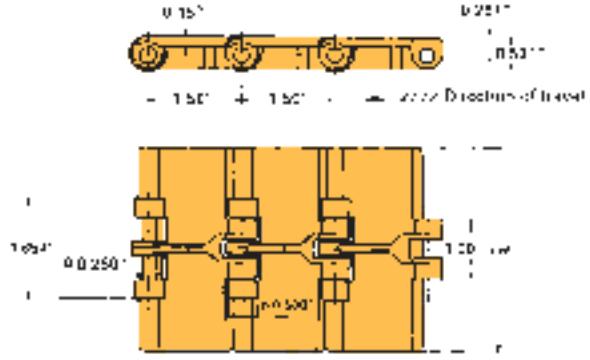
■ **TP Type**
Top plates are made of polyacetal.
Pins are made of 304 stainless steel.

U.S. TSUBAKI Chain No.	Slat Width XW	Approx. Weight lbs./ft.	Type	Color
TP762	3.00	.54	I	Gray
TP826	3.25	.54	I	
TP1016	4.00	.60	II	
TP1143	4.50	.67	II	
TP1270	5.00	.74	II	

Note: Consult U.S. Tsubaki for sprocket selection.

TTP Top Chain Linear Movement

U.S. Tsubaki TTP Top chain has a simple design of polyacetal resin top plates and 304 stainless steel pins.
Maximum allowable load is lower than the TP type, but they are economical when replacement is required.

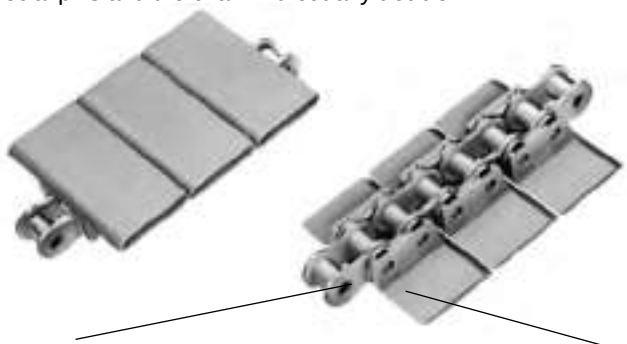


■ **TTP AND TTPF**
Plates are made of polyacetal.
Pins are made of 304 stainless steel.

U.S. TSUBAKI Chain No.	Slat Width XW	Approx. Weight lbs./ft.	Color
TTP826 TTPF826	3.25	0.60	TTP: gray ✻TTPF: brown low friction
TTP1143 TTPF1143	4.50	0.67	
TTP1270 TTPF1270	5.00	0.74	
TTP1905 TTPF1905	7.50	0.94	

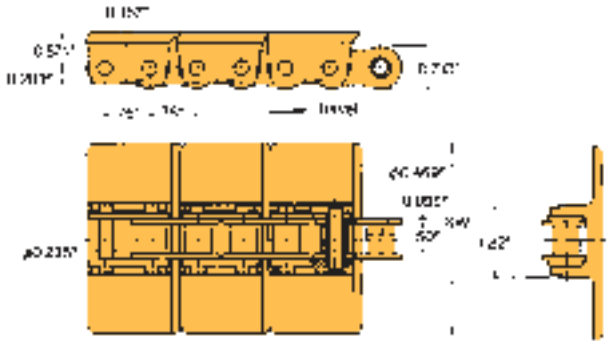
TN Top Chain Linear Movement

U.S. Tsubaki TN Top chain consists of polyacetal resin top plates snapped onto special chain identical in size to RS60 chain.
The chain is available in three types – carbon steel, nickel-plated carbon steel, and 304 stainless steel – to meet any application requirement.
The top plate can be correctly and firmly snapped on to the special pins and the chain without any trouble.



RS60 special base chain

Snap top plate



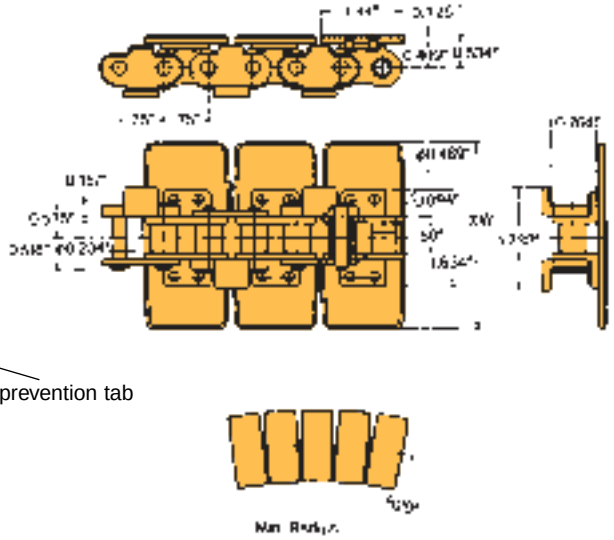
■ **TN, TN-NP AND TN-SS**
Top plates are polyacetal.
Chains are carbon steel, nickel-plated and 304 stainless steel.

U.S. TSUBAKI Chain No.	Slat Width XW	Approx. Weight lbs./ft.	Color of Top Plate
TN826	3.25	1.41	Gray
TN1016	4.00	1.48	
TN1143	4.50	1.55	
TN1270	5.00	1.61	
TN1905	7.50	1.88	

Note: Consult U.S. Tsubaki for sprocket selection.

TRU Top Chain Curved Movement

U.S. Tsubaki TRU Top chain uses a top-plate-riveted RS60 roller chain as its base with special provisions for curving.
A float-prevention tab prevents floating at corners to allow the creation of curved conveyors. The same tab may also be used for inclined conveyors to keep the chain in position.



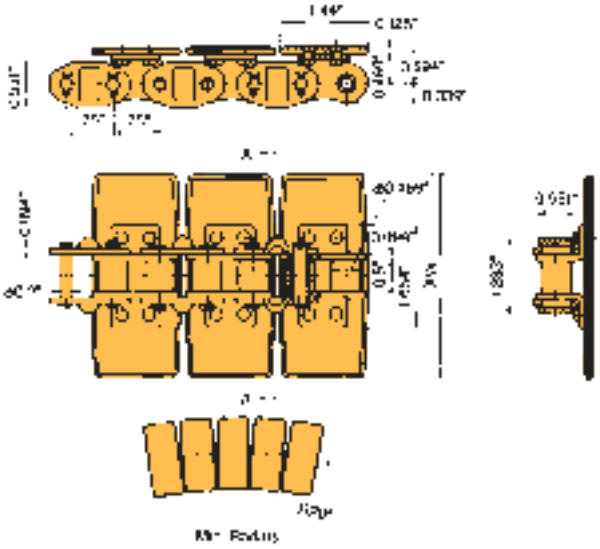
■ **TRU**
Top plates are made of 430 stainless steel.
Chains are carbon steel.

■ **TRU-SS**
All parts are made of 304 stainless steel.

U.S. TSUBAKI Chain No.	Slat Width XW	Approx. Weight lbs./ft.
TRU826	3.25	2.80
TRU1143	4.50	3.30
TRU1270	5.00	3.50

TKU Top Chain Curved Movement

U.S. Tsubaki TKU Top chain uses a top-plate-riveted RS60 roller chain as its base with special provisions for curving. As the chain has no float-prevention tab, it is suggested that slow and simple curved running be used.



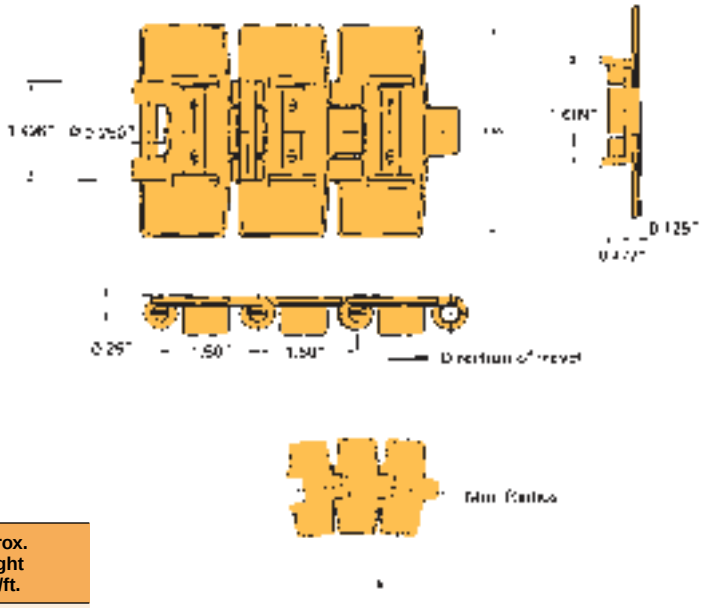
■ **TKU**
Top plates are made of 430 stainless steel.
Chains are carbon steel.

U.S. TSUBAKI Chain No.	Slat Width XW	Approx. Weight lbs./ft.
TKU826	3.25	2.60
TKU1100	4.33	3.00

Note: Consult U.S. Tsubaki for sprocket selection.

TTU Top Chain Curved Movement

U.S. Tsubaki TTU Top chain consists of top plates, connecting pins and guide-plates for float-prevention around curves. All parts are made of 304 stainless steel which ensures strong resistance to rust and clean handling.

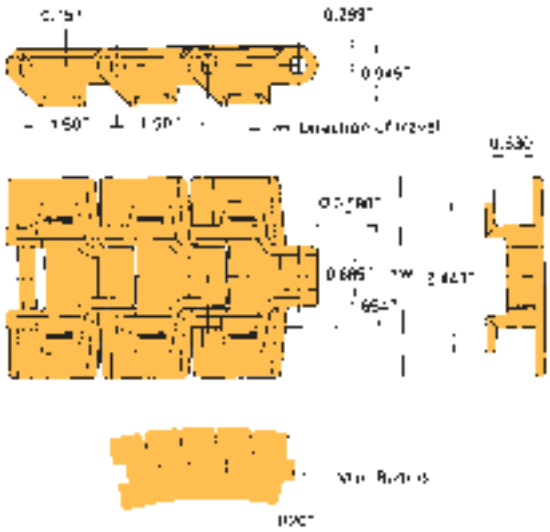


■ **TTU**
All parts are made of 304 stainless steel.

U.S. TSUBAKI Chain No.	Slat Width XW	Minimum Radius R	Approx. Weight lbs./ft.
TTU826	3.25	18″	1.88
TTU1143	4.50	18″	2.42
TTU1905	7.50	23.6″	3.50

TPU Top Chain Curved Movement

U.S. Tsubaki TPU Top chain consists of polyacetal resin top plates fitted with float-prevention tabs and 304 stainless steel pins.



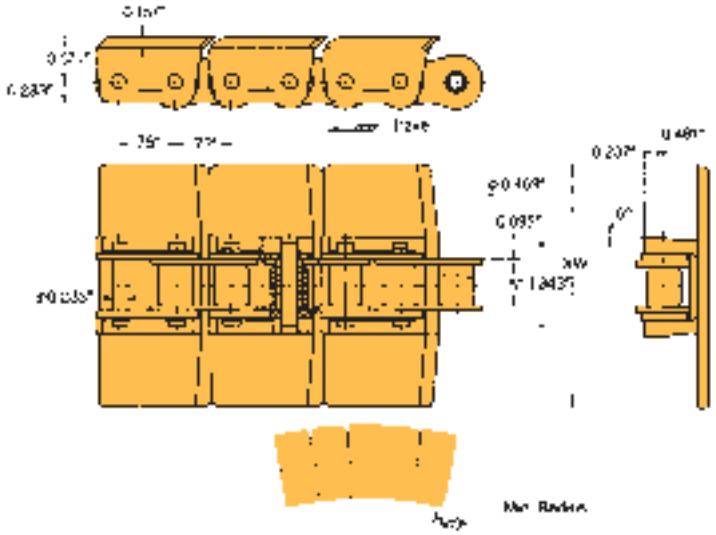
■ **TPU**
Top plates are made of polyacetal.
Pins are made of 304 stainless steel.

U.S. TSUBAKI Chain No.	Slat Width XW	Approx. Weight lbs./ft.	Color of top plate
TPU826	3.25	.67	Gray

Note: Consult U.S. Tsubaki for sprocket selection.

TNU Top Chain Curved Movement

U.S. Tsubaki TNU Top chain consists of polyacetal resin top plates snapped onto a special chain the same size as RS60 chain and made of carbon steel or nickel-plated carbon steel.
The outside surface of the snap is tapered for float prevention.



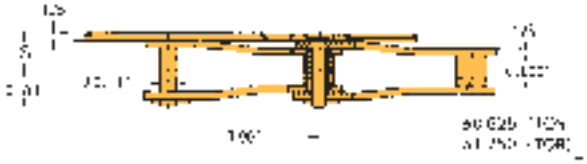
■ **TNU AND TNU-NP**
Top plates are made of polyacetal.
Chains are carbon steel or nickel-plated.

U.S. TSUBAKI Chain No.	Slat Width XW	Approx. Weight lbs./ft.	Color of Top Plate
TNU826	3.25	1.48	Gray
TNU1143	4.50	1.55	
TNU1270	5.00	1.68	

TO Top Chain Curved Movement

U.S. Tsubaki TO Crescent Plate chain is used to convey containers and materials in the bottling and canning industries.
It is especially useful when the length of the conveyor must be long and the load factor high.

- Stronger than TS Top Plate chain.
- Can follow any horizontal route.
- The use of multiple drives makes long conveyor lengths possible.
- A turn-table and guide roller are unnecessary on the return side.
- Standard carbon steel chain with 430 stainless steel crescent shaped top plates are provided unless otherwise specified.
- Min. radius of TO Crescent Plate chain is 4 inches.



■ **TOS**
Top plates are made of 430 stainless steel.
Chain is carbon steel.

U.S. TSUBAKI Chain No.	Slat Width XW	S	Approx. Weight lbs./ft.
TOS826	3.25	.705	2.80
TOS1143	4.50	.705	3.20
TOS1778*	7.00	.831	4.20

■ **TOR**
Top plates are made of 430 stainless steel.
Chain is carbon steel.

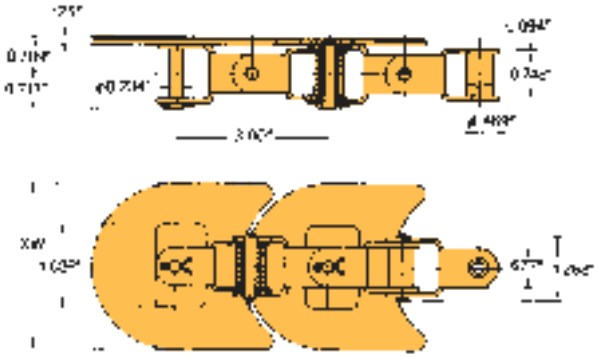
U.S. TSUBAKI Chain No.	Slat Width XW	S	Approx. Weight lbs./ft.
TOR826	3.25	.705	4.00
TOR1143	4.50	.705	4.60
TOR1778*	7.00	.831	5.40

Note: *The shape of TOS1778 and TOR1778 is different from above sketch. Contact U.S. Tsubaki for details.
Consult U.S. Tsubaki for sprocket selection.

TU Top Chain Universal Movement

U.S. Tsubaki TU Crescent Plate chain is similar to the other styles of U.S. Tsubaki Top chain, but is designed for multi-plane operation. It conveys cans, bottles or packages in a straight or curved line on a horizontal plane and the return can travel in any path best suited to conditions.

- Can follow any horizontal and vertical route.
- Standard carbon steel chain with 430 stainless steel crescent.
- Crescent shaped top plates will be provided unless otherwise specified.



■ **TU**
Top plates are made of 430 stainless steel.
Chain is carbon steel.

U.S. TSUBAKI Chain No.	Slat Width XW	Approx. Weight lbs./ft.
TU826	3.25	2.60
TU1143	4.50	3.00

Note: Consult U.S. Tsubaki for sprocket selection.

RS Plastic Chain

Standard Series
RS Plastic chain consists of polyacetal chain links and 304 stainless steel pins and operates with standard roller chain sprockets. Based on power transmission roller chain, U.S. Tsubaki RS-type has a flat top side for power transmission or conveying use.

"E" Series (Electro-Conductive Series)
The special plastic used in the "E" series is electro conductive and permits electrical charge. These chains are suitable for applications where there is electric noise, electric sparks, or where dust collects due to static electricity. Volume resistivity: $10^6\Omega$•cm

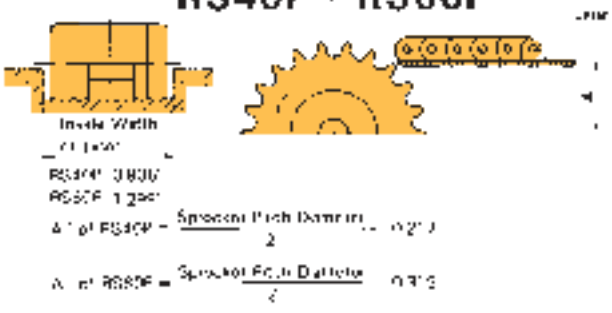
"Y" & "SY" Series (Anti-Chemical Series)
The amazing "Y" & "SY" series utilizes an engineering plastic which permits the chain to perform well even where chloride, acid, alkaline, oxidizers and most organic solvents are present. "SY" series is a combination of "Y" series plastic block links and titanium pins and performs well even when exposed to sulfuric and hydrochloric acid.

"K" Series (Heat Resistant Series)
The U.S. Tsubaki "K" series is made of a resilient new engineering plastic which can withstand environments where temperatures reach 284°F. In contrast to plastic chains made of conventional plastic, this chain will not lose its valuable properties at high temperatures.

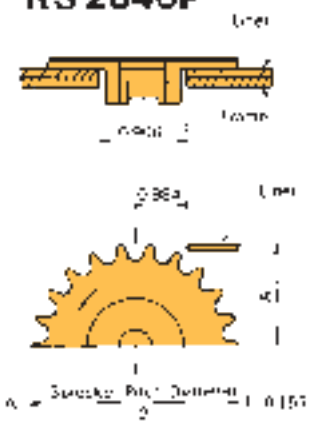
U.S. TSUBAKI Chain No.	Pitch	Maximum Allowable Tension (lbs.)				Ambient Temperature Range °F		Maximum Speed	Allowable Chain ft./min.		Coefficient of Sliding Friction
		Std.	'E'	"Y" "SY"	"K"	Std. "E"	"Y" "SY" "K"	Std. "E"	"Y" "SY" "K"		
RS40P (E, SY, K)	.500	100	77	55	55	–4 ~176	–4 ~284	200	164		.25
RS60P (E, Y, SY, K)	.750	200	143	110	110	–4 ~176	–4 ~284	200	164		.25
RS2040P (E, Y, SY, K)	1.000	100	77	55	55	–4 ~176	–4 ~284	200	164		.25

■ Location of guide rails and sprocket

RS40P • RS60P



RS2040P



Note:
1. The Engineered Plastic Chain Catalog is also available upon request. For details consult U.S. Tsubaki.
2. "K" series chain is clip-type construction and has a slightly longer pin.

ENGINEERING INFORMATION

Corrosion Resistance Guide

The corrosion resistance guide given below should be referred to when selecting chains. The table presents U.S. Tsubaki laboratory test results at 68°F. Humidity and other conditions should also be considered.

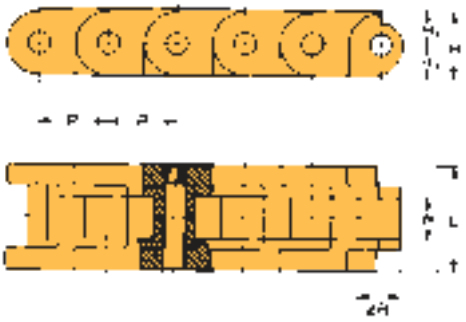
"E": electro-conductive series, "Y": anti-chemical series, "K": heat resistant series, "N": low noise series

Fluid \ Series	"E", "N", "K" and Standard	"Y"	"SY"	Fluid \ Series	"E", "N", "K" and Standard	"Y"	"SY"
Acetone	○	×	×	Carbon Tetrachloride	Δ	Δ	○
Oil (Vegetable)	○	○	○	Nitric Acid (5%)	×	○	○
Vegetable	○	○	○	Vinegar	Δ	Δ	Δ~○
Ammonia	○	Δ	Δ	Hypochloride	×	Δ	○
Sodium Chloride	Δ	Δ	○	Potassium Hydroxide	×		○
Hydrochloric Acid	×	×	○	Sodium Hydroxide (20%)	×	○	○
Sea Water	Δ	○	○	Soapy Water	○	○	○
Hydrogen Peroxide	×	○	○	Paraffin	○	○	○
Caustic Soda (25%)	×	○	○	Beer	○	○	○
Gasoline	○	○	○	Fruit Juice	○	○	○
Chloric Acid (10%)	×	Δ	Δ	Wine	○	○	○
Formic Acid	×	×	○	Whiskey	○	○	○
Aldehyde Formate	○	○	○	Vegetable Juice	○	○	○
Milk	○	○	○	Iodine	×	×	○
Lactic Acid	○	○	○	Sulfuric Acid	×	×	○
Citric Acid	Δ	○	○	Phosphoric Acid (10%)	×	Δ	○
Acetic Acid (5%)	×	○	○	Soda Pop	○	○	○

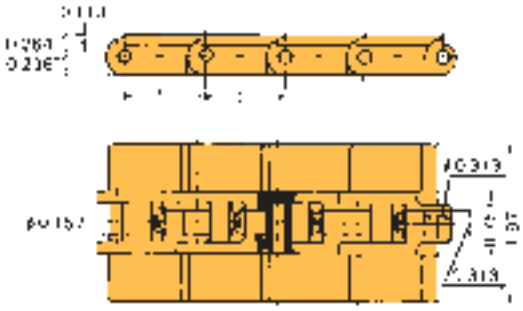
○: Totally resistant Δ: Partially resistant ×: Not suggested

Note: 1. With pins made of titanium, the "SY" Series has greater corrosion resistance than the "Y" Series.
2. This table is intended only as a guide and U.S. Tsubaki does not take responsibility for mishaps arising from its use.

RS Type



RS Double Pitch Type



■ **RS TYPE Chain links are made of polyacetal. Pins are made of 304 stainless steel.**

U.S. TSUBAKI Chain No.	P	R	W	L	H_1	H_2	H	Approx. Weight lbs./ft.	Color
RS40P	.50	.313	.313	.787	.236	.264	.500	.24	white
RS60P	.75	.469	.500	1.181	.335	.346	.681	.48	white

■ **RS DOUBLE PITCH TYPE Chain links are made of polyacetal. Pins are made of 304 stainless steel**

U.S. TSUBAKI Chain No.	Chain Pitch	Slat Width	Approx. Weight lbs./ft.	Color
RS2040P	1.00	1.97	.28	white

Selection and Engineering Information

Chain Type		Materials		Specifications				Feature	Applications
		Chain/Pin	Top Plate	Max. Allowable Load lbs.	Suggested Max. Speed (ft./min.) Lubricated	Suggested Max. Speed (ft./min.) Dry	Ambient Temperature °F		
Linear Movement	TS-P	Carbon Steel	430 Stainless steel	660	390	200	15 ~350	Type P : Suitable for single strand operation Type SS: Suitable for multi-strand operation and corrosive environment Type CS: Suitable for heavy load operation	Assembly line for bottling or canning, and conveying cartons or other parts.
	TS-SS	304 Stainless steel	304 Stainless steel	231	230	150	–4 ~750		
	TS-CS	Hardened carbon steel	430 Stainless steel	1,100	390	200	15 ~350		
	TT-N	304 Stainless steel	430 Stainless steel	330	330	200	15 ~500	Simple construction, washable, clean handling, and anti-corrosive.	
	TT-SS	304 Stainless steel		484			–4 ~750		
	TP	304 stainless steel	Polyacetal resin	264	330	160	–4 ~170	Self-lubrication, quiet operation. Anti-corrosive, suitable for transportation of small size goods due to small clearance between top plates.	Conveying steel, cans, finished parts, paper-packages, etc.
	TTP			187					
	TN	Carbon steel	Polyacetal resin	1,410	390	200	15 ~170	Damage-free, quiet operation. Smooth transportation, easy removal of top plate. Easy repair.	
	TN-NP	Nickel-plated carbon steel							
	TN-S	304 Stainless steel		231	230	150	–4 ~170		
	RS-P	304 Stainless steel	Polyacetal resin	40P, 2040P: 100 60P: 200	200	200	–4 ~170	Quiet and trouble-free operation with anti-corrosive protection. Also available in “E,” “K,” “Y,” and “SY” series.	Conveying electronic parts and small items.
Curved Movement	TRU	Carbon steel	430 Stainless steel	902	330	200	15 ~350	Float-prevention tab allows high speed, complex, and curved transportation.	Curved operation for type TS and TT.
	TRU-SS	304 Stainless steel		231	230	150	–4 ~750		
	TKU	Carbon steel	430 Stainless steel	638	150	150	15 ~350	Easy removal of chain. Used for low speed and simple curved operation.	
	TTU	304 Stainless steel		484	260	160	–4 ~750	Same features as TT. Used for curved operation.	Curved operation for TT.
	TPU	304 Stainless steel	Polyacetal resin	220	260	160	–4 ~170	Same features as TP and TRU.	Curved operation for TP.
	TNU	Carbon steel	Polyacetal resin	902	330	200	15 ~170	Used for simple curved operation. TN type side bow feature.	Curved operation for TN.
	TNU-NP	Nickel-plated carbon steel							
	TO	Carbon steel	430 Stainless steel	660	200	200	15 ~350	Any horizontal curved operation is possible. Min. radius: 4.00 inches. Complex curved operation is available.	Suitable for horizontal curved operations.
	TU			220				Any return such as straight/curved line on horizontal and vertical route is available. Complex curved operation available.	

Top Plate Chain Selection

Follow the procedure below to select top chain and liner that are most economical and suitable for the application.

Step 1: Establish general conveyor conditions
Step 2: Select top plate material
Step 3: Select liner material
Step 4: Determine factors and coefficients
Step 5: Select top plate width
Step 6: Calculate chain tension
Step 7: Determine chain size

Step 1 Establish general conveyor conditions

A) Materials conveyed
  (1) Container material
  (2) Weight
  (3) Dimensions

B) Conveyor arrangement
  (1) Straight or curved movement
  (2) Conveyor length
  (3) Layout
  (4) Space limitations

C) Other conditions
  (1) Conveyor capacity
  (2) Interval
  (3) Conveyor speed
  (4) Lubrication requirements
  (5) Material conveyance regularity

D) Environment
  (1) Temperature
  (2) The presence of corrosive chemical substances (See page B-76, Table I)
  (3) Existence of wear-causing agents, such as glass, paint, metal, powder, or sand

Table I must be referred to when selecting chain and liner materials to be used with top chain. The table shows the results of lab tests at 68°F. It is to be used for reference only and does not state or imply any warranty conditions whatsoever. Humidity and other conditions must also be considered.

Table I: Corrosion Resistance to Various Fluids

Fluid	Steel	Polyacetal	Stainless Steel		Ultra-high Polymer Polyethylene
			304	430	
Acetone	×	○	○	○	○
Oils (vegetable and mineral)	○	○	○	○	○
Alcohol	○	○	○	○	○
Aqueous ammonia	Δ	○	○	○	○
Sodium chloride	×	○	Δ	Δ	○
Hydrochloric acid (2%)	×	×	×	×	×
Sea water	×	Δ	Δ	×	○
Hydrogen peroxide	×	×	○	○	○
Caustic soda (25%)	×	×	○	○	○
Gasoline	○	○	○	○	Δ
Formic acid	×	×	×	×	○
Formic acid aldehyde	○	○	○	○	○
Milk	○	○	○	○	○
Lactic acid	×	○	○	×	○
Citric acid	×	Δ	○	Δ	○
Acetic acid (5%)	×	×	○	○	○
Carbon tetrachloride	Δ	○	Δ	Δ	Δ
Nitric acid (5%)	×	×	○	○	Δ
Rice vinegar (5%)	×	○	Δ	Δ	○
Hypochlorite soda	×	×	×	×	○
Soapy water	Δ	○	○	○	○
Paraffin	○	○	○	○	○
Beer	○	○	○	○	○
Fruit juice	×	○	○	Δ	○
Wine	○	○	○	○	○
Whiskey	○	○	○	○	○
Benzene	○	○	○	○	Δ
Water	×	○	○	○	○
Vegetable juice	Δ	○	○	○	○
Iodine	×	×	×	×	×
Sulfuric acid	×	×	×	×	×
Phosphoric acid	×	×	Δ	×	○
Soft drinks	○	○	○	○	○

○ Totally resistant Δ Partially resistant × Not suggested

Step 2 Select top plate material

Top plate material must be selected according to the type of goods to be moved.

Table II: Plate Material Selection Guide

Material Conveyed	Top Plate Material	Dry		Lubricated	
		Abrasive Atmosphere			
		No	Yes	No	Yes
Tin cans, aluminum cans, and metal containers (beer cans, soft drink cans and other cans having metal tops and bottoms, and fiber sides). Industrial parts (machine parts, dies, castings, forgings, metals, bearings, bolts, nuts, etc.)	Polyacetal	◎	×	◎	
	Stainless Steel		◎		◎
Plastics and plastic covered containers and paper containers (for milk products such as milk, cheese, ice cream and confectionery, includes containers with paper boards and paper bottoms such as those for soap and cereal).	Polyacetal		×		
	Stainless Steel	◎	◎	◎	◎
Glass jars, glass products and ceramics (for spirits, foods, pharmaceuticals and cosmetics).	Polyacetal		×		×
	Stainless Steel	◎	◎	◎	◎

◎ Suggested Good Limited use × Not suggested

Step 3 Select liner material

The appropriate liner material must be selected from the top plate materials listed under Step 2.

Table III: Liner Material Selection Guide

Top Plate Material (chain type)	Liner Material	Dry		Lubricated	
		Abrasive Atmosphere			
		No	Yes	No	Yes
Stainless steel (TS and TT for straight running, TRU, TKU, TO and TU for curved movement).	Stainless Steel				
	Steel		◎		◎
	Super-high-polymer Polyethylene	◎	×	◎	
Polyacetal (TP, TTP, TN and RS-P for linear movement, TPU and TNU for curved movement).	Stainless Steel			◎	◎
	Steel	◎	◎		
	Super-high-polymer Polyethylene		×		

◎ Suggested Good Limited use × Not suggested

Step 4 Determine factors and coefficients (f_2, f_3, k_2, k_3)

Table IV: Coefficient of Friction (f_2) between Top Plate and Liner

Top Plate Material	Lubrication	Coefficient of Dynamic Friction of Liner Material		
		Stainless Steel	Steel	Ultra High Polymer Polyethylene
Stainless Steel	Dry	0.35	0.35	0.25
	Lubrication by soapy water	0.20	0.20	0.15
	Oil lubrication	0.20	0.20	0.15
Polyacetal	Dry	0.25	0.25	0.25
	Lubrication by soapy water	0.15	0.15	0.15

Table V: Coefficient of Friction (f_3) between Material Conveyed and Top Plate

Material Conveyed	Lubrication	Coefficient of Dynamic Friction of Top Plate Material	
		Stainless Steel	Polyacetal
Plastic and paper containers and film packages	Dry	0.30	0.25
	Lubrication by soapy water	0.20	0.10
Cans (with metal tops and bottoms)	Dry	0.35	0.25
	Lubrication by soapy water	0.20	0.15
Bottles and ceramics	Dry	0.30	0.40
	Lubrication by soapy water	0.20	0.20
Industrial parts (metal)	Dry	0.35	0.25
	Oil lubrication	0.20	0.15

Table VI: Angle Factor (k_2) and Length Factor (k_3)

Turning Angle	Length Factor (k_3)	Angle Factor (k_2)			
		TPU and TNU Chains		TRU and TKU Chains	
		Dry	Lubricated	Dry	Lubricated
30°	0.5	1.15	1.10	1.20	1.10
60°	1.0	1.30	1.15	1.45	1.25
90°	1.6	1.50	1.25	1.75	1.35
120°	2.1	1.70	1.35	2.10	1.50
150°	2.6	1.90	1.50	2.50	1.70
180°	3.1	2.20	1.60	3.00	1.85

k_2 and k_3 factors are to be used for curved movement except for TO and TU type.

$k_3 = \pi$ • Turning Angle/180°

Step 5 Select top plate width

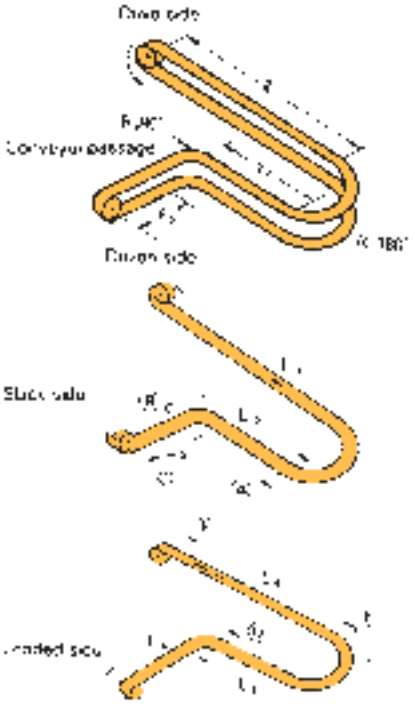
Generally, the top plate must be wider than the material conveyed. When materials are very wide and none of the top plate widths are satisfactory, top plates of the same width may be used in multi-strand arrangement. Top plates of different widths can be used together, but this is not desirable since the tension on the chains will be uneven.

Step 6 Calculate chain tension (T)

1) Linear movement
(TS, TT, TP, TN, TTP and RS-P chains)

$T = (M + 2.1\ w)\ Lf_2 + ML'f_3$ . . . . . .Formula 1

2) Curved movement
(TRU, TKU, TPU, TNU and TTU chains)
The chain tension for curved movement is calculated similarly to that for linear movement. The tension at corners, however, is compensated for by angle factor (K_2) and length factor (K_3). Calculations are shown below for the illustrated examples.



The tension on the chain at each part ABC . . . F must be calculated. The tension at F is the greatest acting on the chain.

$T = T_Ⓕ$ .....Formula 2

Slack side:

Chain tension at Ⓐ : $T_Ⓐ$

$T_Ⓐ = L_1 w f_2 k_2$, $L_1 = \ell_1 + R_1 k_3$ (k_2 and k_3 at 180°)

Chain tension at Ⓑ : $T_Ⓑ$

$T_Ⓑ = \{T_Ⓐ + L_2 w f_2\}\ k_2$, $L_2 = \ell_2 + R_2 k_3$ (k_2 and k_3 at 90°)

Chain tension at Ⓒ : $T_Ⓒ$

$T_Ⓒ = T_Ⓑ + L_3 w f_2$, $L_3 + \ell_3$

Loaded side :

Chain tension at Ⓓ : $T_Ⓓ$

$T_Ⓓ = \{ T_Ⓒ + (M + w)\ L_4 f_2 + ML'_4 f_3\}\ k_2$, $L_4 = \ell_3 + R_2 k_3$

(k_2 and k_3 at 90°)

Chain tension at Ⓔ : $T_Ⓔ$

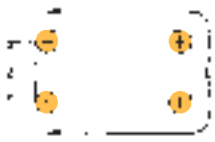
$T_Ⓔ = \{T_Ⓓ + (M + w)\ L_5 f_2 + ML'_5 f_3\}\ k_2$, $L_5 = \ell_2 + R_1 k_3$

(k_2 and k_3 at 180°)

Chain tension at Ⓕ : $T_Ⓕ$

$T_Ⓕ = T_Ⓔ + (M + w)\ L_6 f_2 + ML'_6 f_3$

3) TO and TU chains
Calculations for chain selection vary according to their usage and arrangement. A sample calculation is given below for the arrangement shown on the right.



$T = (M + w)\ Lf_2 + w\ell f_2 + ML'f_3$

.....Formula 3

4) Calculation of power required

$$HP = \frac{TS}{33{,}000 \cdot \eta}$$ .....Formula 4

Step 7 Determine chain size

Multiply the maximum chain tension (T) by the speed coefficient (k_1) taken from Table VII and verify that the following equation is satisfied.

$T \times k_1 \leq$ Chain maximum allowable load
..... Formula 5

When the maximum allowable load is insufficient, it can be corrected by using top plates with narrower width and increasing the number of chain strands, or by splitting into many short conveyors.

Table VII: Speed Coefficient (k_1)

Chain Speed (ft./min.)	Speed Factor (k_1)
0 ~ 50	1.0
50 ~ 100	1.2
100 ~ 160	1.4
160 ~ 230	1.6
230 ~ 300	2.2
300 ~ 360	2.8
360 ~ 400	3.2

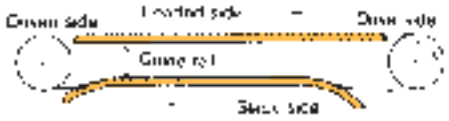
T : Chain tension (lbs.)
M : Weight of material conveyed per ft. (lbs./ft.)
w : Chain weight (lbs./ft.)
L : Center distance between sprockets (ft.)
ℓ : Distance not loaded (ft.)
L' : Distance of the material sliding on the chain for storage (L′=0 when items and chain are not slipping)
f_2 : Coefficient of friction between the top plate and liner (See page B-77, Table IV)
f_3 : Coefficient of friction between goods moved and top plate (See page B-77, Table V)
k_1 : Speed coefficient (See Table VII)
k_2 : Angle factor (See page B-77, Table VI)
k_3 : Length factor (See page B-77, Table VI)
R : Radius at corner (ft.)
S : Chain speed (ft./min.)
η : Mechanical transmission efficiency for drive unit
HP : Power required

Conveyor design

The layout of a conveyor varies with the type of chain used. A typical layout is shown below. Goods should be conveyed on the tension side of the chain, and the slack (return) side should be supported by guide rails with sloped ends to prevent chain vibration and conveyor pulsation.

2-1 **Guide rail**

The guide rail consists of the conveyor frame and liner. The liner sides with the top chain to minimize frictional resistance and wear so the chains are protected and driving power can be minimized.



2-2 **Location of guide rails and sprocket**

When the chain engages with the sprocket, the chain itself moves up and down slightly due to the polygonal effect of the sprocket. Therefore, the guide rail on the loaded side must be positioned so that the chain is horizontal when at the highest level. Guide rail installation dimension (A) is determined from the following equation.

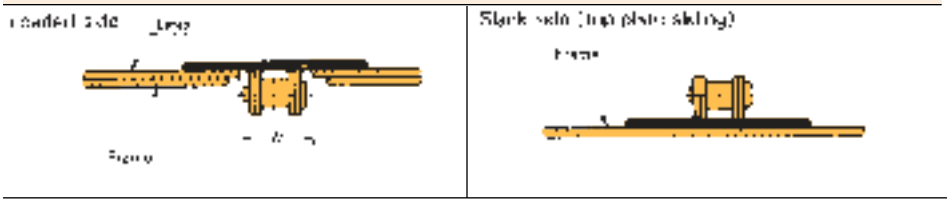
$$A = \frac{\text{pitch diameter of sprocket}}{2} + B \text{ (inch)}$$

Chain Type	B	C
TS • TRU • TKU • TN • TNU	.433	1.496
TT, TTU	.157	
TP-I	.197	
TP-II • TPU, TTP, TTPF	.157	

Note: Please refer to page B-73 for the RS Plastic chain

Guide Rail Inside Width

Linear Movement Chain

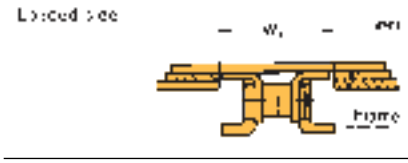
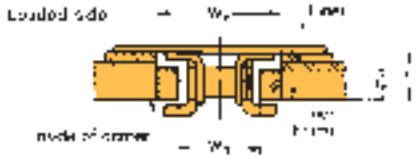
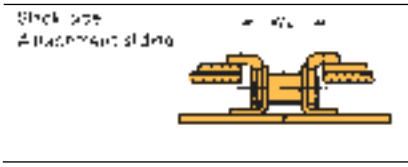
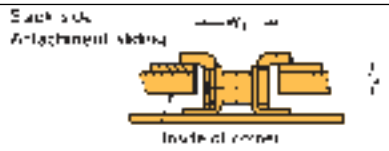
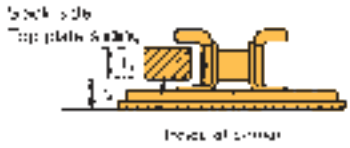


Note: TS-P type chains are shown in this illustration. Other chain types can also be used.

Chain Type	W
TS-P	1.300
TS-SS & CS	1.594
TT	1.772

Chain Type	W
TP	1.772
TTP	1.772
TN	1.496

Curved Movement Chain

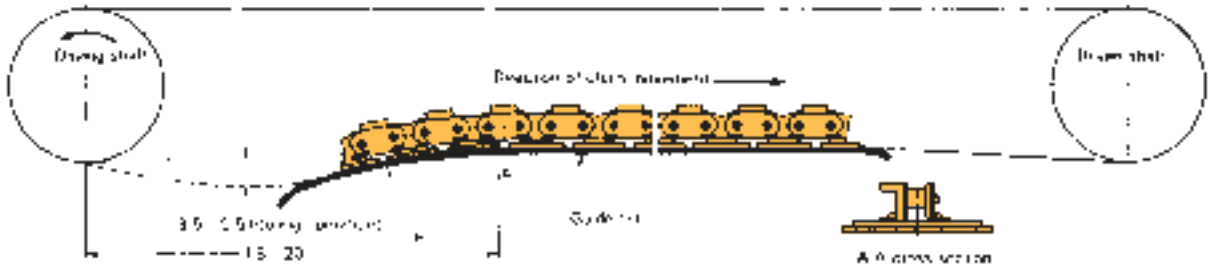
Linear Section	Curved Section
	
	
	

Note: TRU chains are shown in the illustration. Other chain types can also be used.

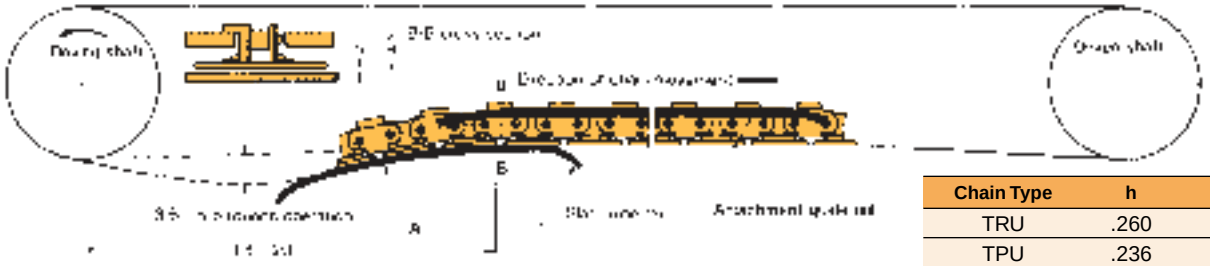
Chain Type	W_1	W_2	W_3	t_1	t_2	W_4	W_5	t_3
TRU	1.752	1.890	1.220	.689	.472	1.220	1.220	.472
TPU	1.772	1.772	1.772	.472	.472	1.890	1.890	.472
TNU	1.496	1.496	1.496	.709	.709	–	–	–
TO	1.752	–	–	–	–	–	–	–
TU	1.752	–	–	–	–	–	–	–
TKU	1.772	1.890	1.417	.748	.531	–	–	–
TTU	1.654	–	–	–	–	1.654	–	–

2-3 **Slack side guide rail arrangement**

Top plate sliding (applicable for all top chains)



Attachment sliding (TRU type)



Chain Type	h	H
TRU	.260	1.181
TPU	.236	1.024

(1) Slack of 3.5 ~ 5.5 inches (during operation) is needed under the drive sprocket.
(2) Engagement angle must be more than 150° between the drive sprocket and the chain.
(3) The radius R (inches) of the guide rail must be larger than the radius of chain back-bend given in the table below.

Radius of Chain Back-bend

(in.)

Type	Back-bend Radius
TS	13
TRU•TKU	12
TT	7
RS40P	5
RS60P	18

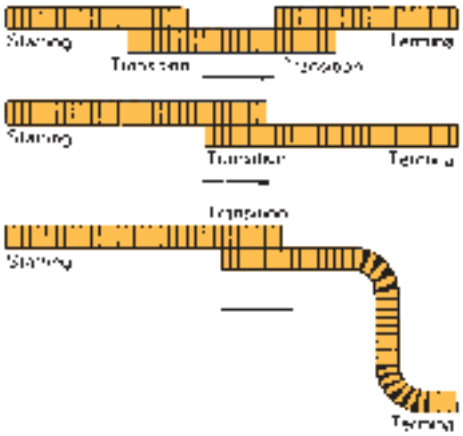
(in.)

Type	Back-bend Radius
RS2040P	18
TP•TTP•TPU	2
TN•TNU	4
TTU	2

(4) Guide rails must have sloped ends to prevent interference with the chain.

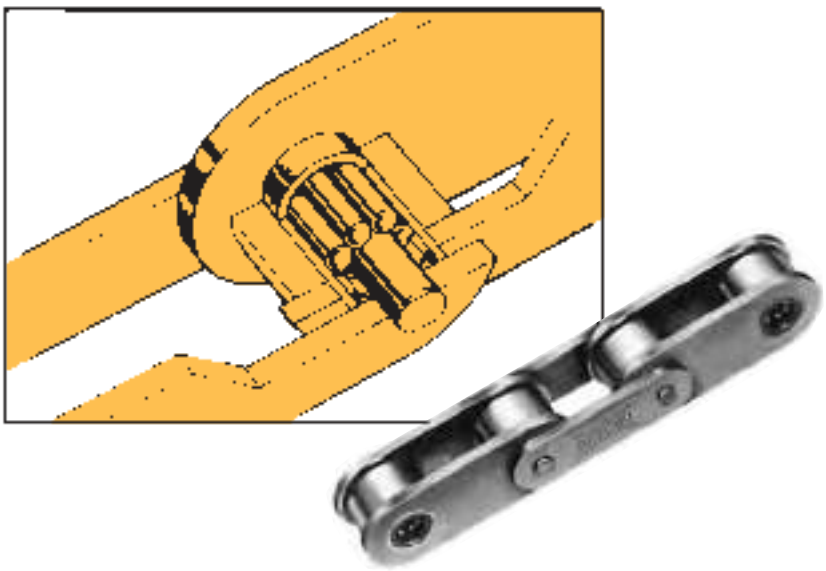
2-4 **Connection of additional conveyors**

If a conveyor is too long, the chain tension will increase and chain strength will not be sufficient. In such cases, additional conveyors should be used.

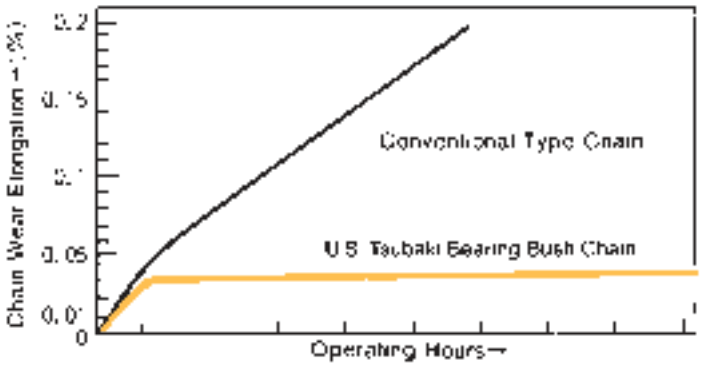


Locations of the chain and the guide rail are very important for a smooth transition between conveyors. Two parallel chains must be positioned at the same height, or the output chain must be positioned slightly higher than the receiving chain. The guide rail must be shaped such that transition of goods can be accomplished smoothly.

Bearing Bush Chain



■ Wear Resistance Comparison—Without Lubrication

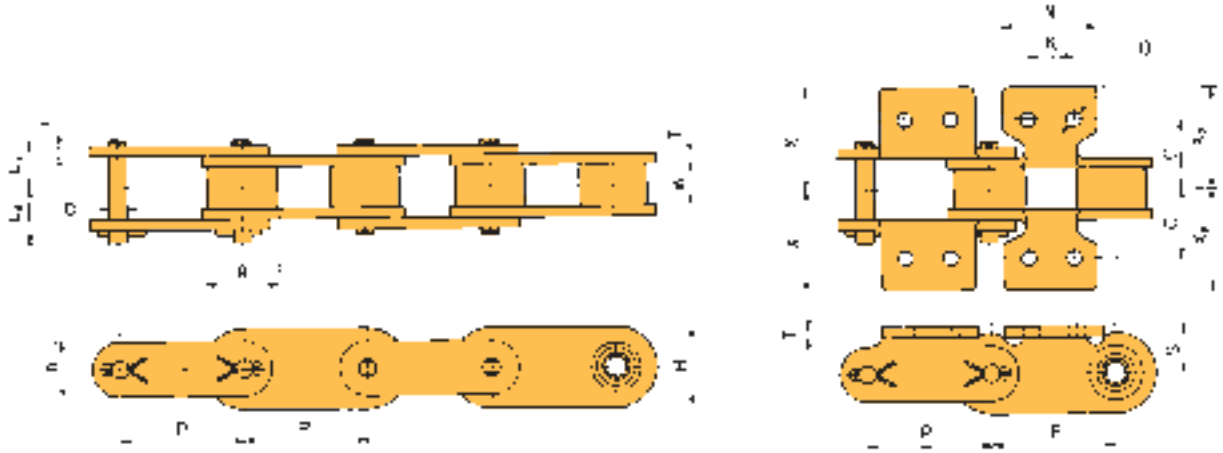


U.S. Tsubaki Bearing Bush chain virtually eliminates initial stretch. With needle bearings placed between the pin and bushing, Bearing Bush chain offers excellent wear life without lubrication.

Major dimensions of the chain and attachments are the same as our ASME/ANSI standard double pitch conveyor chains. U.S. Tsubaki Bearing Bush chain works perfectly with standard over-sized roller sprockets.

Bearing Bush chain is suggested for precision applications requiring accurate positioning of the conveyed material.

DOUBLE PITCH CHAIN SERIES



U.S. TSUBAKI Chain No.	Pitch P	Roller Diameter R	Width Between Roller Plates W	Link Plate T	Link Plate H	Link Plate h	Pin D	Pin L_1	Pin L_2	Maximum Allowable Load lbs.	Allowable Roller Load lbs./roller	Approx. Weight lbs./ft.
CN2042	1.000	.625	.312	.060	.689	.473	.156	.325	.380	176	33	.66
CN2052	1.250	.750	.375	.080	.827	.591	.200	.406	.472	287	44	1.16
CN2062H	1.500	.875	.500	.125	1.024	.677	.234	.573	.667	396	66	1.72
CN2082H	2.000	1.125	.625	.156	1.378	.906	.312	.720	.823	660	121	2.60

U.S. TSUBAKI	Attachment							Additional Weight per Attachment lbs.	
Chain No.	S	C	X	N	K	T	O	A-2 Att.	K-2 Att.
CN2042	.358	.500	.760	.752	.374	.060	.142	.0066	.0132
CN2052	.437	.626	.953	.937	.469	.080	.204	.0132	.0265
CN2062H	.579	.844	1.240	1.126	.563	.125	.205	.0374	.0748
CN2082H	.752	1.094	1.602	1.500	.752	.156	.268	.0704	.1408

Note: 1. Spring clip type connecting links will be provided for CN2042 ~ CN2062H.
2. Offset links are not available.
3. SS Series (SUS304) is also available.
4. Link plates can be nickel-plated.

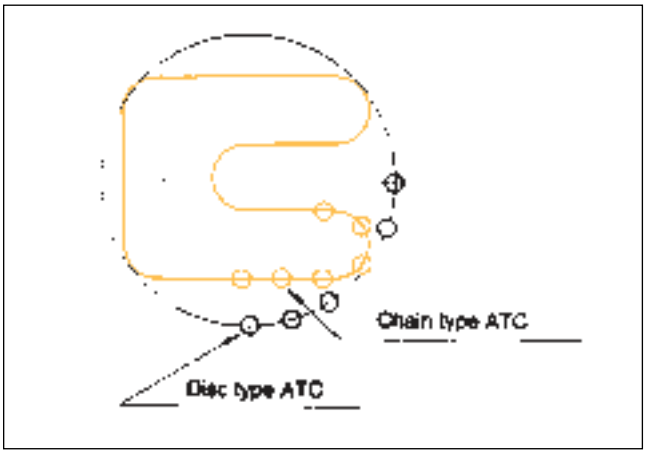
ATC Chain

ATC (Automatic Tool Changers) chain is widely employed in Machining Centers because of its economy, efficiency and functional versatility.

Advantages of ATC Chain

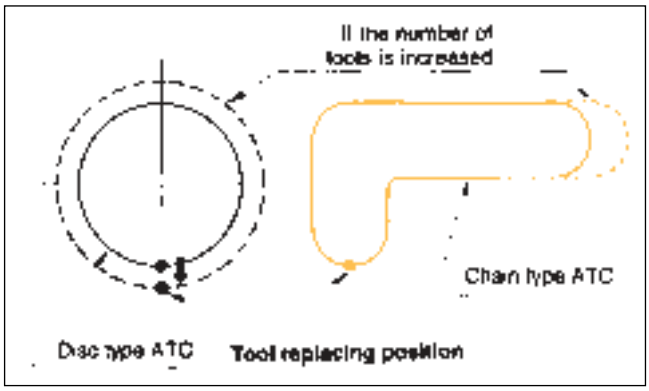
1. A high degree of layout freedom
The high degree of layout freedom possible with chain type ATC allows for efficient use of space.

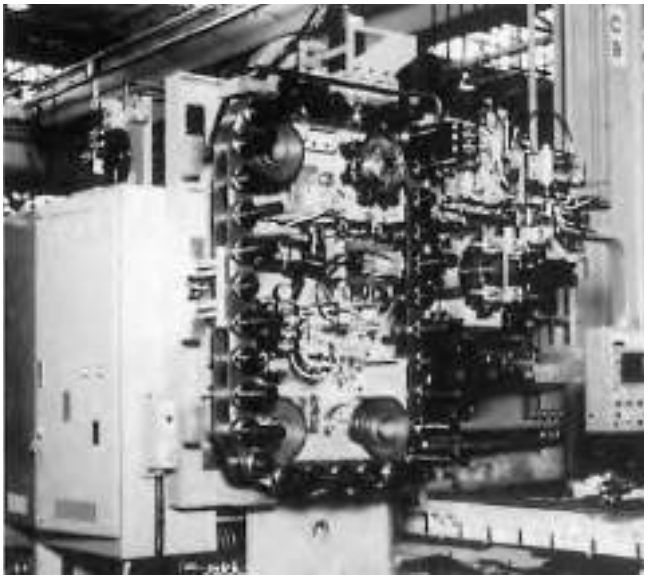
2. Space saving
Chain type ATC can handle up to 50% more tools than disc types in the same space.

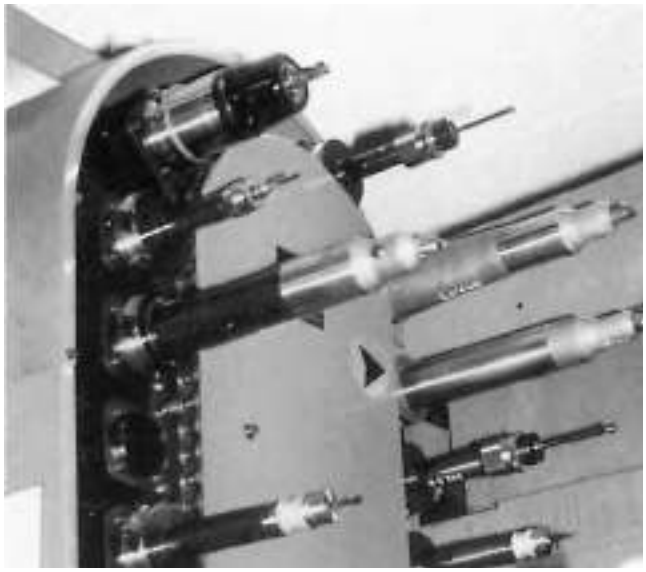


3. Economical and efficient
As more tools can be contained in the chain type than in the disc type, chain type ATC can be made lighter and has higher performance.

4. Easy standardization of design
Simply by lengthening the chain, the number of tools can be increased, but unlike the disc type, this does not change the tool replacing position. This versatility lets you standardize on chain.







HP-T type

The HP-T series is the hollow pin type chain complete with tool holder. Since the chain can bend backward, freedom of layout is exceptional, and a large number of tools can be held in a small space. Tools are held on the pitch line of the chain providing extra stability.

Hollow pin type chain is also available upon request, and can be supplied with plastic pots.

HP-T and HP type

HP-T

SK type

The stay pin series (SK02, SK04) resists lateral loads on the chain, and the side roller series (SK03, SK04) prevents tools from tilting and facilitates their positioning.
The chain can be supplied fitted with plastic pots.

SK01 (Standard)

SK02 (with stay pin)

SK03 (with side roller)

SK04 (with stay pin and side roller)

SK-W type

The SK-W series is a wider version of the SK type, and is suitable for long and heavy tools. The chain can be supplied with plastic pots.

SK1W-SK4W (wide type)

SK1W

SK2W

SK3W

SK4W

Availability

Chain type		Tool pitch								
		3	3.543	3.75	3.937	4.5	5	5.118	5.25	5.512
HP-T			○		○			○		○
SK type	SK01			○		○			○	
	SK02			○		○			○	
	SK03			○		○			○	
	SK04			○		○			○	
SK-W type	SK1W					○			○	
	SK2W	○				○	○		○	
	SK3W					○			○	
	SK4W	○				○	○		○	
HP			○		○			○		○
Taper Shank No.			40					50		

○ : Available Note: Shank No. 45 and 60 are also available upon request. Consult U.S. Tsubaki.

HP-T Type

ATC CHAIN HP-T TYPE WITH TOOL HOLDER

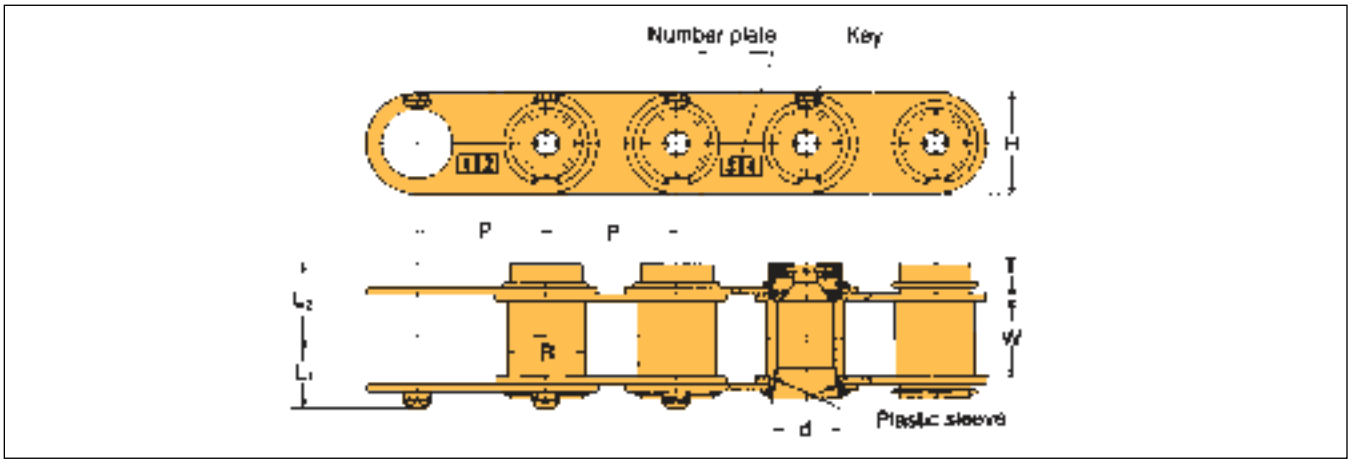
HP-T type ATC chain is based on the HP type with steel tool holder. The inner diameter of the pin is tapered and a retaining function is installed on the pin.

Economical: Additional installation of the tool holder is not necessary.

Accurate holding: As the tool holder is combined with the chain, backlash is reduced.

Compactness: Pin outer diameter and link plate width are smaller than those of HP type.

1) U.S. Tsubaki standardized ATC chain is designed with pull stud, key, number plate and plastic sleeve.
An engineering plastic sleeve is fitted to prevent contact with the metal taper parts and protect the shank from being scratched.
2) Attachment chains other than the listed ATC chain line-up are also available to satisfy your special requirements.



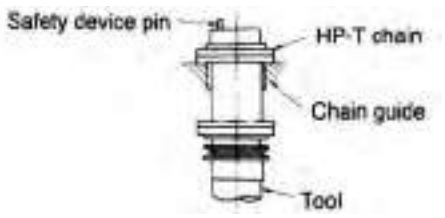
U.S. TSUBAKI Chain Type	Shank No.	P	R	W	T	H	L_1 d	L_1 MAS	L_1 ISO (B) ANSI CAT	L_2 MAS	L_2 ISO (A)	L_2 ISO (B) ANSI CAT	Chain Weight lbs./pot	Extracting Force lbs.
HP-T	40	3.543	2.362	2.362	0.157	3.288	1.750	1.722	1.693	2.073	2.244	1.811	4.20	40-62
		3.937											4.40	
	50	5.118	3.228	3.228	0.248	4.252	2.750	2.427	2.421	3.242	3.051	2.628	8.40	77-99
		5.512											8.60	
		6.299											9.00	

Note: 1. If the extracting force required is large, please consult U.S. Tsubaki.
2. Chain weight less pot shows for MAS standard.
3. Chain pitches different from those above are also available.
4. The minimum chain pitch that can be manufactured is:
Shank No. 40: P = 3.543 inch
Shank No. 50: P = 4.921 inch
5. Refer to page B-89 for key and number plate dimensions.
6. Shanks No. 45 and 60 are also available upon request.

Safety device for HP-T type chain (optional)

In the case of horizontal drive HP-T type chain (with tools vertically suspended), we can provide the tool holder with an optional safety device.

The safety device prevents the tool from falling out of the tool holder during operation.

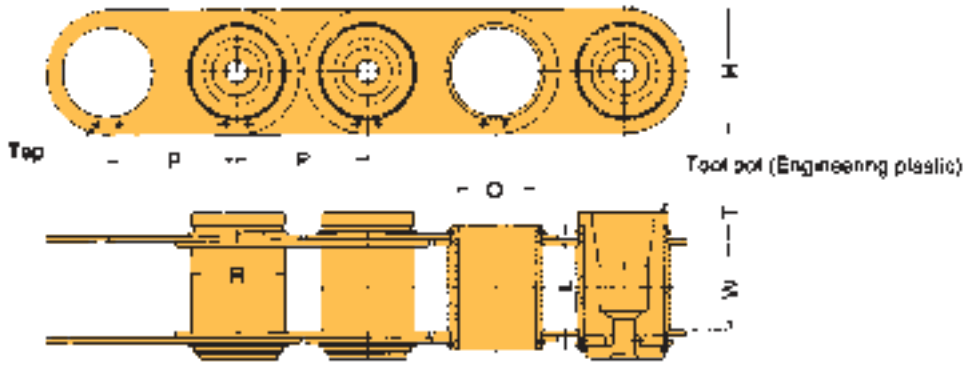


Note:
The safety device is not available for Shank No. 40. Instead, we suggest using a higher tool extraction force.

Pushing the safety device pin by the cylinder easily releases the tool from the retention knob by spring force.

HP Type

Hollow pin type chain is available upon request,
and can be supplied fitted with plastic pots.

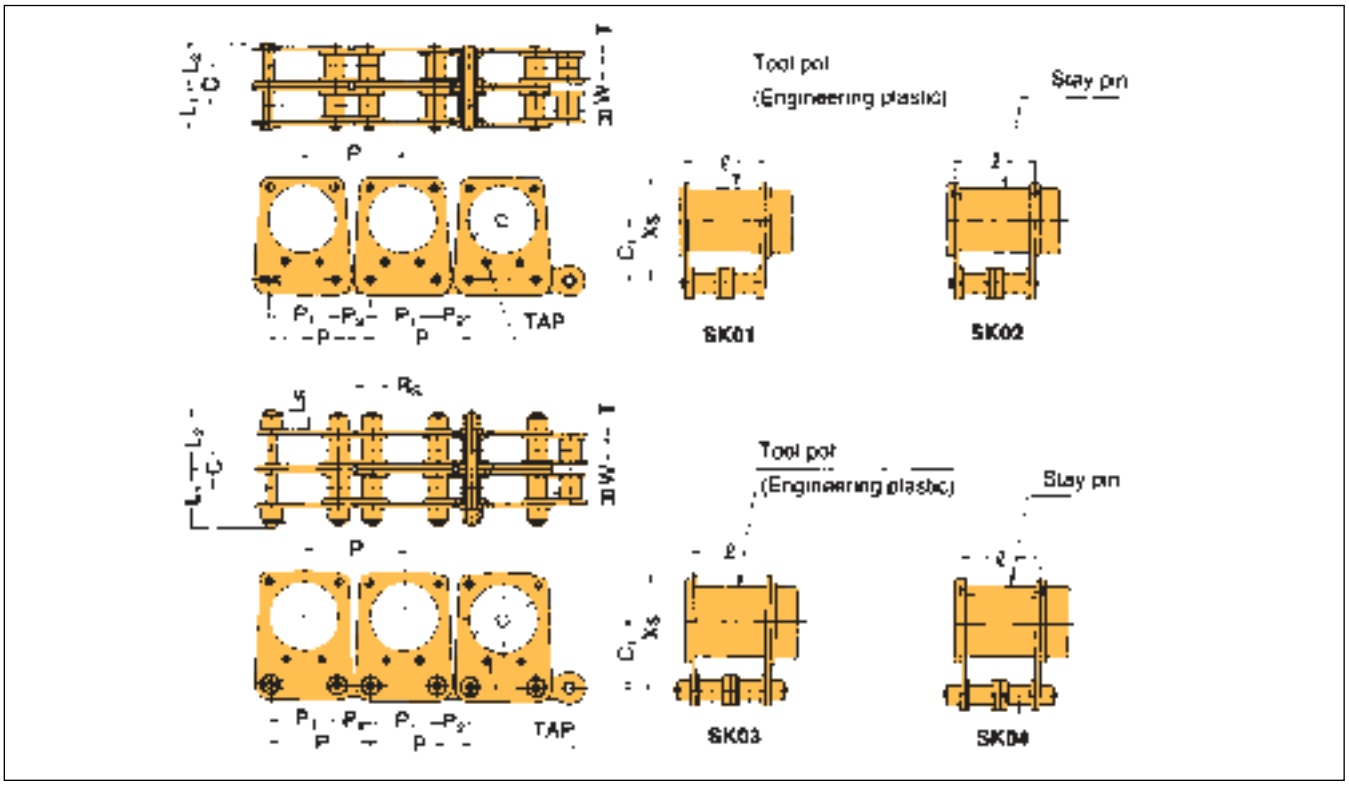


U.S. TSUBAKI Chain Type	Shank No.	P	O	L	H	W	R	T	Chain Weight lbs./pot	Additional Weight/Plastic Tool Pot lbs./pot
HP	40	3.543	2.165	3.406	3.465	2.362	2.677	0.157	2.6	0.6
		3.937							2.9	
	50	5.118	3.071	4.823	4.724	3.268	3.622	0.248	6.8	1.8
		5.512							7.3	
		6.299							7.7	

Note: The dimension of HP type is different from HP-T type chain. Refer to page B-89 for the key and number plate dimensions.
Shanks No. 45 and 60 are also available upon request.

SK Type

SK Type Tool Holder chain utilizes roller chain components and specially configured side plates.
SK Type ATC chain works with standard sprockets.

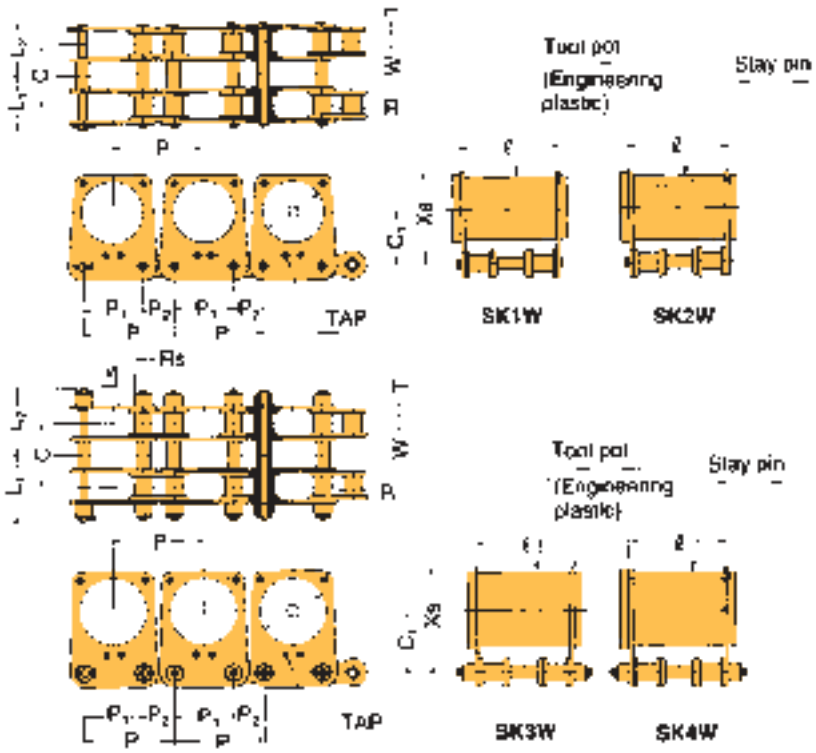


U.S. TSUBAKI Chain Type	Shank No.	P	P_1	P_2	O	C_1	ℓ	X_s	L_1	L_2	C	W	R	T	R_s	L_s	Chain Weight lbs./pot
SK01	40	3.75	2.50	1.25	2.165	2.087	2.819	3.622	1.606	1.543	1.409	0.75	0.75	0.157	–	–	2.20
	50	4.50	3.00	1.50	3.071	2.689	3.575	4.539	2.031	1.925	1.787	1.00	0.875	0.187	–	–	3.50
		5.25	3.50	1.75		3.150	3.850	5.236	2.110	2.213	1.925		1.00	0.220	–	–	5.50
SK02	40	3.75	2.50	1.25	2.165	2.087	2.819	3.622	1.606	1.543	1.409	0.75	0.75	0.157	–	–	2.20
	50	4.50	3.00	1.50	3.071	2.689	3.575	4.539	2.031	1.925	1.787	1.00	0.275	0.189	–	–	3.70
		5.25	3.50	1.75		3.150	3.850	5.236	2.110	2.213	1.925		1.00	0.220	–	–	5.70
SK03	40	3.75	2.50	1.25	2.165	2.087	2.817	3.622	2.096	1.974	1.409	0.75	0.75	0.157	0.75	0.370	2.20
	50	4.50	3.00	1.50	3.071	3.150	3.575	5.217	2.563	2.563	1.787	1.00	0.875	0.187	0.875	0.496	3.70
		5.25	3.50	1.75			3.850	5.236	2.697	2.697	1.925		1.00	0.270			5.70
SK04	40	3.75	2.50	1.25	2.165	2.087	2.819	3.622	2.096	1.974	1.409	0.75	0.75	0.157	0.75	0.370	2.40
	50	4.50	3.00	1.50	3.071	3.150	3.575	3.217	2.563	2.563	1.787	1.00	0.875	0.189	0.875	0.496	4.00
		5.25	3.50	1.75			3.850	5.236	2.697	2.697	1.925		1.00	0.220			3.70

Note: Refer to page B-89 for the key and number plate dimensions.
Shanks No. 45 and 60 are available upon request.

SK-W Type

SK-W type ATC chain is a wider version of the SK type and is designed for heavier and longer tools. The added width provides increased stability.

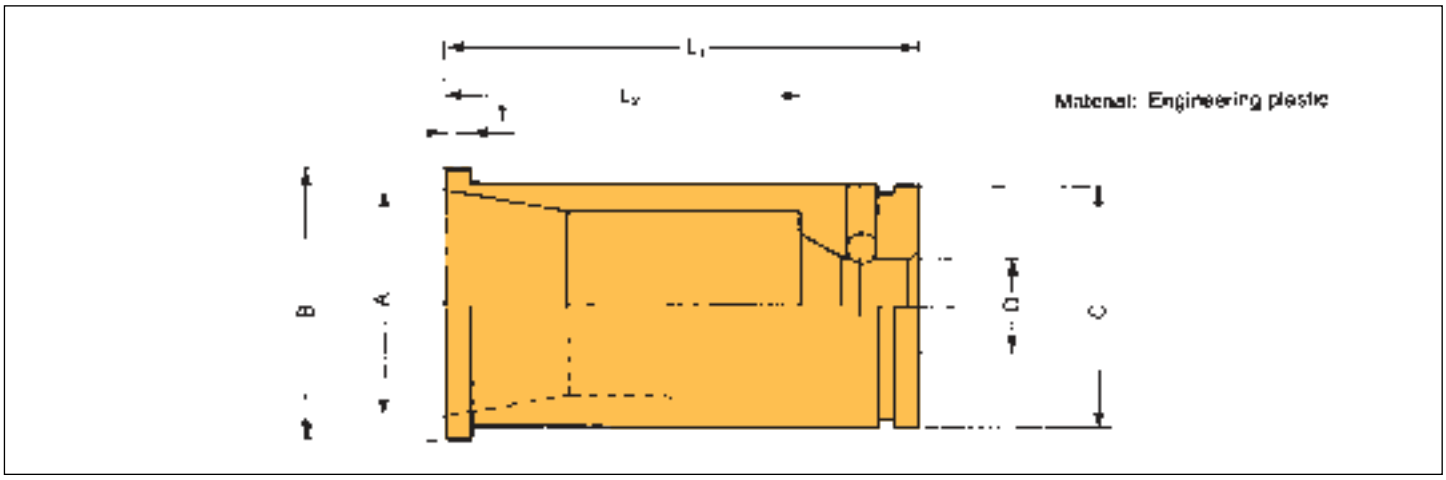


U.S. TSUBAKI Chain Type	Shank No.	P	P_1	P_2	O	C_1	ℓ	X_s	L_1	L_2	C	W	R	T	R_s	L_s	Chain Weight lbs./pot
SK1W	50	4.50	3.00	1.50	3.071	2.689	4.823	4.539	2.661	2.551	3.035	1.00	0.875	0.189	–	–	3.50
		5.25	3.50	1.75		3.150		5.236	2.697	2.598	2.898		1.00	0.189	–	–	5.70
SK2W	40	3.00	2.00	1.00	2.165	2.087	3.248	3.622	1.807	1.744	2.074	0.625	0.625	0.126	–	–	1.50
	50	4.50	3.00	1.50	3.071	2.689	4.823	4.539	2.661	2.551	3.035	1.00	0.875	0.189	–	–	3.70
		5.00	2.50	2.50		3.150		5.366	7.606	2.555	3.283	0.750	0.750	0.189	–	–	2.60
		5.25	3.50	1.75		3.150		5.236	2.697	2.598	2.898	1.00	1.00	0.220	–	–	5.70
SK3W	50	4.50	3.00	1.50	3.071	3.150	4.823	5.217	3.185	3.185	3.035	1.00	0.875	0.189	0.875	0.496	4.00
		5.25	3.50	1.75		3.150		5.236			2.898		1.00	0.220			5.90
SK4W	40	3.00	2.00	1.00	2.165	2.087	3.284	3.622	2.276	2.276	2.094	0.625	0.625	0.126	0.75	0.370	1.80
	50	4.50	3.00	1.50	3.071	3.150	4.823	5.217	3.185	3.185	3.035	1.00	0.875	0.189	0.875	0.496	4.20
		5.00	2.50	2.50				5.366			3.283	0.750	0.750	0.189			3.10
		5.75	3.50	1.75				5.236			2.890	1.00	1.00	0.220			5.90

Note: Refer to page B-89 for the key and number plate dimensions.
Shanks No. 45 and 60 are available upon request. Consult U.S. Tsubaki.

ATC Chain Options

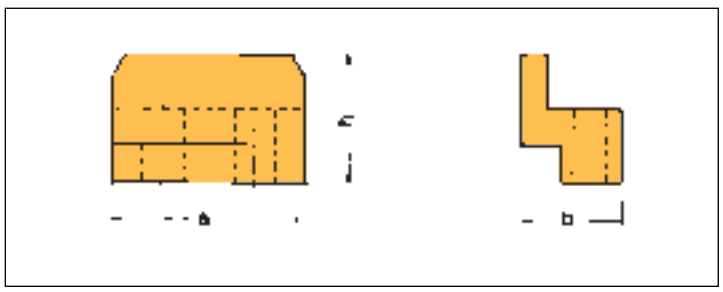
Tool Pot (for SK, SK-W, HP types)



U.S. TSUBAKI Shank No.	Retention Knob	A	B	C	D	L_1	L_2	T	Weight lbs.	Extracting Force lbs.
40	MAS	1.750	2.559	2.165	0.614	4.016	2.717	0.394	0.6	33-55
	ISO, ANSI, CAT				0.768		2.835			
50	MAS	2.750	3.307	3.071	0.929	6.102	4.488	0.252	1.5	55-77
	ISO, ANSI, CAT				1.165		4.252		1.8	

Note: If the extracting force required exceeds those listed, consult U.S. Tsubaki. Shanks No. 45 and 60 are available.

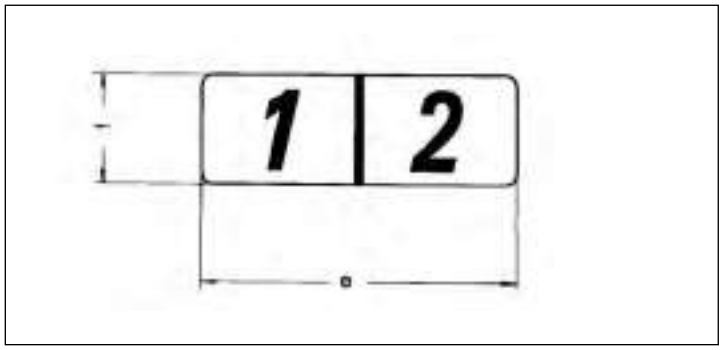
Key (for all types)



Shank No.	a	b	h
40	0.606	0.472	0.520
50	0.965	0.520	0.669

Note: Shanks No. 45 and 60 are available.

Number plate (for all types)



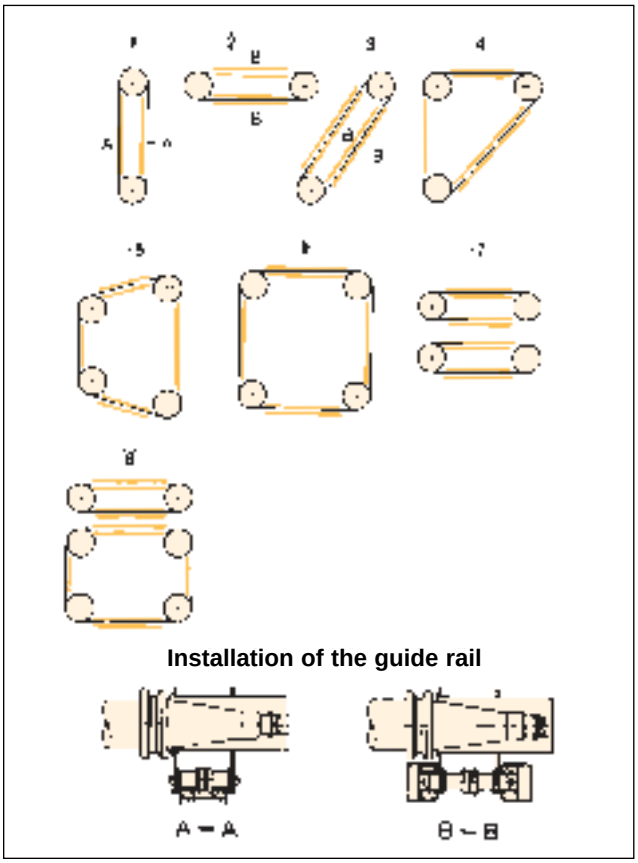
Shank No.	e	f
40	1.968	0.591
50	2.205	0.787

MATERIAL: ALUMINUM

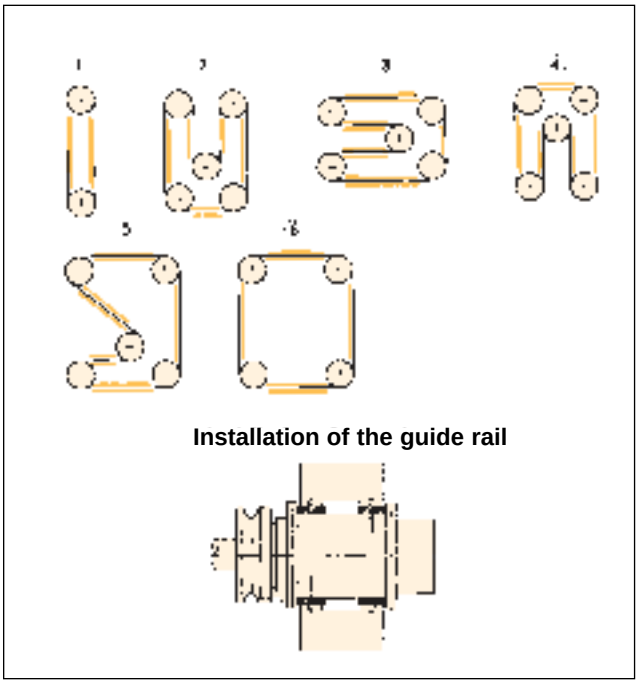
Note: Shanks No. 45 and 60 are the same size as shank No. 50.

1. Guide Applications

■ SK and SK-W type Chains

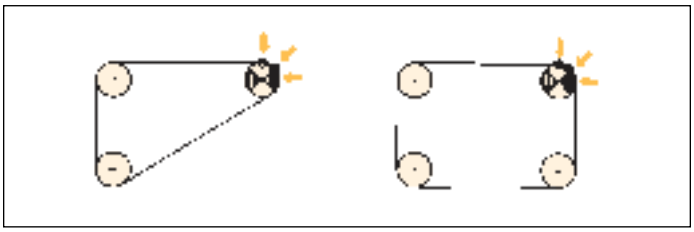


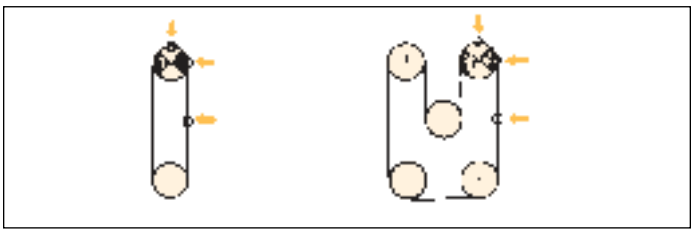
■ HP-T Chains



2. Positions for Picking Up Tools

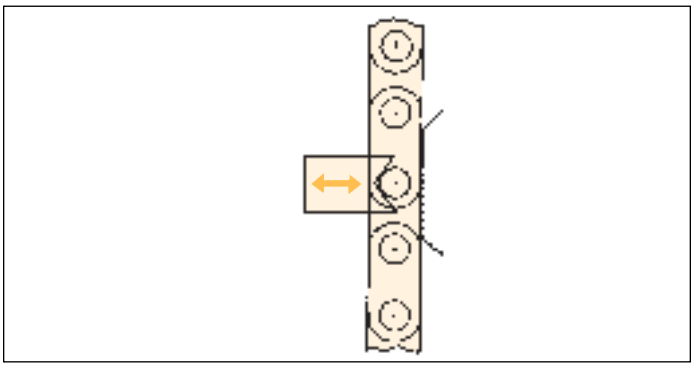
The best position to pick up a tool is at the drive sprocket, especially in the case of SK type ATC chain.





3. Picking Up Tools with the Clamping Method

Clamping equipment is necessary for HP-T and HP type ATC chain.



4. Initial Chain Tension

Please apply initial tension up to 1/2 of the working load of the ATC chain and adjust the chain tension to avoid chain vibration.

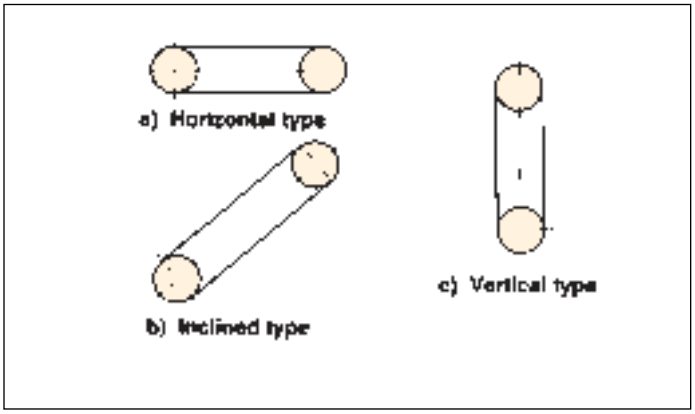
5. Chain Tension and Driving Power

1) Please refer to table below:

Chain layout	Chain tension	Driving power
a) Horizontal	Low	High
b) Inclined	Medium	Medium
c) Vertical	High	Low

2) Tool layout and driving power:

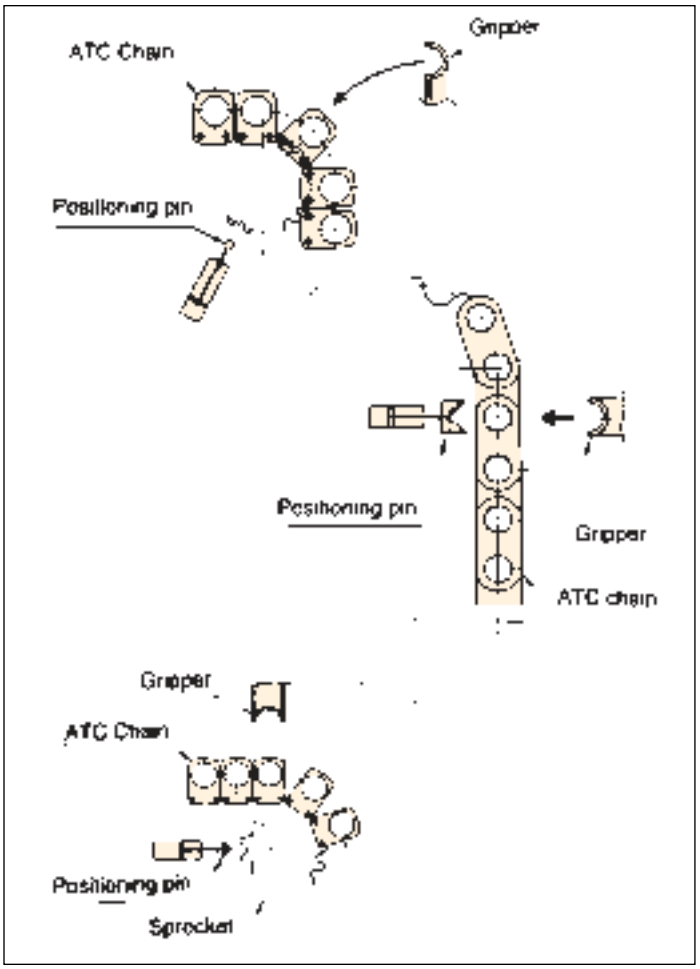
Layout should be designed for optimal tool balance to reduce the driving power required and the chain tension.



6. Tool Weight and Chain Type

Please check:
1) Thrust load when picking up or setting tools into the pot.
2) Eccentric load due to overhang of the tools.

7. Tool Gripping Method



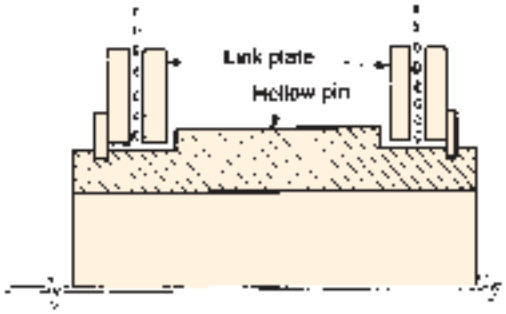
8. ATC Chain Lubrication

Because precision is essential, lubrication is very important for ATC chain. Proper lubrication forms an oil film which reduces chain wear, chain friction, and noise. The chain lubrication should be maintained as follows:

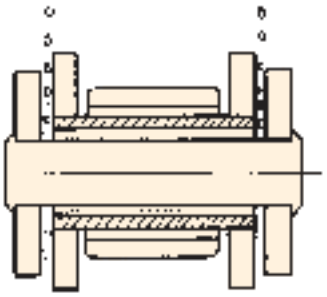
1) Lubrication Points

Lubrication should be applied and maintained between the chain link plates and the bearing area. Apply the lubricant manually or automatically using a drip lubrication system.

1. HP-T type ATC chain



2. SK type ATC chain



2) Lubricant Selection

General purpose oil is acceptable for lubrication, but the higher the quality the better. If the viscosity of the lubricant is too low, it will leak away and have to be replaced often and if the viscosity is too high, it will not reach the critical parts, and the lubrication will not be effective.

The following lubricants are suggested:
Lubrication oil: Mobil® SAE #30 ~ 40 machine oil or equivalent.

Frequency and amount of lubrication:

Ensure that the bearing portion is always moist with lubricant. The amount of lubricant should be enough to ensure that lubricant reaches all critical points. If the tools are heavily used or the number of bending cycles of the chain is very high, increase the frequency of lubrication.

9. Specification

We will manufacture ATC chain in exact accordance with your specifications. When making an inquiry please supply as much information as is possible. We need the following information to quote your ATC chain.

1) ATC chain

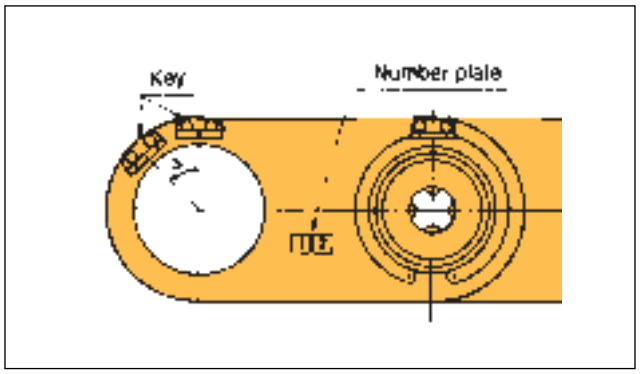
1. Tool shank size
   Tool shank number: #25, 30, 35, 40, 45, 50, 60
   Standard code: MAS, ANSI (CAT), ISO (DIN)
   If a tool other than the above is used, please send us a drawing of the tool.

2. Retention knob
   Standard Code: MAS, ISO-A, ISO-B, ANSI
   If a tool other than the above is used, please send us a drawing of the retention knob.

3. Number of tools to be used with the chain: (pcs.)

4. Maximum weight of the tool: (lbs.)

5. Key installation angle (determined by the tool keyway)
   Please specify the keyway position or angle α of the tool as shown below.



6. Number plate position
   Indicate the position and direction of the number plates and the order of numbers required.

2) Sprocket

1. Type of ATC chain to be used such as HP-T, SK, SKW, HP, Special type.

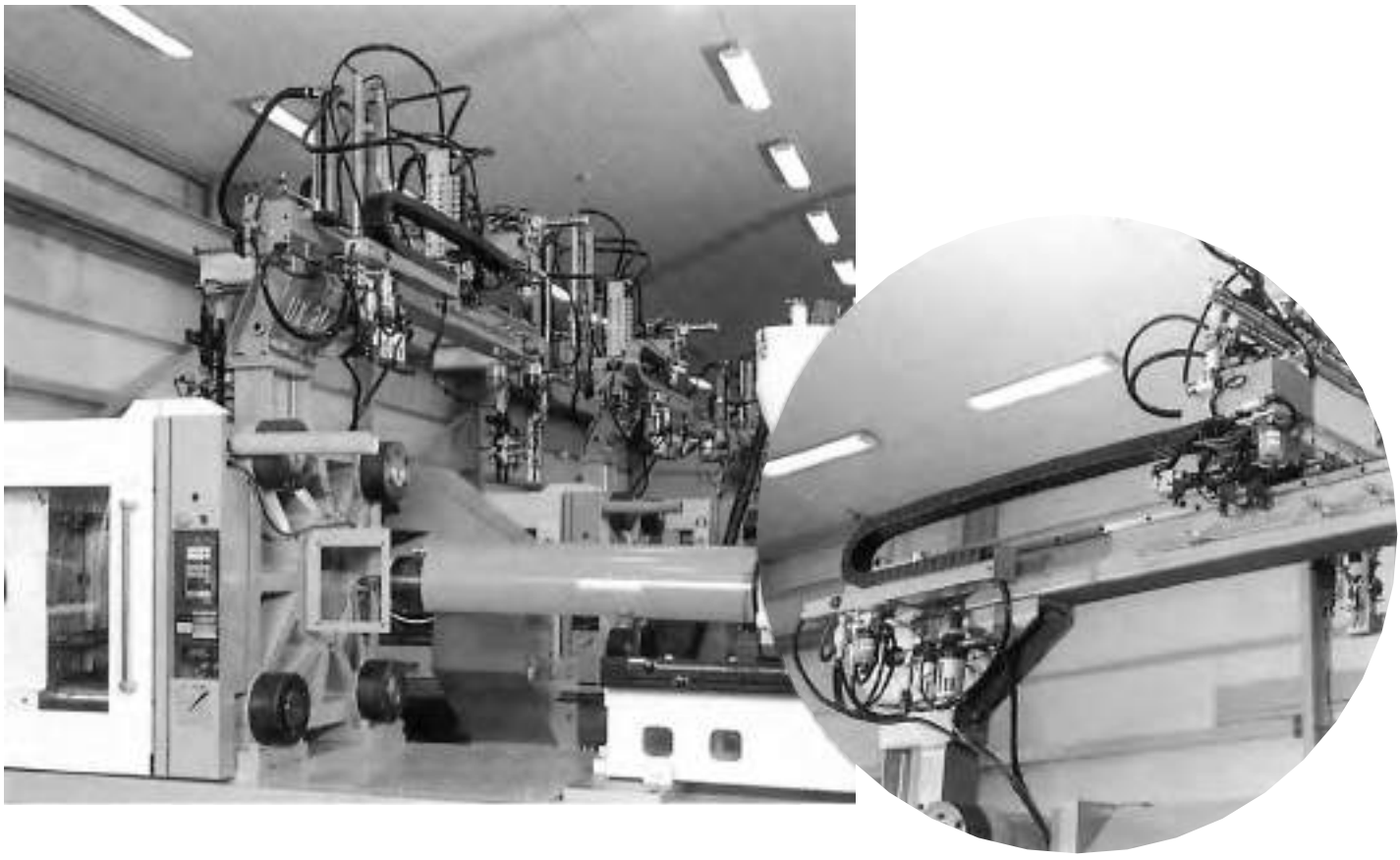
2. Number of teeth
   In the case of SK or SKW types, please indicate clearly the actual number of teeth or the working number of teeth.

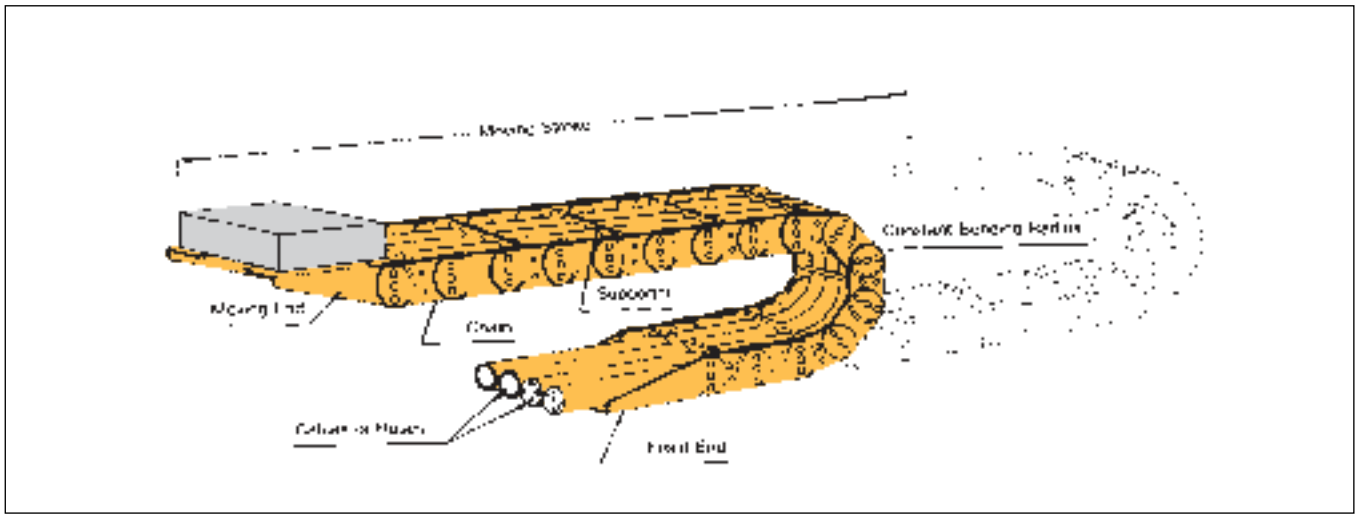
3. Please supply us with information regarding the shaft bore dimensions, boss shape, etc., and all other information necessary for manufacturing.

4. Induction hardened teeth
   We suggest using sprockets with hardened teeth.

Cableveyor

U.S. Tsubaki Cableveyor provides protection for power supply cables and hoses supporting them for smoother, controlled movement on machines of all types. Cableveyor is used in a wide variety of applications, including industrial robots, tooling machines and machines for food, woodworking, steel and electronic industries. Safe, reliable and durable, Cableveyor enables cables or hoses to be bent without breakage, ripping, twisting, or accidental power stoppage.





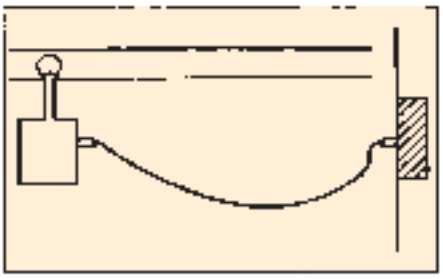
A superior support installation for cables and hoses:

U.S. Tsubaki Cableveyor is superior when compared with other systems such as the curtain, winder or wiredrum. Unlike conventional systems, the smooth running Cableveyor allows for greater efficiency and increases the working life of cables and hoses.

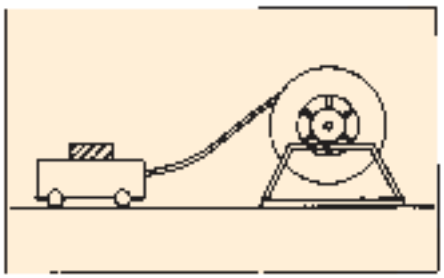
Why U.S. Tsubaki Cableveyor outperforms conventional types:

- No damage will occur to the cables or hoses.
- Cables and hoses move in a circular motion and are protected by a supporter.
- The hoses and cables move smoothly in a circular motion. As a result, frequent movement will have no effect on oil pressure, nor will there be any breaks in the electrical current.
- Our Cableveyor conserves space and has the ability to simultaneously manage the supply of electric power, oil pressure and air, for example.

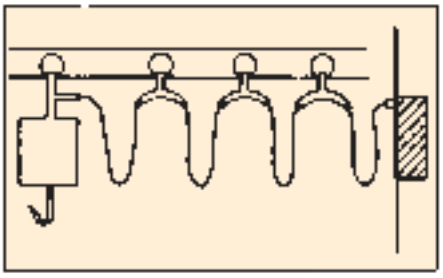
Conventional Cable Retrieval Systems



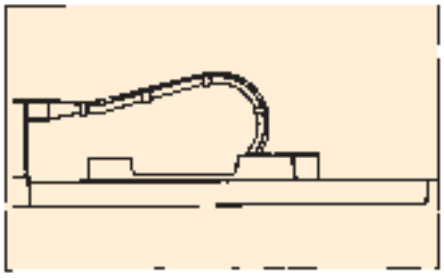
Unsupported Style



Roll-in Style



Curtain Style



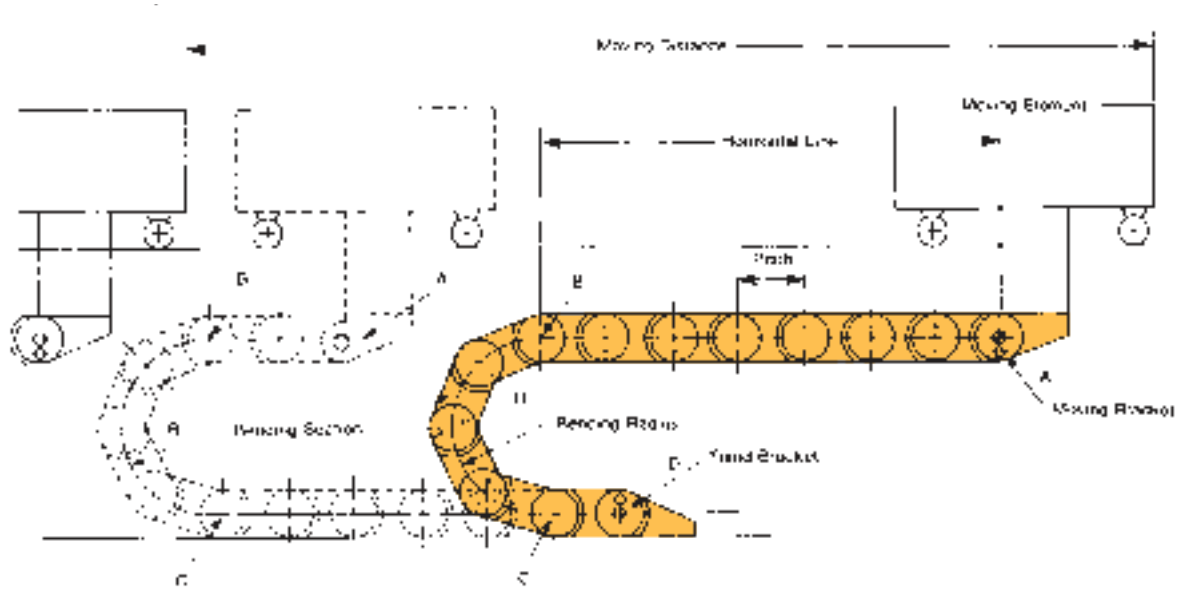
Winder Style

Driving Mechanism

Cableveyor is installed as shown in the picture below. Within the moving distance, it is able to move freely. The element to be moved is attached to one end of the Cableveyor (A) and the other end to where the cables or hoses are inserted (D).

A horizontal axis is always maintained between (A) and (B). The bending radius of the Cableveyor remains constant even when in motion. The diagram below shows this as the Cableveyor moves from A to A′ while bending evenly (R).

A constant bending radius with straight, horizontal movement provides efficiency and smooth operation.



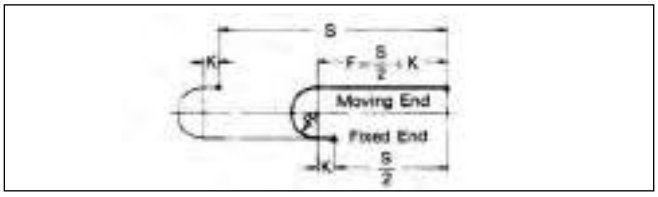
MOVING DISTANCE AND THE SUPPORT ROLLER

The straight distance normally traveled by the Cableveyor is referred to as the “freespan”. The length of the freespan is determined by the weight of the cables or hoses. If half the distance the machine needs to move is over the freespan capacity, supporting equipment such as a support roller may be used to increase the length of travel. The support roller enables the freespan distance to be extended beyond the original distance.

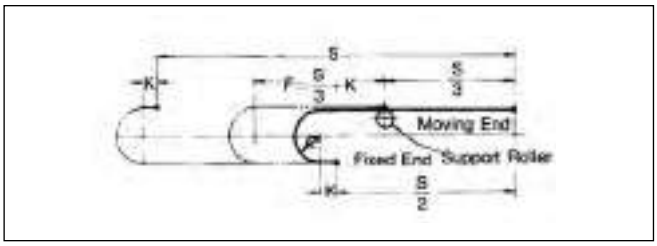
INSTALLATION

S: Moving stroke
K: Margin length
F: Freespan

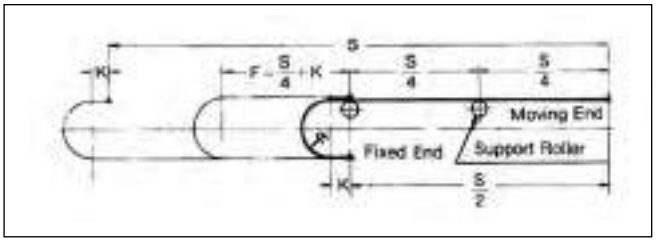
Without support roller



With one support roller, the allowable freespan can be increased up to three times the moving distance.



With two support rollers, the allowable freespan can be increased up to four times the moving distance.



Note: Use of three support rollers or more is not economical. For support roller dimensions please see pages B-98 and B-99.

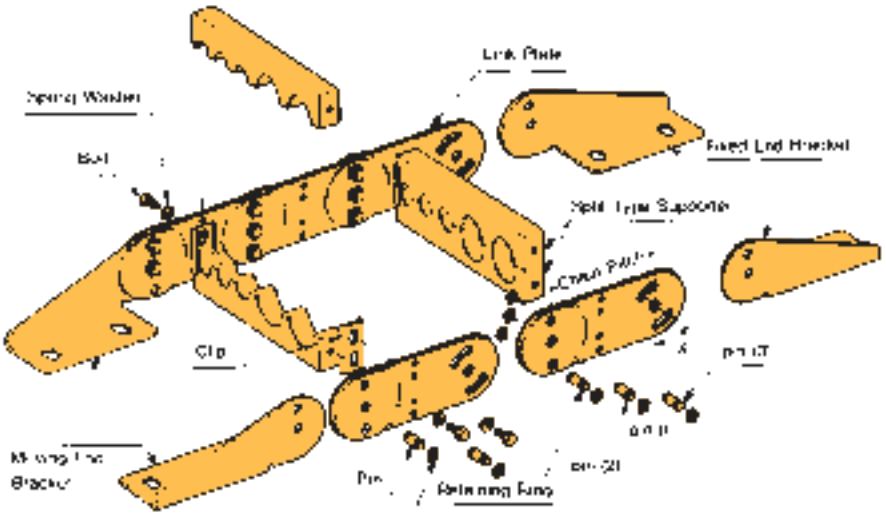
		TK TYPE				H TYPE
Chain No.	Size	TK070	TK095	TK130	TK180	H250
	Bending Radius (R)	2.95 3.54 4.92 5.71	4.92 5.71 7.87 9.84 11.81	7.87 9.84 11.81 15.75	9.84 11.81 15.75 19.69 23.62 27.56	13.78 17.72 23.62 29.53
Chain Pitch (inch)		2.76	3.74	5.12	7.09	9.84
Maximum Distance of The Freespan (ft.)		11.48	14.76	19.68	26.25	37.73
Maximum Moving Stroke (ft.)	No Support Rollers	21.98	28.54	38.06	51.51	72.18
	Support Roller in One Position	33.14	42.65	57.09	77.10	108.27
	Support Roller in Two Positions	43.96	57.09	76.11	103.02	144.36
Maximum Cable/Hose (Diameter) (inch)		1.06	1.81	2.36	3.15	4.33
Maximum Cable/Hose Weight (lbs./ft.)		33.60	40.32	47.04	53.76	67.20
Maximum Chain Speed (ft./min.)		196.85				
Chain Weight (lbs./ft.)		4.03	5.38	11.42	14.11	26.88
Operating Temperature (°F)		–12° ~ 302°				
Operating Conditions		Indoor				
Material	Chain	Steel (with Zinc)				
	Supporter	Aluminum				
	Brackets	Steel (with Zinc)				

TK Cableveyor

CONSTRUCTION AND FEATURES

TK Cableveyor is constructed of steel chain with aluminum supporters to give high strength and durability for diverse applications. The holes of the supporters are made to fit the cables or hoses precisely. These cableveyors are very versatile and can fit most industrial machines.

TK Type



TK TYPE OVAL CABLEVEYOR

- TK type Cableveyor has been designed to protect workers from accidents by utilizing specially shaped link plates. This link plate design has solved the problems that may occur due to crevices between link plates.

- All link plates are offset type. The pins at the moving connection are through hardened by an induction heat-treatment to provide high abrasion and deformation resistance. TK type Cableveyor is also effective against side force damage.

- Proper size holes will be made to your specifications. The holes on the stays are made to fit the diameter of the cables or hoses.

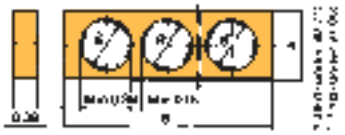
- By using the correct size holes in the stays, cables and hoses will be very steady and well protected.

SUPPORTERS

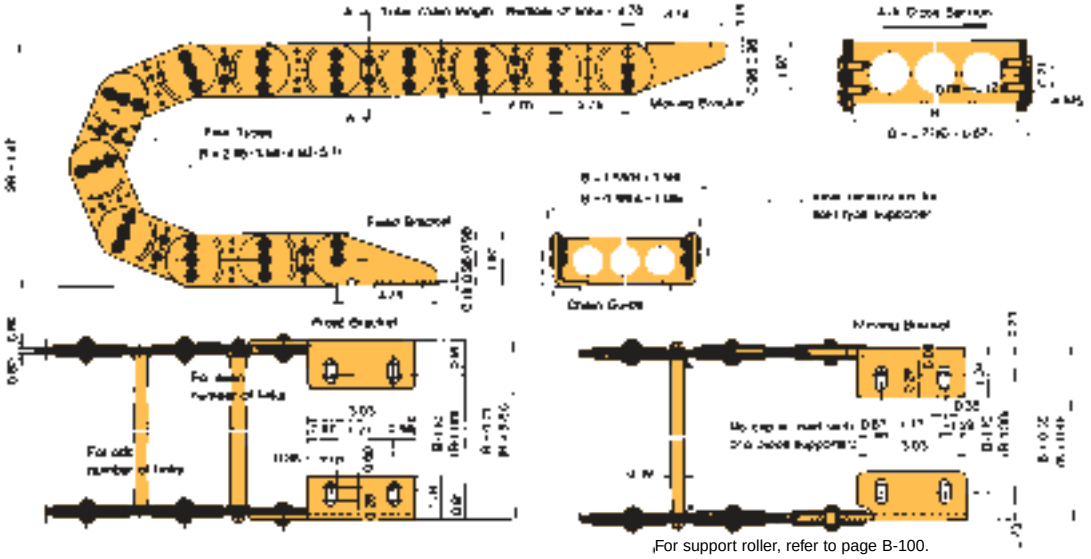
There are two types of supporters for TK type Cableveyor, a one-piece supporter and a split supporter. The split supporter is very convenient for long moving strokes, if an odd-shaped attachment is used on the cables or hoses, or if a large number of cables or hoses must be installed.

One-piece supporter Split Supporter

TK070



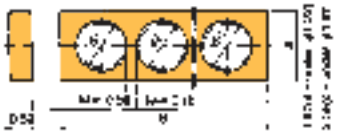
Cable/hose Maximum Outer Diameter	Dimension A	Dimension B								
		2.36	3.15	3.94	4.92	5.91	7.87	9.84	11.81	13.78
Ø0.71	1.38	○	○	○	○	○	○	○	—	—
Ø1.06	1.77	○	○	○	○	○	○	○	○	○



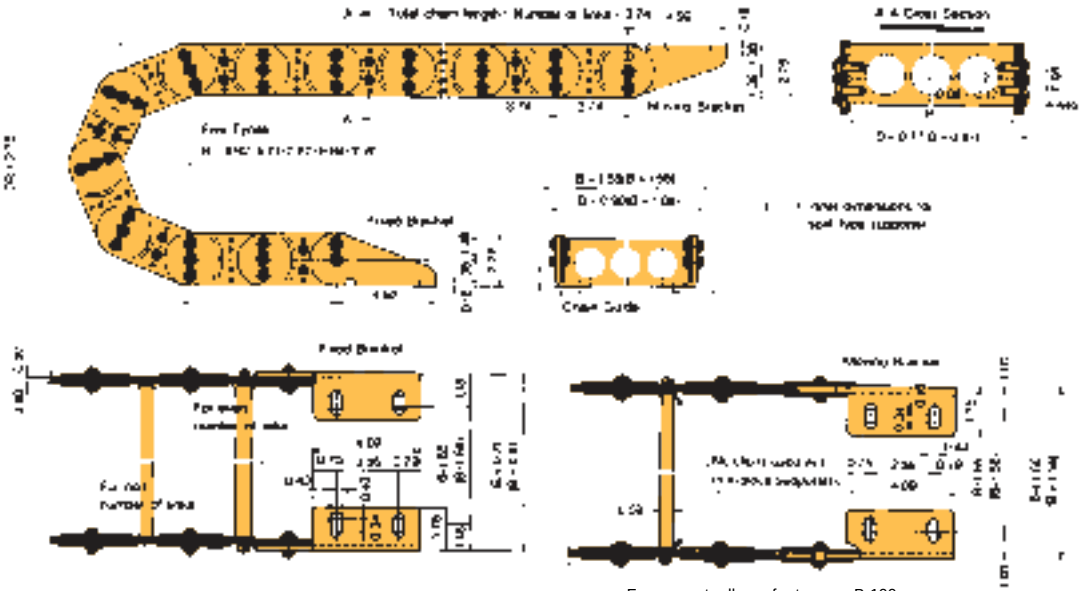
For support roller, refer to page B-100.

TK095

DIMENSIONS FOR STANDARD SUPPORTER

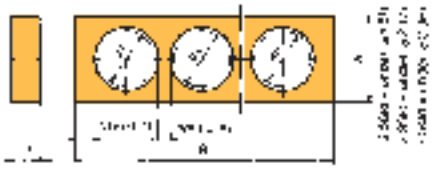


Cable/hose Maximum Outer Diameter	Dimension A	Dimension B										
		3.15	3.94	4.92	5.91	7.87	9.84	11.81	13.78	15.75	17.72	19.67
Ø1.22	1.97	○	○	○	○	○	○	○	○	○	—	—
Ø1.81	2.56	—	○	○	○	○	○	○	○	○	○	○



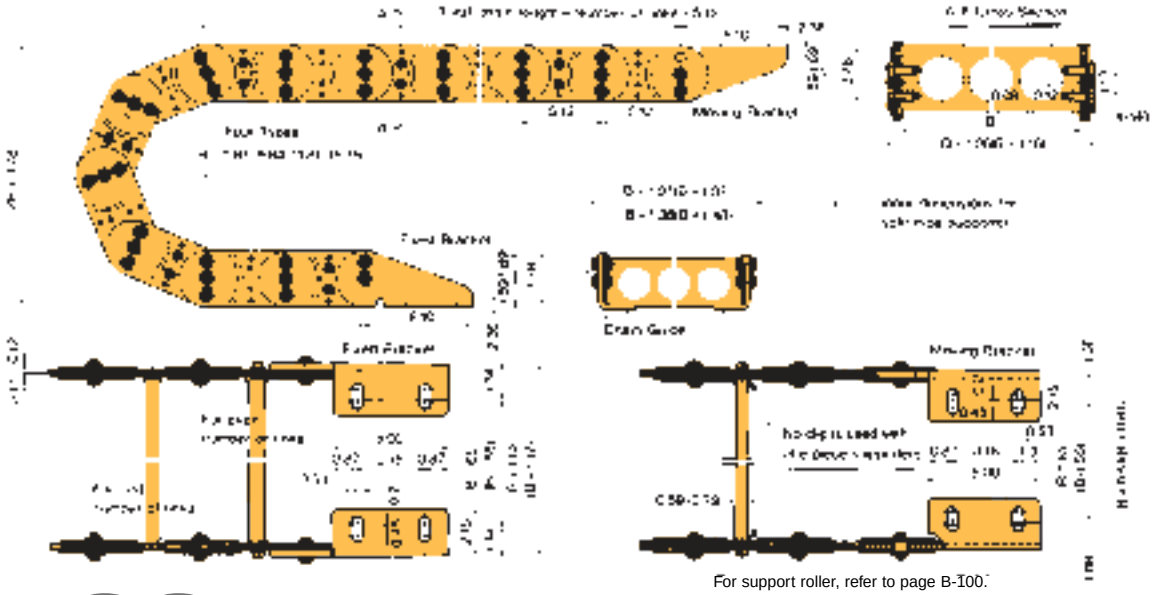
For support roller, refer to page B-100.

TK130



Cable/hose Maximum Outer Diameter	Dimension A	Dimension B											
		3.94	4.92	5.91	7.87	9.84	11.81	13.78	15.75	17.72	19.69	21.65	23.62
Ø1.81	2.56	○	○	○	○	○	○	○	○	○	○	—	—
Ø2.17	2.95	○	○	○	○	○	○	○	○	◎	◎	—	—
Ø2.36	3.54	—	○	○	○	○	○	○	○	◎	◎	◎	◎

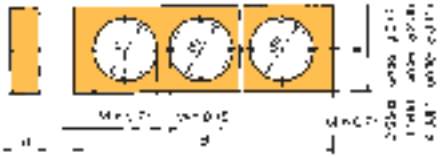
○ ...U=0.59 ◎ ...U=0.78



For support roller, refer to page B-100.

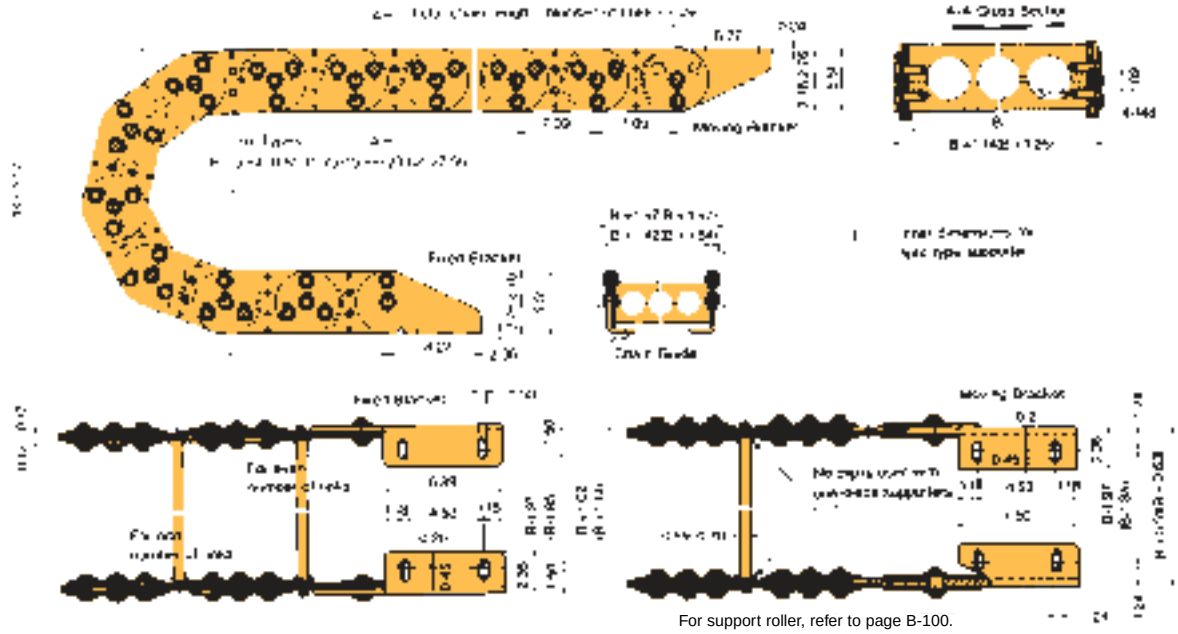
TK180

DIMENSIONS FOR STANDARD SUPPORTER

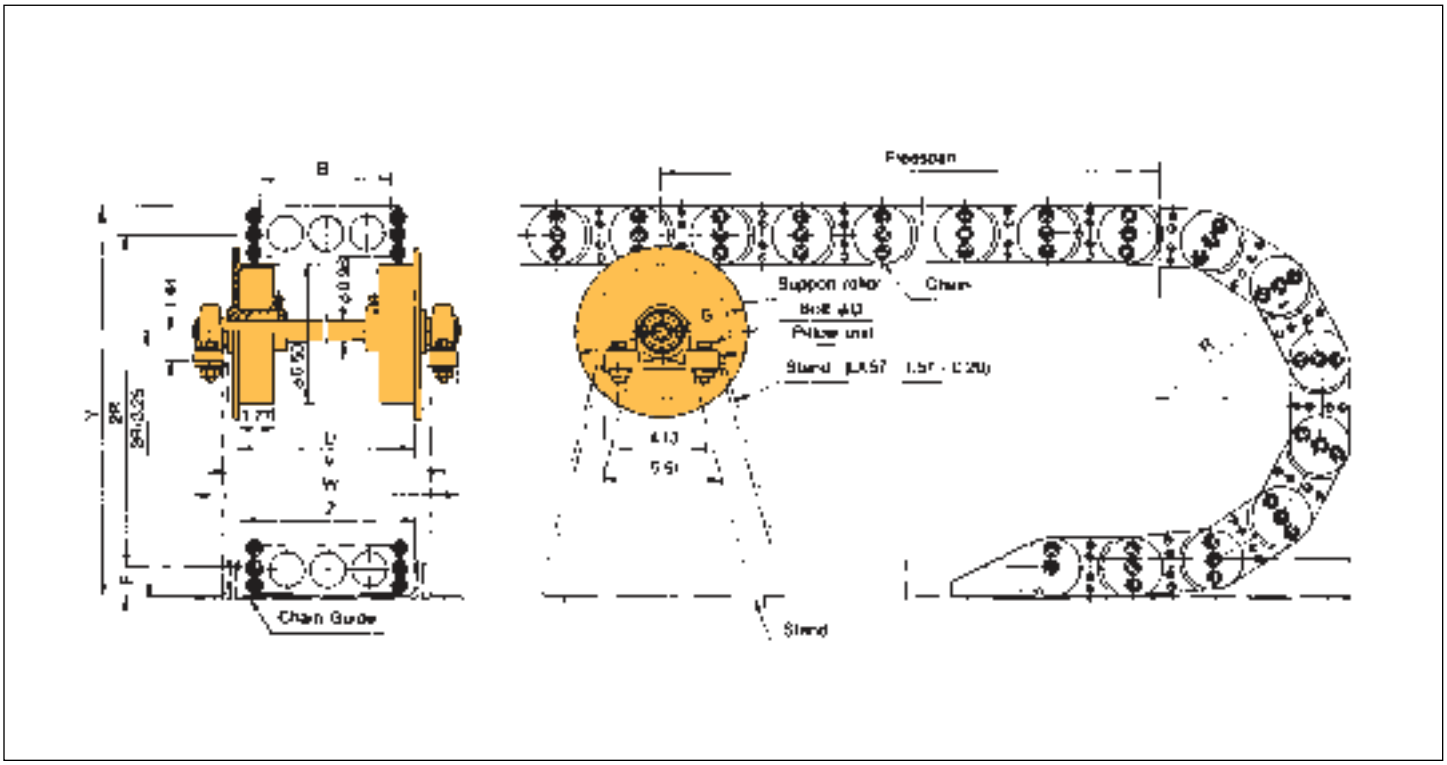


Cable/hose Maximum Outer Diameter	Dimension A	Dimension B											
		3.94	4.92	5.91	7.87	9.84	11.81	13.78	15.75	17.72	19.69	21.65	23.62
Ø2.17	2.95	○	○	○	○	○	○	○	○	◎	◎	—	—
Ø2.36	3.54	—	○	○	○	○	○	○	○	◎	◎	◎	◎
Ø3.15	4.33	—	—	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎

○ ...U=0.59 ◎ ...U=0.79



For support roller, refer to page B-100.



Dimensions in inches

Appropriate Chain Size	Minimum Supporter Width B	Minimum Bending Radius R	d	G	M	N	U	V	W
TK070	3.15	4.92	0.98	8.07	5.51	4.13	B+1.77	B+4.53	B+6.02
TK095									
TK130	3.94	7.87		11.22			B+2.17	B+4.92	B+6.42
TK180	4.92	9.84							

Dimensions in inch

Appropriate Chain Size	L	F	X	Y	Z	Bolt Size D
TK070	1.77	0.98	1.44	2R+1.20	B+1.57	M0.47
TK095		1.38		2R+2.76		
TK130		1.89		2R+3.78	B+1.97	
TK180		2.76		2R+5.51		

Note: 1. Support rollers are available for TK070 with R75 and R90. Your order will be custom made.
2. The location of the stand for the Cableveyor depends on its usage. When ordering a stand, please advise us accordingly.
3. In order to determine space requirements for installation of the Cableveyor, please refer to page B-104.
4. When setting up the support roller, be careful to ensure that the roller's flanges are parallel.

Selection

STEP 1. Specifications

When selecting the correct Cableveyor, several things must be taken into consideration. The following data must be known for proper selection.

1. Application conditions.
2. Moving stroke (ft.)
3. Moving speed (ft./min.)
4. Number and external diameters of the cables/hoses to be installed.
5. Total weight of the cables/hoses. (lbs./ft.)
   (In the case of hoses, the weight of the carrying element such as oil, water, etc., should be included.)
6. Allowable bending radius of cables and hoses (inch).
   This is determined from the intended function.

STEP 2. Determining the moving stroke and bending radius

The tentative selection of Cableveyor and the support roller is made as follows. Determine the approximate radius with the capability graph (page B-102). This graph is based on the distance of the moving stroke and the weight of the cables and hoses.

1. Estimate the distance of the moving stroke when a support roller is not being used. If the moving stroke is too long, use a support roller. Note that in some cases, it is more efficient not to install one.
2. Determine the bending radius of the cables or hoses.

Allowable bending radius (Actual bending radius) < Standard chain bending radius (R).

Regarding the bending radius of the cables or hoses, refer to the calculations below.

In the case of cables,
Allowable bending radius ≥ external diameter • 6

In the case of hoses,
Allowable bending radius ≥ external diameter • 9

STEP 3. Adjusting the moving stroke

The length of moving stroke must be adjusted if used under the circumstances listed in the Service Factor Table below.

Length of moving stroke • service factor = adjusted moving stroke

For selection purposes, use the adjusted moving stroke length with the capability graph.

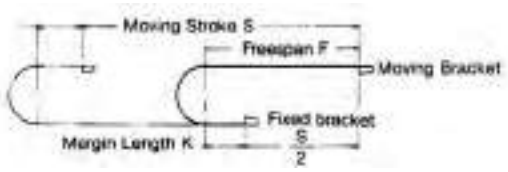
Service Factor Table

Operating Conditions	Installation Suggestion	Service Factor
Frequent starting and stopping	Sometimes support rollers or guides are needed to prevent the chain from falling.	1.5
Sudden starts and stops with large vibrations	Use a large bending radius to decrease frequent vibrations caused by multiple-angle movements of the chain.	2

STEP 4. Calculation of the number of chain links

$$\ell = \frac{\frac{S}{2} + \pi R + 2K}{P}$$

Margin length for each chain size (K)



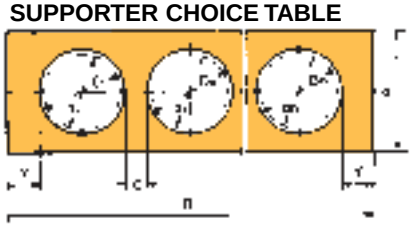
Chain Size	K (at least)
TK070	4.13
TK095	5.71
TK130	7.68
TK180	10.63

STEP 5. Standard supporter selection

1. TK TYPE

1. Dimension (A): The size of the supporter may be chosen from the reference table for each chain size. (maximum cable/hose diameter)
   $B' = Y + D_1 + C + D_2 + C + \ldots\ldots D_n + Y$
   $B \geq B'$
2. Dimension (B): B' = Calculated maximum supporter width
   B = Standard supporter width as chosen from the table
   D = d x 1.1, but D-d ≥ 0.08 inch
   C ≥ 0.16 inch
   Y = Refer to the below table
3. Number of supporters (N):
   Supporters should be installed at every 2nd pitch.
   When chain link number (l′)
   is even, number of supporters is, $n = \frac{\ell'}{2}$
   When chain link number (l′)
   is odd, number of supporters is, $n = \frac{\ell' - 1}{2}$

SUPPORTER CHOICE TABLE



Chain Size	min (Y)
TK070	0.39
TK095	0.59
TK130	0.71
TK180	0.71
H250	0.98

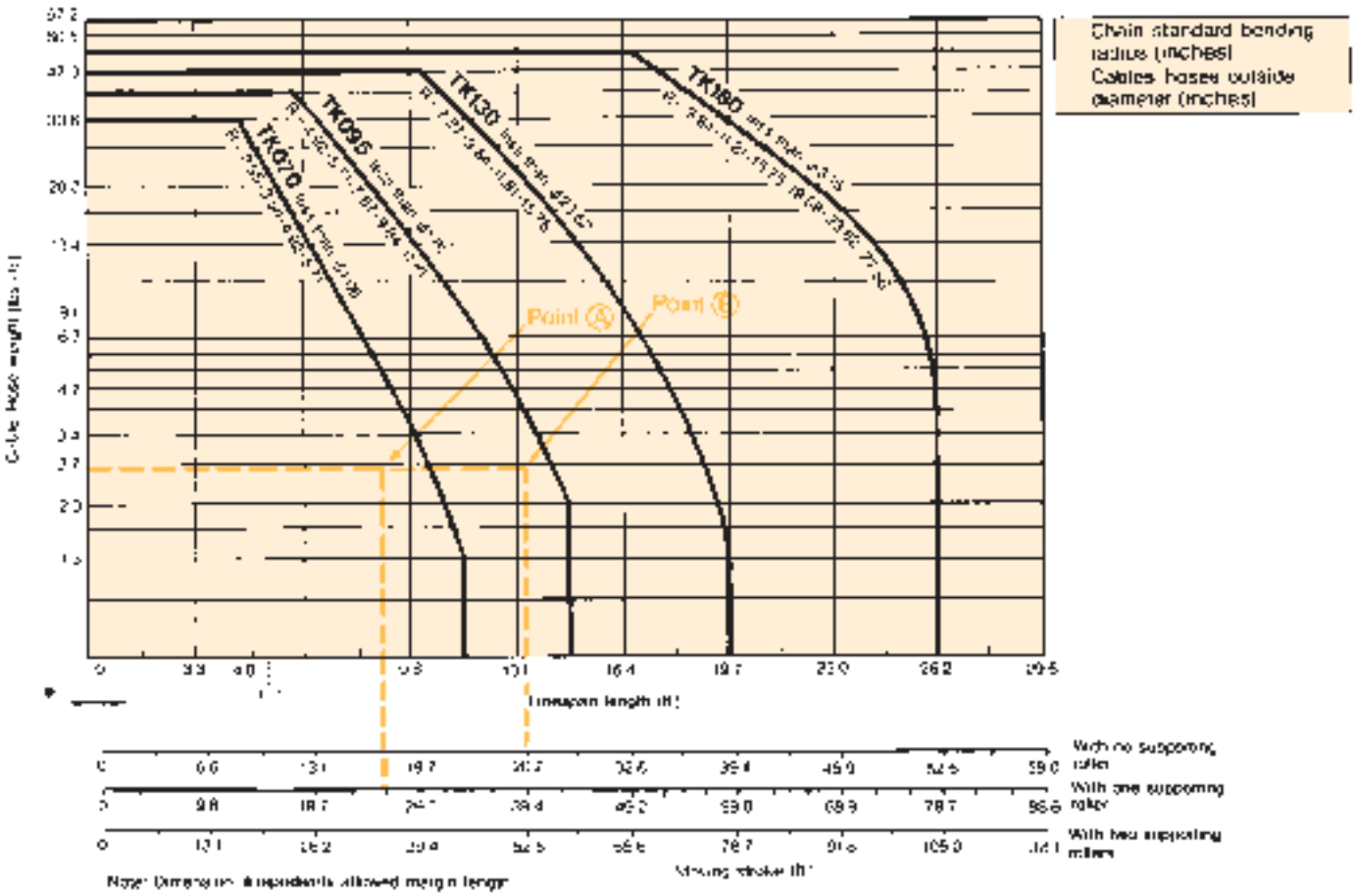
STEP 6. Freespan confirmation

$$K' = \frac{P \bullet \ell' - \left(\frac{S}{2} + \pi R\right)}{2}$$

Freespan without support roller	$F_0 = \frac{S}{2} + K'$
Freespan with one support roller	$F_1 = \frac{S}{3} + K'$
Freespan with two support rollers	$F_2 = \frac{S}{4} + K'$

The values of F_0, F_1, and F_2 must not exceed the maximum freespan from the capability graph below. If it does, a larger chain size must be chosen or more support rollers added, but only up to a maximum of two.

Capability Graph



How to use the capability graph

For the TK095, if the weight of the cables or hoses is 4.03 lbs./ft., the moving strokes are:

25.6 ft. with no support roller
38.4 ft. with one support roller
51.2 ft. with two support rollers

There are five different bending radii of the chain standardized at 4.92, 5.71, 7.87, 9.84, 11.81 inches. Maximum hole diameter is 1.81 inches.

Example

Weight of the cables or hoses: 2.69 lbs./ft.
Allowable bending radius of cables or hoses: 7.48 inches
External diameter of the biggest cable or hose: ø 11.81 inches
Moving stroke: 26.25 ft.

With no support roller:
The intersection of the cable weight axis (2.75 lbs./ft.) and the freespan length axis (26.25 ft.) at point A is within the range of TK095. Therefore, it can use a bending radius within 78.74 inches and satisfy the diameter of the cable or hose.

With one support roller:
The intersection at point B is within the range of TK070, but the allowable bending radius of cables or hoses is more than the allowable bending radius of the cableveyor. The diameter of the hoses or cables is bigger than that which is on the chart. Therefore, it does not satisfy the requirement.

SAMPLE SELECTION

Example

1. Situation . . . . . .Indoor, normal temperatures
2. Moving stroke . . . . . .29.5 ft.
3. Number and external diameter of the cables or hoses . . . . . .cables ø 1.73 • 2, oil hoses ø 1.42 • 2
4. Weight at installation . . . . . .cables 2.01 lbs./ft. • 2, oil hoses . . . . . .1.34 lbs./ft. • 2, total weight 6.7 lbs./ft.
5. Allowable bending radius . . . . . .cable 10.63 inches, oil hoses 10.24 inches
6. The cables or hoses will be set horizontally on one line.
7. The fixed bracket will be in the middle of the length of travel.
8. Speed of travel . . . . . .100 ft./min.
9. Vibrations . . . . . .none

STEP 1. Specifications

See STEP 1 of the SELECTION outline (page B-101).

STEP 2. Tentative selection

From the capability graph on page B-102, TK130 would satisfy what is required since it has no supporting roller, and since the moving stroke is 29.5 ft. (length of travel) and 6.7 lbs./ft. for cable and hose weight.

STEP 3. Selection of the bending radius

R11.81 and R15.35 will satisfy the requirement for a larger than allowable bending radius (10.63 inches).

STEP 4. Calculation of the number of chain links

Once the chain size has tentatively been referred to, the number of chain links may be calculated according to the following equation.

$$\ell = \frac{\frac{S}{2} + \pi R + 15.35}{5.12} = \frac{\frac{354}{2} + 11.81\pi + 15.35}{5.12} = 44.9 \text{ links}$$

The fraction is rounded off to ℓ' = 45 Links.

STEP 5. Freespan confirmation

Freespan F (without support rollers) is confirmed by adding the margin length (K′) + (S/2).

$$K' = \frac{130 \bullet 45 \text{ links} - (\frac{354}{2} + 300\,\pi)}{2} = 8.03 \text{ inches}$$

$$F_0 = \frac{S}{2} + K' + \frac{354}{2} + 8.03 = 85.20 \text{ inches}$$

From the capability graph on page B-102 a freespan of up to 17.22 ft. is approved for a cable/hose weight of 6.72 lbs./ft. Since F_0 = 15.43 ft. is less than 17.22 ft., the TK130, R11.81 chain size is the most suitable. If F_0 > 17.22 ft., a larger chain size should be used — TK180, R11.81, for example.

STEP 6. Standard supporter selection

Supporter hole diameter may be calculated by the following equation, where D ≥ 1.1d and where D is rounded off to the nearest even whole number, making the diameter ∅1.89 • 2, ∅1.58 • 2.

The supporter length B′ is –

B′ = ΣD + ΣC + Min.36 (C = Min.1.42)

B′ = {(1.89 • 2) + (1.58 • 2)} + (0.16 • 3) + 1.42 = 8.82 inches

The supporter dimension table shows that a supporter of this size fits cables/hoses of 1.73 inches the best. When deciding on the supporter dimensions, the next largest size appearing on the table must be chosen when the calculated figure does not appear. For example, a value of 8.82 would take the next bigger figure on the table, or 0.98. As the supporter length B′ becomes greater, the spaces between holes (C) must also increase to maintain balance.

STEP 7. Amount of supporters needed.

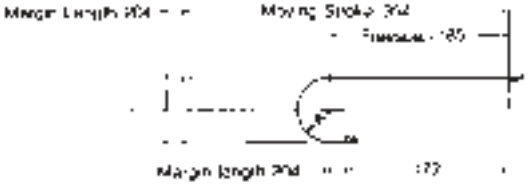
$$n = \frac{\ell' - 1}{2} = \frac{45 - 1}{2} = 22 \text{ pieces}$$

Where: ℓ' = Number of chain links
n = Number of supporters

STEP 8. Cableveyor choice

Chain: TK130, R11.81
Assembly: 45 links + brackets at both ends
Supporter size: 2.56 • 9.84 (split type)
Supporter hole diameter: D_1 = ø1.89, D_2 = ø1.89, D_3 = ø1.58 D_4 = ø1.58
Supporter hole pitch: b_1 = 1.77, b_2 = 2.36, b_3 = 2.17, b_4 = 1.97, b_5 = 1.58

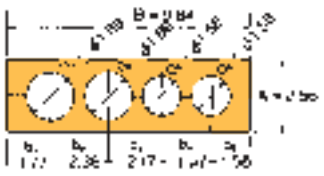
SAMPLE LAYOUT

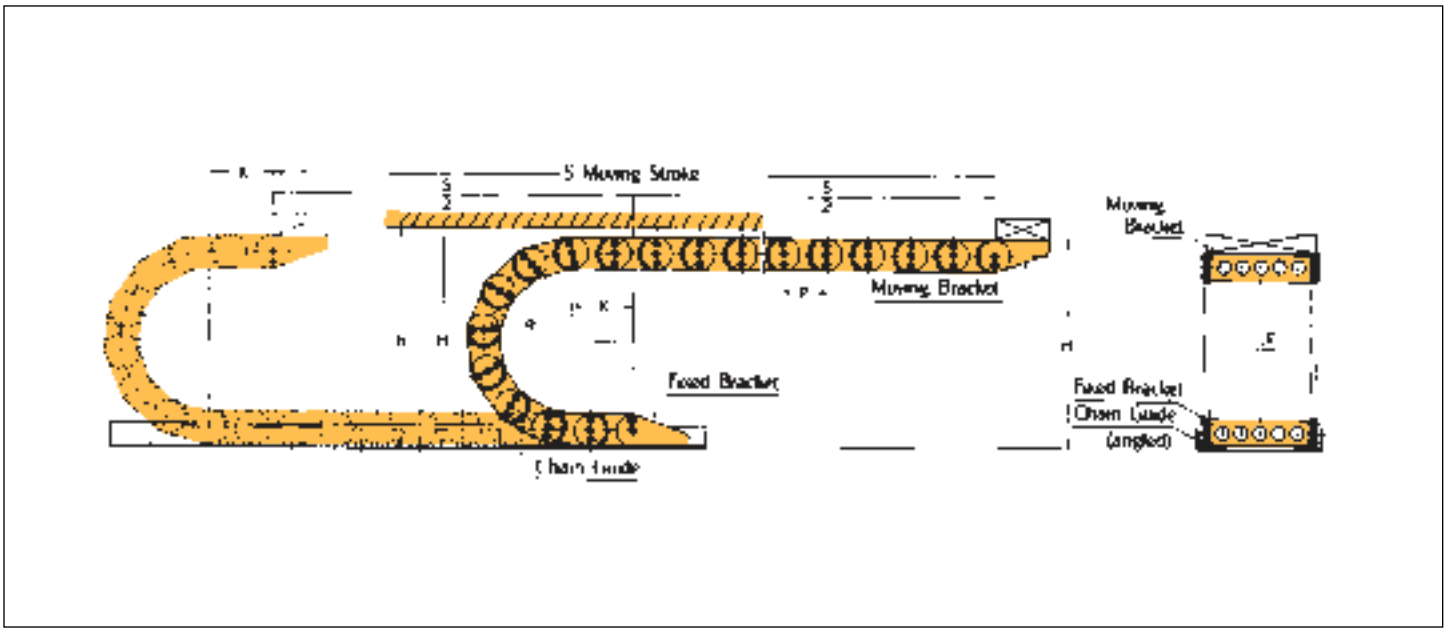


SUPPORTER CHOICE TABLE

Hole Diameter	D_1	D_2	D_3	D_4
	1.89	1.89	1.58	1.58

Hole Pitch	b_1	b_2	b_3	b_4	b_5
	1.77	2.36	2.17	1.97	1.58





(1) A chain guide is necessary for Cableveyor. An angled steel plate is best.

(2) Installation height of the moving bracket (H′) and tolerance for the center of the fixed and moving brackets (ℰ) should be set according to the table below.

Dimension in inches

Chain Size	ℰ (max.)	H′
TK070	0.16	H + 0.40
TK095	0.24	
TK130	0.31	
TK180	0.39	

(3) Under normal circumstances, lubrication is not necessary. However, for corrosive conditions, a lubricant should be used for protection.

(4) Since the TK types do not bend at the bracket chain joint, a minimum extension margin of 1.5 pitches (K on the diagram above) should be adhered to. If this extension margin is difficult to comply with, only one pin should be used in the center of the moving bracket. In addition, if the unit is operated at speeds of 65 ft./min. or more, the location of the moving bracket and fixed bracket should be switched. Two pins should be used with the moving bracket and only one pin (in the center) with the fixed bracket.

(5) If the TK split-type supporter must be detached, care should be taken to reassemble the supporter in the same way with the corresponding marks on each half of the supporter properly aligned with each other.

(6) When detaching and reassembling supporters, make sure that the chain is kept horizontal. If not, the chain will not move in a straight line.

(7) Check that bolts and other hardware are tight when assembling and when operating, since they may become loose through operational vibration.

(8) Do not put heavy objects or allow people to sit on the chain, as this will result in chain damage.

(9) Note that the chain will sag in its unloaded condition as it is designed to straighten out by its own weight when attached.

Notes on Fitting Cables or Hoses into the Cableveyor

(1) The end of the cable/hose should have an extension margin to insure that no damage occurs between the cable/hose and its attachment. Usually, this amounts to six times the hose diameter.

(2) The minimum cable/hose length necessary is given by the following equation:

L = {(chain pitch • link number) + cable/hose length from chain to its attachment} • 1.015

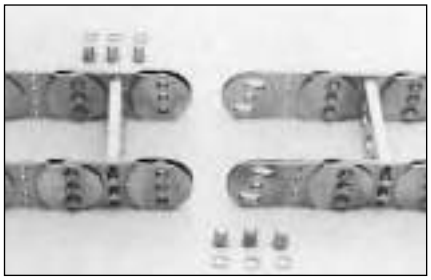
Note, however, that the hose's internal pressure causes a slight reduction in hose length. This should be considered when attaching hoses.

Instructions for Handling and Ordering Cableveyor

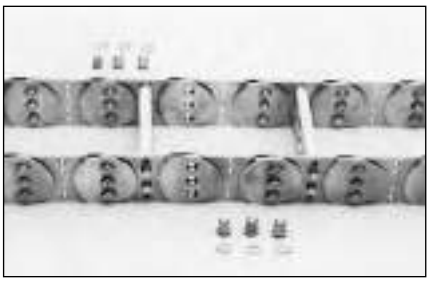
TK Type is packed and shipped in pre-fixed lengths for convenience, secure packing and easy transportation. Assembly is easy and can be done quickly without special tools.

ASSEMBLY AND CHAIN CONNECTION

TK Type



Lay the outer side of the chain facing down.



Align the holes on both sides of the chain.

Insert the pin and lock in place with the retaining ring.

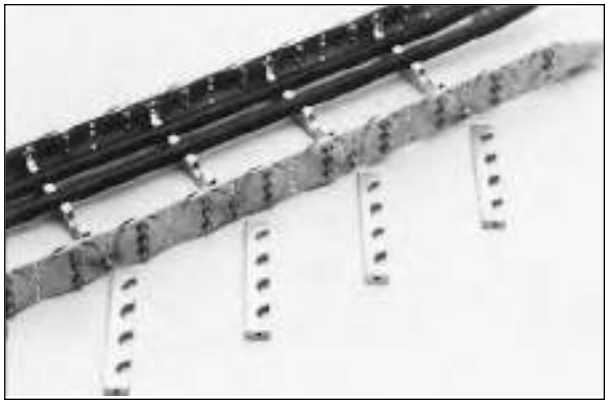
INSERTING THE CABLES AND HOSES

TK split supporter

Take off the inner side of the supporter. If the supporter is difficult to remove, loosen the side bolts of the other supporter. Next, place the cables/hoses on the grooves. The inner supporter can then be put back and the supporter bolts loosely tightened. Do not firmly tighten the bolts until all the supporters have been reattached and the Cableveyor has been placed according to the photo for adjusting and final assembly.

TK one-piece supporter

The cables/hoses may be inserted from the moving or fixed end. After the cables or hoses have been inserted and the supporters replaced, tighten the supporter bolts completely. Be careful that the Cableveyor chain is not twisted. Tighten bolts evenly, keeping the Cableveyor straight. Check that the bolts have not come loose during handling and assembly.



Let us know your specifications according to the tables below. We will manufacture a suitable chain, custom made for your needs. For easier assessment, fill out this table at the places marked.

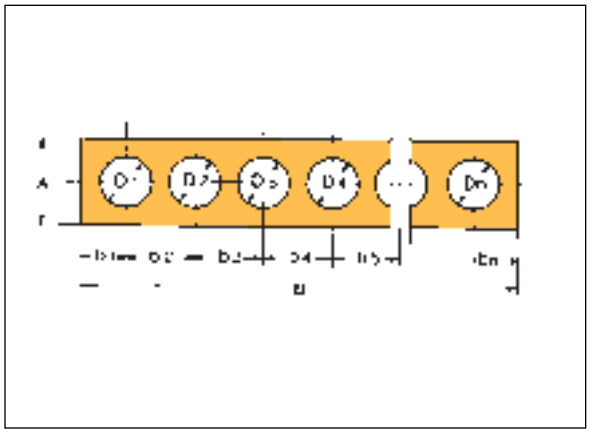
Specification Information Table

Machine to be used		
Moving Stroke (S)		inches
Movement speed		ft./min.
Frequency of use		times/day
Cable + Hose weight		lbs./ft.
Cable + Hose allowable bending radius		inches
Operating conditions (atmosphere, etc.)		

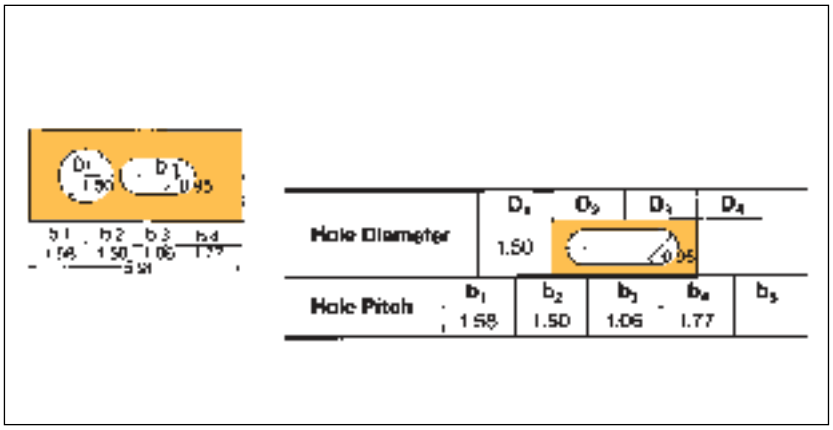
Chain size	**TK** ☐ **R** ☐
Moving or fixed bracket type	
Chain length	☐ (Links + Brackets) X ☐ Sets
Kind of supporter if TK Type	(split or one piece)
Supporter width	☐ X ☐
Supporter hole diameter	Refer to the table below.
Number of supporters	☐

Information about TK Type Supporter Holes

Supporter Hole Diameter and Pitch



Example



TK-Type A-A Cross Section (For A-A cross section, please refer to chain dimensions.)

Hole Diameter	D_1	D_2	D_3	D_4	D_5	D_6	D_7	D_8	D_9	D_{10}	D_{11}	D_{12}	D_{13}	D_{14}

Hole Pitch	b_1	b_2	b_3	b_4	b_5	b_6	b_7	b_8	b_9	b_{10}	b_{11}	b_{12}	b_{13}	b_{14}

⚠ WARNING

USE CARE TO PREVENT INJURY
COMPLY WITH THE FOLLOWING
TO AVOID SERIOUS PERSONAL INJURY

1. Guards must be provided on all chain and sprocket installations in accordance with provisions of ANSI/ASME B15.1 – 2000 “Safety Standards for Mechanical Power Transmission Apparatus,” and ANSI/ASME B20.1 – 2006 “Safety Standards for Conveyors and Related Equipment,” or other applicable safety standards. When revisions of these standards are published, the updated edition shall apply.

2. Always lock out power switch before installing, removing, lubricating or servicing a chain system.

3. When connecting or disconnecting chain:
   a. Eye protection is required. Wear safety glasses, protective clothing, gloves and safety shoes.
   b. Support the chain to prevent uncontrolled movement of chain and parts.
   c. Use of pressing equipment is recommended. Tools must be in good condition and properly used.
   d. Determine correct direction for pin/rivet removal or insertion.

Rev. 11-06

U.S. TSUBAKI
STOCK SPROCKETS

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No. 25 1/4" Pitch — Plain Bore

Dimensions are in inches unless otherwise indicated.

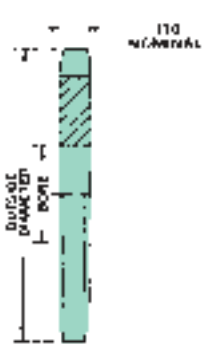
Sprocket Diameters				Type A			Type B					
			¼" Pitch									
No. Teeth	Outside Diameter	Pitch Diameter	Caliper Diameter	Catalog Number	Plain Bore	Wt. Lbs.	Catalog Number	Plain Bore	†Max. Bore	Hub Dia.	LTB	Wt. Lbs.
9	.837	.731	.590				**25B9**	¼	¼	7/16	½	.03
10	.919	.809	.679				**25B10**	¼	¼	½	½	.04
11	1.001	.887	.748				**25B11**	¼	5/16	9/16	½	.05
12	1.083	.966	.836				**25B12**	¼	3/8	5/8	½	.06
13	1.164	1.045	.907				**25B13**	¼	7/16	23/32	½	.07
14	1.245	1.123	.994				**25B14**	¼	9/16	13/16	½	.08
15	1.326	1.203	1.066				**25B15**	¼	9/16	7/8	½	.1
16	1.407	1.282	1.152				**25B16**	¼	5/8	31/32	½	.12
17	1.487	1.361	1.225				**25B17**	¼	21/32	1 1/32	½	.14
18	1.568	1.440	1.310	**25A18**	¼	.04	**25B18**	¼	¾	1 1/8	½	.16
19	1.648	1.519	1.384	**25A19**	¼	.04	**25B19**	¼	13/16	1 7/32	½	.19
20	1.728	1.598	1.468	**25A20**	¼	.04	**25B20**	¼	7/8	1 9/32	5/8	.25
21	1.809	1.677	1.543	**25A21**	¼	.04	**25B21**	¼	7/8	1 3/8	5/8	.28
22	1.889	1.757	1.627	**25A22**	¼	.06	**25B22**	¼	15/16	1 7/16	5/8	.31
23	1.969	1.836	1.702	**25A23**	¼	.06	**25B23**	¼	1	1 ½	5/8	.32
24	2.049	1.915	1.785	**25A24**	3/8	.08	**25B24**	3/8	1	1 ½	5/8	.33
25	2.129	1.995	1.861	**25A25**	3/8	.08	**25B25**	3/8	1	1 ½	5/8	.34
26	2.209	2.074	1.944	**25A26**	3/8	.09	**25B26**	3/8	1	1 ½	5/8	.35
28	2.369	2.233	2.103	**25A28**	3/8	.10	**25B28**	3/8	1	1 ½	5/8	.37
30	2.529	2.392	2.262	**25A30**	3/8	.12	**25B30**	3/8	1	1 ½	5/8	.39
32	2.688	2.551	2.421	**25A32**	3/8	.14	**25B32**	3/8	1	1 ½	5/8	.41
35	2.928	2.789	2.656	**25A35**	3/8	.16	**25B35**	3/8	1	1 ½	5/8	.46
36	3.008	2.868	2.738	**25A36**	3/8	.18	**25B36**	3/8	1	1 ½	¾	.49
40	3.327	3.186	3.056	**25A40**	3/8	.20	**25B40**	3/8	1 1/4	2	¾	.52
45	3.725	3.584	3.452	**25A45**	½	.25	**25B45**	½	1 1/4	2	¾	.55
48	3.964	3.822	3.692	**25A48**	½	.32	**25B48**	½	1 1/4	2	¾	.57
54	4.442	4.300	4.170	**25A54**	½	.38	**25B54**	½	1 1/4	2	¾	.98
60	4.920	4.777	4.647	**25A60**	½	.54	**25B60**	½	1 1/4	2	¾	1.10
72	5.876	5.731	5.601	**25A72**	½	.74	**25B72**	½	1 1/4	2	¾	1.30

SEE CURRENT DISCOUNT SHEET FOR ALTERATION CHARGES

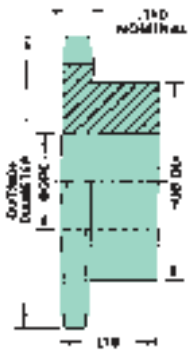
† Dimensions shown allow for standard keyway with set screw at 90°

CHAIN TECHNICAL DATA

Size	25
Pitch	¼"
Inside Width	⅛"
Roller Diameter	.130"



TYPE A

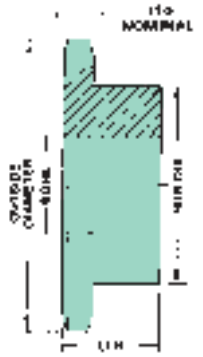


TYPE B

No. 25 1/4" Pitch — Stainless

Dimensions are in inches unless otherwise indicated.

Single — Type B — Stainless Steel							
No. Teeth	Outside Diameter	Catalog Number	Plain Bore	Max. Bore	Hub Dia.	LTB	Wt. Lbs.
9	.837	**25B9SS**	1/4	1/4	7/16	1/2	.03
10	.919	**25B10SS**	1/4	1/4	1/2	1/2	.04
11	1.001	**25B11SS**	1/4	5/16	9/16	1/2	.05
12	1.083	**25B12SS**	1/4	3/8	5/8	1/2	.06
13	1.164	**25B13SS**	1/4	7/16	23/32	1/2	.07
14	1.245	**25B14SS**	1/4	9/16	13/16	1/2	.08
15	1.326	**25B15SS**	1/4	9/16	7/8	1/2	.10
16	1.407	**25B16SS**	1/4	5/8	31/32	1/2	.12
17	1.487	**25B17SS**	1/4	21/32	1 1/32	1/2	.14
18	1.568	**25B18SS**	1/4	3/4	1 1/8	1/2	.16
19	1.648	**25B19SS**	1/4	13/16	1 7/32	1/2	.19
20	1.728	**25B20SS**	1/4	7/8	1 9/32	5/8	.25
21	1.809	**25B21SS**	1/4	7/8	1 3/8	5/8	.28
22	1.889	**25B22SS**	1/4	15/16	1 7/16	5/8	.31
23	1.969	**25B23SS**	1/4	1	1 1/2	5/8	.32
24	2.049	**25B24SS**	3/8	1	1 1/2	5/8	.33
25	2.129	**25B25SS**	3/8	1	1 1/2	5/8	.34
26	2.209	**25B26SS**	3/8	1	1 1/2	5/8	.35
28	2.369	**25B28SS**	3/8	1	1 1/2	5/8	.37
30	2.529	**25B30SS**	3/8	1	1 1/2	5/8	.39
36	3.008	**25B36SS**	3/8	1	1 1/2	3/4	.49
40	3.327	**25B40SS**	3/8	1 1/4	2	3/4	.52
45	3.725	**25B45SS**	1/2	1 1/4	2	3/4	.55
60	4.920	**25B60SS**	1/2	1 1/4	2	3/4	1.10



TYPE B

CHAIN TECHNICAL DATA	
Size	25
Pitch	1/4"
Inside Width	1/8"
Roller Diameter	.130"

No. 35 — 3/8″ Pitch — Plain Bore

Dimensions are in inches unless otherwise indicated.

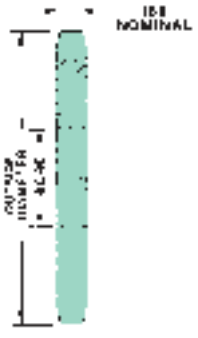
Type A				Type B Plain Bore					
No. Teeth	Catalog Number	Plain Bore	Wt. Lbs.	Catalog Number	Plain Bore	†Max. Bore	Hub Dia.	LTB	Wt. Lbs.
8				35B8	3/8	7/16	3/4	3/4	.11
9				35B9	3/8	3/8	27/32 ▲	3/4	.12
10				35B10	3/8	9/16	31/32 ▲	3/4	.14
11				35B11	3/8	3/4	1 1/16 ▲	3/4	.16
12				35B12	1/2	3/4	1 7/32 ▲	3/4	.21
13				35B13	1/2	3/4	1 1/4 ▲	3/4	.25
14				35B14	1/2	3/4	1 1/4	3/4	.25
15	35A15	1/2	.11	35B15	1/2	1	1 3/8	3/4	.34
16	35A16	1/2	.12	35B16	1/2	1	1 15/32	3/4	.37
17	35A17	1/2	.14	35B17	1/2	1	1 5/8	3/4	.46
18	35A18	1/2	.16	35B18	1/2	1 1/16	1 3/4	3/4	.53
19	35A19	1/2	.17	35B19	1/2	1 3/16	1 7/8	3/4	.60
20	35A20	1/2	.19	35B20	1/2	1 3/16	1 15/16	3/4	.68
21	35A21	1/2	.21	35B21	1/2	1 1/4	2 1/8	3/4	.74
22	35A22	1/2	.24	35B22	1/2	1 1/4	2 1/8	3/4	.78
23	35A23	1/2	.26	35B23	1/2	1 1/4	2 1/8	3/4	.81
24	35A24	1/2	.28	35B24	1/2	1 1/4	2 1/8	7/8	.90
25	35A25	1/2	.31	35B25	1/2	1 1/4	2 1/8	7/8	.93
26	35A26	1/2	.33	35B26	1/2	1 1/2	2 1/4	1	1.30
27	35A27	1/2	.36	35B27	1/2	1 1/2	2 1/4	1	1.40
28	35A28	1/2	.38	35B28	1/2	1 1/2	2 1/4	1	1.40
30	35A30	1/2	.44	35B30	1/2	1 1/2	2 1/4	1	1.50
32	35A32	1/2	.50	35B32	1/2	1 1/2	2 1/4	1	1.60
35	35A35	1/2	.61	35B35	1/2	1 1/2	2 1/4	1	1.70
36	35A36	1/2	.64	35B36	1/2	1 1/2	2 1/4	1	1.70
40	35A40	5/8	.79	35B40	5/8	1 1/2	2 1/4	1	1.80
42	35A42	5/8	.90	35B42	5/8	1 1/2	2 1/4	1	1.90
45	35A45	5/8	1.00	35B45	5/8	1 1/2	2 1/4	1	2.00
48	35A48	5/8	1.10	35B48	5/8	1 1/2	2 1/4	1	2.10
54	35A54	5/8	1.40	35B54	5/8	1 1/2	2 1/4	1	2.40
60	35A60	3/4	1.80	35B60	3/4	1 1/2	2 1/4	1	2.80
70	35A70	3/4	2.40	35B70	3/4	1 1/2	2 1/4	1	3.40
72	35A72	3/4	2.60	35B72	3/4	1 1/2	2 1/4	1	3.60
80	35A80	3/4	3.20	35B80	3/4	1 1/2	2 1/4	1	4.20
84	35A84	3/4	3.50	35B84	3/4	1 1/2	2 1/4	1	4.50
96	35A96	3/4	4.60	35B96	3/4	1 1/2	2 1/4	1	5.60
112	35A112	3/4	6.30						

SEE CURRENT DISCOUNT SHEET FOR ALTERATION CHARGES

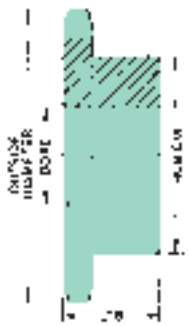
▲ Has recessed groove in hub for chain clearance
† Dimensions shown allow for standard keyway with set screw at 90°

CHAIN TECHNICAL DATA

Size	35
Pitch	3/8″
Inside Width	3/16″
Roller Diameter	.200″



TYPE A



TYPE B

No. 35 3/8″ Pitch — Finished Bore

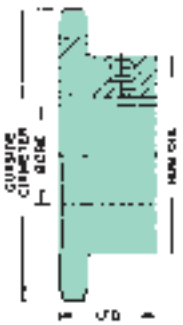
Dimensions are in inches unless otherwise indicated.

Type F Bored to Size										Sprocket Diameters ⅜″ Pitch		
No. Teeth	Catalog Number	Available Bores (Includes Standard KW & 2SS)								Outside Diameter	Pitch Diameter	Caliper Diameter
9	35B9F	3/8 ■								1.255	1.096	.880
10	35B10F	3/8 ■,	1/2,	5/8 ●						1.379	1.214	1.014
11	35B11F	3/8 ■,	1/2,	5/8,	3/4 ●					1.502	1.331	1.118
12	35B12F		1/2,	5/8,	3/4					1.625	1.449	1.249
13	35B13F		1/2,	5/8,	3/4					1.746	1.567	1.356
14	35B14F		1/2,	5/8,	3/4					1.868	1.685	1.485
15	35B15F		1/2,	5/8,	3/4,	1 ●				1.989	1.804	1.594
16	35B16F		1/2,	5/8,	3/4,	1 ●				2.110	1.922	1.722
17	35B17F		1/2,	5/8,	3/4,	1				2.231	2.041	1.832
18	35B18F		1/2,	5/8,	3/4,	1				2.352	2.160	1.960
19	35B19F		1/2,	5/8,	3/4,	1				2.472	2.278	2.071
20	35B20F		1/2,	5/8,	3/4,	1				2.593	2.397	2.197
21	35B21F		1/2,	5/8,	3/4,	1				2.713	2.516	2.309
22	35B22F		1/2,	5/8,	3/4,	1				2.833	2.635	2.435
23	35B23F		1/2,	5/8,	3/4,	1				2.953	2.754	2.548
24	35B24F		1/2,	5/8,	3/4,	1				3.073	2.873	2.673
25	35B25F		1/2,	5/8,	3/4,	1				3.194	2.992	2.786
26	35B26F			5/8,	3/4,	7/8,	1,	1 1/8,	1 3/16, 1 1/4	3.313	3.111	2.911
28	35B28F			5/8,	3/4,	7/8,	1,	1 1/8,	1 3/16, 1 1/4	3.553	3.349	3.149
30	35B30F			5/8,	3/4,	7/8,	1,	1 1/8,	1 3/16, 1 1/4	3.793	3.588	3.388
32	35B32F			5/8,	3/4,	7/8,	1,	1 1/8,	1 3/16, 1 1/4	4.032	3.826	3.626
35	35B35F			5/8,	3/4,	7/8,	1,	1 1/8,	1 3/16, 1 1/4	4.392	4.183	3.979
36	35B36F			5/8,	3/4,	7/8,	1,	1 1/8,	1 3/16, 1 1/4	4.511	4.303	4.103
40	35B40F			5/8,	3/4,	7/8,	1,	1 1/8,	1 3/16, 1 1/4	4.990	4.780	4.580
42	35B42F			5/8,	3/4,	7/8,	1,	1 1/8,	1 3/16, 1 1/4	5.229	5.018	4.818
45	35B45F			5/8,	3/4,	7/8,	1,	1 1/8,	1 3/16, 1 1/4	5.588	5.376	5.173
48	35B48F			5/8,	3/4,	7/8,	1,	1 1/8,	1 3/16, 1 1/4	5.946	5.734	5.534
54	35B54F			5/8,	3/4,	7/8,	1,	1 1/8,	1 3/16, 1 1/4	6.664	6.449	6.249
60	35B60F			5/8,	3/4,,	7/8,	1,	1 1/8,	1 3/16, 1 1/4	7.380	7.165	6.965

Hub diameter may vary to suit bore sizes

● Indicates set screw at 90° and 180° from keyway

■ Furnished without keyway



TYPE B

CHAIN TECHNICAL DATA	
Size	35
Pitch	3/8″
Inside Width	3/16″
Roller Diameter	.200″

No. 35 — 3/8″ Pitch — Stainless Steel

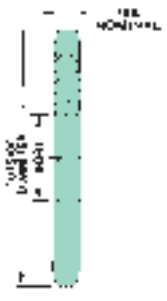
Dimensions are in inches unless otherwise indicated.

Single — Type B — Stainless Steel							
No. Teeth	Outside Diameter	Catalog Number	Plain Bore	Max. Bore	Hub Dia.	LTB	Wt. Lbs.
9	1.260	**35B9SS**	3/8	3/8	27/32 ▲	3/4	.10
10	1.380	**35B10SS**	3/8	9/16	31/32 ▲	3/4	.15
11	1.500	**35B11SS**	3/8	9/16	1 1/16 ▲	3/4	.20
12	1.630	**35B12SS**	1/2	5/8	1 7/32 ▲	3/4	.22
13	1.750	**35B13SS**	1/2	3/4	1 1/4 ▲	3/4	.25
14	1.870	**35B14SS**	1/2	7/8	1 1/4	3/4	.26
15	1.990	**35B15SS**	1/2	7/8	1 11/32	3/4	.30
16	2.110	**35B16SS**	1/2	15/16	1 15/32	3/4	.40
17	2.230	**35B17SS**	1/2	1 1/16	1 19/32	3/4	.43
18	2.350	**35B18SS**	1/2	1 3/16	1 23/32	3/4	.50
19	2.470	**35B19SS**	1/2	1 1/4	1 27/32	3/4	.56
20	2.590	**35B20SS**	1/2	1 5/16	1 15/16	3/4	.68
21	2.710	**35B21SS**	1/2	1 3/8	2	7/8	.80
22	2.833	**35B22SS**	1/2	1 3/8	2	7/8	.82
23	2.950	**35B23SS**	1/2	1 3/8	2	7/8	.87
24	3.070	**35B24SS**	1/2	1 3/8	2	7/8	.89
25	3.190	**35B25SS**	1/2	1 3/8	2	7/8	.91
26	3.310	**35B26SS**	1/2	1 3/8	2	7/8	.93
28	3.550	**35B28SS**	1/2	1 1/2	2 1/4	1	1.00
30	3.790	**35B30SS**	1/2	1 1/2	2 1/4	1	1.06
32	4.032	**35B32SS**	1/2	1 1/2	2 1/4	1	1.13
35	4.390	**35B35SS**	1/2	1 1/2	2 1/4	1	1.56
40	4.990	**35B40SS**	1/2	1 1/2	2 1/4	1	1.70
45	5.590	**35B45SS**	1/2	1 1/2	2 1/4	1	2.18
60	7.380	**35B60SS**	1/2	1 1/2	2 1/4	1	3.00

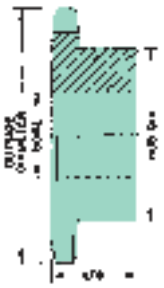
SEE CURRENT DISCOUNT SHEET FOR ALTERATION CHARGES
▲ Has recessed groove in hub for chain clearance

CHAIN TECHNICAL DATA

Size	35SS
Pitch	3/8″
Inside Width	3/16″
Roller Diameter	.200″



TYPE A



TYPE B

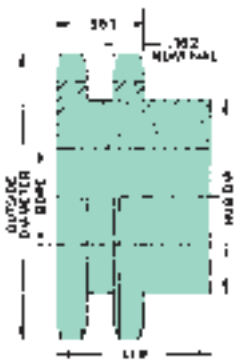
No. 35 3/8" Pitch — Multiple Strand

Dimensions are in inches unless otherwise indicated.

Basic Sprocket Dimensions			35-2 Double Strand				
No. Teeth	Outside Diameter	Plain Bore	Catalog Number	Hub Dia.	LTB	†Max. Bore	Wt. Lbs.
13	1.746	½	**D35B13**	1⅛	1¼	¾	.35
14	1.868	½	**D35B14**	1¼	1¼	13/16	.42
15	1.989	½	**D35B15**	1 11/32	1¼	⅞	.53
16	2.110	½	**D35B16**	1 15/32	1¼	15/16	.63
17	2.231	½	**D35B17**	1 19/32	1¼	1 1/16	.74
18	2.352	½	**D35B18**	1 23/32	1¼	1⅛	.86
19	2.472	½	**D35B19**	1 27/32	1¼	1¼	.98
20	2.593	½	**D35B20**	1 31/32	1⅜	1 5/16	1.21
21	2.713	½	**D35B21**	2 1/16	1⅜	1⅜	1.37
22	2.833	½	**D35B22**	2 3/16	1⅜	1 7/16	1.54
23	2.954	½	**D35B23**	2 5/16	1⅜	1½	1.70
24	3.074	½	**D35B24**	2 7/16	1⅜	1⅝	1.90
25	3.194	½	**D35B25**	2 9/16	1⅜	1 11/16	2.07
26	3.314	½	**D35B26**	2 11/16	1⅜	1¾	2.26
30	3.793	½	**D35B30**	3 5/32	1⅜	2	3.15
36	4.511	11/16	**D35B36**	2½	1⅜	1¾	3.30
42	5.229	11/16	**D35B42**	2½	1⅜	1¾	4.30
48	5.946	11/16	**D35B48**	2½	1⅜	1¾	5.40
52	6.425	11/16	**D35B52**	2½	1⅜	1¾	6.20
60	7.380	11/16	**D35B60**	2½	1⅜	1¾	8.00

SEE CURRENT DISCOUNT SHEET FOR ALTERATION CHARGES

† Dimensions shown allow for standard keyway with set screw at 90°



TYPE B

CHAIN TECHNICAL DATA

Size	35-2
Pitch	3/8"
Inside Width	3/16"
Roller Diameter	.200"

No. 35 — 3/8″ Pitch — TAPER-LOCK®

Dimensions are in inches unless otherwise indicated.

Type B TAPER-LOCK®							
No. Teeth	Outside Diameter	Catalog Number	Bushing	Max. Bore	Hub Dia.	LTB	Wt. Lbs.
18	2.352	**35BTL18**	1008	1	1⅞ ▲	⅞	.40
19	2.472	**35BTL19**	1008	1	1 13/16	⅞	.50
20	2.593	**35BTL20**	1008	1	1 15/16	⅞	.60
21	2.713	**35BTL21**	1008	1	2 1/16	⅞	.70
22	2.883	**35BTL22**	1210	1¼	2⅜ ▲	1	.80

▲Has recessed groove in hub for chain clearance

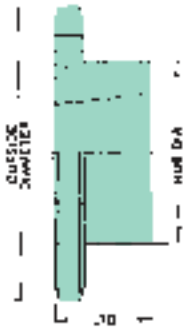
Dimensions are in inches unless otherwise indicated.

TAPER-LOCK® Bushings		
Bushing	Bore Range	Wt. Lbs.
1008	½ — 1	.20
1210	½ — 1¼	.55

Refer to page C-66 for bushing specifications

TAPER-LOCK® is a registered trademark of Rockwell Automation.

CHAIN TECHNICAL DATA	
Size	35
Pitch	3/8″
Inside Width	3/16″
Roller Diameter	.200″



TYPE B

No. 35 3/8″ Pitch — QD®

Dimensions are in inches unless otherwise indicated.

35 QD® 3/8″ Pitch												
No. Teeth	Outside Diameter	Catalog Number	Bushing	Max. Bore	Hub Type	Dia.	LTB	X	Y	L	F	Wt. Lbs.
19	2.472	**35JA19**	JA	1¼	B	2¹⁄₁₆	⁹⁄₁₆	1	1	⁴⁵⁄₆₄	2	.30
20	2.593	**35JA20**	JA	1¼	B	2¹⁄₁₆	⁹⁄₁₆	1	1	⁴⁵⁄₆₄	2	.30
21	2.713	**35JA21**	JA	1¼	B	2¹⁄₁₆	⁹⁄₁₆	1	1	⁴⁵⁄₆₄	2	.30
24	3.074	**35JA24**	JA	1¼	B	2¼	⁹⁄₁₆	1	1	⁴⁵⁄₆₄	2	.50
25	3.194	**35JA25**	JA	1¼	B	2¼	⁹⁄₁₆	1	1	⁴⁵⁄₆₄	2	.50
26	3.314	**35JA26**	JA	1¼	B	2¼	⁹⁄₁₆	1	1	⁴⁵⁄₆₄	2	.50
27	3.434	**35JA27**	JA	1¼	B	2¼	⁹⁄₁₆	1	1	⁴⁵⁄₆₄	2	.60
28	3.553	**35JA28**	JA	1¼	B	2¼	⁹⁄₁₆	1	1	⁴⁵⁄₆₄	2	.60
30	3.793	**35JA30**	JA	1¼	B	2¼	⁹⁄₁₆	1	1	⁴⁵⁄₆₄	2	.70
40	4.990	**35SH40**	SH	1¹¹⁄₁₆	B	3	⁹⁄₁₆	1⅜	1⅜	1¹⁄₆₄	2¹¹⁄₁₆	1.40
48	5.946	**35SH48**	SH	1¹¹⁄₁₆	B	3	¹³⁄₁₆	1⅜	1⅜	1¹⁄₆₄	2¹¹⁄₁₆	1.70

Dimensions are in inches unless otherwise indicated.

QD® Bushings				
	Bore Range			
Bushing	Standard Keyway	Shallow Keyway	No Keyway	Wt. Lbs.
JA	½ — 1	1¹⁄₁₆ — 1³⁄₁₆	1¼	.80
SH	½ — 1⅜	1⁷⁄₁₆ — 1⅝	1¹¹⁄₁₆	.70

Refer to page C-69 for bushing specifications

QD® is a registered trademark of and is used under license from Emerson Power Transmission Manufacturing, L.P.

TYPE B

CHAIN TECHNICAL DATA

Size	35
Pitch	⅜″
Inside Width	³⁄₁₆″
Roller Diameter	.200″

U.S. TSUBAKI STOCK SPROCKETS

No. 40 1/2" Pitch — Plain Bore

Dimensions are in inches unless otherwise indicated.

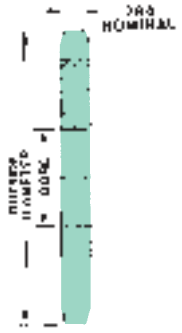
Type A				Type B Plain Bore					
No. Teeth	Catalog Number	Plain Bore	Wt. Lbs.	Catalog Number	Plain Bore	†Max. Bore	Hub Dia.	LTB	Wt. Lbs.
8				40B8	1/2	1/2	31/32 ▲	7/8	.12
9				40B9	1/2	5/8	1 1/8 ▲	7/8	.22
10				40B10	1/2	3/4	1 1/4 ▲	7/8	.25
11				40B11	1/2	7/8	1 29/64 ▲	7/8	.38
12	40A12	1/2	.26	40B12	1/2	1	1 9/16 ▲	7/8	.44
13	40A13	1/2	.30	40B13	1/2	1	1 9/16	7/8	.50
14	40A14	1/2	.34	40B14	1/2	1	1 11/16	7/8	.57
15	40A15	5/8	.38	40B15	1/2	1 1/4	1 13/16	7/8	.69
16	40A16	5/8	.41	40B16	5/8	1 1/4	2	7/8	.81
17	40A17	5/8	.44	40B17	5/8	1 5/16	2 1/8	7/8	.94
18	40A18	5/8	.46	40B18	5/8	1 1/2	2 5/16	7/8	1.12
19	40A19	5/8	.52	40B19	5/8	1 3/4	2 1/2	7/8	1.30
20	40A20	5/8	.58	40B20	5/8	1 3/4	2 5/8	1	1.60
21	40A21	5/8	.64	40B21	5/8	1 3/4	2 25/32	1	1.80
22	40A22	5/8	.70	40B22	5/8	1 3/4	2 1/2	1	2.00
23	40A23	5/8	.77	40B23	5/8	1 3/4	2 1/2	1	2.10
24	40A24	5/8	.84	40B24	5/8	1 3/4	2 1/2	1	2.20
25	40A25	5/8	.91	40B25	5/8	1 3/4	2 1/2	1	2.30
26	40A26	5/8	1.00	40B26	5/8	1 3/4	2 1/2	1	2.40
27	40A27	5/8	1.10	40B27	5/8	1 3/4	2 1/2	1	2.50
28	40A28	5/8	1.10	40B28	5/8	1 3/4	2 1/2	1	2.50
29	40A29	5/8	1.20	40B29	5/8	1 3/4	2 1/2	1	2.60
30	40A30	5/8	1.30	40B30	5/8	1 3/4	2 1/2	1	2.70
31	40A31	3/4	1.40	40B31	3/4	1 3/4	2 1/2	1	2.70
32	40A32	3/4	1.50	40B32	3/4	1 3/4	2 1/2	1	2.80
33	40A33	3/4	1.60	40B33	3/4	1 3/4	2 1/2	1	2.90
34	40A34	3/4	1.70	40B34	3/4	1 3/4	2 1/2	1	3.00
35	40A35	3/4	1.80	40B35	3/4	1 3/4	2 1/2	1	3.10
36	40A36	3/4	1.90	40B36	3/4	1 3/4	2 1/2	1	3.20
38	40A38	3/4	2.10	40B38	3/4	2	3	1 1/8	3.80
40	40A40	3/4	2.40	40B40	3/4	2	3	1 1/8	4.10
42	40A42	3/4	2.60	40B42	3/4	2	3	1 1/8	4.30
44	40A44	3/4	2.90	40B44	3/4	2	3	1 1/8	4.60
45	40A45	3/4	3.00	40B45	3/4	2	3	1 1/8	4.70
46	40A46	3/4	3.10	40B46	3/4	2	3	1 1/8	4.90
47	40A47	3/4	3.30	40B47	3/4	2	3	1 1/8	5.10
48	40A48	3/4	3.40	40B48	3/4	2	3	1 1/8	5.20
50	40A50	3/4	3.70	40B50	3/4	2	3	1 1/8	5.40
54	40A54	3/4	4.30	40B54	3/4	2	3	1 1/8	6.00
60	40A60	3/4	5.30	40B60	3/4	2	3	1 1/8	7.00
70	40A70	1	7.20	40B70	1	2	3	1 1/8	8.90
72	40A72	1	7.70	40B72	1	2	3	1 1/8	9.50
80	40A80	1	9.50	40B80	1	2	3	1 1/8	11.20
84	40A84	1	10.40	40B84	1	2	3	1 1/8	12.10
96	40A96	1	13.70	40B96	1	2	3	1 1/8	15.40
112	40A112	1	18.60	40B112	1	2	3	1 1/8	20.30

SEE CURRENT DISCOUNT SHEET FOR ALTERATION CHARGES

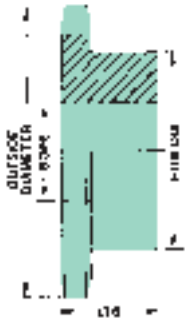
▲Has recessed groove in hub for chain clearance †Dimensions shown allow for standard keyway with set screw at 90°
Note: Consult U.S. Tsubaki for availability of No. 41 Plain Bore Sprockets.

CHAIN TECHNICAL DATA

Size	40
Pitch	1/2"
Inside Width	5/16"
Roller Diameter	.312"



TYPE A



TYPE B

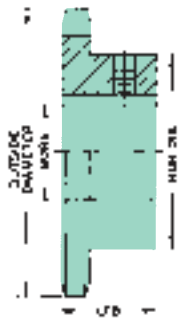
C - SPROCKETS

No. 40 1/2″ Pitch — Finished Bore

Dimensions are in inches unless otherwise indicated.

Type F Bored to Size											Sprocket Diameters ½″ Pitch		
No. Teeth	Catalog Number	Available Bores (Includes Standard KW & 2SS)									Outside Diameter	Pitch Diameter	Caliper Diameter
9	40B9F	½,	⅝								1.674	1.462	1.127
10	40B10F	½,	⅝,	¾							1.839	1.618	1.305
11	40B11F	½,	⅝,	¾,	⅞						2.003	1.775	1.444
12	40B12F	½,	⅝,	¾,	⅞,	1					2.166	1.932	1.620
13	40B13F	½,	⅝,	¾,	⅞,	1					2.328	2.089	1.761
14	40B14F	½,	⅝,	¾,	⅞,	1					2.490	2.247	1.934
15	40B15F	½,	⅝,	¾,	⅞,	1,	1⅛,	1⅜16 ●,	1¼ ●		2.652	2.405	2.079
16	40B16F		⅝,	¾,	⅞,	1,	1⅛,	1⅜16,	1¼		2.814	2.563	2.250
17	40B17F		⅝,	¾,	⅞,	1,	1⅛,	1⅜16,	1¼		2.974	2.721	2.397
18	40B18F		⅝,	¾,	⅞,	1,	1⅛,	1⅜16,	1¼,	1⅞16 ●, 1½ ●	3.136	2.879	2.567
19	40B19F		⅝,	¾,	⅞,	1,	1⅛,	1⅜16,	1¼,	1⅞16, 1½	3.292	3.038	2.715
20	40B20F		⅝,	¾,	⅞,	1,	1⅛,	1⅜16,	1¼,	1⅞16, 1½	3.457	3.196	2.883
21	40B21F		⅝,	¾,	⅞,	1,	1⅛,	1⅜16,	1¼,	1⅞16, 1½	3.618	3.355	3.033
22	40B22F		⅝,	¾,	⅞,	1,	1⅛,	1⅜16,	1¼,	1⅞16, 1½	3.778	3.513	3.201
23	40B23F		⅝,	¾,	⅞,	1,	1⅛,	1⅜16,	1¼,	1⅞16, 1½	3.938	3.672	3.351
24	40B24F		⅝,	¾,	⅞,	1,	1⅛,	1⅜16,	1¼,	1⅞16, 1½	4.098	3.831	3.518
25	40B25F		⅝,	¾,	⅞,	1,	1⅛,	1⅜16,	1¼,	1⅞16, 1½	4.258	3.989	3.669
26	40B26F		⅝,	¾,	⅞,	1,	1⅛,	1⅜16,	1¼,	1⅞16, 1½	4.418	4.148	3.835
27	40B27F		⅝,	¾,	⅞,	1,	1⅛,	1⅜16,	1¼,	1⅞16, 1½	4.578	4.307	3.987
28	40B28F		⅝,	¾,	⅞,	1,	1⅛,	1⅜16,	1¼,	1⅞16, 1½	4.738	4.465	4.153
30	40B30F		⅝,	¾,	⅞,	1,	1⅛,	1⅜16,	1¼,	1⅞16, 1½	5.057	4.783	4.471
32	40B32F		⅝,	¾,	⅞,	1,	1⅛,	1⅜16,	1¼,	1⅞16, 1½	5.376	5.101	4.788
34	40B34F		⅝,	¾,	⅞,	1,	1⅛,	1⅜16,	1¼,	1⅞16, 1½	5.696	5.419	5.107
35	40B35F		⅝,	¾,	⅞,	1,	1⅛,	1⅜16,	1¼,	1⅞16, 1½	5.856	5.578	5.260
36	40B36F		⅝,	¾,	⅞,	1,	1⅛,	1⅜16,	1¼,	1⅞16, 1½	6.015	5.737	5.425
38	40B38F		⅝,	¾,	⅞,	1,	1⅛,	1⅜16,	1¼,	1⅞16, 1½	6.334	6.055	5.742
40	40B40F		⅝,	¾,	⅞,	1,	1⅛,	1⅜16,	1¼,	1⅞16, 1½	6.653	6.373	6.061
42	40B42F		⅝,	¾,	⅞,	1,	1⅛,	1⅜16,	1¼,	1⅞16, 1½	6.972	6.691	6.379
45	40B45F		⅝,	¾,	⅞,	1,	1⅛,	1⅜16,	1¼,	1⅞16, 1½	7.450	7.168	6.851
48	40B48F		⅝,	¾,	⅞,	1,	1⅛,	1⅜16,	1¼,	1⅞16, 1½	7.928	7.645	7.332
49	40B49F		⅝,	¾,	⅞,	1,	1⅛,	1⅜16,	1¼,	1⅞16, 1½	8.088	7.804	7.487
50	40B50F		⅝,	¾,	⅞,	1,	1⅛,	1⅜16,	1¼,	1⅞16, 1½	8.248	7.963	7.650
54	40B54F		⅝,	¾,	⅞,	1,	1⅛,	1⅜16,	1¼,	1⅞16, 1½	8.884	8.599	8.286
60	40B60F		⅝,	¾,	⅞,	1,	1⅛,	1⅜16,	1¼,	1⅞16, 1½	9.840	9.554	9.241

● Indicates set screw at 90° and 180° from keyway
Note: Consult U.S. Tsubaki for availability of No. 41 Finished Bore Sprockets.



TYPE B

CHAIN TECHNICAL DATA	
Size	40
Pitch	½″
Inside Width	5⁄16″
Roller Diameter	.312″

No. 40 1/2" Pitch — Stainless Steel

Dimensions are in inches unless otherwise indicated.

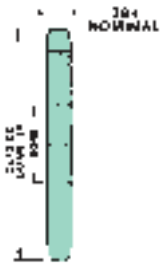
Single — Type B — Stainless Steel								Single — Type A		
No. Teeth	Outside Diameter	Catalog Number	Plain Bore	Max. Bore	Hub Dia.	LTB	Wt. Lbs.	Catalog Number	Stock Bore	Wt. Lbs.
10	1.840	**40B10SS**	1/2	3/4	1 1/4 ▲	7/8	.28			
11	2.000	**40B11SS**	1/2	13/16	1 3/8 ▲	7/8	.36			
12	2.170	**40B12SS**	1/2	15/16	1 9/16 ▲	7/8	.44			
13	2.330	**40B13SS**	1/2	1 1/16	1 9/16	7/8	.50			
14	2.490	**40B14SS**	1/2	1 1/8	1 11/16	7/8	.60			
15	2.650	**40B15SS**	1/2	1 1/4	1 13/16	7/8	.68			
16	2.810	**40B16SS**	5/8	1 3/8	2	7/8	.82			
17	2.980	**40B17SS**	5/8	1 7/16	2 1/8	1	1.20			
18	3.140	**40B18SS**	5/8	1 1/2	2 5/16	1	1.24			
19	3.300	**40B19SS**	5/8	1 3/4	2 1/2	1	1.42			
20	3.460	**40B20SS**	5/8	1 7/8	2 5/8	1	1.60			
21	3.620	**40B21SS**	5/8	1 7/8	2 3/4	1	1.68			
22	3.780	**40B22SS**	5/8	1 7/8	2 7/8	1	1.81			
23	3.940	**40B23SS**	5/8	2	3	1	2.18			
24	4.100	**40B24SS**	5/8	2	3	1	2.20	**40A24SS**	19/32	.80
25	4.260	**40B25SS**	5/8	2	3	1	2.39	**40A25SS**	19/32	.90
26	4.420	**40B26SS**	5/8	2	3	1	2.40	**40A26SS**	19/32	1.30
28	4.740	**40B28SS**	5/8	2	3	1	2.75	**40A28SS**	19/32	1.30
30	5.060	**40B30SS**	5/8	2	3	1	2.88	**40A30SS**	19/32	1.30
35	5.860	**40B35SS**	5/8	2	3	1	3.32	**40A35SS**	19/32	1.90
40	6.650	**40B40SS**	5/8	2	3	1	4.28	**40A40SS**	19/32	2.30
45	7.450	**40B45SS**	5/8	2	3	1	4.68	**40A45SS**	19/32	3.10
60	9.840	**40B60SS**	5/8	2	3	1	7.00	**40A60SS**	19/32	5.50

SEE CURRENT DISCOUNT SHEET FOR ALTERATION CHARGES

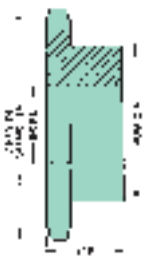
▲Has recessed groove in hub for chain clearance

CHAIN TECHNICAL DATA

Size	40SS
Pitch	1/2"
Inside Width	5/16"
Roller Diameter	.312"



TYPE A



TYPE B

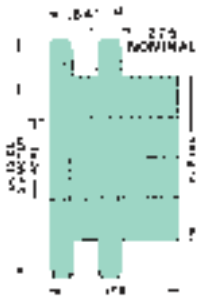
No. 40 1/2" Pitch — Multiple Strand

Dimensions are in inches unless otherwise indicated.

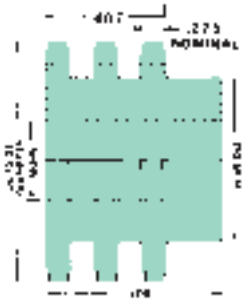
Basic Sprocket Dimensions			40-2 Double Strand					40-3 Triple Strand				
No. Teeth	Outside Diameter	Plain Bore	Catalog Number	Hub Dia.	LTB	†Max. Bore	Wt. Lbs.	Catalog Number	Hub Dia.	LTB	†Max. Bore	Wt. Lbs.
11	2.003	1/2	**D40B11**	1 7/16▲	1 1/2	3/4	.60	**T40B11**	1 7/16▲	2 1/8	3/4	.80
12	2.166	1/2	**D40B12**	1 9/16▲	1 1/2	7/8	.70	**T40B12**	1 9/16▲	2 1/8	7/8	1.10
13	2.328	1/2	**D40B13**	1 1/2	1 1/2	1	.80	**T40B13**	1 1/2	2 1/8	1	1.20
14	2.490	1/2	**D40B14**	1 21/32	1 1/2	1 1/8	1.00	**T40B14**	1 21/32	2 1/8	1 1/8	1.50
15	2.650	1/2	**D40B15**	1 13/16	1 1/2	1 1/4	1.20	**T40B15**	1 13/16	2 1/8	1 1/4	1.70
16	2.814	5/8	**D40B16**	1 31/32	1 1/2	1 3/8	1.40	**T40B16**	1 31/32	2 1/8	1 3/8	2.00
17	2.974	5/8	**D40B17**	2 5/32	1 1/2	1 7/16	1.60	**T40B17**	2 5/32	2 1/8	1 7/16	2.40
18	3.136	5/8	**D40B18**	2 5/16	1 1/2	1 1/2	1.90	**T40B18**	2 5/16	2 1/8	1 1/2	2.70
19	3.292	5/8	**D40B19**	2 15/32	1 1/2	1 5/8	2.10	**T40B19**	2 15/32	2 1/8	1 5/8	3.10
20	3.457	5/8	**D40B20**	2 5/8	1 5/8	1 3/4	2.60	**T40B20**	2 5/8	2 1/4	1 3/4	3.70
21	3.618	5/8	**D40B21**	2 25/32	1 5/8	1 7/8	2.90	**T40B21**	2 25/32	2 1/4	1 7/8	4.10
22	3.778	5/8	**D40B22**	2 15/16	1 5/8	1 7/8	3.30	**T40B22**	2 15/16	2 1/4	1 7/8	4.60
23	3.938	5/8	**D40B23**	3 3/32	1 5/8	2	3.60	**T40B23**	3 3/32	2 1/4	2	5.10
24	4.098	5/8	**D40B24**	3 9/32	1 5/8	2 1/4	4.00	**T40B24**	3 9/32	2 1/4	2 1/4	5.60
25	4.258	5/8	**D40B25**	3 7/16	1 5/8	2 1/4	4.40	**T40B25**	3 7/16	2 1/4	2 1/4	6.20
26	4.418	5/8	**D40B26**	3 19/32	1 5/8	2 3/8	4.80	**T40B26**	3 19/32	2 1/4	2 3/8	6.80
30	5.057	11/16	**D40B30**	3 1/4	1 5/8	2 1/4	5.60	**T40B30**	3 1/4	2 1/4	2 1/4	8.00
35	5.856	11/16	**D40B35**	3 1/4	1 5/8	2 1/4	7.10	**T40B35**	3 1/4	2 1/4	2 1/4	10.50
36	6.015	15/16	**D40B36**	3 3/4	1 3/4	2 1/2	9.40	**T40B36**	3 3/4	2 3/8	2 1/2	12.20
40	6.653	15/16	**D40B40**	3 3/4	1 3/4	2 1/2	10.80					
45	7.450	15/16	**D40B45**	3 3/4	1 3/4	2 1/2	12.90					
48	7.928	15/16	**D40B48**	3 3/4	1 3/4	2 1/2	14.20					
54	8.884	15/16	**D40B54**	3 3/4	1 3/4	2 1/2	17.20					
60	9.840	15/16	**D40B60**	3 3/4	1 3/4	2 1/2	20.60					

† Dimensions shown allow for standard keyway with set screw at 90˚

▲Has recessed groove in hub for chain clearance



TYPE B



TYPE B

CHAIN TECHNICAL DATA

Size	40-2, 40-3
Pitch	1/2"
Inside Width	5/16"
Roller Diameter	.312"

No. 40 ½" Pitch — TAPER-LOCK®

Dimensions are in inches unless otherwise indicated.

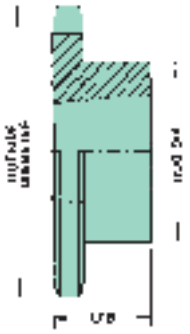
Type B TAPER-LOCK®							
No. Teeth	Outside Diameter	Catalog Number	Bushing	Max. Bore	Hub Dia.	LTB	Wt. Lbs.
14	2.491	**40BTL14**	1008	1	1 13/16 ▲	7/8	.30
15	2.652	**40BTL15**	1008	1	1 13/16	7/8	.40
16	2.814	**40BTL16**	1008	1	1 15/16	7/8	.50
17	2.975	**40BTL17**	1210	1 1/4	2 3/8 ▲	1	.50
18	3.135	**40BTL18**	1210	1 1/4	2 15/32 ▲	1	.60
19	3.296	**40BTL19**	1210	1 1/4	2 15/32	1	.70
20	3.457	**40BTL20**	1610	1 5/8	2 25/32 ▲	1	.70
21	3.617	**40BTL21**	1610	1 5/8	2 25/32	1	.80
22	3.778	**40BTL22**	1610	1 5/8	2 25/32	1	.90
23	3.938	**40BTL23**	1610	1 5/8	3	1	1.00
24	4.098	**40BTL24**	1610	1 5/8	3 1/4	1	1.40
25	4.258	**40BTL25**	1610	1 5/8	3 1/4	1	1.50
26	4.418	**40BTL26**	1610	1 5/8	3 1/4	1	1.70
28	4.738	**40BTL28**	1610	1 5/8	3	1	1.80
30	5.057	**40BTL30**	1610	1 5/8	3	1	1.90
32	5.377	**40BTL32**	1610	1 5/8	3	1	1.90
35	5.855	**40BTL35**	1610	1 5/8	3	1	2.30
36	6.015	**40BTL36**	1610	1 5/8	3	1	2.40
40	6.653	**40BTL40**	1610	1 5/8	3	1	2.80
42	6.972	**40BTL42**	1610	1 5/8	3	1	2.90
45	7.451	**40BTL45**	1610	1 5/8	3	1	3.50
48	7.928	**40BTL48**	1610	1 5/8	3	1	4.00
54	8.885	**40BTL54**	1610	1 5/8	3	1	4.90
60	9.841	**40BTL60**	1610	1 5/8	3	1	6.00
70	11.434	**40BTL70**	2012	2	3 5/8	1 1/4	8.20
72	11.752	**40BTL72**	2012	2	3 5/8	1 1/4	9.00
80	13.026	**40BTL80**	2012	2	3 5/8	1 1/4	10.80
84	13.663	**40BTL84**	2012	2	3 5/8	1 1/4	11.30
96	15.573	**40BTL96**	2012	2	3 5/8	1 1/4	14.60
112	18.122	**40BTL112**	2517	2 1/2	4 1/4	1 3/4	20.50

▲Has recessed groove in hub for chain clearance
Note: Consult U.S. Tsubaki for availability of No. 41 TAPER-LOCK Sprockets.

TAPER-LOCK® is a registered trademark of Rockwell Automation.

CHAIN TECHNICAL DATA

Size	40
Pitch	½"
Inside Width	5/16"
Roller Diameter	.312"



TYPE B

No. 40 1/2" Pitch — TAPER-LOCK®

Dimensions are in inches unless otherwise indicated.

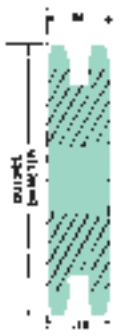
Double TAPER-LOCK®							
No. Teeth	Outside Diameter	Catalog Number	Bushing	Max. Bore	Hub Dia.	LTB	Wt. Lbs.
15	2.652	**D40ATL15**	1008	1	1 17/64	7/8	.50
16	2.814	**D40ATL16**	1008	1	1 17/64	7/8	.60
17	2.975	**D40ATL17**	1008	1	1 17/64	7/8	.80
18	3.135	**D40BTL18**	1210	1 1/4	2 5/16	1	.70
19	3.296	**D40BTL19**	1210	1 1/4	2 1/2	1	.90
20	3.457	**D40BTL20**	1610	1 5/8	2 5/8	1	.70
21	3.617	**D40BTL21**	1610	1 5/8	2 3/4	1	.90
23	3.938	**D40BTL23**	1610	1 5/8	3	1	1.30
25	4.258	**D40BTL25**	2012	2	3 13/32	1 1/4	1.70
30	5.057	**D40BTL30**	2012	2	4 15/64	1 1/4	3.40
36	6.015	**D40BTL36**	2012	2	5 5/32	1 1/4	6.00
42	6.972	**D40CTL42**	2517	2 1/2	4 1/4	1 3/4	7.00
48	7.928	**D40CTL48**	2517	2 1/2	4 1/4	1 3/4	9.60

Dimensions are in inches unless otherwise indicated.

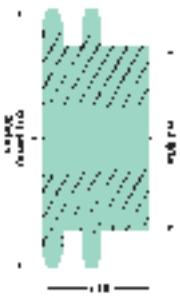
TAPER-LOCK® Bushings		
Bushing	Bore Range	Wt. Lbs.
1008	1/2 — 1	.20
1210	1/2 — 1 1/4	.50
1610	1/2 — 1 5/8	.70
2012	1/2 — 2	1.40
2517	1/2 — 2 1/2	3.20

Refer to page C-66 for bushing specifications

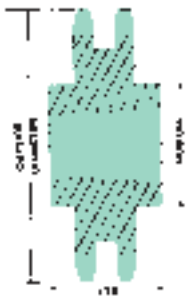
TAPER-LOCK® is a registered trademark of Rockwell Automation.



TYPE A



TYPE B



TYPE C

CHAIN TECHNICAL DATA	
Size	40
Pitch	1/2"
Inside Width	5/16"
Roller Diameter	.312"

No. 40 1/2" Pitch — QD®

Dimensions are in inches unless otherwise indicated.

40 QD® 1/2" Pitch												
No. Teeth	Outside Diameter	Catalog Number	Bushing	Max. Bore	Type	Hub Dia.	LTB	X	Y	L	F	Wt. Lbs.
15	2.652	**40JA15**	JA	1¼	B	2 1/16	9/16	1	1	19/32	2	.30
16	2.814	**40JA16**	JA	1¼	B	2 1/16	9/16	1	1	19/32	2	.40
17	2.974	**40JA17**	JA	1¼	B	2 3/16	9/16	1	1	19/32	2	.50
18	3.136	**40JA18**	JA	1¼	B	2¼	9/16	1	1	19/32	2	.50
19	3.292	**40JA19**	JA	1¼	B	2¼	9/16	1	1	19/32	2	.60
20	3.457	**40SH20**	SH	1 11/16	B	2¾	13/16	1⅜	1⅜	29/32	2 11/16	.60
21	3.618	**40SH21**	SH	1 11/16	B	2¾	13/16	1⅜	1⅜	29/32	2 11/16	.80
22	3.778	**40SH22**	SH	1 11/16	B	3	13/16	1⅜	1⅜	29/32	2 11/16	1.10
23	3.938	**40SH23**	SH	1 11/16	B	3	13/16	1⅜	1⅜	29/32	2 11/16	1.10
24	4.098	**40SH24**	SH	1 11/16	B	3	13/16	1⅜	1⅜	29/32	2 11/16	1.20
25	4.258	**40SH25**	SH	1 11/16	B	3	13/16	1⅜	1⅜	29/32	2 11/16	1.30
26	4.418	**40SH26**	SH	1 11/16	B	3	13/16	1⅜	1⅜	29/32	2 11/16	1.40
27	4.578	**40SH27**	SH	1 11/16	B	3	13/16	1⅜	1⅜	29/32	2 11/16	1.50
28	4.738	**40SH28**	SH	1 11/16	B	3	13/16	1⅜	1⅜	29/32	2 11/16	1.60
30	5.057	**40SH30**	SH	1 11/16	B	3	13/16	1⅜	1⅜	29/32	2 11/16	1.70
32	5.376	**40SH32**	SH	1 11/16	B	3	13/16	1⅜	1⅜	29/32	2 11/16	1.90
35	5.856	**40SH35**	SH	1 11/16	B	3	13/16	1⅜	1⅜	29/32	2 11/16	2.20
36	6.015	**40SDS36**	SDS	2	B	3½	¾	1 7/16	1 7/16	31/32	3 3/16	2.30
40	6.653	**40SDS40**	SDS	2	B	3½	¾	1 7/16	1 7/16	31/32	3 3/16	2.80
42	6.972	**40SDS42**	SDS	2	B	3½	¾	1 7/16	1 7/16	31/32	3 3/16	3.00
45	7.450	**40SDS45**	SDS	2	B	3½	¾	1 7/16	1 7/16	31/32	3 3/16	3.40
48	7.928	**40SDS48**	SDS	2	B	3½	¾	1 7/16	1 7/16	31/32	3 3/16	3.90
54	8.884	**40SDS54**	SDS	2	B	3½	¾	1 7/16	1 7/16	31/32	3 3/16	4.70
60	9.840	**40SDS60**	SDS	2	B	3½	¾	1 7/16	1 7/16	31/32	3 3/16	5.80
70	11.433	**40SK70**	SK	2⅝	B	4¼	1¼	2 1/16	2 1/16	1 17/32	3⅞	9.00
72	11.752	**40SK72**	SK	2⅝	B	4¼	1¼	2 1/16	2 1/16	1 17/32	3⅞	9.10
80	13.026	**40SK80**	SK	2⅝	B	4¼	1¼	2 1/16	2 1/16	1 17/32	3⅞	11.10
84	13.663	**40SK84**	SK	2⅝	B	4¼	1¼	2 1/16	2 1/16	1 17/32	3⅞	11.60
96	15.573	**40SK96**	SK	2⅝	B	4¼	1¼	2 1/16	2 1/16	1 17/32	3⅞	15.30
112	18.121	**40SK112**	SK	2⅝	B	4¼	1¼	2 1/16	2 1/16	1 17/32	3⅞	19.50

QD® is a registered trademark of and is used under license from Emerson Power Transmission Manufacturing, L.P.

Note: Consult U.S. Tsubaki for availability of No. 41 QD Sprockets.

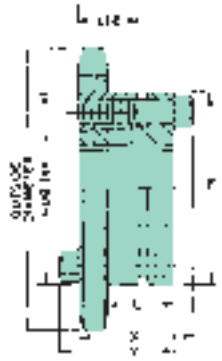
Dimensions are in inches unless otherwise indicated.

QD® Bushings				
Bushing	Bore Range		No Keyway	Wt. Lbs.
	Standard Keyway	Shallow Keyway		
JA	½ — 1	1/16 — 1 3/16	1¼	.80
SH	½ — 1⅜	7/16 — 1⅝	1 11/16	.70
SDS	½ — 1 11/16	¾ — 1 15/16	2	1.00
SK	½ — 2⅛	2 3/16 — 2½	2 9/16 — 2⅝	2.10

Refer to page C-69 for bushing specifications

CHAIN TECHNICAL DATA

Size	40
Pitch	½"
Inside Width	5/16"
Roller Diameter	.312"



TYPE B

No. 50 5/8" Pitch — Plain Bore

Dimensions are in inches unless otherwise indicated.

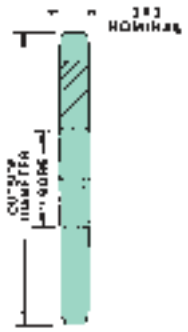
Type A				Type B Plain Bore					
No. Teeth	Catalog Number	Plain Bore	Wt. Lbs.	Catalog Number	Plain Bore	†Max. Bore	Hub Dia.	LTB	Wt. Lbs.
8				50B8	5/8	3/4	1 1/8 ▲	1	.25
9				50B9	5/8	3/4	1 3/8 ▲	1	.43
10				50B10	5/8	1	1 9/16 ▲	1	.49
11				50B11	5/8	1	1 13/16 ▲	1	.64
12	50A12	5/8	.33	50B12	5/8	1 1/4	2 ▲	1	.81
13	50A13	5/8	.42	50B13	5/8	1 1/4	2 ▲	1	.92
14	50A14	5/8	.48	50B14	5/8	1 1/4	2 1/8	1	1.00
15	50A15	5/8	.54	50B15	5/8	1 1/2	2 3/8	1	1.20
16	50A16	5/8	.67	50B16	5/8	1 9/16	2 1/2	1	1.40
17	50A17	5/8	.71	50B17	5/8	1 7/8	2 11/16	1	1.80
18	50A18	5/8	.82	50B18	5/8	1 7/8	2 7/8	1 1/8	2.20
19	50A19	5/8	.94	50B19	5/8	2	3	1 1/8	2.50
20	50A20	5/8	1.00	50B20	5/8	2	3	1 1/8	2.70
21	50A21	3/4	1.10	50B21	3/4	2	3	1 1/4	2.90
22	50A22	3/4	1.30	50B22	3/4	2	3	1 1/4	3.00
23	50A23	3/4	1.40	50B23	3/4	2	3	1 1/4	3.10
24	50A24	3/4	1.50	50B24	3/4	2	3	1 1/4	3.20
25	50A25	3/4	1.60	50B25	3/4	2	3	1 1/4	3.30
26	50A26	3/4	1.80	50B26	3/4	2	3	1 1/4	3.40
27	50A27	3/4	1.90	50B27	3/4	2	3	1 1/4	3.60
28	50A28	3/4	2.10	50B28	3/4	2	3	1 1/4	3.80
29	50A29	3/4	2.20	50B29	3/4	2	3	1 1/4	3.90
30	50A30	3/4	2.30	50B30	3/4	2	3	1 1/4	4.00
31	50A31	3/4	2.40	50B31	3/4	2 1/8	3 1/4	1 3/8	4.90
32	50A32	3/4	2.60	50B32	3/4	2 1/8	3 1/4	1 3/8	5.10
33	50A33	3/4	3.00	50B33	3/4	2 1/8	3 1/4	1 3/8	5.20
34	50A34	3/4	3.20	50B34	3/4	2 1/8	3 1/4	1 3/8	5.30
35	50A35	3/4	3.30	50B35	3/4	2 1/8	3 1/4	1 3/8	5.40
36	50A36	3/4	3.50	50B36	3/4	2 1/8	3 1/4	1 3/8	5.70
37	50A37	3/4	3.90	50B37	3/4	2 1/8	3 1/4	1 3/8	6.00
38	50A38	3/4	3.90	50B38	3/4	2 1/8	3 1/4	1 3/8	6.30
39	50A39	3/4	4.00	50B39	3/4	2 1/8	3 1/4	1 3/8	6.40
40	50A40	3/4	4.30	50B40	3/4	2 1/8	3 1/4	1 3/8	6.60
42	50A42	3/4	4.70	50B42	3/4	2 1/8	3 1/4	1 3/8	7.10
43	50A43	3/4	4.90	50B43	3/4	2 1/8	3 1/4	1 3/8	7.40
44	50A44	3/4	5.10	50B44	3/4	2 1/8	3 1/4	1 3/8	7.70
45	50A45	3/4	5.30	50B45	3/4	2 1/8	3 1/4	1 3/8	7.80
48	50A48	1	6.10	50B48	1	2 1/8	3 1/4	1 3/8	8.50
49	50A49	1	6.30	50B49	1	2 1/8	3 1/4	1 3/8	9.00
50	50A50	1	6.70	50B50	1	2 1/8	3 1/4	1 3/8	9.40
52	50A52	1	7.30	50B52	1	2 1/8	3 1/4	1 3/8	10.10
54	50A54	1	8.10	50B54	1	2 1/8	3 1/4	1 3/8	10.80
55	50A55	1	8.20	50B55	1	2 1/8	3 1/4	1 3/8	11.00
60	50A60	1	10.30	50B60	1	2 1/8	3 1/4	1 3/8	12.10
70	50A70	1	13.60	50B70	1	2 1/8	3 1/4	1 3/8	15.70
72	50A72	1	14.50	50B72	1	2 1/8	3 1/4	1 3/8	16.40
80	50A80	1	18.40	50B80	1	2 3/4	4	1 5/8	22.80
84	50A84	1	19.30						
96	50A96	1	26.00						
112	50A112	1	36.40						

SEE CURRENT DISCOUNT SHEET FOR ALTERATION CHARGES

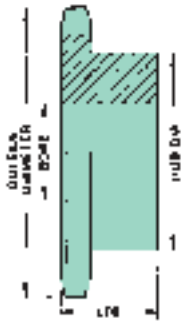
▲ Has recessed groove in hub for chain clearance †Dimensions shown allow for standard keyway with set screw at 90°

CHAIN TECHNICAL DATA

Size	50
Pitch	5/8"
Inside Width	3/8"
Roller Diameter	.400"



TYPE A



TYPE B

No. 50 — 5/8" Pitch — Finished Bore

Dimensions are in inches unless otherwise indicated.

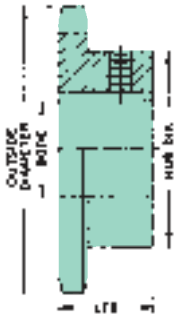
Type F Bored to Size													Sprocket Diameters 5/8" Pitch		
No. Teeth	Catalog Number	Available Bores (Includes Standard KW & 2SS)											Outside Diameter	Pitch Diameter	Caliper Diameter
9	50B9F	5/8,	3/4										2.093	1.828	1.400
10	50B10F	5/8,	3/4,	7/8,	1•								2.299	2.023	1.623
11	50B11F	5/8,	3/4,	7/8,	1								2.504	2.219	1.796
12	50B12F	5/8,	3/4,	7/8,	1,	1 1/8,	1 3/16,	1 1/4					2.708	2.415	2.015
13	50B13F	5/8,	3/4,	7/8,	1,	1 1/8,	1 3/16,	1 1/4					2.911	2.612	2.193
14	50B14F	5/8,	3/4,	7/8,	1,	1 1/8,	1 3/16,	1 1/4					3.113	2.809	2.409
15	50B15F	5/8,	3/4,	7/8,	1,	1 1/8,	1 3/16,	1 1/4,	1 3/8,	1 7/16			3.315	3.006	2.590
16	50B16F	5/8,	3/4,	7/8,	1,	1 1/8,	1 3/16,	1 1/4,	1 3/8,	1 7/16,	1 1/2		3.517	3.204	2.804
17	50B17F	5/8,	3/4,	7/8,	1,	1 1/8,	1 3/16,	1 1/4,	1 3/8,	1 7/16,	1 1/2		3.718	3.401	2.987
18	50B18F	5/8,	3/4,	7/8,	1,	1 1/8,	1 3/16,	1 1/4,	1 3/8,	1 7/16,	1 1/2		3.919	3.599	3.199
19	50B19F	5/8,	3/4,	7/8,	1,	1 1/8,	1 3/16,	1 1/4,	1 3/8,	1 7/16,	1 1/2		4.121	3.798	3.384
20	50B20F	5/8,	3/4,	7/8,	1,	1 1/8,	1 3/16,	1 1/4,	1 3/8,	1 7/16,	1 1/2		4.321	3.995	3.595
21	50B21F		3/4,	7/8,	1,	1 1/8,	1 3/16,	1 1/4,	1 3/8,	1 7/16,	1 1/2		4.522	4.194	3.782
22	50B22F		3/4,	7/8,	1,	1 1/8,	1 3/16,	1 1/4,	1 3/8,	1 7/16,	1 1/2		4.722	4.392	3.992
23	50B23F		3/4,	7/8,	1,	1 1/8,	1 3/16,	1 1/4,	1 3/8,	1 7/16,	1 1/2		4.923	4.590	4.179
24	50B24F		3/4,	7/8,	1,	1 1/8,	1 3/16,	1 1/4,	1 3/8,	1 7/16,	1 1/2		5.123	4.788	4.388
25	50B25F		3/4,	7/8,	1,	1 1/8,	1 3/16,	1 1/4,	1 3/8,	1 7/16,	1 1/2		5.323	4.987	4.577
26	50B26F		3/4,	7/8,	1,	1 1/8,	1 3/16,	1 1/4,	1 3/8,	1 7/16,	1 1/2		5.523	5.185	4.785
27	50B27F		3/4,	7/8,	1,	1 1/8,	1 3/16,	1 1/4,	1 3/8,	1 7/16,	1 1/2		5.723	5.384	4.975
28	50B28F		3/4,	7/8,	1,	1 1/8,	1 3/16,	1 1/4,	1 3/8,	1 7/16,	1 1/2		5.922	5.582	5.182
29	50B29F		3/4,	7/8,	1,	1 1/8,	1 3/16,	1 1/4,	1 3/8,	1 7/16,	1 1/2		6.122	5.781	5.371
30	50B30F		3/4,	7/8,	1,	1 1/8,	1 3/16,	1 1/4,	1 3/8,	1 7/16,	1 1/2		6.321	5.979	5.579
31	50B31F		3/4,	7/8,	1,	1 1/8,	1 3/16,	1 1/4,	1 3/8,	1 7/16,	1 1/2,	1 3/4,	1 15/16	6.521	6.178	5.770
32	50B32F		3/4,	7/8,	1,	1 1/8,	1 3/16,	1 1/4,	1 3/8,	1 7/16,	1 1/2,	1 3/4,	1 15/16	6.721	6.376	5.976
33	50B33F		3/4,	7/8,	1,	1 1/8,	1 3/16,	1 1/4,	1 3/8,	1 7/16,	1 1/2,	1 3/4,	1 15/16	6.921	6.575	6.168
34	50B34F		3/4,	7/8,	1,	1 1/8,	1 3/16,	1 1/4,	1 3/8,	1 7/16,	1 1/2,	1 3/4,	1 15/16	7.120	6.774	6.374
35	50B35F		3/4,	7/8,	1,	1 1/8,	1 3/16,	1 1/4,	1 3/8,	1 7/16,	1 1/2,	1 3/4,	1 15/16	7.319	6.973	6.565
36	50B36F		3/4,	7/8,	1,	1 1/8,	1 3/16,	1 1/4,	1 3/8,	1 7/16,	1 1/2,	1 3/4,	1 15/16	7.519	7.171	6.771
37	50B37F		3/4,	7/8,	1,	1 1/8,	1 3/16,	1 1/4,	1 3/8,	1 7/16,	1 1/2,	1 3/4,	1 15/16	7.718	7.370	6.963
38	50B38F		3/4,	7/8,	1,	1 1/8,	1 3/16,	1 1/4,	1 3/8,	1 7/16,	1 1/2,	1 3/4,	1 15/16	7.918	7.569	7.169
40	50B40F		3/4,	7/8,	1,	1 1/8,	1 3/16,	1 1/4,	1 3/8,	1 7/16,	1 1/2,	1 3/4,	1 15/16	8.316	7.966	7.566
42	50B42F		3/4,	7/8,	1,	1 1/8,	1 3/16,	1 1/4,	1 3/8,	1 7/16,	1 1/2,	1 3/4,	1 15/16	8.715	8.364	7.964
45	50B45F		3/4,	7/8,	1,	1 1/8,	1 3/16,	1 1/4,	1 3/8,	1 7/16,	1 1/2,	1 3/4,	1 15/16	9.313	8.960	8.554
48	50B48F		3/4,	7/8,	1,	1 1/8,	1 3/16,	1 1/4,	1 3/8,	1 7/16,	1 1/2,	1 3/4,	1 15/16	9.911	9.556	9.156
50	50B50F		3/4,	7/8,	1,	1 1/8,	1 3/16,	1 1/4,	1 3/8,	1 7/16,	1 1/2,	1 3/4,	1 15/16	10.309	9.954	9.554
55	50B55F		3/4,	7/8,	1,	1 1/8,	1 3/16,	1 1/4,	1 3/8,	1 7/16,	1 1/2,	1 3/4,	1 15/16	11.305	10.948	10.543
60	50B60F		3/4,	7/8,	1,	1 1/8,	1 3/16,	1 1/4,	1 3/8,	1 7/16,	1 1/2,	1 3/4,	1 15/16	12.301	11.942	11.542

Hub diameters may vary to suit bore sizes

• Indicates set screw at 90° and 180° from keyway

CHAIN TECHNICAL DATA

Size	50
Pitch	5/8"
Inside Width	3/8"
Roller Diameter	.400"



TYPE B

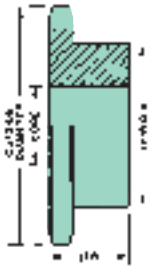
No. 50 5/8" Pitch — Stainless Steel

Dimensions are in inches unless otherwise indicated.

Single — Type B — Stainless Steel							
No. Teeth	Outside Diameter	Catalog Number	Plain Bore	Max. Bore	Hub Dia.	LTB	Wt. Lbs.
10	2.300	**50B10SS**	5/8	7/8	1 9/16 ▲	1	.50
11	2.500	**50B11SS**	5/8	1	1 3/4 ▲	1	.60
12	2.710	**50B12SS**	5/8	1 1/4	1 63/64 ▲	1	.70
13	2.910	**50B13SS**	5/8	1 5/16	1 7/8	1	.80
14	3.110	**50B14SS**	5/8	1 7/16	2 1/8	1	1.00
15	3.320	**50B15SS**	5/8	1 1/2	2 3/8	1	1.30
16	3.520	**50B16SS**	5/8	1 3/4	2 1/2	1	1.50
17	3.720	**50B17SS**	5/8	1 7/8	2 11/16	1	1.80
18	3.920	**50B18SS**	5/8	1 7/8	2 7/8	1	2.00
19	4.120	**50B19SS**	5/8	1 3/4	2 1/2	1	2.30
20	4.320	**50B20SS**	3/4	1 3/4	2 1/2	1	2.50
21	4.520	**50B21SS**	3/4	2	3	1	2.70
22	4.720	**50B22SS**	3/4	2	3	1	3.30
23	4.920	**50B23SS**	3/4	2	3	1	3.80
24	5.120	**50B24SS**	3/4	2	3	1 1/4	4.10
25	5.320	**50B25SS**	3/4	2	3	1 1/4	4.30
26	5.520	**50B26SS**	3/4	2	3	1 1/4	4.60
28	5.920	**50B28SS**	3/4	2	3	1 1/4	5.00
30	6.320	**50B30SS**	3/4	2	3	1 1/4	5.20
35	7.320	**50B35SS**	3/4	2	3	1 1/4	6.50
40	8.320	**50B40SS**	3/4	2	3	1 1/4	7.80
45	9.310	**50B45SS**	3/4	2	3	1 1/4	8.50
60	12.300	**50B60SS**	3/4	2	3	1 1/4	14.00

SEE CURRENT DISCOUNT SHEET FOR ALTERATION CHARGES

▲Has recessed groove in hub for chain clearance



TYPE B

CHAIN TECHNICAL DATA

Size	50SS
Pitch	5/8"
Inside Width	3/8"
Roller Diameter	.400"

No. 50 — 5/8" Pitch — Multiple Strand

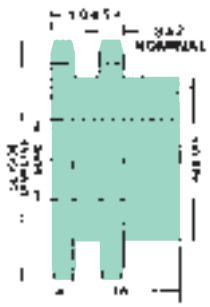
Dimensions are in inches unless otherwise indicated.

Basic Sprocket Dimensions			50-2 Double Strand					50-3 Triple Strand				
No. Teeth	Outside Diameter	Plain Bore	Catalog Number	Hub Dia.	LTB	†Max. Bore	Wt. Lbs.	Catalog Number	Hub Dia.	LTB	†Max. Bore	Wt. Lbs.
11	2.504	5/8	**D50B11**	1 15/32	1 3/4	15/16	.90	**T50B11**	1 15/32	2 1/2	15/16	1.40
12	2.708	5/8	**D50B12**	1 11/16	1 3/4	1 1/8	1.20	**T50B12**	1 11/16	2 1/2	1 1/8	1.80
13	2.911	5/8	**D50B13**	1 7/8	1 3/4	1 5/16	1.50	**T50B13**	1 7/8	2 1/2	1 5/16	2.20
14	3.113	5/8	**D50B14**	2 3/32	1 3/4	1 3/8	1.90	**T50B14**	2 3/32	2 1/2	1 3/8	2.70
15	3.315	5/8	**D50B15**	2 9/32	1 3/4	1 1/2	2.30	**T50B15**	2 9/32	2 1/2	1 1/2	3.30
16	3.517	5/8	**D50B16**	2 1/2	1 3/4	1 5/8	2.70	**T50B16**	2 1/2	2 1/2	1 5/8	3.80
17	3.718	5/8	**D50B17**	2 11/16	1 3/4	1 7/8	3.10	**T50B17**	2 11/16	2 1/2	1 7/8	4.50
18	3.919	5/8	**D50B18**	2 7/8	1 3/4	1 15/16	3.60	**T50B18**	2 7/8	2 1/2	1 15/16	5.70
19	4.121	5/8	**D50B19**	3 3/32	1 3/4	2 1/8	4.10	**T50B19**	3 3/32	2 1/2	2 1/8	5.90
20	4.321	5/8	**D50B20**	3 9/32	1 3/4	2 1/4	4.60	**T50B20**	3 9/32	2 5/8	2 1/4	6.90
21	4.522	3/4	**D50B21**	3 1/2	1 3/4	2 3/8	5.10	**T50B21**	3 1/2	2 5/8	2 3/8	7.60
22	4.722	3/4	**D50B22**	3 9/16	1 7/8	2 3/8	5.90	**T50B22**	3 9/16	2 5/8	2 3/8	8.30
23	4.923	3/4	**D50B23**	3 3/4	1 7/8	2 1/2	6.50	**T50B23**	3 3/4	2 5/8	2 1/2	9.20
24	5.123	3/4	**D50B24**	3 3/4	1 7/8	2 1/2	6.90	**T50B24**	3 3/4	2 5/8	2 1/2	9.90
25	5.323	1	**D50B25**	3 3/4	1 7/8	2 1/2	7.10	**T50B25**	3 3/4	2 5/8	2 1/2	10.40
26	5.523	15/16	**D50B26**	3 3/4	1 7/8	2 1/2	7.80	**T50B26**	3 3/4	2 5/8	2 1/2	11.20
30	6.321	15/16	**D50B30**	3 3/4	1 7/8	2 1/2	9.80	**T50B30**	3 3/4	2 5/8	2 1/2	14.40
32	6.721	15/16	**D50B32**	3 3/4	1 7/8	2 1/2	11.00					
35	7.319	15/16	**D50B35**	3 3/4	1 7/8	2 1/2	12.90	**T50B35**	3 3/4	2 5/8	2 1/2	19.20
36	7.519	15/16	**D50B36**	4	2 1/8	2 3/4	16.00	**T50B36**	4	2 3/4	2 3/4	21.80
40	8.316	15/16	**D50B40**	4	2 1/8	2 3/4	18.80					
42	8.715	15/16	**D50B42**	4	2 1/8	2 3/4	20.40					
45	9.313	15/16	**D50B45**	4	2 1/8	2 3/4	22.90					
48	9.911	15/16	**D50B48**	4 1/4	2 3/8	2 7/8	25.50					
52	10.708	15/16	**D50B52**	4 1/4	2 3/8	2 7/8	29.30					

† Dimensions shown allow for standard keyway with set screw at 90°

CHAIN TECHNICAL DATA

Size	50-2, 50-3
Pitch	5/8"
Inside Width	3/8"
Roller Diameter	.400"



TYPE B

TYPE B

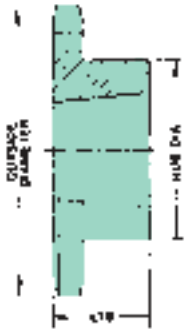
No. 50 5/8″ Pitch — TAPER-LOCK®

Dimensions are in inches unless otherwise indicated.

Type B TAPER-LOCK®							
No. Teeth	Outside Diameter	Catalog Number	Bushing	Max. Bore	Hub Dia.	LTB	Wt. Lbs.
12	2.708	**50BTL12**	1008	1 ▲	1 15/16	7/8	.50
13	2.911	**50BTL13**	1008	1	1 15/16	7/8	.50
14	3.113	**50BTL14**	1008	1	1 15/16	7/8	.60
15	3.315	**50BTL15**	1210	1 1/4 ▲	2 15/32	1	.70
16	3.517	**50BTL16**	1610	1 5/8 ▲	2 25/32	1	.70
17	3.719	**50BTL17**	1610	1 5/8 ▲	2 25/32	1	.80
18	3.920	**50BTL18**	1610	1 5/8	2 25/32	1	.90
19	4.120	**50BTL19**	1610	1 5/8	3	1	1.30
20	4.321	**50BTL20**	1610	1 5/8	3 1/4	1	1.60
21	4.522	**50BTL21**	1610	1 5/8	3	1	1.50
22	4.722	**50BTL22**	1610	1 5/8	3	1	1.60
23	4.922	**50BTL23**	2012	2	3 5/8	1 1/4	2.00
24	5.122	**50BTL24**	2012	2	3 5/8	1 1/4	2.20
25	5.322	**50BTL25**	2012	2	3 5/8	1 1/4	2.40
26	5.522	**50BTL26**	2012	2	3 5/8	1 1/4	2.50
27	5.723	**50BTL27**	2012	2	3 5/8	1 1/4	2.60
28	5.922	**50BTL28**	2012	2	3 5/8	1 1/4	2.80
30	6.321	**50BTL30**	2012	2	3 5/8	1 1/4	3.20
32	6.721	**50BTL32**	2012	2	3 5/8	1 1/4	3.60
35	7.319	**50BTL35**	2012	2	3 5/8	1 1/4	4.20
36	7.519	**50BTL36**	2012	2	3 5/8	1 1/4	4.30
40	8.316	**50BTL40**	2012	2	3 5/8	1 1/4	5.20
42	8.715	**50BTL42**	2012	2	3 5/8	1 1/4	5.90
45	9.313	**50BTL45**	2012	2	3 5/8	1 1/4	6.50
48	9.911	**50BTL48**	2012	2	3 5/8	1 1/4	7.30
54	11.106	**50BTL54**	2012	2	3 5/8	1 1/4	9.00
60	12.301	**50BTL60**	2012	2	3 5/8	1 1/4	10.80
70	14.292	**50BTL70**	2517	2 1/2	4 1/4	1 3/4	14.00
72	14.690	**50BTL72**	2517	2 1/2	4 1/4	1 3/4	15.50
80	16.282	**50BTL80**	2517	2 1/2	4 1/4	1 3/4	19.50
84	17.079	**50BTL84**	2517	2 1/2	4 1/4	1 3/4	22.50
96	19.466	**50BTL96**	2517	2 1/2	4 1/4	1 3/4	29.00
112	22.651	**50BTL112**	2517	2 1/2	4 1/4	1 3/4	38.70

▲ Has recessed groove in hub for chain clearance

TAPER-LOCK® is a registered trademark of Rockwell Automation.



TYPE B

CHAIN TECHNICAL DATA

Size	50
Pitch	5/8″
Inside Width	3/8″
Roller Diameter	.400″

No. 50 5/8" Pitch — TAPER-LOCK®

Dimensions are in inches unless otherwise indicated.

50 Double TAPER-LOCK®							
No. Teeth	Outside Diameter	Catalog Number	Bushing	Max. Bore	Hub Dia.	LTB	Wt. Lbs.
14	3.113	**D50ATL14**	1008	1		7/8	.90
15	3.315	**D50ATL15**	1210	1 1/4		1	.90
16	3.517	**D50ATL16**	1210	1 1/4		1	1.10
17	3.719	**D50ATL17**	1610	1 5/8		1	1.10
18	3.920	**D50ATL18**	1610	1 5/8		1	1.30
19	4.120	**D50ATL19**	1610	1 5/8		1	1.60
20	4.321	**D50BTL20**	2012	2	3 1/4	1 1/4	1.70
21	4.522	**D50BTL21**	2012	2	3 1/2	1 1/4	2.00
25	5.322	**D50BTL25**	2012	2	4 9/32	1 1/4	3.80
30	6.321	**D50BTL30**	2517	2 1/2	5 9/32	1 3/4	7.50
36	7.519	**D50CTL36**	2517	2 1/2	4 1/4	1 3/4	9.30
42	8.715	**D50CTL42**	2517	2 1/2	4 1/4	1 3/4	13.40
60	12.301	**D50CTL60**	2517	2 1/2	4 3/8	1 3/4	30.00

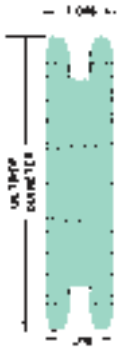
Dimensions are in inches unless otherwise indicated.

TAPER-LOCK® Bushings		
Bushing	Bore Range	Wt. Lbs.
1008	1/2 — 1	.20
1210	1/2 — 1 1/4	.50
1610	1/2 — 1 5/8	.70
2012	1/2 — 2	1.40
2517	1/2 — 2 1/2	3.20

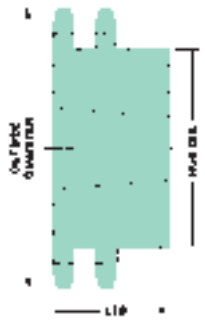
Refer to page C-66 for bushing specifications

TAPER-LOCK® is a registered trademark of Rockwell Automation.

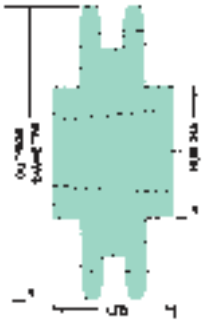
CHAIN TECHNICAL DATA	
Size	50
Pitch	5/8"
Inside Width	3/8"
Roller Diameter	.400"



TYPE A



TYPE B



TYPE C

No. 50 5/8″ Pitch — QD®

Dimensions are in inches unless otherwise indicated.

50 QD® 5/8″ Pitch												
No. Teeth	Outside Diameter	Catalog Number	Bushing	Max. Bore	Type	Hub Dia.	LTB	X	Y	L	F	Wt. Lbs.
12	2.708	**50JA12**	JA	1¼	B	1 59/64	9/16	1	1	17/32	2	.30
13	2.911	**50JA13**	JA	1¼	B	2 1/16	9/16	1	1	17/32	2	.40
14	3.113	**50JA14**	JA	1¼	B	2⅛	9/16	1	1	17/32	2	.50
15	3.315	**50JA15**	JA	1¼	B	2¼	9/16	1	1	17/32	2	.60
16	3.517	**50JA16**	JA	1¼	B	2¼	9/16	1	1	17/32	2	.70
17	3.718	**50SH17**	SH	1 11/16	B	2¾	13/16	1⅜	1⅜	27/32	2 11/16	.80
18	3.919	**50SH18**	SH	1 11/16	B	2⅞	13/16	1⅜	1⅜	27/32	2 11/16	1.00
19	4.121	**50SH19**	SH	1 11/16	B	3	13/16	1⅜	1⅜	27/32	2 11/16	1.00
20	4.321	**50SDS20**	SDS	2	B	3 5/16	¾	1 7/16	1 7/16	29/32	3 3/16	1.20
21	4.522	**50SDS21**	SDS	2	B	3½	¾	1 7/16	1 7/16	29/32	3 3/16	1.50
22	4.722	**50SDS22**	SDS	2	B	3½	¾	1 7/16	1 7/16	29/32	3 3/16	1.60
23	4.923	**50SDS23**	SDS	2	B	3½	¾	1 7/16	1 7/16	29/32	3 3/16	1.70
24	5.123	**50SDS24**	SDS	2	B	3⅝	¾	1 7/16	1 7/16	29/32	3 3/16	1.90
25	5.323	**50SDS25**	SDS	2	B	3⅝	¾	1 7/16	1 7/16	29/32	3 3/16	2.00
26	5.523	**50SDS26**	SDS	2	B	3⅝	¾	1 7/16	1 7/16	29/32	3 3/16	2.10
27	5.723	**50SDS27**	SDS	2	B	3⅝	¾	1 7/16	1 7/16	29/32	3 3/16	2.30
28	5.922	**50SDS28**	SDS	2	B	3⅝	¾	1 7/16	1 7/16	29/32	3 3/16	2.50
30	6.321	**50SDS30**	SDS	2	B	3⅝	¾	1 7/16	1 7/16	29/32	3 3/16	2.70
32	6.721	**50SDS32**	SDS	2	B	3⅝	¾	1 7/16	1 7/16	29/32	3 3/16	3.10
35	7.319	**50SDS35**	SDS	2	B	3⅝	¾	1 7/16	1 7/16	29/32	3 3/16	3.70
36	7.519	**50SDS36**	SDS	2	B	3⅝	¾	1 7/16	1 7/16	29/32	3 3/16	3.80
40	8.316	**50SDS40**	SDS	2	B	3⅝	¾	1 7/16	1 7/16	29/32	3 3/16	4.70
42	8.715	**50SDS42**	SDS	2	B	3⅝	¾	1 7/16	1 7/16	29/32	3 3/16	5.10
45	9.313	**50SDS45**	SDS	2	B	3⅝	¾	1 7/16	1 7/16	29/32	3 3/16	5.80
48	9.911	**50SDS48**	SDS	2	B	3⅝	¾	1 7/16	1 7/16	29/32	3 3/16	6.90
54	11.106	**50SK54**	SK	2⅝	B	4¼	1¼	2 1/16	2 1/16	1 15/32	3⅞	10.20
60	12.301	**50SK60**	SK	2⅝	B	4¼	1¼	2 1/16	2 1/16	1 15/32	3⅞	11.30
70	14.292	**50SK70**	SK	2⅝	B	4¼	1¼	2 1/16	2 1/16	1 15/32	3⅞	14.70
72	14.690	**50SK72**	SK	2⅝	B	4¼	1¼	2 1/16	2 1/16	1 15/32	3⅞	15.60
80	16.283	**50SF80**	SF	2 15/16	B	5	1¼	2 3/16	2 3/16	1 19/32	4⅝	19.70
96	19.467	**50SF96**	SF	2 15/16	B	5	1¼	2 3/16	2 3/16	1 19/32	4⅝	27.60

Dimensions are in inches unless otherwise indicated.

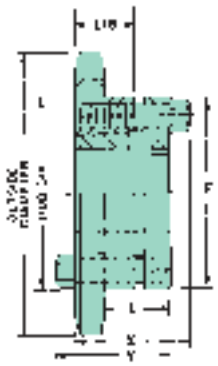
QD® Bushings				
Bushing	Bore Range		No Keyway	Wt. Lbs.
	Standard Keyway	Shallow Keyway		
JA	½ — 1	1/16 — 1 3/16	1¼	.80
SH	½ — 1⅜	7/16 — 1⅝	1 11/16	.70
SDS	½ — 1 11/16	¾ — 1 15/16	2	1.00
SK	½ — 2⅛	2 3/16 — 2½	2 9/16 — 2⅝	2.10
SF	½ — 2 5/16	2⅜ — 2 13/16	2 13/16 — 2 15/16	3.10

Refer to page C-69 for bushing specifications

QD® is a registered trademark of and is used under license from Emerson Power Transmission Manufacturing, L.P.

CHAIN TECHNICAL DATA

Size	50
Pitch	5/8″
Inside Width	3/8″
Roller Diameter	.400″



TYPE B

U.S. TSUBAKI STOCK SPROCKETS

No. 60 — 3/4" Pitch — Plain Bore

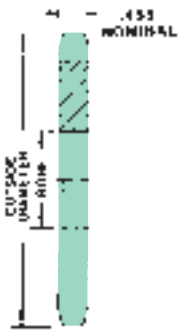
Dimensions are in inches unless otherwise indicated.

Type A				Type B Plain Bore					
No. Teeth	Catalog Number	Plain Bore	Wt. Lbs.	Catalog Number	Plain Bore	†Max. Bore	Hub Dia.	LTB	Wt. Lbs.
8				60B8	5/8	13/16	1 15/32 ▲	1 1/4	.80
9				60B9	3/4	1	1 11/16 ▲	1 1/4	.60
10	60A10	3/4	.45	60B10	3/4	1 3/16	1 15/16 ▲	1 1/4	.90
11	60A11	3/4	.56	60B11	3/4	1 5/16	2 1/16 ▲	1 1/4	1.30
12	60A12	3/4	.68	60B12	3/4	1 3/8	2 3/8 ▲	1 1/4	1.70
13	60A13	3/4	.82	60B13	3/4	1 1/2	2 11/32	1 1/4	1.80
14	60A14	3/4	.89	60B14	3/4	1 3/4	2 9/16	1 1/4	2.10
15	60A15	3/4	1.10	60B15	3/4	1 7/8	2 7/8	1 1/4	2.60
16	60A16	3/4	1.20	60B16	3/4	2	3 1/16	1 1/4	3.00
17	60A17	3/4	1.50	60B17	3/4	2 1/4	3 1/4	1 1/4	3.40
18	60A18	3/4	1.60	60B18	3/4	2 3/8	3 1/2	1 1/4	3.90
19	60A19	3/4	1.80	60B19	3/4	2 1/8	3 1/4	1 1/4	3.80
20	60A20	3/4	2.00	60B20	3/4	2 1/8	3 1/4	1 1/4	4.00
21	60A21	1	2.20	60B21	3/4	2 1/8	3 1/4	1 1/4	4.20
22	60A22	1	2.50	60B22	3/4	2 1/8	3 1/4	1 1/4	4.40
23	60A23	1	2.70	60B23	1	2 3/4	4	1 1/2	6.30
24	60A24	1	2.90	60B24	1	2 3/4	4	1 1/2	6.60
25	60A25	1	3.00	60B25	1	2 3/4	4	1 1/2	6.90
26	60A26	1	3.50	60B26	1	2 3/4	4	1 1/2	7.20
27	60A27	1	3.80	60B27	1	2 3/4	4	1 1/2	7.50
28	60A28	1	3.90	60B28	1	2 3/4	4	1 1/2	7.80
29	60A29	1	4.40	60B29	1	2 3/4	4	1 1/2	8.10
30	60A30	1	4.70	60B30	1	2 3/4	4	1 1/2	8.40
31	60A31	1	5.30	60B31	1	2 3/4	4	1 1/2	8.80
32	60A32	1	5.50	60B32	1	2 3/4	4	1 1/2	9.10
33	60A33	1	5.80	60B33	1	2 3/4	4	1 1/2	9.50
34	60A34	1	6.10	60B34	1	2 3/4	4	1 1/2	9.90
35	60A35	1	6.60	60B35	1	2 3/4	4	1 1/2	10.30
36	60A36	1	6.90	60B36	1	2 3/4	4	1 1/2	10.70
37	60A37	1	7.40	60B37	1	2 3/4	4	1 1/2	11.10
38	60A38	1	7.70	60B38	1	2 3/4	4	1 1/2	11.50
39	60A39	1	8.10	60B39	1	2 3/4	4	1 1/2	11.90
40	60A40	1	8.40	60B40	1	2 3/4	4	1 1/2	12.30
41	60A41	1	8.80	60B41	1	2 3/4	4	1 1/2	12.80
42	60A42	1	9.70	60B42	1	2 3/4	4	1 1/2	13.30
44	60A44	1	10.50	60B44	1	2 3/4	4	1 1/2	14.20
45	60A45	1	10.60	60B45	1	2 3/4	4	1 1/2	14.70
46	60A46	1	10.90	60B46	1	2 3/4	4	1 1/2	15.20
48	60A48	1	12.20	60B48	1	2 3/4	4	1 1/2	16.30
49	60A49	1	12.60	60B49	1	2 3/4	4	1 1/2	16.80
50	60A50	1	13.10	60B50	1	2 3/4	4	1 1/2	17.40
52	60A52	1 3/8	14.50	60B52	1 3/8	2 3/4	4 1/4	1 3/4	19.60
54	60A54	1 3/8	15.80	60B54	1 3/8	2 3/4	4 1/4	1 3/4	20.80
60	60A60	1 3/8	19.30	60B60	1 3/8	2 3/4	4 1/4	1 3/4	24.60
70	60A70	1 3/8	26.80	60B70	1 3/8	2 3/4	4 1/4	1 3/4	31.80
72	60A72	1 3/8	27.50	60B72	1 3/8	2 3/4	4 1/4	1 3/4	33.40
80	60A80	1 3/8	35.10	60B80	1 3/8	2 3/4	4 1/4	1 3/4	40.20
84	60A84	1 3/8	37.00	60B84	1 3/8	2 3/4	4 1/4	1 3/4	43.80
96	60A96	1 3/8	52.40	60B96	1 3/8	2 3/4	4 1/4	1 3/4	55.90
112	60A112	1 3/8	68.00	60B112	1 3/8	2 3/4	4 1/4	1 3/4	74.40

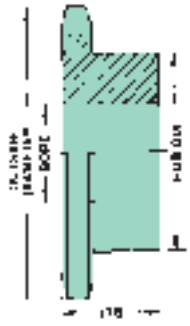
SEE CURRENT DISCOUNT SHEET FOR ALTERATION CHARGES

▲ Has recessed groove in hub for chain clearance †Dimensions shown allow for standard keyway with set screw at 90°

CHAIN TECHNICAL DATA	
Size	60
Pitch	3/4"
Inside Width	1/2"
Roller Diameter	.469"



TYPE A



TYPE B

C - SPROCKETS

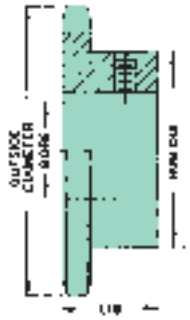
No. 60 3/4" Pitch — Finished Bore

Dimensions are in inches unless otherwise indicated.

Type F Bored to Size			Sprocket Diameters ¾" Pitch		
No. Teeth	Catalog Number	Available Bores (Includes Standard KW & 2SS)	Outside Diameter	Pitch Diameter	Caliper Diameter
9	60B9F	¾, 1	2.511	2.193	1.691
10	60B10F	⅝, ¾, ⅞, 1	2.759	2.427	1.958
11	60B11F	¾, 1, 1⅛, 1¼ ●	3.005	2.663	2.166
12	60B12F	¾, ⅞, 1, 1⅛, 1¼ ●	3.249	2.898	2.429
13	60B13F	¾, ⅞, 1, 1⅛, 1³⁄₁₆, 1¼, 1⅜ ●, 1⁷⁄₁₆ ●, 1½ ●	3.493	3.134	2.642
14	60B14F	¾, ⅞, 1, 1⅛, 1³⁄₁₆, 1¼, 1⅜, 1⁷⁄₁₆ ●, 1½ ●	3.736	3.371	2.902
15	60B15F	¾, ⅞, 1, 1⅛, 1³⁄₁₆, 1¼, 1⅜, 1⁷⁄₁₆, 1½, 1⅝, 1¾ ●	3.978	3.608	3.119
16	60B16F	¾, ⅞, 1, 1⅛, 1³⁄₁₆, 1¼, 1⅜, 1⁷⁄₁₆, 1½, 1⅝, 1¾, 1¹⁵⁄₁₆ ●	4.220	3.845	3.375
17	60B17F	1, 1⅛, 1³⁄₁₆, 1¼, 1⅜, 1⁷⁄₁₆, 1½, 1⅝, 1¾, 1¹⁵⁄₁₆ ●	4.462	4.082	3.595
18	60B18F	1, 1⅛, 1³⁄₁₆, 1¼, 1⅜, 1⁷⁄₁₆, 1½, 1⅝, 1¾, 1¹⁵⁄₁₆	4.703	4.319	3.850
19	60B19F	1, 1⅛, 1³⁄₁₆, 1¼, 1⅜, 1⁷⁄₁₆, 1½, 1⅝, 1¾, 1¹⁵⁄₁₆	4.945	4.557	4.072
20	60B20F	1, 1⅛, 1³⁄₁₆, 1¼, 1⅜, 1⁷⁄₁₆, 1½, 1⅝, 1¾, 1¹⁵⁄₁₆	5.186	4.794	4.325
21	60B21F	1, 1⅛, 1³⁄₁₆, 1¼, 1⅜, 1⁷⁄₁₆, 1½, 1⅝, 1¾, 1¹⁵⁄₁₆	5.426	5.033	4.549
22	60B22F	1, 1⅛, 1³⁄₁₆, 1¼, 1⅜, 1⁷⁄₁₆, 1½, 1⅝, 1¾, 1¹⁵⁄₁₆	5.666	5.270	4.801
23	60B23F	1, 1⅛, 1³⁄₁₆, 1¼, 1⅜, 1⁷⁄₁₆, 1½, 1⅝, 1¾, 1¹⁵⁄₁₆	5.907	5.508	5.026
24	60B24F	1, 1⅛, 1³⁄₁₆, 1¼, 1⅜, 1⁷⁄₁₆, 1½, 1⅝, 1¾, 1¹⁵⁄₁₆	6.147	5.746	5.277
25	60B25F	1, 1⅛, 1³⁄₁₆, 1¼, 1⅜, 1⁷⁄₁₆, 1½, 1⅝, 1¾, 1¹⁵⁄₁₆	6.387	5.984	5.503
26	60B26F	1, 1⅛, 1³⁄₁₆, 1¼, 1⅜, 1⁷⁄₁₆, 1½, 1⅝, 1¾, 1¹⁵⁄₁₆	6.627	6.222	5.753
27	60B27F	1, 1⅛, 1³⁄₁₆, 1¼, 1⅜, 1⁷⁄₁₆, 1½, 1⅝, 1¾, 1¹⁵⁄₁₆	6.867	6.461	5.980
28	60B28F	1, 1⅛, 1³⁄₁₆, 1¼, 1⅜, 1⁷⁄₁₆, 1½, 1⅝, 1¾, 1¹⁵⁄₁₆	7.106	6.698	6.229
29	60B29F	1, 1⅛, 1³⁄₁₆, 1¼, 1⅜, 1⁷⁄₁₆, 1½, 1⅝, 1¾, 1¹⁵⁄₁₆	7.346	6.937	6.458
30	60B30F	1, 1⅛, 1³⁄₁₆, 1¼, 1⅜, 1⁷⁄₁₆, 1½, 1⅝, 1¾, 1¹⁵⁄₁₆	7.586	7.175	6.706
31	60B31F	1, 1⅛, 1³⁄₁₆, 1¼, 1⅜, 1⁷⁄₁₆, 1½, 1⅝, 1¾, 1¹⁵⁄₁₆	7.826	7.413	6.935
32	60B32F	1, 1⅛, 1³⁄₁₆, 1¼, 1⅜, 1⁷⁄₁₆, 1½, 1⅝, 1¾, 1¹⁵⁄₁₆	8.065	7.652	7.183
33	60B33F	1, 1⅛, 1³⁄₁₆, 1¼, 1⅜, 1⁷⁄₁₆, 1½, 1⅝, 1¾, 1¹⁵⁄₁₆	8.305	7.890	7.412
35	60B35F	1, 1⅛, 1³⁄₁₆, 1¼, 1⅜, 1⁷⁄₁₆, 1½, 1⅝, 1¾, 1¹⁵⁄₁₆	8.783	8.367	7.889
36	60B36F	1, 1⅛, 1³⁄₁₆, 1¼, 1⅜, 1⁷⁄₁₆, 1½, 1⅝, 1¾, 1¹⁵⁄₁₆, 2, 2³⁄₁₆, 2⁷⁄₁₆	9.023	8.606	8.137
38	60B38F	1, 1⅛, 1³⁄₁₆, 1¼, 1⅜, 1⁷⁄₁₆, 1½, 1⅝, 1¾, 1¹⁵⁄₁₆, 2, 2³⁄₁₆, 2⁷⁄₁₆	9.501	9.083	8.614
40	60B40F	1, 1⅛, 1³⁄₁₆, 1¼, 1⅜, 1⁷⁄₁₆, 1½, 1⅝, 1¾, 1¹⁵⁄₁₆, 2, 2³⁄₁₆, 2⁷⁄₁₆	9.980	9.560	9.091
42	60B42F	1, 1⅛, 1³⁄₁₆, 1¼, 1⅜, 1⁷⁄₁₆, 1½, 1⅝, 1¾, 1¹⁵⁄₁₆, 2, 2³⁄₁₆, 2⁷⁄₁₆	10.458	10.037	9.568
45	60B45F	1, 1⅛, 1³⁄₁₆, 1¼, 1⅜, 1⁷⁄₁₆, 1½, 1⅝, 1¾, 1¹⁵⁄₁₆, 2, 2³⁄₁₆, 2⁷⁄₁₆	11.176	10.752	10.276
48	60B48F	1, 1⅛, 1³⁄₁₆, 1¼, 1⅜, 1⁷⁄₁₆, 1½, 1⅝, 1¾, 1¹⁵⁄₁₆, 2, 2³⁄₁₆, 2⁷⁄₁₆	11.893	11.468	10.999
54	60B54F	1, 1⅛, 1³⁄₁₆, 1¼, 1⅜, 1⁷⁄₁₆, 1½, 1⅝, 1¾, 1¹⁵⁄₁₆, 2, 2³⁄₁₆, 2⁷⁄₁₆	13.327	12.889	12.430
60	60B60F	1, 1⅛, 1³⁄₁₆, 1¼, 1⅜, 1⁷⁄₁₆, 1½, 1⅝, 1¾, 1¹⁵⁄₁₆, 2, 2³⁄₁₆, 2⁷⁄₁₆	14.761	14.330	13.861

● Indicates set screw at 90° and 180° from keyway

Hub diameters may vary to suit bore sizes



TYPE B

CHAIN TECHNICAL DATA

Size	60
Pitch	¾"
Inside Width	½"
Roller Diameter	.469"

No. 60 3/4" Pitch — Stainless Steel

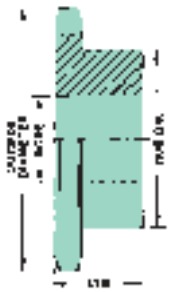
Dimensions are in inches unless otherwise indicated.

Single — Type B — Stainless Steel							
No. Teeth	Outside Diameter	Catalog Number	Plain Bore	Max. Bore	Hub Dia.	LTB	Wt. Lbs.
12	3.250	**60B12SS**	¾	1⅜	2⅜ ▲	1¼	1.50
13	3.490	**60B13SS**	¾	1⅜	2 11/32	1¼	1.80
14	3.740	**60B14SS**	¾	1¾	2 9/16	1¼	2.00
15	3.980	**60B15SS**	¾	1⅞	2⅞	1¼	2.40
16	4.220	**60B16SS**	¾	2	3 1/16	1¼	2.80
17	4.466	**60B17SS**	¾	2¼	3¼	1¼	3.30
18	4.700	**60B18SS**	¾	2	3	1¼	3.80
19	4.950	**60B19SS**	¾	2	3	1¼	4.00
20	5.190	**60B20SS**	¾	2	3	1¼	4.60
21	5.430	**60B21SS**	¾	2	3	1¼	5.00
22	5.670	**60B22SS**	¾	2	3	1¼	5.30
23	5.910	**60B23SS**	¾	2	3	1¼	5.70
24	6.150	**60B24SS**	¾	2	3	1¼	5.90
25	6.390	**60B25SS**	¾	2	3	1¼	6.10
26	6.630	**60B26SS**	¾	2	3	1¼	6.30
28	7.110	**60B28SS**	¾	2⅜	3½	1¼	6.70
30	7.590	**60B30SS**	¾	2⅜	3½	1¼	7.00
35	8.780	**60B35SS**	¾	2⅜	3½	1¼	9.00
40	9.980	**60B40SS**	¾	2⅜	3½	1¼	11.70
45	11.180	**60B45SS**	¾	2⅜	3½	1¼	14.50
60	14.760	**60B60SS**	¾	2⅜	3½	1¼	25.00

▲ Has recessed groove in hub for chain clearance

CHAIN TECHNICAL DATA

Size	60SS
Pitch	¾"
Inside Width	½"
Roller Diameter	.469"



TYPE B

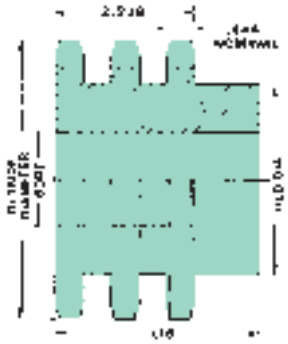
No. 60 3/4" Pitch — Multiple Strand

Dimensions are in inches unless otherwise indicated.

Basic Sprocket Dimensions			60-2 Double Strand					60-3 Triple Strand				
No. Teeth	Outside Diameter	Plain Bore	Catalog Number	Hub Dia.	LTB	†Max. Bore	Wt. Lbs.	Catalog Number	Hub Dia.	LTB	†Max. Bore	Wt. Lbs.
11	3.005	3/4	**D60B11**	1 25/32	2 1/8	1 3/16	1.80	**T60B11**	1 25/32	3	1 3/16	2.60
12	3.249	3/4	**D60B12**	2 1/32	2 1/8	1 3/8	2.30	**T60B12**	2 1/32	3	1 3/8	3.30
13	3.493	3/4	**D60B13**	2 1/4	2 1/8	1 1/2	2.80	**T60B13**	2 1/4	3	1 1/2	4.10
14	3.736	3/4	**D60B14**	2 1/2	2 1/8	1 3/4	3.50	**T60B14**	2 1/2	3	1 3/4	4.90
15	3.978	3/4	**D60B15**	2 3/4	2 1/8	1 7/8	4.10	**T60B15**	2 3/4	3	1 7/8	5.90
16	4.220	3/4	**D60B16**	3	2 1/8	2	4.80	**T60B16**	3	3	2	6.90
17	4.462	3/4	**D60B17**	3 7/32	2 1/8	2 1/4	5.60	**T60B17**	3 7/32	3	2 1/4	8.00
18	4.703	1	**D60B18**	3 7/16	2 1/8	2 3/8	6.20	**T60B18**	3 7/16	3	2 3/8	8.80
19	4.945	1	**D60B19**	3 11/16	2 1/8	2 1/2	7.00	**T60B19**	3 11/16	3	2 1/2	10.00
20	5.186	1	**D60B20**	3 3/4	2 1/8	2 1/2	7.70	**T60B20**	3 3/4	3	2 1/2	11.10
21	5.426	1	**D60B21**	4 1/8	2 1/8	2 3/4	8.90	**T60B21**	4 1/8	3	2 3/4	12.70
22	5.666	1	**D60B22**	4 1/4	2 1/8	2 3/4	9.70	**T60B22**	4 1/4	3	2 3/4	14.00
23	5.907	1	**D60B23**	4 1/4	2 1/8	2 3/4	10.40	**T60B23**	4 1/4	3	2 3/4	15.10
24	6.147	1	**D60B24**	4 1/4	2 1/8	2 3/4	11.10	**T60B24**	4 1/4	3	2 3/4	16.30
25	6.387	1	**D60B25**	4 1/4	2 1/8	2 3/4	12.00	**T60B25**	4 1/4	3	2 3/4	17.70
26	6.627	15/16	**D60B26**	4 1/4	2 1/8	2 3/4	13.00	**T60B26**	4 1/4	3	2 3/4	18.20
30	7.586	15/16	**D60B30**	4 1/4	2 1/8	2 3/4	16.70	**T60B30**	4 1/4	3	2 3/4	23.00
32	8.065	1 3/16	**D60B32**	4 1/2	2 3/8	3	19.90					
35	8.783	1 3/16	**D60B35**	4 1/2	2 3/8	3	23.20	**T60B35**	4 1/2	3 1/4	3	31.40
36	9.023	1 3/16	**D60B36**	4 1/2	2 3/8	3	27.90	**T60B36**	4 1/2	3 1/4	3	35.30
40	9.980	1 3/16	**D60B40**	4 3/4	2 3/4	3 1/4	33.00					
45	11.176	1 3/16	**D60B45**	4 3/4	2 3/4	3 1/4	40.20					
48	11.893	1 3/16	**D60B48**	4 3/4	2 3/4	3 1/4	44.90					
60	14.761	1 3/16	**D60B60**	4 3/4	2 3/4	3 1/4	67.00					

† Dimensions shown allow for standard keyway with set screw at 90°

TYPE B



TYPE B

CHAIN TECHNICAL DATA	
Size	60-2, 60-3
Pitch	3/4"
Inside Width	1/2"
Roller Diameter	.469"

No. 60 — 3/4" Pitch — TAPER-LOCK®

Dimensions are in inches unless otherwise indicated.

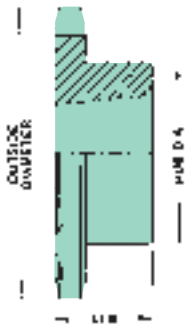
Type B TAPER-LOCK®							
No. Teeth	Outside Diameter	Catalog Number	Bushing	Max. Bore	Hub Dia.	LTB	Wt. Lbs.
13	3.493	**60BTL13**	1210	1 ▲	2 15/32	1	.80
14	3.736	**60BTL14**	1210	1 1/4	2 15/32	1	1.00
15	3.979	**60BTL15**	1610	1 5/8	2 25/32	1	1.00
16	4.221	**60BTL16**	1610	1 5/8	3	1	1.40
17	4.462	**60BTL17**	1610	1 5/8	3 1/4	1	1.80
18	4.704	**60BTL18**	1610	1 5/8	3 1/4	1	1.90
19	4.945	**60BTL19**	1610	1 5/8	3 1/4	1	2.20
20	5.185	**60BTL20**	2012	2	3 5/8	1 1/4	2.40
21	5.426	**60BTL21**	2012	2	3 5/8	1 1/4	2.50
22	5.666	**60BTL22**	2012	2	3 5/8	1 1/4	2.80
23	5.907	**60BTL23**	2012	2	3 5/8	1 1/4	3.10
24	6.147	**60BTL24**	2012	2	3 5/8	1 1/4	3.40
25	6.387	**60BTL25**	2012	2	3 5/8	1 1/4	3.70
26	6.627	**60BTL26**	2012	2	3 5/8	1 1/4	4.00
27	6.867	**60BTL27**	2012	2	3 5/8	1 1/4	4.20
28	7.107	**60BTL28**	2012	2	3 5/8	1 1/4	4.60
30	7.586	**60BTL30**	2012	2	3 5/8	1 1/4	5.20
32	8.065	**60BTL32**	2012	2	3 5/8	1 1/4	5.60
35	8.783	**60BTL35**	2012	2	3 5/8	1 1/4	6.40
36	9.022	**60BTL36**	2012	2	3 5/8	1 1/4	6.60
40	9.980	**60BTL40**	2012	2	3 5/8	1 1/4	8.30
42	10.458	**60BTL42**	2012	2	3 5/8	1 1/4	10.00
45	11.175	**60BTL45**	2012	2	3 5/8	1 1/4	11.50
48	11.893	**60BTL48**	2012	2	3 5/8	1 1/4	13.20
54	13.327	**60BTL54**	2517	2 1/2	4 1/4	1 3/4	17.10
60	14.761	**60BTL60**	2517	2 1/2	4 1/4	1 3/4	21.00
70	17.150	**60BTL70**	2517	2 1/2	4 1/4	1 3/4	27.60
72	17.628	**60BTL72**	2517	2 1/2	4 1/4	1 3/4	30.00
80	19.539	**60BTL80**	2517	2 1/2	4 1/4	1 3/4	36.30
84	20.494	**60BTL84**	2517	2 1/2	4 1/4	1 3/4	40.60

▲ Has recessed groove in hub for chain clearance

TAPER-LOCK® is a registered trademark of Rockwell Automation.

CHAIN TECHNICAL DATA

Size	60
Pitch	3/4"
Inside Width	1/2"
Roller Diameter	.469"



TYPE B

No. 60 3/4" Pitch — TAPER-LOCK®

Dimensions are in inches unless otherwise indicated.

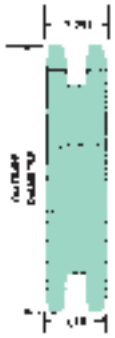
Double TAPER-LOCK®							
No. Teeth	Outside Diameter	Catalog Number	Bushing	Max. Bore	Hub Dia.	LTB	Wt. Lbs.
13	3.493	**D60BTL13**	1215	1¼	2¼	1½	1.30
14	3.736	**D60BTL14**	1215	1¼	2½	1½	1.80
15	3.979	**D60BTL15**	1615	1⅝	2 13/16	1½	1.80
16	4.221	**D60BTL16**	1615	1⅝	3	1½	2.30
17	4.462	**D60BTL17**	1615	1⅝	3¼	1½	2.90
18	4.704	**D60ATL18**	2012	2		1¼	2.40
19	4.945	**D60ATL19**	2012	2		1¼	3.00
20	5.185	**D60BTL20**	2517	2½	3 61/64	1¾	2.90
21	5.426	**D60BTL21**	2517	2½	4 3/16	1¾	3.80
25	6.387	**D60BTL25**	2517	2½	5 5/32	1¾	7.50
30	7.586	**D60BTL30**	2517	2½	6 11/32	1¾	13.20
36	9.022	**D60CTL36**	2517	2½	4¼	1¾	17.40
42	10.458	**D60CTL42**	2517	2½	4¼	1¾	25.10
45	11.175	**D60CTL45**	2517	2½	4¼	1¾	29.40

Dimensions are in inches unless otherwise indicated.

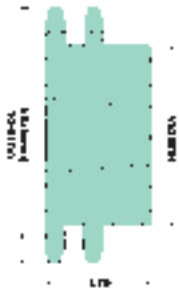
TAPER-LOCK® Bushings		
Bushing	Bore Range	Wt. Lbs.
1210	½ — 1¼	.50
1610	½ — 1⅝	.70
2012	½ — 2	1.40
2517	½ — 2½	3.20

Refer to page C-66 for bushing specifications

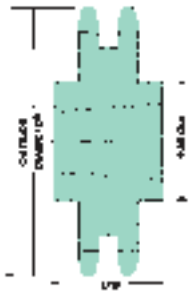
TAPER-LOCK® is a registered trademark of Rockwell Automation.



TYPE A



TYPE B



TYPE C

CHAIN TECHNICAL DATA	
Size	60
Pitch	¾"
Inside Width	½"
Roller Diameter	.469"

No. 60 3/4" Pitch — QD®

Dimensions are in inches unless otherwise indicated.

60 QD® 3/4" Pitch												
No. Teeth	Outside Diameter	Catalog Number	Bushing	Max. Bore	Type	Hub Dia.	LTB	X	Y	L	F	Wt. Lbs.
11	3.005	**60JA11**	JA	1¼	B	2 1/16	9/16	1	1	27/64	2	.40
12	3.249	**60JA12**	JA	1¼	B	2 1/16	9/16	1	1	27/64	2	.60
13	3.493	**60JA13**	JA	1¼	B	2¼	9/16	1	1	27/64	2	.70
14	3.736	**60SH14**	SH	1 11/16	B	2 11/16	13/16	1⅜	1⅜	47/64	2 11/16	.90
15	3.978	**60SH15**	SH	1 11/16	B	2¾	13/16	1⅜	1⅜	47/64	2 11/16	1.00
16	4.220	**60SH16**	SH	1 11/16	B	3	13/16	1⅜	1⅜	47/64	2 11/16	1.20
17	4.462	**60SDS17**	SDS	2	B	3¼	¾	1 7/16	1 7/16	51/64	3 3/16	1.40
18	4.703	**60SDS18**	SDS	2	B	3½	¾	1 7/16	1 7/16	51/64	3 3/16	1.60
19	4.945	**60SDS19**	SDS	2	B	3½	¾	1 7/16	1 7/16	51/64	3 3/16	1.90
20	5.186	**60SDS20**	SDS	2	B	3½	¾	1 7/16	1 7/16	51/64	3 3/16	2.10
21	5.426	**60SDS21**	SDS	2	B	3½	¾	1 7/16	1 7/16	51/64	3 3/16	2.30
22	5.666	**60SDS22**	SDS	2	B	3½	¾	1 7/16	1 7/16	51/64	3 3/16	2.60
23	5.907	**60SDS23**	SDS	2	B	3½	¾	1 7/16	1 7/16	51/64	3 3/16	2.80
24	6.147	**60SDS24**	SDS	2	B	3½	¾	1 7/16	1 7/16	51/64	3 3/16	3.10
25	6.387	**60SDS25**	SDS	2	B	3½	¾	1 7/16	1 7/16	51/64	3 3/16	3.30
26	6.627	**60SK26**	SK	2⅝	B	4¼	1¼	2 1/16	2 1/16	1 23/64	3⅞	4.60
27	6.867	**60SK27**	SK	2⅝	B	4¼	1¼	2 1/16	2 1/16	1 23/64	3⅞	4.80
28	7.106	**60SK28**	SK	2⅝	B	4¼	1¼	2 1/16	2 1/16	1 23/64	3⅞	5.00
30	7.586	**60SK30**	SK	2⅝	B	4¼	1¼	2 1/16	2 1/16	1 23/64	3⅞	5.70
32	8.065	**60SK32**	SK	2⅝	B	4¼	1¼	2 1/16	2 1/16	1 23/64	3⅞	6.40
35	8.783	**60SK35**	SK	2⅝	B	4¼	1¼	2 1/16	2 1/16	1 23/64	3⅞	7.50
36	9.023	**60SK36**	SK	2⅝	B	4¼	1¼	2 1/16	2 1/16	1 23/64	3⅞	7.80
40	9.980	**60SK40**	SK	2⅝	B	4¼	1¼	2 1/16	2 1/16	1 23/64	3⅞	9.50
42	10.458	**60SF42**	SF	2 15/16	B	5	1¼	2 3/16	2 3/16	1 31/64	4⅝	11.00
45	11.176	**60SF45**	SF	2 15/16	B	5	1¼	2 3/16	2 3/16	1 31/64	4⅝	12.10
48	11.893	**60SF48**	SF	2 15/16	B	5	1¼	2 3/16	2 3/16	1 31/64	4¾	13.80
54	13.327	**60SF54**	SF	2 15/16	B	5	1¼	2 3/16	2 3/16	1 31/64	4⅝	16.80
60	14.761	**60SF60**	SF	2 15/16	B	5	1¼	2 3/16	2 3/16	1 31/64	4⅝	21.30
70	17.150	**60SF70**	SF	2 15/16	B	5	1¼	2 3/16	2 3/16	1 31/64	4⅝	28.70
72	17.628	**60SF72**	SF	2 15/16	B	5	1¼	2 3/16	2 3/16	1 31/64	4⅝	31.00
80	19.539	**60SF80**	SF	2 15/16	B	5	1¼	2 3/16	2 3/16	1 31/64	4⅝	37.00
84	20.495	**60SF84**	SF	2 15/16	B	5	1¼	2 3/16	2 3/16	1 31/64	4⅝	38.50
96	23.360	**60SF96**	SF	2 15/16	B	5	1¼	2 3/16	2 3/16	1 31/64	4⅝	52.30
112	27.181	**60E112**	E	3½	B	6¼	1⅝	2⅝	2 15/16	2 3/16	6	75.50

CHAIN TECHNICAL DATA

Size	60
Pitch	¾"
Inside Width	½"
Roller Diameter	.469"

TYPE B

Dimensions are in inches unless otherwise indicated.

QD® Bushings				
Bushing	Bore Range		No Keyway	Wt. Lbs.
	Standard Keyway	Shallow Keyway		
JA	½ — 1	1/16 — 1 3/16	1¼	.80
SH	½ — 1⅜	7/16 — 1⅝	1 11/16	.70
SDS	½ — 1 11/16	¾ — 1 15/16	2	1.00
SK	½ — 2⅛	2 3/16 — 2½	2 9/16 — 2⅝	2.10
SF	½ — 2 5/16	2⅜ — 2 13/16	2 13/16 — 2 15/16	3.10
E	⅞ — 2⅞	2 15/16 — 3½	-	7.10

Refer to page C-69 for bushing specifications

QD® is a registered trademark of and is used under license from Emerson Power Transmission Manufacturing, L.P.

No. 80 1″ Pitch — Plain Bore

Dimensions are in inches unless otherwise indicated.

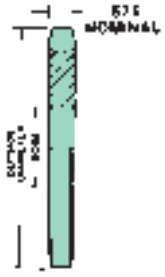
Type A				Type B Plain Bore					
No. Teeth	Catalog Number	Plain Bore	Wt. Lbs.	Catalog Number	Plain Bore	†Max. Bore	Hub Dia.	LTB	Wt. Lbs.
				80B8	1	1 3/16	1 15/16 ▲	1 9/16	1.30
9	80A9	1	.70	80B9	1	1 3/8	2 9/32 ▲	1 9/16	1.80
10	80A10	1	1.00	80B10	1	1 1/2	2 9/16 ▲	1 9/16	2.40
11	80A11	1	1.30	80B11	1	1 5/8	2 13/16 ▲	1 9/16	2.90
12	80A12	1	1.70	80B12	1	1 7/8	3 1/8 ▲	1 9/16	3.60
13	80A13	1	2.00	80B13	1	1 31/32	3 1/32	1 9/16	3.80
14	80A14	1	2.40	80B14	1	2 1/4	3 1/4	1 9/16	4.40
15	80A15	1	2.70	80B15	1	2 1/2	3 13/16	1 9/16	5.60
16	80A16	1	3.10	80B16	1	2 7/16	3 3/4	1 5/8	6.10
17	80A17	1	3.50	80B17	1	2 7/16	3 3/4	1 5/8	6.50
18	80A18	1	4.00	80B18	1	2 7/16	3 3/4	1 5/8	6.90
19	80A19	1	4.40	80B19	1	2 7/16	3 3/4	1 5/8	7.40
20	80A20	1	4.40	80B20	1	2 15/16	4 1/2	1 7/8	10.40
21	80A21	1	5.00	80B21	1	2 15/16	4 1/2	1 7/8	10.90
22	80A22	1	5.60	80B22	1	2 15/16	4 1/2	1 7/8	11.40
23	80A23	1	6.20	80B23	1	2 15/16	4 1/2	1 7/8	12.00
24	80A24	1	6.60	80B24	1	2 15/16	4 1/2	1 7/8	12.50
25	80A25	1	7.00	80B25	1	2 15/16	4 1/2	1 7/8	13.10
26	80A26	1 3/8	7.90	80B26	1 3/8	3 1/4	4 3/4	1 7/8	14.00
27	80A27	1 3/8	8.80	80B27	1 3/8	3 1/4	4 3/4	1 7/8	14.70
28	80A28	1 3/8	9.00	80B28	1 3/8	3 1/4	4 3/4	1 7/8	15.40
29	80A29	1 3/8	10.00	80B29	1 3/8	3 1/4	4 3/4	1 7/8	16.00
30	80A30	1 3/8	10.60	80B30	1 3/8	3 1/4	4 3/4	1 7/8	16.80
31	80A31	1 3/8	11.30	80B31	1 3/8	3 1/4	4 3/4	1 7/8	17.50
32	80A32	1 3/8	11.90	80B32	1 3/8	3 1/4	4 3/4	1 7/8	18.30
33	80A33	1 3/8	12.70	80B33	1 3/8	3 1/4	4 3/4	1 7/8	19.00
34	80A34	1 3/8	13.70	80B34	1 3/8	3 1/4	4 3/4	1 7/8	20.00
35	80A35	1 3/8	14.90	80B35	1 3/8	3 1/4	4 3/4	1 7/8	20.70
36	80A36	1 3/8	15.30	80B36	1 3/8	3 1/4	4 3/4	1 7/8	21.60
37	80A37	1 3/8	16.10	80B37	1 3/8	3 1/4	4 3/4	1 7/8	22.40
38	80A38	1 3/8	17.30	80B38	1 3/8	3 1/4	4 3/4	1 7/8	23.30
40	80A40	1 3/8	18.90	80B40	1 3/8	3 1/4	4 3/4	1 7/8	25.20
45	80A45	1 3/8	24.70	80B45	1 3/8	3 1/4	4 3/4	1 7/8	30.30
46	80A46	1 3/8	25.70	80B46	1 3/8	3 1/4	4 3/4	1 7/8	31.40
48	80A48	1 3/8	28.20	80B48	1 3/8	3 1/4	4 3/4	1 7/8	33.70
49	80A49	1 3/8	29.00	80B49	1 3/8	3 1/4	4 3/4	1 7/8	34.90
54	80A54	1 3/8	35.50	80B54	1 3/8	3 1/4	4 3/4	1 7/8	41.00
60	80A60	1 3/8	44.80	80B60	1 3/8	3 1/4	4 3/4	1 7/8	49.30
65	80A65	1 3/8	51.60						
70	80A70	1 3/8	56.50						
72	80A72	1 3/8	64.50						
80	80A80	1 3/8	79.00						
84	80A84	1 3/8	86.00						
96	80A96	1 3/8	113.00						
112	80A112	1 3/8	159.00						

SEE CURRENT DISCOUNT SHEET FOR ALTERATION CHARGES

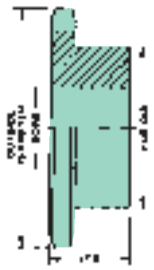
▲Has recessed groove in hub for chain clearance †Dimensions shown allow for standard keyway with set screw at 90°

CHAIN TECHNICAL DATA

Size	80
Pitch	1″
Inside Width	5/8″
Roller Diameter	.625″



TYPE A



TYPE B

C - SPROCKETS

No. 80 1″ Pitch — Finished Bore

Dimensions are in inches unless otherwise indicated.

Type F Bored to Size			Sprocket Diameters 1″ Pitch		
No. Teeth	Catalog Number	Available Bores (Includes Standard KW + 2SS)	Outside Diameter	Pitch Diameter	Caliper Diameter
9	80B9F	1	3.348	2.924	2.254
10	80B10F	1, 1¼	3.678	3.236	2.611
11	80B11F	1, 1⅛, 1³⁄₁₆, 1¼, 1⅜, 1⁷⁄₁₆, 1½, 1⅝ ●	4.006	3.550	2.888
12	80B12F	1, 1⅛, 1³⁄₁₆, 1¼, 1⅜, 1⁷⁄₁₆, 1½, 1⅝, 1¾	4.332	3.864	3.239
13	80B13F	1, 1⅛, 1³⁄₁₆, 1¼, 1⅜, 1⁷⁄₁₆, 1½, 1⅝, 1¾, 1⅞, 1¹⁵⁄₁₆ ●	4.657	4.179	3.523
14	80B14F	1, 1⅛, 1³⁄₁₆, 1¼, 1⅜, 1⁷⁄₁₆, 1½, 1⅝, 1¾, 1⅞ ●, 1¹⁵⁄₁₆ ●	4.981	4.494	3.869
15	80B15F	1, 1⅛, 1³⁄₁₆, 1¼, 1⅜, 1⁷⁄₁₆, 1½, 1⅝, 1¾, 1⅞, 1¹⁵⁄₁₆	5.304	4.810	4.158
16	80B16F	1, 1³⁄₁₆, 1¼, 1⅜, 1⁷⁄₁₆, 1½, 1⅝, 1¾, 1¹⁵⁄₁₆, 2, 2³⁄₁₆	5.627	5.126	4.501
17	80B17F	1, 1³⁄₁₆, 1¼, 1⅜, 1⁷⁄₁₆, 1½, 1⅝, 1¾, 1¹⁵⁄₁₆, 2, 2³⁄₁₆	5.949	5.442	4.794
18	80B18F	1, 1³⁄₁₆, 1¼, 1⅜, 1⁷⁄₁₆, 1½, 1⅝, 1¾, 1¹⁵⁄₁₆, 2, 2³⁄₁₆	6.271	5.759	5.134
19	80B19F	1, 1³⁄₁₆, 1¼, 1⅜, 1⁷⁄₁₆, 1½, 1⅝, 1¾, 1¹⁵⁄₁₆, 2, 2³⁄₁₆	6.593	6.076	5.430
20	80B20F	1, 1³⁄₁₆, 1¼, 1⅜, 1⁷⁄₁₆, 1½, 1⅝, 1¾, 1¹⁵⁄₁₆, 2, 2³⁄₁₆, 2⁷⁄₁₆, 2¹⁵⁄₁₆	6.914	6.392	5.767
21	80B21F	1, 1³⁄₁₆, 1¼, 1⅜, 1⁷⁄₁₆, 1½, 1⅝, 1¾, 1¹⁵⁄₁₆, 2, 2³⁄₁₆, 2⁷⁄₁₆, 2¹⁵⁄₁₆	7.235	6.710	6.066
22	80B22F	1, 1³⁄₁₆, 1¼, 1⅜, 1⁷⁄₁₆, 1½, 1⅝, 1¾, 1¹⁵⁄₁₆, 2, 2³⁄₁₆, 2⁷⁄₁₆, 2¹⁵⁄₁₆	7.555	7.027	6.402
24	80B24F	1, 1³⁄₁₆, 1¼, 1⅜, 1⁷⁄₁₆, 1½, 1⅝, 1¾, 1¹⁵⁄₁₆, 2, 2³⁄₁₆, 2⁷⁄₁₆, 2¹⁵⁄₁₆	8.196	7.661	7.036
26	80B26F	1³⁄₁₆, 1¼, 1⅜, 1⁷⁄₁₆, 1½, 1⅝, 1¾, 1¹⁵⁄₁₆, 2, 2³⁄₁₆, 2⁷⁄₁₆, 2¹⁵⁄₁₆	8.836	8.296	7.671
27	80B27F	1³⁄₁₆, 1¼, 1⅜, 1⁷⁄₁₆, 1½, 1⅝, 1¾, 1¹⁵⁄₁₆, 2, 2³⁄₁₆, 2⁷⁄₁₆, 2¹⁵⁄₁₆	9.156	8.614	7.974
28	80B28F	1³⁄₁₆, 1¼, 1⅜, 1⁷⁄₁₆, 1½, 1⅝, 1¾, 1¹⁵⁄₁₆, 2, 2³⁄₁₆, 2⁷⁄₁₆, 2¹⁵⁄₁₆	9.475	8.931	8.306
30	80B30F	1³⁄₁₆, 1¼, 1⅜, 1⁷⁄₁₆, 1½, 1⅝, 1¾, 1¹⁵⁄₁₆, 2, 2³⁄₁₆, 2⁷⁄₁₆, 2¹⁵⁄₁₆	10.114	9.567	8.942
36	80B36F	1³⁄₁₆, 1¼, 1⅜, 1⁷⁄₁₆, 1½, 1⅝, 1¾, 1¹⁵⁄₁₆, 2, 2³⁄₁₆, 2⁷⁄₁₆, 2¹⁵⁄₁₆	12.030	11.474	10.849
60	80B60F	1³⁄₁₆, 1¼, 1⅜, 1⁷⁄₁₆, 1½, 1⅝, 1¾, 1¹⁵⁄₁₆, 2, 2³⁄₁₆, 2⁷⁄₁₆, 2¹⁵⁄₁₆	19.681	19.107	18.482

Hub diameters may vary to suit bore sizes

● Indicates set screw at 90° and 180° from keyway

CHAIN TECHNICAL DATA

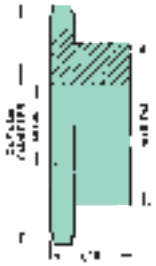
Size	80
Pitch	1″
Inside Width	⅝″
Roller Diameter	.625″

TYPE B

No. 80 1″ Pitch — Stainless Steel

Dimensions are in inches unless otherwise indicated.

Single — Type B — Stainless Steel							
No. Teeth	Outside Diameter	Catalog Number	Plain Bore	Max. Bore	Hub Dia.	LTB	Wt. Lbs.
10	3.678	**80B10SS**	1	1½	2 9/16	1 9/16	2.40
11	4.006	**80B11SS**	1	1 5/8	2 13/16	1 9/16	2.90
12	4.332	**80B12SS**	1	1 7/8	3⅛	1 9/16	3.60
13	4.657	**80B13SS**	1	1 31/32	3 1/32	1 9/16	3.80
14	4.981	**80B14SS**	1	2¼	3¼	1 9/16	4.40
15	5.305	**80B15SS**	1	2¼	3 13/16	1 9/16	5.60
16	5.627	**80B16SS**	1	2 7/16	3¾	1 5/8	6.10
18	6.271	**80B18SS**	1	2 7/16	3¾	1 5/8	6.90
19	6.593	**80B19SS**	1	2 7/16	3¾	1 5/8	7.40
20	6.914	**80B20SS**	1	2 15/16	4½	1 7/8	10.40
22	7.555	**80B22SS**	1	2 15/16	4½	1 7/8	11.40
23	7.826	**80B23SS**	1	2 15/16	4½	1 7/8	12.00
24	8.196	**80B24SS**	1	2 15/16	4½	1 7/8	12.50



TYPE B

CHAIN TECHNICAL DATA	
Size	80
Pitch	1″
Inside Width	5/8″
Roller Diameter	.625″

No. 80 1″ Pitch — Multiple Strand

Dimensions are in inches unless otherwise indicated.

Basic Sprocket Dimensions			80-2 Double Strand					80-3 Triple Strand				
No. Teeth	Outside Diameter	Plain Bore	Catalog Number	Hub Dia.	LTB	†Max. Bore	Wt. Lbs.	Catalog Number	Hub Dia.	LTB	†Max. Bore	Wt. Lbs.
10	3.678	1	**D80B10**	2 9/16 ▲	2 3/4	1 3/8	3.50					
11	4.006	1	**D80B11**	2 3/8	2 1/2	1 9/16	3.90	**T80B11**	2 3/8	3 5/8	1 9/16	5.70
12	4.332	1	**D80B12**	2 11/16	2 1/2	1 13/16	4.90	**T80B12**	2 11/16	3 5/8	1 13/16	7.20
13	4.657	1	**D80B13**	3 1/32	2 1/2	2	6.10	**T80B13**	3 1/32	3 5/8	2	8.90
14	4.981	1	**D80B14**	3 5/16	2 1/2	2 1/4	7.30	**T80B14**	3 5/16	3 5/8	2 1/4	10.70
15	5.304	1	**D80B15**	3 5/8	2 1/2	2 1/2	8.70	**T80B15**	3 5/8	3 5/8	2 1/2	12.70
16	5.627	1	**D80B16**	4	2 3/4	2 3/4	11.10	**T80B16**	4	3 7/8	2 3/4	15.80
17	5.949	1	**D80B17**	4 5/16	2 3/4	2 7/8	12.80	**T80B17**	4 5/16	3 7/8	2 7/8	18.30
18	6.271	1	**D80B18**	4 5/8	2 3/4	3 1/8	14.60	**T80B18**	4 5/8	3 7/8	3 1/8	20.90
19	6.593	1	**D80B19**	4 15/16	2 3/4	3 5/16	16.60	**T80B19**	4 15/16	3 7/8	3 5/16	23.80
20	6.914	1	**D80B20**	5	2 3/4	3 5/16	18.20	**T80B20**	5	3 7/8	3 5/16	26.20
21	7.235	1	**D80B21**	5	2 3/4	3 5/16	19.60	**T80B21**	5	3 7/8	3 5/16	28.60
22	7.560	1	**D80B22**	5	2 3/4	3 5/16	21.00	**T80B22**	5	3 7/8	3 5/16	31.00
23	7.880	1	**D80B23**	5	2 3/4	3 5/16	22.80	**T80B23**	5	3 7/8	3 5/16	34.00
24	8.196	1 5/16	**D80B24**	5	2 3/4	3 5/16	24.70	**T80B24**	5	3 7/8	3 5/16	34.60
25	8.520	1 5/16	**D80B25**	5	2 3/4	3 5/16	28.30	**T80B25**	5 1/2	4 1/4	3 3/4	41.00
30	10.114	1 5/16	**D80B30**	5 1/2	3	3 3/4	39.50	**T80B30**	5 1/2	4 1/4	3 3/4	52.20
36	12.030	1 7/16	**D80B36**	5 1/2	3 1/8	3 3/4	55.10					

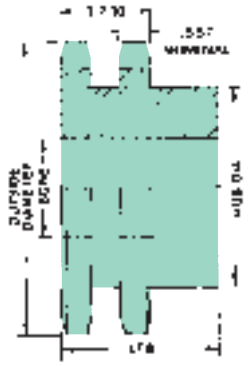
SEE CURRENT DISCOUNT SHEET FOR ALTERATION CHARGES

▲ Has recessed groove in hub for chain clearance

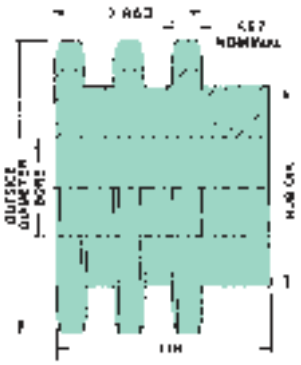
† Dimensions shown allow for standard keyway with set screw at 90°

CHAIN TECHNICAL DATA

Size	80-2, 80-3
Pitch	1″
Inside Width	5/8″
Roller Diameter	.625″



TYPE B



TYPE B

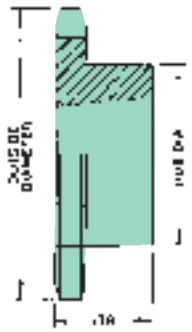
No. 80 1″ Pitch — TAPER-LOCK®

Dimensions are in inches unless otherwise indicated.

80 Type B TAPER-LOCK®							
No. Teeth	Outside Diameter	Catalog Number	Bushing	Max. Bore	Hub Dia.	LTB	Wt. Lbs.
10	3.678	**80BTL10**	1215	1¼	2⅜ ▲	1½	1.10
11	4.006	**80BTL11**	1215	1¼	2 15/32 ▲	1½	1.50
12	4.332	**80BTL12**	1615	1⅝	3 ▲	1½	1.80
13	4.657	**80BTL13**	1615	1⅝	3	1½	2.30
14	4.982	**80BTL14**	1615	1⅝	3¼	1½	2.50
15	5.300	**80BTL15**	1615	1⅝	3¼	1½	2.70
16	5.627	**80BTL16**	2012	2	3⅝	1¼	2.80
17	5.950	**80BTL17**	2012	2	3⅝	1¼	3.10
18	6.271	**80BTL18**	2012	2	3⅝	1¼	3.60
19	6.593	**80BTL19**	2012	2	3⅝	1¼	4.10
20	6.914	**80BTL20**	2517	2½	4¼	1¾	5.50
21	7.235	**80BTL21**	2517	2½	4¼	1¾	6.00
22	7.555	**80BTL22**	2517	2½	4¼	1¾	6.50
23	7.875	**80BTL23**	2517	2½	4¼	1¾	7.00
24	8.196	**80BTL24**	2517	2½	4¼	1¾	7.50
25	8.516	**80BTL25**	2517	2½	4¼	1¾	8.10
26	8.836	**80BTL26**	2517	2½	4¼	1¾	8.80
27	9.156	**80BTL27**	2517	2½	4¼	1¾	9.00
28	9.475	**80BTL28**	2517	2½	4¼	1¾	9.50
30	10.114	**80BTL30**	2517	2½	4¼	1¾	11.50
32	10.753	**80BTL32**	2517	2½	4¼	1¾	12.00
35	11.711	**80BTL35**	2517	2½	4¼	1¾	15.20
36	12.030	**80BTL36**	2517	2½	4¼	1¾	17.00
40	13.306	**80BTL40**	2517	2½	4¼	1¾	21.00
45	14.901	**80BTL45**	2517	2½	4¼	1¾	26.50
48	15.857	**80BTL48**	2517	2½	4¼	1¾	29.50
54	17.769	**80BTL54**	2517	2½	4¼	1¾	38.50
60	19.681	**80BTL60**	2517	2½	4¼	1¾	45.20
70	22.867	**80BTL70**	3020	3	5¼	2	52.30
80	26.052	**80BTL80**	3020	3	5¼	2	69.20

▲ Has recessed groove in hub for chain clearance

TAPER-LOCK® is a registered trademark of Rockwell Automation.



TYPE B

CHAIN TECHNICAL DATA

Size	80
Pitch	1″
Inside Width	⅝″
Roller Diameter	.625″

No. 80 1" Pitch — TAPER-LOCK®

Dimensions are in inches unless otherwise indicated.

80 Double TAPER-LOCK®							
No. Teeth	Outside Diameter	Catalog Number	Bushing	Max. Bore	Hub Dia.	LTB	Wt. Lbs.
13	4.657	**D80ATL13**	1615	1⅝		1½	3.30
14	4.982	**D80ATL14**	2012	2		1¼	3.30
15	5.305	**D80ATL15**	2012	2		1¼	4.20
16	5.627	**D80ATL16**	2517	2½	3⅛	1¾	4.20
17	5.950	**D80ATL17**	2517	2½	3⅛	1¾	4.90
18	6.271	**D80ATL18**	2517	2½	3⅛	1¾	6.20
19	6.593	**D80BTL19**	3020	3	5	2	5.50
20	6.914	**D80BTL20**	3020	3	5¼	2	7.10
21	7.235	**D80BTL21**	3020	3	5⁹⁄₁₆	2	8.80
25	8.516	**D80BTL25**	3020	3	6⅞	2	16.30

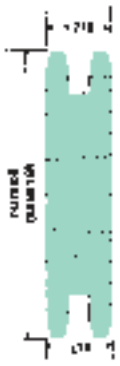
Dimensions are in inches unless otherwise indicated.

TAPER-LOCK® Bushings		
Bushing	Bore Range	Wt. Lbs.
1615	½ — 1⅝	1.00
2012	½ — 2	1.40
2517	½ — 2½	3.20
3020	¹⁵⁄₁₆ — 3	5.80

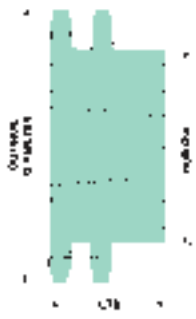
Refer to page C-66 for bushing specifications

TAPER-LOCK® is a registered trademark of Rockwell Automation.

CHAIN TECHNICAL DATA	
Size	80
Pitch	1″
Inside Width	⅝″
Roller Diameter	.625″



TYPE A



TYPE B

No. 80 1″ Pitch — QD®

Dimensions are in inches unless otherwise indicated.

80 QD® 1″ Pitch												
No. Teeth	Outside Diameter	Catalog Number	Bushing	Max. Bore	Type	Hub Dia.	LTB	X	Y	L	F	Wt. Lbs.
11	4.006	**80SH11**	SH	1 11/16	B	2 11/16	13/16	1 3/8	1 3/8	19/32	2 11/16	1.10
12	4.332	**80SH12**	SH	1 11/16	B	2 3/4	13/16	1 3/8	1 3/8	19/32	2 11/16	1.30
13	4.657	**80SDS13**	SDS	2	B	3 3/16	3/4	1 7/16	1 7/16	43/64	3 3/16	1.50
14	4.981	**80SDS14**	SDS	2	B	3 3/8	3/4	1 7/16	1 7/16	43/64	3 3/16	1.80
15	5.304	**80SK15**	SK	2 5/8	B	3 7/8	1 1/4	2 1/16	2 1/16	1 15/64	3 7/8	2.50
16	5.627	**80SK16**	SK	2 5/8	B	4 1/8	1 1/4	2 1/16	2 1/16	1 15/64	3 7/8	3.20
17	5.949	**80SK17**	SK	2 5/8	B	4 3/8	1 1/4	2 1/16	2 1/16	1 15/64	3 7/8	3.90
18	6.271	**80SK18**	SK	2 5/8	B	4 3/8	1 1/4	2 1/16	2 1/16	1 15/64	3 7/8	4.40
19	6.593	**80SK19**	SK	2 5/8	B	4 3/8	1 1/4	2 1/16	2 1/16	1 15/64	3 7/8	4.70
20	6.914	**80SF20**	SF	2 15/16	B	5	1 1/4	2 1/8	2 1/8	1 23/64	4 5/8	5.60
21	7.235	**80SF21**	SF	2 15/16	B	5	1 1/4	2 1/8	2 1/8	1 23/64	4 5/8	6.10
22	7.555	**80SF22**	SF	2 15/16	B	5	1 1/4	2 1/8	2 1/8	1 23/64	4 5/8	6.60
23	7.876	**80SF23**	SF	2 15/16	B	5	1 1/4	2 1/8	2 1/8	1 23/64	4 5/8	7.30
24	8.196	**80SF24**	SF	2 15/16	B	5	1 1/4	2 1/8	2 1/8	1 23/64	4 5/8	7.80
25	8.526	**80SF25**	SF	2 15/16	B	5	1 1/4	2 1/8	2 1/8	1 23/64	4 5/8	8.40
26	8.836	**80SF26**	SF	2 15/16	B	5	1 1/4	2 1/8	2 1/8	1 23/64	4 5/8	8.80
27	9.156	**80SF27**	SF	2 15/16	B	5	1 1/4	2 1/8	2 1/8	1 23/64	4 5/8	9.90
28	9.475	**80SF28**	SF	2 15/16	B	5	1 1/4	2 1/8	2 1/8	1 23/64	4 5/8	10.30
30	10.114	**80SF30**	SF	2 15/16	B	5	1 1/4	2 1/8	2 1/8	1 23/64	4 5/8	11.60
32	10.753	**80SF32**	SF	2 15/16	B	5	1 1/4	2 1/8	2 1/8	1 23/64	4 5/8	13.30
33	11.073	**80SF33**	SF	2 15/16	B	5	1 1/4	2 1/8	2 1/8	1 23/64	4 5/8	13.50
34	11.392	**80SF34**	SF	2 15/16	B	5	1 1/4	2 1/8	2 1/8	1 23/64	4 5/8	15.00
35	11.711	**80SF35**	SF	2 15/16	B	5	1 1/4	2 1/8	2 1/8	1 23/64	4 5/8	15.70
36	12.030	**80SF36**	SF	2 15/16	B	5	1 1/4	2 1/8	2 1/8	1 23/64	4 5/8	16.70
40	13.306	**80SF40**	SF	2 15/16	B	5	1 1/4	2 1/8	2 1/8	1 23/64	4 5/8	20.70
42	13.944	**80SF42**	SF	2 15/16	B	5	1 1/4	2 1/8	2 1/8	1 23/64	4 5/8	22.60
45	14.901	**80SF45**	SF	2 15/16	B	5	1 1/4	2 1/8	2 1/8	1 23/64	4 5/8	25.00
48	15.857	**80SF48**	SF	2 15/16	B	5	1 1/4	2 1/8	2 1/8	1 23/64	4 5/8	29.30
54	17.769	**80SF54**	SF	2 15/16	B	5	1 1/4	2 1/8	2 1/8	1 23/64	4 5/8	36.60
60	19.681	**80SF60**	SF	2 15/16	B	5	1 1/4	2 1/8	2 1/8	1 23/64	4 5/8	45.70

Dimensions are in inches unless otherwise indicated.

QD® Bushings				
Bushing	Bore Range		No Keyway	Wt. Lbs.
	Standard Keyway	Shallow Keyway		
SH	1/2 — 1 3/8	7/16 — 1 5/8	1 11/16	.70
SDS	1/2 — 1 11/16	3/4 — 1 15/16	2	1.00
SK	1/2 — 2 1/8	2 3/16 — 2 1/2	2 9/16 — 2 5/8	2.10
SF	1/2 — 2 5/16	2 3/8 — 2 13/16	2 13/16 — 2 15/16	3.10

Refer to page C-69 for bushing specifications

QD® is a registered trademark of and is used under license from Emerson Power Transmission Manufacturing, L.P.

CHAIN TECHNICAL DATA

Size	80
Pitch	1″
Inside Width	5/8″
Roller Diameter	.625″

TYPE B

No. 100 1¼" Pitch — Plain Bore

Dimensions are in inches unless otherwise indicated.

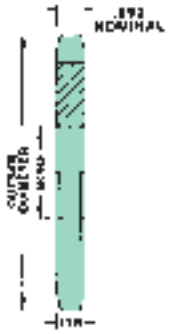
Spocket Diameters 1¼" Pitch				Type A			Type B, Type C					
No. Teeth	Outside Diameter	Pitch Diameter	Caliper Diameter	Catalog Number	Plain Bore	Wt. Lbs.	Catalog Number	Plain Bore	†Max. Bore	Hub Dia.	LTB	Wt. Lbs.
8	3.770	3.266	2.516	100A8	1	1.20	100B8	1	1¼	2 7/16 ▲	1 7/8	2.20
9	4.185	3.655	2.849	100A9	1	1.60	100B9	1	1 5/8	2 13/16 ▲	1 7/8	3.00
10	4.598	4.045	3.295	100A10	1	1.90	100B10	1	1 7/8	3¼ ▲	1 7/8	4.10
11	5.008	4.438	3.642	100A11	1	2.60	100B11	1	2¼	3 9/16 ▲	1 7/8	5.10
12	5.415	4.830	4.080	100A12	1	2.90	100B12	1	2¼	4 ▲	1 7/8	6.40
13	5.821	5.224	4.435	100A13	1	3.50	100B13	1	2 3/8	3 7/8	1 5/8	6.40
14	6.226	5.618	4.868	100A14	1¼	4.00	100B14	1¼	2¾	4 3/16	1 5/8	7.50
15	6.630	6.013	5.229	100A15	1¼	4.70	100B15	1¼	2 15/16	4½	1¾	9.00
16	7.034	6.408	5.658	100A16	1¼	5.30	100B16	1¼	3	4½	1¾	9.80
17	7.436	6.803	6.024	100A17	1¼	6.10	100B17	1¼	3	4½	1¾	10.50
18	7.839	7.199	6.449	100A18	1¼	7.20	100B18	1¼	3	4½	1¾	11.40
19	8.241	7.595	6.819	100A19	1¼	7.80	100B19	1¼	3	4½	2	13.40
20	8.643	7.990	7.240	100A20	1¼	8.60	100B20	1¼	3	4½	2	14.20
21	9.044	8.388	7.613	100A21	1¼	9.40	100B21	1¼	3	4½	2	15.10
22	9.444	8.784	8.034	100A22	1¼	10.40	100B22	1¼	3	4½	2	15.90
23	9.845	9.180	8.409	100A23	1¼	11.70	100B23	1¼	3	4½	2	17.30
24	10.245	9.576	8.826	100A24	1¼	12.50	100B24	1¼	3	4½	2	18.00
25	10.645	9.974	9.204	100A25	1¼	13.40	100B25	1¼	3	4½	2	18.90
26	11.045	10.370	9.620	100A26	1⅜	14.70	100B26	1⅜	3 15/16	5	2	21.50
27	11.445	10.768	9.999	100A27	1⅜	15.80	100B27	1⅜	3 15/16	5	2	23.00
28	11.844	11.164	10.414	100A28	1⅜	17.20	100B28	1⅜	3 15/16	5	2	24.40
30	12.643	11.959	11.209	100A30	1⅜	20.30	100B30	1⅜	3 15/16	5	2	26.30
32	13.441	12.753	12.003	100A32	1⅜	22.60	100B32	1⅜	3 15/16	5	2	29.80
35	14.639	13.945	13.181	100A35	1⅜	27.40	100B35	1⅜	3 15/16	5	2½	37.50
36	15.038	14.343	13.593	100A36	1⅜	28.30	100B36	1⅜	3 15/16	5	2½	38.70
40	16.633	15.933	15.183	100A40	1⅜	36.20	100B40	1⅜	3 15/16	5	2½	45.10
42	17.430	16.728	15.978	100A42	1⅜	40.00	100B42	1⅜	3 15/16	5	2½	47.80
45	18.626	17.920	17.159	100A45	1⅜	45.50	100B45	1⅜	3 15/16	5	2½	56.20
48	19.821	19.113	18.363	100A48	1⅜	52.00	100B48	1⅜	4⅛	6¼	2¾	67.00
54	22.211	21.498	20.748	100A54	1⅜	67.00	100C54	1⅜	4⅛	6¼	3¼	90.00
60	24.601	23.884	23.134	100A60	1⅜	81.00	100C60	1⅜	4⅛	6¼	3¼	107.00
70	28.584	27.861	27.111	100A70	1⅜	108.00	100C70	1⅜	5¼	7	3¾	138.00
72	29.380	28.657	27.908	100A72	1⅜	120.00	100C72	1⅜	5¼	7	3¾	151.00
80	32.565	31.839	31.089	100A80	1⅜	149.00	100C80	1⅜	5¼	7	3¾	180.00
84	34.158	33.430	32.680	100A84	1⅜	165.00	100C84	1⅜	5¼	7	3¾	195.00
90	36.545	35.817	35.068	100A90	1⅜	191.00	100C90	1⅜	5¼	7	3¾	225.00
96	38.934	38.204	37.454	100A96	1⅜	212.00	100C96	1⅜	5¼	7	4½	260.00

SEE CURRENT DISCOUNT SHEET FOR ALTERATION CHARGES

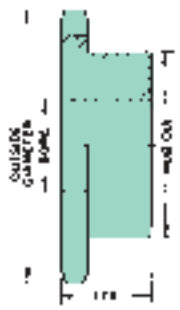
▲ Has recessed groove in hub for chain clearance † Dimensions shown allow for standard keyway with set screw at 90° ★ Hub diameter may vary to suit bore sizes

CHAIN TECHNICAL DATA

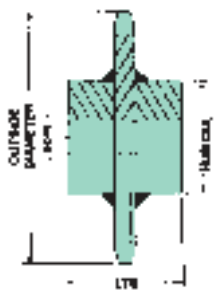
Size	100
Pitch	1¼"
Inside Width	¾"
Roller Diameter	.750"



TYPE A



TYPE B



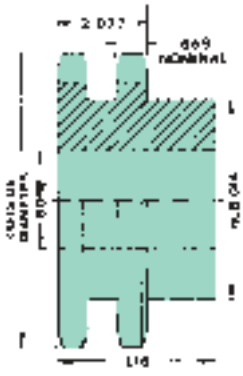
TYPE C

No. 100 1 1/4" Pitch — Multiple Strand

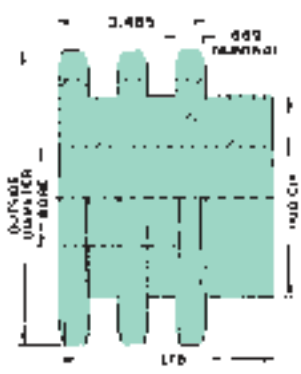
Dimensions are in inches unless otherwise indicated.

Basic Sprocket Dimensions			100-2 Double Strand					100-3 Triple Strand				
No. Teeth	Outside Diameter	Plain Bore	Catalog Number	Hub Dia.	LTB	†Max. Bore	Wt. Lbs.	Catalog Number	Hub Dia.	LTB	†Max. Bore	Wt. Lbs.
9	4.185	1	**D100B9**	2 5/16	2 7/8	1 1/2	4.40					
10	4.598	1	**D100B10**	2 11/16	2 7/8	1 3/4	6.00					
11	5.008	1	**D100B11**	3 1/8	2 7/8	2 1/8	7.80					
12	5.415	1 1/8	**D100B12**	3 3/8	2 7/8	2 1/4	9.30					
13	5.821	1 1/8	**D100B13**	3 3/4	2 7/8	2 1/2	11.30	**T100B13**	3 3/4	4 1/4	2 1/2	16.70
14	6.226	1 1/8	**D100B14**	4 3/16	2 7/8	2 3/4	13.60	**T100B14**	4 3/16	4 1/4	2 3/4	20.20
15	6.630	1 1/4	**D100B15**	4 9/16	3 1/8	3 1/8	16.80	**T100B15**	4 9/16	4 1/2	3 1/8	27.50
16	7.034	1 1/4	**D100B16**	5	3 1/8	3 5/16	19.70	**T100B16**	5	4 1/2	3 5/16	32.00
17	7.436	1 1/4	**D100B17**	5 1/4	3 1/8	3 1/2	22.50	**T100B17**	5 1/4	4 1/2	3 1/2	36.30
18	7.839	1 1/4	**D100B18**	5 1/4	3 1/8	3 1/2	24.80	**T100B18**	5 1/4	4 3/4	3 1/2	41.80
19	8.241	1 1/4	**D100B19**	5 1/2	3 1/8	3 3/4	29.40	**T100B19**	5 1/2	4 3/4	3 3/4	46.50
20	8.643	1 1/4	**D100B20**	5 1/2	3 3/8	3 3/4	32.00	**T100B20**	5 1/2	4 3/4	3 3/4	51.00
21	9.044	1 1/4	**D100B21**	5 1/2	3 3/8	3 3/4	34.80	**T100B21**	5 1/2	4 3/4	3 3/4	55.80
22	9.444	1 1/4	**D100B22**	5 1/2	3 3/8	3 3/4	37.20	**T100B22**	5 1/2	4 3/4	3 3/4	60.80
23	9.845	1 1/4	**D100B23**	5 1/2	3 3/8	3 3/4	40.30	**T100B23**	5 1/2	4 3/4	3 3/4	66.00
24	10.245	1 1/4	**D100B24**	5 1/2	3 3/8	3 3/4	43.40	**T100B24**	5 1/2	4 3/4	3 3/4	71.60
25	10.645	1 1/4	**D100B25**	5 1/2	3 3/8	3 3/4	46.70	**T100B25**	5 1/2	4 3/4	3 3/4	77.30
26	11.045	1 1/4	**D100B26**	5 1/2	3 3/8	3 3/4	50.20	**T100B26**	5 1/2	4 3/4	3 3/4	83.20
30	12.643	1 1/4	**D100B30**	5 1/2	3 3/8	3 3/4	65.40	**T100B30**	5 1/2	4 3/4	3 3/4	109.70

† Dimensions shown allow for standard keyway with set screw at 90°



TYPE B



TYPE B

CHAIN TECHNICAL DATA

Size	100-2, 100-3
Pitch	1 1/4"
Inside Width	3/4"
Roller Diameter	.750"

C - SPROCKETS

No. 100 1 1/4" Pitch — TAPER-LOCK®

Dimensions are in inches unless otherwise indicated.

100 Type B TAPER-LOCK®							
No. Teeth	Outside Diameter	Catalog Number	Bushing	Max. Bore	Hub Dia.	LTB	Wt. Lbs.
11	5.007	**100BTL11**	1615	1⅝	3	1½	2.70
12	5.415	**100BTL12**	1615	1⅝	3¼	1½	3.50
13	5.821	**100BTL13**	2012	2	3⁹⁄₁₆	1¼	3.60
14	6.227	**100BTL14**	2012	2	3⁹⁄₁₆	1¼	3.90
15	6.631	**100BTL15**	2517	2½	4¼	1¾	5.00
16	7.034	**100BTL16**	2517	2½	4½	1¾	6.40
17	7.437	**100BTL17**	2517	2½	4½	1¾	7.10
18	7.839	**100BTL18**	2517	2½	4½	1¾	7.80
19	8.241	**100BTL19**	2517	2½	4½	1¾	8.70
20	8.642	**100BTL20**	2517	2½	4½	1¾	9.60
21	9.043	**100BTL21**	2517	2½	4½	1¾	10.60
22	9.444	**100BTL22**	2517	2½	4½	1¾	11.00
24	10.245	**100BTL24**	2517	2½	4½	1¾	13.00
26	11.045	**100BTL26**	2517	2½	4½	1¾	15.00
28	11.844	**100BTL28**	3020	3	5¼	2	16.50
30	12.643	**100BTL30**	3020	3	5¼	2	22.00
32	13.442	**100BTL32**	3020	3	5¼	2	23.00
35	14.639	**100BTL35**	3020	3	5¼	2	28.00
36	15.038	**100BTL36**	3020	3	5¼	2	31.00
40	16.633	**100BTL40**	3020	3	5¼	2	37.00
45	18.626	**100BTL45**	3020	3	5¼	2	46.00
48	19.821	**100BTL48**	3020	3	5¼	2	53.00
54	22.212	**100BTL54**	3020	3	5¼	2	62.00
60	24.601	**100BTL60**	3020	3	5¼	2	72.00

Dimensions are in inches unless otherwise indicated.

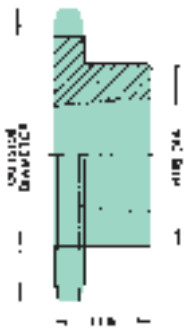
TAPER-LOCK® Bushings		
Bushing	Bore Range	Wt. Lbs.
1615	½ — 1⅝	1.00
2012	½ — 2	1.40
2517	½ — 2½	3.20
3020	¹⁵⁄₁₆ — 3	5.80

Refer to page C-66 for bushing specifications

TAPER-LOCK® is a registered trademark of Rockwell Automation.

CHAIN TECHNICAL DATA

Size	100
Pitch	1¼"
Inside Width	¾"
Roller Diameter	.750"



TYPE B

No. 100 1¼" Pitch — QD®

Dimensions are in inches unless otherwise indicated.

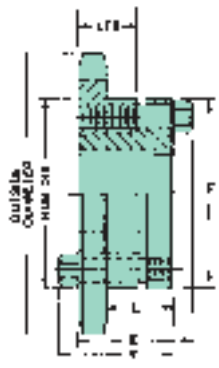
100 QD® 1¼" Pitch												
No. Teeth	Outside Diameter	Catalog Number	Bushing	Max. Bore	Type	Hub Dia.	LTB	X	Y	L	F	Wt. Lbs.
11	5.008	**100SDS11**	SDS	2	B	3 3/16	3/4	1 7/16	1 7/16	9/16	3 3/16	1.90
12	5.415	**100SDS12**	SDS	2	B	3 1/2	3/4	1 7/16	1 7/16	9/16	3 3/16	2.40
13	5.821	**100SK13**	SK	2 5/8	B	3 15/16	1 1/4	2 1/16	2 1/16	1 9/64	3 7/8	3.30
14	6.226	**100SK14**	SK	2 5/8	B	4 1/4	1 1/4	2 1/16	2 1/16	1 9/64	3 7/8	4.20
15	6.630	**100SF15**	SF	2 15/16	B	4 5/8	1 1/4	2 1/8	2 1/8	1 15/64	4 5/8	4.80
16	7.034	**100SF16**	SF	2 15/16	B	5	1 1/4	2 1/8	2 1/8	1 15/64	4 5/8	5.90
17	7.436	**100SF17**	SF	2 15/16	B	5	1 1/4	2 1/8	2 1/8	1 15/64	4 5/8	6.60
18	7.839	**100E18**	E	3 1/2	B	5 15/16	1 5/8	2 5/8	2 15/16	1 13/16	6	8.90
19	8.241	**100E19**	E	3 1/2	B	6 1/4	1 5/8	2 5/8	2 15/16	1 13/16	6	9.90
20	8.643	**100E20**	E	3 1/2	B	6 1/4	1 5/8	2 5/8	2 15/16	1 13/16	6	11.40
21	9.044	**100E21**	E	3 1/2	B	6 1/4	1 5/8	2 5/8	2 15/16	1 13/16	6	12.50
22	9.444	**100E22**	E	3 1/2	B	6 1/4	1 5/8	2 5/8	2 15/16	1 13/16	6	13.30
24	10.245	**100E24**	E	3 1/2	B	6 1/4	1 5/8	2 5/8	2 15/16	1 13/16	6	16.10
28	11.844	**100E28**	E	3 1/2	B	6 1/4	1 5/8	2 5/8	2 15/16	1 13/16	6	19.90
30	12.643	**100E30**	E	3 1/2	B	6 1/4	1 5/8	2 5/8	2 15/16	1 13/16	6	24.10
32	13.441	**100E32**	E	3 1/2	B	6 1/4	1 5/8	2 5/8	2 15/16	1 13/16	6	26.00
35	14.639	**100E35**	E	3 1/2	B	6 1/4	1 5/8	2 5/8	2 15/16	1 13/16	6	29.40
36	15.038	**100E36**	E	3 1/2	B	6 1/4	1 5/8	2 5/8	2 15/16	1 13/16	6	31.70
40	16.633	**100E40**	E	3 1/2	B	6 1/4	1 5/8	2 5/8	2 15/16	1 13/16	6	38.20
42	17.430	**100E42**	E	3 1/2	B	6 1/4	1 5/8	2 5/8	2 15/16	1 13/16	6	41.80
45	18.626	**100E45**	E	3 1/2	B	6 1/4	1 5/8	2 5/8	2 15/16	1 13/16	6	48.40
48	19.821	**100E48**	E	3 1/2	B	6 1/4	1 5/8	2 5/8	2 15/16	1 13/16	6	56.00
54	22.211	**100E54**	E	3 1/2	C	6 1/4	1 5/8	2 5/8	2 15/16	7/8	6	69.00
60	24.601	**100E60**	E	3 1/2	C	6 1/4	1 5/8	2 5/8	2 15/16	7/8	6	86.00

Dimensions are in inches unless otherwise indicated.

QD® Bushings				
Bushing	Bore Range		No Keyway	Wt. Lbs.
	Standard Keyway	Shallow Keyway		
SDS	1/2 — 1 11/16	1 3/4 — 1 15/16	2	1.00
SK	1/2 — 2 1/8	2 3/16 — 2 1/2	2 9/16 — 2 5/8	2.10
SF	1/2 — 2 1/4	2 5/16 — 2 3/4	2 13/16 — 2 15/16	3.10
E	7/8 — 2 3/4	2 13/16 — 3 7/16	3 1/2	7.10

Refer to page C-69 for bushing specifications

QD® is a registered trademark of and is used under license from Emerson Power Transmission Manufacturing, L.P.



TYPE B

TYPE C

CHAIN TECHNICAL DATA	
Size	100
Pitch	1¼"
Inside Width	¾"
Roller Diameter	.750"

No. 120 1 1/2" Pitch — Plain Bore

Dimensions are in inches unless otherwise indicated.

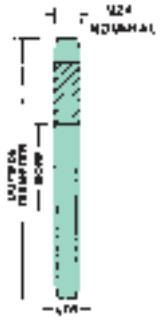
Sprocket Diameters 1½" Pitch				Type A			Type B, Type C					
No. Teeth	Outside Diameter	Pitch Diameter	Caliper Diameter	Catalog Number	Plain Bore	Wt. Lbs.	Catalog Number	Plain Bore	†Max. Bore	⋆Hub Dia.	LTB	Wt. Lbs.
9	5.022	4.386	3.444	**120A9**	1¼	3.00	**120B9**	1¼	2 13/16	3⅜ ▲	2¼	5.20
10	5.517	4.854	3.979	**120A10**	1¼	3.80	**120B10**	1¼	2¼	3¼ ▲	2¼	7.00
11	6.009	5.325	4.395	**120A11**	1¼	4.90	**120B11**	1¼	2⅜	3 9/16	2⅛	7.70
12	6.498	5.796	4.921	**120A12**	1¼	5.80	**120B12**	1¼	2¾	4⅛	2⅛	9.80
13	6.986	6.269	5.347	**120A13**	1¼	6.70	**120B13**	1¼	3	4 9/16	2¼	12.60
14	7.472	6.741	5.866	**120A14**	1¼	8.10	**120B14**	1¼	3¼	4¾	2¼	14.30
15	7.956	7.215	6.300	**120A15**	1¼	9.40	**120B15**	1¼	3¼	4¾	2¼	15.60
16	8.441	7.689	6.814	**120A16**	1⅜	10.50	**120B16**	1⅜	3½	5¼	2⅜	18.90
17	8.924	8.163	7.254	**120A17**	1⅜	11.70	**120B17**	1⅜	3½	5¼	2⅜	20.30
18	9.407	8.639	7.764	**120A18**	1⅜	13.70	**120B18**	1⅜	3½	5¼	2⅜	21.70
19	9.890	9.114	8.207	**120A19**	1⅜	15.30	**120B19**	1⅜	3½	5¼	2⅜	23.70
20	10.371	9.588	8.713	**120A20**	1⅜	16.80	**120B20**	1⅜	3½	5¼	2⅜	25.30
21	10.853	10.065	9.161	**120A21**	1⅜	18.50	**120B21**	1⅜	3½	5¼	2⅜	27.00
22	11.333	10.541	9.666	**120A22**	1⅜	20.30	**120B22**	1⅜	3½	5¼	2⅜	28.80
23	11.814	11.016	10.115	**120A23**	1⅜	22.10	**120B23**	1⅜	3½	5¼	2⅜	30.60
24	12.294	11.492	10.617	**120A24**	1⅜	24.50	**120B24**	1⅜	3½	5¼	2⅜	33.50
25	12.774	11.969	11.070	**120A25**	1⅜	26.60	**120B25**	1⅜	3½	5¼	2⅜	35.60
26	13.254	12.444	11.569	**120A26**	1⅜	28.50	**120B26**	1⅜	4⅛	6¼	2½	41.80
27	13.734	12.921	12.024	**120A27**	1⅜	31.20	**120B27**	1⅜	4⅛	6¼	2½	45.00
28	14.213	13.397	12.522	**120A28**	1⅜	34.00	**120B28**	1⅜	4⅛	6¼	2½	47.50
30	15.171	14.351	13.476	**120A30**	1⅜	38.40	**120B30**	1⅜	4⅛	6¼	2½	51.50
32	16.130	15.303	14.428	**120A32**	1⅜	43.40	**120B32**	1⅜	4⅛	6¼	2½	57.00
35	17.567	16.734	15.842	**120A35**	1⅜	53.90	**120B35**	1⅜	4⅛	6¼	2½	67.00
36	18.045	17.211	16.336	**120A36**	1⅜	56.60	**120B36**	1⅜	4⅛	6¼	2½	70.00
40	19.959	19.119	18.244	**120A40**	1⅜	72.00	**120C40**	1⅜	4⅛	6¼	3¾	102.00
42	20.916	20.073	19.198	**120A42**	1⅜	76.00	**120C42**	1⅜	4⅛	6¼	3¾	114.00
45	22.352	21.504	20.615	**120A45**	1⅜	88.00	**120C45**	1⅜	4⅛	6¼	3¾	127.00
48	23.786	22.935	22.060	**120A48**	1⅜	100.00	**120C48**	1⅜	4⅛	6¼	3¾	141.00
54	26.654	25.797	24.922	**120A54**	1⅜	126.00						
60	29.522	28.661	27.786	**120A60**	1⅜	158.00						
70	34.301	33.434	32.559	**120A70**	1⅜	213.00						
80	39.078	38.207	37.332	**120A80**	1⅜	277.00						

SEE CURRENT DISCOUNT SHEET FOR ALTERATION CHARGES

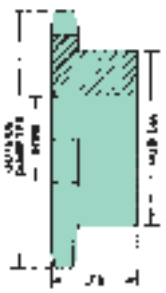
▲ Has recessed groove in hub for chain clearance
† Dimensions shown allow for standard keyway with set screw at 90°
⋆ Hub diameter may vary to suit bore sizes

CHAIN TECHNICAL DATA

Size	120
Pitch	1½"
Inside Width	1"
Roller Diameter	.875"



TYPE A



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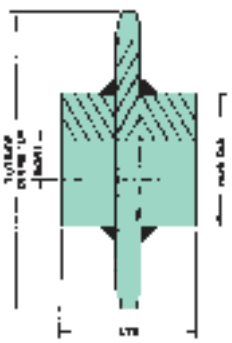


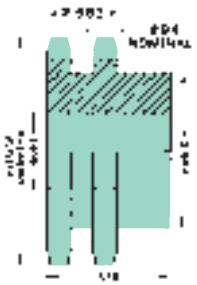
TYPE C

No. 120 1 1/2" Pitch — Multiple Strand

Dimensions are in inches unless otherwise indicated.

Basic Sprocket Dimensions			120-2 Double Strand				
No. Teeth	Outside Diameter	Plain Bore	Catalog Number	Hub Dia.	LTB	†Max. Bore	Wt. Lbs.
11	6.009	1½	**D120B11**	3 9/16	3¾	2⅜	13.50
12	6.498	1½	**D120B12**	4 1/16	3¾	2¾	17.00
13	6.986	1½	**D120B13**	4½	3¾	3	20.90
14	7.472	1½	**D120B14**	5	3¾	3⅝	25.20
15	7.956	1½	**D120B15**	5¼	3¾	3⅝	29.90
16	8.441	1½	**D120B16**	5¼	3¾	3½	33.00
17	8.924	1½	**D120B17**	5¼	3¾	3½	37.10
18	9.407	1½	**D120B18**	5¼	3¾	3½	41.00
19	9.890	1½	**D120B19**	5¼	3¾	3½	45.60
20	10.371	1½	**D120B20**	5¼	3¾	3½	50.40
21	10.853	1½	**D120B21**	5¼	3¾	3½	55.50
22	11.333	1½	**D120B22**	5¼	3¾	3½	60.90
23	11.814	1½	**D120B23**	6¼	4	4¼	71.30
24	12.294	1½	**D120B24**	6¼	4	4¼	77.20
25	12.777	1½	**D120B25**	6¼	4	4¼	83.40
26	13.254	1½	**D120B26**	6¼	4	4¼	89.90
30	15.171	1½	**D120B30**	6¼	4	4¼	118.50

SEE CURRENT DISCOUNT SHEET FOR ALTERATION CHARGES
† Dimensions shown allow for standard keyway with set screw at 90°



TYPE B

CHAIN TECHNICAL DATA

Size	120-2
Pitch	1½"
Inside Width	1"
Roller Diameter	.875"

No. 120 1 1/2" Pitch — TAPER-LOCK®

Dimensions are in inches unless otherwise indicated.

120 Type B TAPER-LOCK®							
No. Teeth	Outside Diameter	Catalog Number	Bushing	Max. Bore	Hub Dia.	LTB	Wt. Lbs.
35	17.566	**120BTL35**	3020	3	5¼	2	52.00
36	18.045	**120BTL36**	3020	3	5¼	2	54.00
45	22.351	**120CTL45**	3535	3 15/16	6½	3½	82.00
60	29.522	**120CTL60**	3535	3 15/16	6½	3½	140.00
70	34.301	**120CTL70**	3535	3 15/16	6½	3½	175.00
80	39.078	**120CTL80**	3535	3 15/16	6½	3½	220.00

Dimensions are in inches unless otherwise indicated.

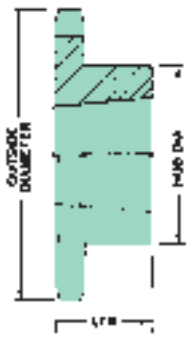
TAPER-LOCK® Bushings		
Bushing	Bore Range	Wt. Lbs.
3020	15/16 — 3	5.80
3535	1 3/16 — 3 15/16	11.00

Refer to page C-66 for bushing specifications

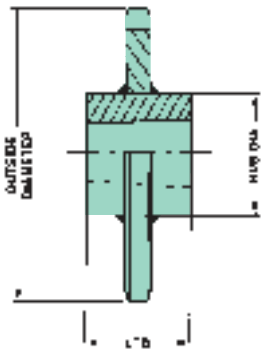
TAPER-LOCK® is a registered trademark of Rockwell Automation.

CHAIN TECHNICAL DATA

Size	120
Pitch	1½"
Inside Width	1"
Roller Diameter	.875"



TYPE B



TYPE C

No. 120 1 1/2" Pitch — QD®

Dimensions are in inches unless otherwise indicated.

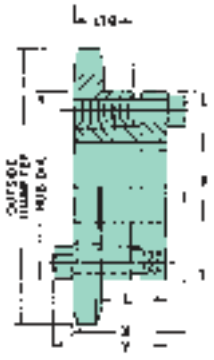
120 QD® 1 1/2" Pitch												
No. Teeth	Outside Diameter	Catalog Number	Bushing	Max. Bore	Type	Hub Dia.	LTB	X	Y	L	F	Wt. Lbs.
12	6.498	**120SF12**	SF	2 15/16	B	4 3/8	1 1/4	2 3/16	2 3/16	1 1/64	4 5/8	4.60
13	6.986	**120SF13**	SF	2 15/16	B	4 5/8	1 1/4	2 3/16	2 3/16	1 1/64	4 5/8	5.90
14	7.472	**120SF14**	SF	2 15/16	B	5	1 1/4	2 3/16	2 3/16	1 1/64	4 5/8	7.30
15	7.956	**120SF15**	SF	2 15/16	B	5	1 1/4	2 3/16	2 3/16	1 9/16	4 5/8	8.10
16	8.441	**120E16**	E	3 1/2	B	6 1/8	1 5/8	2 5/8	2 15/16	1 9/16	6	10.90
17	8.924	**120E17**	E	3 1/2	B	6 1/8	1 5/8	2 5/8	2 15/16	1 9/16	6	12.10
18	9.407	**120E18**	E	3 1/2	B	6 1/4	1 5/8	2 5/8	2 15/16	1 9/16	6	14.70
19	9.890	**120E19**	E	3 1/2	B	6 1/4	1 5/8	2 5/8	2 15/16	1 9/16	6	15.80
20	10.371	**120E20**	E	3 1/2	B	6 1/4	1 5/8	2 5/8	2 15/16	1 9/16	6	18.80
21	10.853	**120E21**	E	3 1/2	B	6 1/4	1 5/8	2 5/8	2 15/16	1 9/16	6	19.30
22	11.333	**120E22**	E	3 1/2	B	6 1/4	1 5/8	2 5/8	2 15/16	1 9/16	6	21.80
23	11.814	**120E23**	E	3 1/2	B	6 1/4	1 5/8	2 5/8	2 15/16	1 9/16	6	23.30
24	12.294	**120E24**	E	3 1/2	B	6 1/4	1 5/8	2 5/8	2 15/16	1 9/16	6	25.70
25	12.774	**120E25**	E	3 1/2	B	6 1/4	1 5/8	2 5/8	2 15/16	1 9/16	6	27.20
26	13.254	**120E26**	E	3 1/2	B	6 1/4	1 5/8	2 5/8	2 15/16	1 9/16	6	30.30
28	14.213	**120E28**	E	3 1/2	B	6 1/4	1 5/8	2 5/8	2 15/16	1 9/16	6	35.20
30	15.171	**120E30**	E	3 1/2	B	6 1/4	1 5/8	2 5/8	2 15/16	1 9/16	6	39.30
32	16.130	**120F32**	F	4	C	7	2 1/2	3 5/8	4	1	6 5/8	50.90
35	17.567	**120F35**	F	4	C	7	2 1/2	3 5/8	4	1	6 5/8	63.20
36	18.045	**120F36**	F	4	C	7	2 1/2	3 5/8	4	1	6 5/8	65.00
40	19.959	**120F40**	F	4	C	7	2 1/2	3 5/8	4	1	6 5/8	77.00
42	20.916	**120F42**	F	4	C	7	2 1/2	3 5/8	4	1	6 5/8	90.00
45	22.352	**120F45**	F	4	C	7	2 1/2	3 5/8	4	1	6 5/8	95.00
48	23.786	**120F48**	F	4	C	7	2 1/2	3 5/8	4	1	6 5/8	109.00
54	26.654	**120F54**	F	4	C	7	2 1/2	3 5/8	4	1	6 5/8	135.00
60	29.522	**120J60**	J	4 1/2	C	8	3 3/16	4 1/2	5	1 3/16	7 1/4	172.00

Dimensions are in inches unless otherwise indicated.

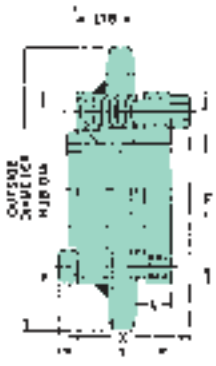
QD® Bushings				
	Bore Range			
Bushing	Standard Keyway	Shallow Keyway	No Keyway	Wt. Lbs.
SF	1/2 — 2 1/4	2 5/16 — 2 3/4	2 13/16 — 2 15/16	3.10
E	7/8 — 2 3/4	2 13/16 — 3 7/16	3 1/2	7.10
F	1 — 3 1/4	3 5/16 — 3 15/16	4	8.70
J	1 7/16 — 3 3/4	3 13/16 — 4 1/2	–	16.80

Refer to page C-69 for bushing specifications

QD® is a registered trademark of and is used under license from Emerson Power Transmission Manufacturing, L.P.



TYPE B



TYPE C

CHAIN TECHNICAL DATA

Size	120
Pitch	1½"
Inside Width	1"
Roller Diameter	.875"

No. 140 1 3/4" Pitch — Plain Bore

Dimensions are in inches unless otherwise indicated.

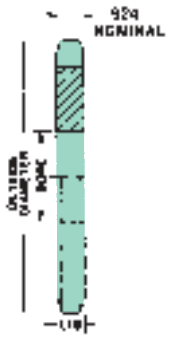
Sprocket Diameters 1¾" Pitch				Type A			Type B, Type C					
No. Teeth	Outside Diameter	Pitch Diameter	Caliper Diameter	Catalog Number	Plain Bore	Wt. Lbs.	Catalog Number	Plain Bore	†Max. Bore	★Hub Dia.	LTB	Wt. Lbs.
11	7.011	6.213	5.148	**140A11**	1⅜	6.60	**140B11**	1⅜	2¾	4¼	2¼	10.70
12	7.581	6.762	5.762	**140A12**	1⅜	7.80	**140B12**	1⅜	3	4½	2¼	13.30
13	8.150	7.313	6.259	**140A13**	1⅜	9.50	**140B13**	1⅜	3¾	5¼	2⅜	17.90
14	8.717	7.865	6.865	**140A14**	1⅜	10.80	**140B14**	1⅜	3¾	5¼	2⅜	18.90
15	9.282	8.418	7.371	**140A15**	1⅜	12.60	**140B15**	1⅜	4¼	6¼	2½	25.80
16	9.847	8.971	7.971	**140A16**	1⅜	14.40	**140B16**	1⅜	4¼	6¼	2½	27.60
17	10.411	9.524	8.483	**140A17**	1⅜	16.60	**140B17**	1⅜	4¼	6¼	2½	29.80
18	10.974	10.078	9.078	**140A18**	1⅜	18.20	**140B18**	1⅜	4¼	6¼	2½	32.30
19	11.538	10.633	9.596	**140A19**	1⅜	20.60	**140B19**	1⅜	4¼	6¼	2½	34.20
20	12.100	11.186	10.186	**140A20**	1⅜	23.20	**140B20**	1⅜	4¼	6¼	2½	36.50
21	12.661	11.743	10.709	**140A21**	1⅜	25.90	**140B21**	1⅜	4¼	6¼	2½	38.70
22	13.221	12.297	11.297	**140A22**	1⅜	28.00	**140B22**	1⅜	4¼	6¼	2½	41.10
23	13.783	12.852	11.822	**140A23**	1⅜	31.20	**140B23**	1⅜	4¼	6¼	2½	44.30
24	14.343	13.407	12.407	**140A24**	1⅜	33.50	**140B24**	1⅜	4¼	6¼	2½	47.80
25	14.903	13.963	12.935	**140A25**	1⅜	37.10	**140B25**	1⅜	4¼	6¼	2½	49.80
26	15.463	14.518	13.518	**140A26**	1⅜	38.90	**140B26**	1⅜	4¼	6¼	3	55.70
28	16.581	15.629	14.629	**140A28**	1⅜	46.20	**140B28**	1⅜	4¼	6¼	3	62.70
30	17.700	16.742	15.742	**140A30**	1⅜	53.50	**140B30**	1⅜	4¼	6¼	3	70.00
32	18.818	17.854	16.854	**140A32**	1⅜	59.20	**140B32**	1⅜	4¼	6¼	3	79.00
35	20.494	19.523	18.503	**140A35**	1⅜	71.00	**140C35**	1⅜	5¼	7	4	109.00
36	21.053	20.080	19.080	**140A36**	1⅜	76.00	**140C36**	1⅜	5¼	7	4	115.00
40	23.286	22.306	21.306	**140A40**	1⅜	95.00	**140C40**	1⅜	5¼	7	4	133.00
45	26.077	25.088	24.072	**140A45**	1⅜	122.00						
48	27.750	26.758	25.758	**140A48**	1⅜	138.00						
54	31.096	30.097	29.097	**140A54**	1⅜	181.00						
60	34.442	33.437	32.437	**140A60**	1⅜	216.00						
70	40.017	39.006	38.006	**140A70**	1⅜	290.00						
80	45.591	44.574	43.574	**140A80**	1⅜	399.00						

SEE CURRENT DISCOUNT SHEET FOR ALTERATION CHARGES

† Dimensions shown allow for standard keyway with set screw at 90°
★ Hub diameter may vary to suit bore sizes

CHAIN TECHNICAL DATA

Size	140
Pitch	1¾"
Inside Width	1"
Roller Diameter	1.000"



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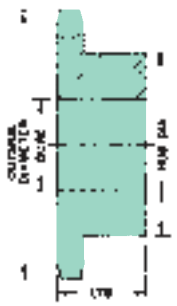
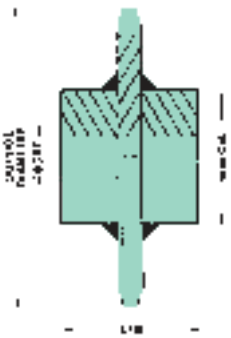


TYPE B



TYPE C

No. 140 1 3/4" Pitch — Multiple Strand

Dimensions are in inches unless otherwise indicated.

Basic Sprocket Dimensions			140-2 Double Strand				
No. Teeth	Outside Diameter	Plain Bore	Catalog Number	Hub Dia.	LTB	†Max. Bore	Wt. Lbs.
13	8.150	1½	**D140B13**	5 5/16	3¾	3½	28.80
14	8.717	1½	**D140B14**	5⅞	3¾	4	34.70
15	9.282	1½	**D140B15**	6¼	3¾	4¼	40.50
16	9.847	1½	**D140B16**	6¼	4	4¼	47.90
17	10.411	1½	**D140B17**	6¼	4	4¼	52.50
18	10.974	1⅝	**D140B18**	7	4	4¾	60.80
19	11.538	1⅝	**D140B19**	7	4	4¾	67.20
20	12.100	1⅝	**D140B20**	7	4	4¾	74.00
21	12.661	1⅝	**D140B21**	7	4	4¾	81.30
22	13.221	1⅝	**D140B22**	7	4	4¾	93.70
23	13.783	1⅝	**D140B23**	7	4	4¾	100.60
24	14.343	1⅝	**D140B24**	7	4	4¾	105.10
25	14.903	1⅝	**D140B25**	7	4	4¾	120.90
26	15.463	1⅝	**D140B26**	7	4	4¾	127.10
30	17.700	1⅝	**D140B30**	7	4	4¾	163.50

SEE CURRENT DISCOUNT SHEET FOR ALTERATION CHARGES
† Dimensions shown allow for standard keyway with set screw at 90°

TYPE B

CHAIN TECHNICAL DATA	
Size	140-2
Pitch	1¾"
Inside Width	1"
Roller Diameter	1.000"

No. 140 1 3/4" Pitch — TAPER-LOCK®

Dimensions are in inches unless otherwise indicated.

Type B TAPER-LOCK®							
No. Teeth	Outside Diameter	Catalog Number	Bushing	Max. Bore	Hub Dia.	LTB	Wt. Lbs.
35	20.494	**140CTL35**	3535	3 15/16	6½	3½	78.00
36	21.053	**140CTL36**	3535	3 15/16	6½	3½	83.00
45	26.076	**140CTL45**	4040	4 7/16	7¾	4	118.00
60	34.442	**140CTL60**	4040	4 7/16	7¾	4	188.00
70	40.017	**140CTL70**	4040	4 7/16	7¾	4	241.00

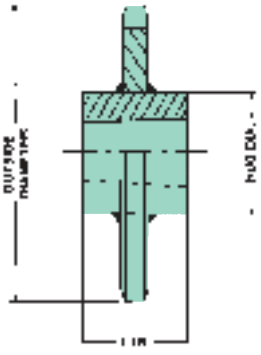
Dimensions are in inches unless otherwise indicated.

TAPER-LOCK® Bushings		
Bushing	Bore Range	Wt. Lbs.
3535	1 3/16 — 3 15/16	11.00
4040	2 3/16 — 4 7/16	17.00

Refer to page C-66 for bushing specifications

TAPER-LOCK® is a registered trademark of Rockwell Automation.

CHAIN TECHNICAL DATA	
Size	140
Pitch	1¾"
Inside Width	1"
Roller Diameter	1.000"



TYPE C

No. 140 1 3/4" Pitch — QD®

Dimensions are in inches unless otherwise indicated.

140 QD® 1 3/4" Pitch												
No. Teeth	Outside Diameter	Catalog Number	Bushing	Max. Bore	Type	Hub Dia.	LTB	X	Y	L	F	Wt. Lbs.
11	7.011	**140SF11**	SF	2 15/16	B	4 7/16	1 1/4	2 3/16	2 3/16	1 1/64	4 5/8	5.50
12	7.581	**140SF12**	SF	2 15/16	B	4 7/8	1 1/4	2 3/16	2 3/16	1 1/64	4 5/8	7.20
13	8.150	**140SF13**	SF	2 15/16	B	5	1 1/4	2 3/16	2 3/16	1 1/64	4 5/8	8.90
14	8.717	**140E14**	E	3 1/2	B	6 1/8	1 5/8	2 5/8	2 15/16	1 9/16	6	11.60
15	9.282	**140E15**	E	3 1/2	B	6 1/8	1 5/8	2 5/8	2 15/16	1 9/16	6	13.40
16	9.847	**140E16**	E	3 1/2	B	6 1/4	1 5/8	2 5/8	2 15/16	1 9/16	6	15.50
17	10.411	**140E17**	E	3 1/2	B	6 1/4	1 5/8	2 5/8	2 15/16	1 9/16	6	17.50
18	10.974	**140E18**	E	3 1/2	B	6 1/4	1 5/8	2 5/8	2 15/16	1 9/16	6	20.30
19	11.538	**140E19**	E	3 1/2	B	6 1/4	1 5/8	2 5/8	2 15/16	1 9/16	6	21.00
20	12.100	**140E20**	E	3 1/2	B	6 1/4	1 5/8	2 5/8	2 15/16	1 9/16	6	24.40
21	12.661	**140E21**	E	3 1/2	B	6 1/4	1 5/8	2 5/8	2 15/16	1 9/16	6	27.20
22	13.221	**140E22**	E	3 1/2	B	6 1/4	1 5/8	2 5/8	2 15/16	1 9/16	6	29.40
23	13.783	**140F23**	F	4	B	7	2 1/2	3 5/8	4	2 9/16	6 5/8	36.90
24	14.343	**140F24**	F	4	B	7	2 1/2	3 5/8	4	2 9/16	6 5/8	41.10
25	14.903	**140F25**	F	4	B	7	2 1/2	3 5/8	4	2 9/16	6 5/8	42.60
26	15.463	**140F26**	F	4	B	7	2 1/2	3 5/8	4	2 9/16	6 5/8	46.70
30	17.700	**140F30**	F	4	B	7	2 1/2	3 5/8	4	2 9/16	6 5/8	50.60
35	20.494	**140F35**	F	4	C	7	2 1/2	3 5/8	4	1	6 5/8	75.00
36	21.053	**140F36**	F	4	C	7	2 1/2	3 5/8	4	1	6 5/8	79.00
40	23.286	**140J40**	J	4 1/2	C	8	3 3/16	4 1/2	5	1 3/16	7 1/4	105.00
45	26.077	**140J45**	J	4 1/2	C	8	3 3/16	4 1/2	5	1 3/16	7 1/4	140.10
48	27.750	**140J48**	J	4 1/2	C	8	3 3/16	4 1/2	5	1 3/16	7 1/4	148.00
54	31.096	**140J54**	J	4 1/2	C	8	3 3/16	4 1/2	5	1 3/16	7 1/4	178.00
60	34.442	**140J60**	J	4 1/2	C	8	3 3/16	4 1/2	5	1 3/16	7 1/4	234.00
70	40.017	**140M70**	M	5 1/2	C_1	10	5 3/16	6 3/4	6 3/4	2 29/32	9	239.00
80	45.591	**140M80**	M	5 1/2	C_1	10	5 3/16	6 3/4	6 3/4	2 29/32	9	432.00

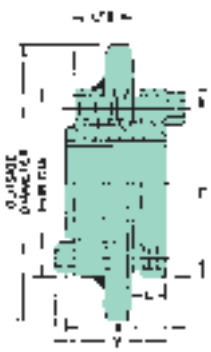
Dimensions are in inches unless otherwise indicated.

QD® Bushings				
Bushing	Bore Range		No Keyway	Wt. Lbs.
	Standard Keyway	Shallow Keyway		
SF	1/2 — 2 1/4	2 5/16 — 2 3/4	2 13/16 — 2 15/16	3.10
E	7/8 — 2 3/4	2 13/16 — 3 7/16	3 1/2	7.10
F	1 — 3 1/4	3 5/16 — 3 15/16	4	8.70
J	1 7/16 — 3 3/4	3 13/16 — 4 1/2	–	16.80
M	2 — 4 3/4	4 7/8 — 5 1/2	–	56.00

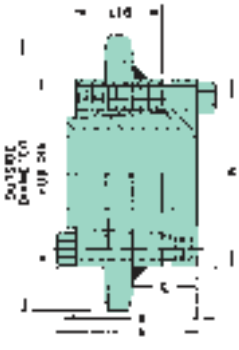
Refer to page C-69 for bushing specifications

QD® is a registered trademark of and is used under license from Emerson Power Transmission Manufacturing, L.P.

TYPE B



TYPE C



TYPE C_1

CHAIN TECHNICAL DATA

Size	140
Pitch	1¾"
Inside Width	1"
Roller Diameter	1.000"

No. 160 2″ Pitch — Plain Bore

Dimensions are in inches unless otherwise indicated.

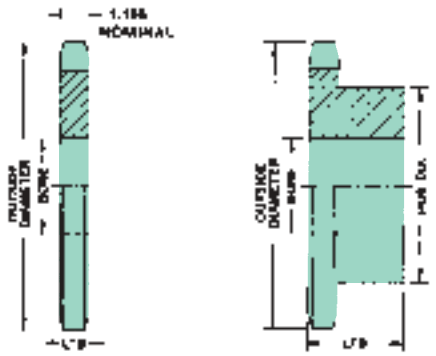
Sprocket Diameters 2″ Pitch				Type A			Type B					
No. Teeth	Outside Diameter	Pitch Diameter	Caliper Diameter	Catalog Number	Plain Bore	Wt. Lbs.	Catalog Number	Plain Bore	†Max. Bore	★Hub Dia.	LTB	Wt. Lbs.
8	6.028	5.226	4.101	160A8	1⅜	5.60	160B8	1⅜	1⅞	2 13/16	2¼	6.90
9	6.696	5.848	4.635	160A9	1⅜	7.50	160B9	1⅜	2⅜	3⅝	2¼	9.90
10	7.356	6.472	5.347	160A10	1⅜	10.10	160B10	1⅜	2¾	4	2¼	12.50
11	8.012	7.100	5.902	160A11	1⅜	11.20	160B11	1⅜	3¼	4¾	2½	17.70
12	8.664	7.728	6.603	160A12	1⅜	13.50	160B12	1⅜	3¼	5¼	2⅝	22.00
13	9.314	8.358	7.171	160A13	1⅜	15.90	160B13	1⅜	4	6	2¾	27.90
14	9.962	8.988	7.863	160A14	1⅜	18.50	160B14	1⅜	4¼	6¼	2¾	31.70
15	10.608	9.620	8.442	160A15	1⅜	21.70	160B15	1⅜	5¼	7	2¾	38.60
16	11.254	10.252	9.127	160A16	1⅜	24.80	160B16	1⅜	5¼	7	2¾	42.00
17	11.898	10.844	9.713	160A17	1⅜	27.80	160B17	1⅜	5¼	7	2¾	45.00
18	12.542	11.518	10.393	160A18	1⅜	31.30	160B18	1⅜	5¼	7	2¾	48.50
19	13.186	12.152	10.985	160A19	1⅜	35.20	160B19	1⅜	5¼	7	2¾	52.70
20	13.828	12.784	11.659	160A20	1⅜	39.00	160B20	1⅜	5¼	7	2¾	55.50
21	14.470	13.420	12.256	160A21	1⅜	43.30	160B21	1⅜	5¼	7	2¾	58.50
22	15.110	14.054	12.929	160A22	1⅜	47.70	160B22	1⅜	5¼	7	2¾	64.60
23	15.752	14.688	13.529	160A23	1⅜	51.50	160B23	1⅜	5¼	7	2¾	70.00
24	16.392	15.322	14.197	160A24	1⅜	56.00	160B24	1⅜	5¼	7	3	75.00
25	17.032	15.958	14.801	160A25	1⅜	61.70	160B25	1⅜	5¼	7	3	81.00
26	17.672	16.592	15.467	160A26	1⅜	66.60	160B26	1⅜	5¼	7	3	87.00
27	18.312	17.228	16.073	160A27	1⅜	72.00	160B27	1⅜	5¼	7	3	90.00
28	18.950	17.862	16.737	160A28	1⅜	80.00	160B28	1⅜	5¼	7	3	98.00
30	20.228	19.134	18.009	160A30	1⅜	87.00	160B30	1⅜	5¼	7	3	112.00
35	23.422	22.312	21.164	160A35	1⅜	124.00						
36	24.060	22.948	21.823	160A36	1⅜	134.00						
40	26.612	25.492	24.367	160A40	1⅜	161.00						
45	29.802	28.672	27.529	160A45	1⅜	204.00						
48	31.714	30.580	29.455	160A48	1⅜	233.00						
54	35.538	34.396	33.271	160A54	1⅜	291.00						
60	39.362	38.214	37.089	160A60	1⅜	361.00						
70	45.734	44.578	43.453	160A70	1⅜	497.00						
80	52.104	50.942	49.817	160A80	1⅜	643.00						

SEE CURRENT DISCOUNT SHEET FOR ALTERATION CHARGES

† Dimensions shown allow for standard keyway with set screw at 90°
★ Hub diameter may vary to suit bore sizes

CHAIN TECHNICAL DATA

Size	160
Pitch	2″
Inside Width	1¼″
Roller Diameter	1.125″



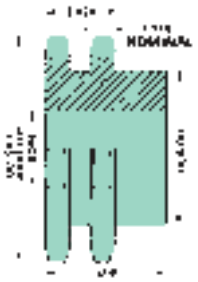
TYPE A TYPE B

No. 160 2″ Pitch — Multiple Strand

Dimensions are in inches unless otherwise indicated.

Basic Sprocket Dimensions			160-2 Double Strand				
No. Teeth	Outside Diameter	Plain Bore	Catalog Number	Hub Dia.	LTB	†Max. Bore	Wt. Lbs.
13	9.314	2	**D160B13**	5¼	4¾	3½	43.00
14	9.962	2	**D160B14**	5¼	4¾	3½	50.10
15	10.608	2	**D160B15**	5¼	4¾	3½	57.90
16	11.254	2	**D160B16**	7	4¾	4¾	72.60
17	11.898	2	**D160B17**	7	4¾	4¾	81.60
18	12.542	2	**D160B18**	7	4¾	4¾	91.20
19	13.186	2	**D160B19**	7	4¾	4¾	101.50
20	13.828	2	**D160B20**	7	4¾	4¾	112.30
21	14.470	2	**D160B21**	7½	5	5	128.90
22	15.110	2	**D160B22**	7½	5	5	141.00
23	15.752	2	**D160B23**	7½	5	5	154.10
24	16.392	2	**D160B24**	7½	5	5	167.00
25	17.032	2	**D160B25**	7½	5	5	181.00
26	17.672	2	**D160B26**	7½	5	5	196.60
30	20.228	2	**D160B30**	7½	5	5	260.10

SEE CURRENT DISCOUNT SHEET FOR ALTERATION CHARGES
† Dimensions shown allow for standard keyway with set screw at 90°



TYPE B

CHAIN TECHNICAL DATA	
Size	160-2
Pitch	2″
Inside Width	1¼″
Roller Diameter	1.125″

No. 160 2″ Pitch — QD®

Dimensions are in inches unless otherwise indicated.

160 QD® 2″ Pitch												
No. Teeth	Outside Diameter	Catalog Number	Bushing	Max. Bore	Type	Hub Dia.	LTB	X	Y	L	F	Wt. Lbs.
12	8.664	**160E12**	E	3½	B_1	5 11/16	1⅝	2⅝	2 15/16	1 5/16	6	11.20
13	9.314	**160E13**	E	3½	B_1	6¼	1⅝	2⅝	2 15/16	1 5/16	6	14.20
14	9.962	**160E14**	E	3½	B_1	6¼	1⅝	2⅝	2 15/16	1 5/16	6	17.40
15	10.608	**160F15**	F	4	B_1	7	2½	3⅜	4	2 5/16	6⅝	24.70
16	11.254	**160F16**	F	4	B_1	7	2½	3⅜	4	2 5/16	6⅝	29.00
17	11.898	**160F17**	F	4	B_1	7	2½	3⅜	4	2 5/16	6⅝	30.70
18	12.542	**160F18**	F	4	B_1	7	2½	3⅜	4	2 5/16	6⅝	33.80
19	13.186	**160F19**	F	4	B_1	7	2½	3⅜	4	2 5/16	6⅝	37.90
20	13.828	**160F20**	F	4	B_1	7	2½	3⅜	4	2 5/16	6⅝	43.00
21	14.470	**160F21**	F	4	B_1	7	2½	3⅜	4	2 5/16	6⅝	45.90
22	15.110	**160F22**	F	4	B_1	7	2½	3⅜	4	2 5/16	6⅝	51.10
23	15.752	**160F23**	F	4	B_1	7	2½	3⅜	4	2 5/16	6⅝	54.80
24	16.392	**160F24**	F	4	B_1	7	2½	3⅜	4	2 5/16	6⅝	60.40
25	17.032	**160F25**	F	4	B_1	7	2½	3⅜	4	2 5/16	6⅝	64.60
26	17.672	**160J26**	J	4½	C	8	3 3/16	4½	5	1 3/16	7¼	77.00
28	18.950	**160J28**	J	4½	C	8	3 3/16	4½	5	1 3/16	7¼	86.00
30	20.228	**160J30**	J	4½	C	8	3 3/16	4½	5	1 3/16	7¼	110.00
35	23.422	**160J35**	J	4½	C	8	3 3/16	4½	5	1 3/16	7¼	131.00
40	26.612	**160M40**	M	5½	C_1	10	5 3/16	6¾	6¾	2 11/16	9	196.00
45	29.802	**160M45**	M	5½	C_1	10	5 3/16	6¾	6¾	2 11/16	9	237.00
54	35.538	**160M54**	M	5½	C_1	10	5 3/16	6¾	6¾	2 11/16	9	325.00
60	39.362	**160M60**	M	5½	C_1	10	5 3/16	6¾	6¾	2 11/16	9	378.00
70	45.734	**160M70**	M	5½	C_1	10	5 3/16	6¾	6¾	2 11/16	9	505.00
80	52.104	**160M80**	M	5½	C_1	10	5 3/16	6¾	6¾	2 11/16	9	671.00

Dimensions are in inches unless otherwise indicated.

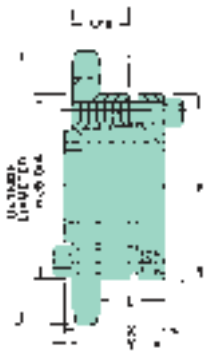
QD® Bushings				
Bushing	Bore Range		No Keyway	Wt. Lbs.
	Standard Keyway	Shallow Keyway		
E	⅞ — 2¾	2 13/16 — 3 7/16	3½	7.10
F	1 — 3¼	3 5/16 — 3 15/16	4	8.70
J	1 7/16 — 3¾	3 13/16 — 4½	–	16.80
M	2 — 4¾	4⅞ — 5½	–	56.00

Refer to page C-69 for bushing specifications

QD® is a registered trademark of and is used under license from Emerson Power Transmission Manufacturing, L.P.

CHAIN TECHNICAL DATA

Size	160
Pitch	2″
Inside Width	1¼″
Roller Diameter	1.125″



TYPE B_1

TYPE C

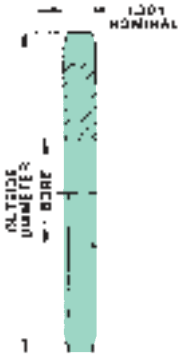
TYPE C_1

No. 180 2″ Pitch — Plain Bore

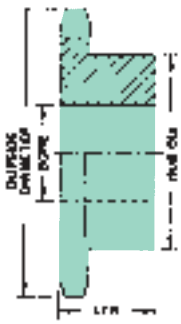
Dimensions are in inches unless otherwise indicated.

Sprocket Diameters 2¼″ Pitch				Type A			Type B					
No. Teeth	Outside Diameter	Pitch Diameter	Caliper Diameter	Catalog Number	Plain Bore	Wt. Lbs.	Catalog Number	Plain Bore	†Max. Bore	★Hub Dia.	LTB	Wt. Lbs.
11	9.010	7.986	6.499	**180A11**	1⅜	15.00	**180B11**	1⅜	3⅝	5½	2 15/16	30.00
12	9.750	8.693	7.287	**180A12**	1⅜	17.00	**180B12**	1⅜	4	6	2 15/16	34.00
13	10.480	9.402	7.927	**180A13**	1⅜	21.50	**180B13**	1⅜	4	6	2 15/16	36.00
14	11.210	10.111	8.705	**180A14**	1⅜	25.50	**180B14**	1⅜	5¼	7	3⅛	42.00
15	11.940	10.822	9.357	**180A15**	1⅜	28.80	**180B15**	1⅜	5¼	7	3⅛	45.00
16	12.660	11.533	10.127	**180A16**	1⅜	33.10	**180B16**	1⅜	5¼	7	3⅛	51.00
17	13.390	12.245	10.787	**180A17**	1⅜	37.70	**180B17**	1⅜	5¼	7	3⅛	56.00
18	14.110	12.957	11.551	**180A18**	1⅜	42.30	**180B18**	1⅜	5¼	7	3⅛	61.00
19	14.830	13.670	12.217	**180A19**	1⅜	47.90	**180B19**	1⅜	5⅜	7½	3⅜	66.00
20	15.560	14.383	12.977	**180A20**	1⅜	52.80	**180B20**	1⅜	5⅜	7½	3⅜	72.00
21	16.280	15.096	13.648	**180A21**	1⅜	59.00	**180B21**	1⅜	5⅜	7½	3⅜	78.00
22	17.000	15.810	14.404	**180A22**	1⅜	65.00	**180B22**	1⅜	5⅜	7½	3⅜	87.00
23	17.720	16.524	15.079	**180A23**	1⅜	72.10	**180B23**	1⅜	5⅜	7½	3⅜	95.00
24	18.440	17.238	15.832	**180A24**	1⅜	81.10	**180B24**	1⅜	5⅜	7½	3⅜	103.00
25	19.160	17.952	16.511	**180A25**	1⅜	85.00	**180B25**	1⅜	5⅜	7½	3⅜	110.00
28	21.320	20.096	18.690	**180A28**	1⅜	105.00	**180B28**	1⅜	5½	8	3 1/16	135.00
30	22.760	21.525	20.119	**180A30**	1⅜	124.00						
35	26.350	25.101	23.669	**180A35**	1⅜	171.00						
40	29.940	28.677	27.271	**180A40**	1⅜	222.00						
45	33.530	32.255	30.829	**180A45**	1⅜	278.00						
54	39.980	38.696	37.290	**180A54**	1⅜	402.00						
60	44.280	42.992	41.586	**180A60**	1⅜	499.00						

SEE CURRENT DISCOUNT SHEET FOR ALTERATION CHARGES
† Dimensions shown allow for standard keyway with set screw at 90°
★ Hub diameter may vary to suit bore sizes



TYPE A



TYPE B

CHAIN TECHNICAL DATA

Size	180
Pitch	2¼″
Inside Width	1 13/32″
Roller Diameter	1.406″

No. 200 2 1/2" Pitch — Plain Bore

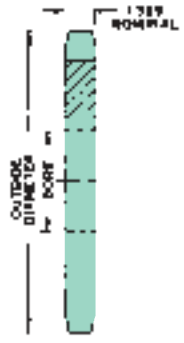
Dimensions are in inches unless otherwise indicated.

Sprocket Diameters 2½" Pitch				Type A			Type B, Type C					
No. Teeth	Outside Diameter	Pitch Diameter	Caliper Diameter	Catalog Number	Plain Bore	Wt. Lbs.	Catalog Number	Plain Bore	†Max. Bore	★Hub Dia.	LTB	Wt. Lbs.
10	9.200	8.090	6.528	**200A10**	1⅜	16.30	**200B10**	1⅜	3½	5½	3	30.00
11	10.020	8.872	7.219	**200A11**	1⅜	20.20	**200B11**	1⅜	3¾	6	3	35.00
12	10.830	9.660	8.098	**200A12**	1⅜	24.30	**200B12**	1⅜	3¾	6	3	39.00
13	11.640	10.447	8.808	**200A13**	1⅜	28.70	**200B13**	1⅜	4⅛	6¼	3	42.00
14	12.460	11.235	9.673	**200A14**	1⅜	34.40	**200B14**	1⅜	5⅜	7½	3 7/16	65.00
15	13.260	12.025	10.397	**200A15**	1⅜	39.00	**200B15**	1⅜	5⅜	7½	3 7/16	70.00
16	14.070	12.815	11.253	**200A16**	1⅜	45.60	**200B16**	1⅜	5⅜	7½	3 7/16	76.00
17	14.870	13.605	11.985	**200A17**	1⅜	49.70	**200B17**	1⅜	5⅜	7½	3 7/16	82.00
18	15.680	14.397	12.835	**200A18**	1⅜	56.00	**200B18**	1⅜	5⅜	7½	3 7/16	89.00
19	16.480	15.190	13.576	**200A19**	1⅜	63.00	**200B19**	1⅜	5⅜	7½	3 7/16	96.00
20	17.290	15.982	14.420	**200A20**	1⅜	70.00	**200B20**	1⅜	5⅜	7½	3 7/16	104.00
21	18.090	16.775	15.166	**200A21**	1⅜	78.00	**200B21**	1⅜	5⅜	7½	3 7/16	112.00
22	18.890	17.567	16.005	**200A22**	1⅜	89.00	**200B22**	1⅜	5¾	8½	4	134.00
23	19.690	18.360	16.755	**200A23**	1⅜	101.00	**200B23**	1⅜	5¾	8½	4	143.00
24	20.490	19.152	17.590	**200A24**	1⅜	102.00	**200B24**	1⅜	5¾	8½	4	152.00
25	21.290	19.947	18.346	**200A25**	1⅜	118.00	**200B25**	1⅜	5¾	8½	4	161.00
26	22.090	20.740	19.178	**200A26**	1⅜	124.00	**200C26**	1⅜	5¾	8½	4½	177.00
28	23.690	22.330	20.768	**200A28**	1⅜	146.00	**200C28**	1⅜	5¾	8½	4½	195.00
30	25.290	23.917	22.355	**200A30**	1⅜	162.00	**200C30**	1⅜	5¾	8½	4½	220.00
32	26.880	25.505	23.943	**200A32**	1⅜	190.00						
35	29.280	27.890	26.300	**200A35**	1⅜	224.00						
40	33.270	31.865	30.303	**200A40**	1⅜	291.00						
45	37.250	35.840	34.256	**200A45**	1⅜	356.00						
54	44.420	42.995	41.433	**200A54**	1⅜	479.00						
60	49.200	47.767	46.205	**200A60**	1⅜	659.00						

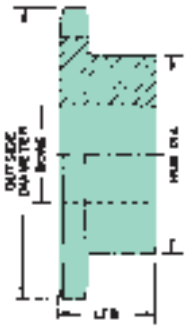
SEE CURRENT DISCOUNT SHEET FOR ALTERATION CHARGES
† Dimensions shown allow for standard keyway with set screw at 90°
★ Hub diameter may vary to suit bore sizes

CHAIN TECHNICAL DATA

Size	200
Pitch	2½"
Inside Width	1½"
Roller Diameter	1.562"



TYPE A



TYPE B

TYPE C

No. 240 3″ Pitch — Plain Bore

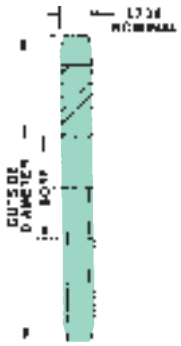
Dimensions are in inches unless otherwise indicated.

Sprocket Diameters 3″ Pitch				Type A			Type B					
No. Teeth	Outside Diameter	Pitch Diameter	Caliper Diameter	Catalog Number	Plain Bore	Wt. Lbs.	Catalog Number	Plain Bore	†Max. Bore	★Hub Dia.	LTB	Wt. Lbs.
10	11.030	9.708	7.833	**240A10**	1⅜	30.50	**240B10**	1⅜	4¼	6¼	3⅜	47.00
11	12.020	10.648	8.665	**240A11**	1⅜	36.60	**240B11**	1⅜	4¾	7	3 11⁄16	66.00
12	13.000	11.591	9.716	**240A12**	1⅜	45.40	**240B12**	1⅜	4¾	7	3 11⁄16	74.00
13	13.970	12.536	10.569	**240A13**	1⅜	52.50	**240B13**	1⅜	5⅜	7½	3⅞	87.00
14	14.940	13.482	11.607	**240A14**	1⅜	60.90	**240B14**	1⅜	5⅜	7½	3⅞	98.00
15	15.910	14.429	12.475	**240A15**	1⅜	71.00	**240B15**	1⅜	5⅜	7½	3⅞	108.00
16	16.880	15.377	13.502	**240A16**	1⅜	80.00	**240B16**	1⅜	5½	8	4⅛	124.00
17	17.850	16.327	14.382	**240A17**	1⅜	93.00	**240B17**	1⅜	5½	8	4⅛	140.00
18	18.810	17.276	15.401	**240A18**	1⅜	103.00	**240B18**	1⅜	5½	8	4⅛	149.00
19	19.780	18.227	16.289	**240A19**	1⅜	116.00	**240B19**	1⅜	5½	8	4⅛	165.00
20	20.740	19.177	17.302	**240A20**	1⅜	130.00	**240B20**	1⅜	5½	8	4⅛	175.00
21	21.700	20.129	18.197	**240A21**	1⅜	141.00	**240B21**	1⅜	5½	8	4⅛	195.00
25	25.550	23.936	22.014	**240A25**	1⅜	206.00	**240B25**	1⅜	5½	8	4⅛	260.00
30	30.340	28.700	26.825	**240A30**	1⅜	293.00						
35	35.130	33.467	31.559	**240A35**	1⅜	403.00						
40	39.920	38.237	36.362	**240A40**	1⅜	528.00						
45	44.700	43.007	41.106	**240A45**	1⅜	681.00						
54	53.310	51.595	49.720	**240A54**	1⅜	1012.00						
60	59.040	57.322	55.447	**240A60**	1⅜	1261.00						

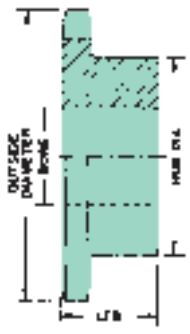
SEE CURRENT DISCOUNT SHEET FOR ALTERATION CHARGES

† Dimensions shown allow for standard keyway with set screw at 90°

★ Hub diameter may vary to suit bore sizes



TYPE A



TYPE B

CHAIN TECHNICAL DATA

Size	240
Pitch	3″
Inside Width	1⅞″
Roller Diameter	1.875″

Double Pitch Sprockets

Conveyor or Drive Series — Standard Roller Double Pitch Sprocket for C2040/A2040 Chain — 1″ Pitch

Dimensions are in inches unless otherwise indicated.

Basic Sprocket Dimensions				Single — Type B						Single — Type A		
No. Teeth	Outside Diameter	Pitch Diameter	Caliper Diameter	Catalog Number	Plain Bore	†Max. Bore	Hub Dia.	LTB	Wt. Lbs.	Catalog Number	Plain Bore	Wt. Lbs.
11	2.000	1.852	1.537	**2040B11**	½	13/16	1⅜ ▲	⅞	.34			
12	2.170	2.000	1.688	**2040B12**	½	1	1 21/32 ▲	⅞	.44			
13	2.320	2.152	1.824	**2040B13**	½	1	1 13/16 ▲	⅞	.48			
14	2.490	2.305	1.993	**2040B14**	½	1	1 13/16 ▲	⅞	.60			
15	2.640	2.458	2.133	**2040B15**	½	1⅛	1 11/16	⅞	.66			
16	2.810	2.613	2.301	**2040B16**	⅝	1 3/16	1⅞	⅞	.76			
17	2.970	2.768	2.444	**2040B17**	⅝	1¼	2 1/16	⅞	1.00			
18	3.140	2.924	2.612	**2040B18**	⅝	1⅜	2 3/16	⅞	1.16			
19	3.290	3.080	2.757	**2040B19**	⅝	1½	2⅜	⅞	1.36			
20	3.460	3.236	2.924	**2040B20**	⅝	1¾	2½	1	1.54			
21	3.610	3.392	3.070	**2040B21**	⅝	1¾	2½	1	1.65			
22	3.780	3.549	3.237	**2040B22**	⅝	1¾	2½	1	2.00			
23	3.930	3.706	3.386	**2040B23**	⅝	1¾	2½	1	2.16	**2040A23**	⅝	.77
24	4.100	3.864	3.552	**2040B24**	⅝	1¾	2½	1	2.25	**2040A24**	⅝	.84
25	4.260	4.021	3.701	**2040B25**	⅝	1¾	2½	1	2.30	**2040A25**	⅝	.91
26	4.420	4.179	3.867	**2040B26**	⅝	1¾	2½	1	2.40	**2040A26**	⅝	1.00
28	4.740	4.494	4.182	**2040B28**	⅝	1¾	2½	1	2.55	**2040A28**	⅝	1.10
30	5.060	4.810	4.498	**2040B30**	⅝	1¾	2½	1	2.74	**2040A30**	⅝	1.30

▲ Has recessed groove in hub for chain clearance

Conveyor Series — Large Roller Double Pitch Sprocket for C2042 Chain — 1″ Pitch

Dimensions are in inches unless otherwise indicated.

Basic Sprocket Dimensions				Single — Type B						Single — Type A		
No. Teeth	Outside Diameter	Pitch Diameter	Caliper Diameter	Catalog Number	Plain Bore	†Max. Bore	Hub Dia.	LTB	Wt. Lbs.	Catalog Number	Plain Bore	Wt. Lbs.
8	3.010	2.613	1.988	**2042B8**	⅝	1 9/32	1⅞	⅞	.72			
9	3.350	2.924	2.255	**2042B9**	⅝	1 15/32	2 7/32	⅞	1.02			
10	3.680	3.236	2.611	**2042B10**	⅝	1¾	2 35/64	1	1.50			
11	4.010	3.549	2.888	**2042B11**	⅝	1⅞	2⅝	1	1.68			
12	4.330	3.864	3.239	**2042B12**	⅝	2¼	3 1/16	1	2.22			
13	4.660	4.179	3.523	**2042B13**	⅝	2¼	3¼	1	2.56			
14	4.980	4.494	3.869	**2042B14**	⅝	2¼	3¼	1	2.72			
15	5.310	4.810	4.158	**2042B15**	⅝	2¼	3¼	1	2.90			
16	5.630	5.126	4.501	**2042B16**	⅝	2¼	3¼	1	3.10	**2042A16**	⅝	1.30
17	5.950	5.442	4.794	**2042B17**	⅝	2¼	3¼	1	3.40	**2042A17**	⅝	1.60
18	6.270	5.759	5.134	**2042B18**	⅝	2¼	3¼	1	3.56	**2042A18**	⅝	1.80
19	6.590	6.076	5.430	**2042B19**	⅝	2¼	3¼	1	3.72	**2042A19**	⅝	2.00
20	6.910	6.392	5.768	**2042B20**	¾	2⅜	3½	1⅛	4.72	**2042A20**	¾	2.40
21	7.240	6.710	6.066	**2042B21**	¾	2⅜	3½	1⅛	4.84	**2042A21**	¾	2.60
22	7.560	7.027	6.402	**2042B22**	¾	2⅜	3½	1⅛	5.18	**2042A22**	¾	2.80
23	7.880	7.344	6.702	**2042B23**	¾	2⅜	3½	1⅛	5.04	**2042A23**	¾	3.10
24	8.200	7.661	7.036	**2042B24**	¾	2⅜	3½	1⅛	5.58	**2042A24**	¾	3.20
25	8.520	7.979	7.338	**2042B25**	¾	2⅜	3½	1⅛	5.96	**2042A25**	¾	3.50
26	8.840	8.296	7.671	**2042B26**	¾	2⅜	3½	1⅛	6.22	**2042A26**	¾	3.70
28	9.480	8.931	8.307	**2042B28**	¾	2⅜	3½	1⅛	6.78	**2042A28**	¾	4.70
30	10.110	9.567	8.942	**2042B30**	¾	2⅜	3½	1⅛	7.56	**2042A30**	¾	5.00

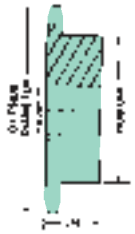
SEE CURRENT DISCOUNT SHEET FOR ALTERATION CHARGES

† Dimensions shown allow for standard keyway with set screw at 90°

CHAIN TECHNICAL DATA

Size	A2040	C2040	C2042
Pitch	1″	1″	1″
Inside Width	5/16″	5/16″	5/16″
Roller Diameter	.313″	.313″	.625″

TYPE A



TYPE B

Double Pitch Sprockets

Conveyor or Drive Series — Standard Roller Double Pitch Sprocket for C2050/A2050 Chain — 1¼″ Pitch

Dimensions are in inches unless otherwise indicated.

Basic Sprocket Dimensions				Single — Type B						Single — Type A		
No. Teeth	Outside Diameter	Pitch Diameter	Caliper Diameter	Catalog Number	Plain Bore	†Max. Bore	Hub Dia.	LTB	Wt. Lbs.	Catalog Number	Plain Bore	Wt. Lbs.
11	2.500	2.315	1.912	**2050B11**	5/8	13/16	1¾ ▲	1	.62			
12	2.710	2.500	2.100	**2050B12**	5/8	1	1⅞ ▲	1	.80			
13	2.900	2.690	2.270	**2050B13**	5/8	1 7/32	1 15/16 ▲	1	.82			
14	3.110	2.881	2.481	**2050B14**	5/8	1 9/32	2 ▲	1	1.00			
15	3.310	3.073	2.656	**2050B15**	5/8	1 7/16	2⅛	1	1.22			
16	3.520	3.266	2.866	**2050B16**	5/8	1 19/32	2 5/16	1	1.44			
17	3.710	3.460	3.046	**2050B17**	5/8	1¾	2 9/16	1	1.68			
18	3.920	3.655	3.255	**2050B18**	5/8	1 25/32	2¾	1	1.94			
19	4.120	3.850	3.436	**2050B19**	5/8	1 31/32	2⅞	1	2.24			
20	4.320	4.045	3.645	**2050B20**	5/8	2	3	1	2.30			
21	4.520	4.241	3.829	**2050B21**	¾	2	3	1¼	2.40	**2050A21**	¾	1.20
22	4.720	4.437	4.037	**2050B22**	¾	2	3	1¼	2.54	**2050A22**	¾	1.30
23	4.920	4.633	4.222	**2050B23**	¾	2	3	1¼	2.66	**2050A23**	¾	1.40
24	5.120	4.830	4.430	**2050B24**	¾	2	3	1¼	3.30	**2050A24**	¾	1.60
25	5.320	5.026	4.616	**2050B25**	¾	2	3	1¼	3.42	**2050A25**	¾	1.70
26	5.520	5.223	4.823	**2050B26**	¾	2	3	1¼	3.62	**2050A26**	¾	1.80
28	5.920	5.617	5.217	**2050B28**	¾	2	3	1¼	3.78	**2050A28**	¾	2.10
30	6.320	6.012	5.612	**2050B30**	¾	2	3	1¼	4.58	**2050A30**	¾	2.50

▲ Has recessed groove in hub for chain clearance

Conveyor Series — Large Roller Double Pitch Sprocket for C2052 Chain — 1¼″ Pitch

Dimensions are in inches unless otherwise indicated.

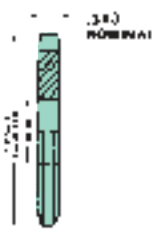
Basic Sprocket Dimensions				Single — Type B						Single — Type A		
No. Teeth	Outside Diameter	Pitch Diameter	Caliper Diameter	Catalog Number	Plain Bore	†Max. Bore	Hub Dia.	LTB	Wt. Lbs.	Catalog Number	Plain Bore	Wt. Lbs.
8	3.770	3.266	2.516	**2052B8**	5/8	1 19/32	2 23/64	1	1.38			
9	4.180	3.655	2.850	**2052B9**	5/8	1 25/32	2 15/32	1	1.92			
10	4.600	4.045	3.295	**2052B10**	5/8	2	3	1	2.30			
11	5.010	4.437	3.642	**2052B11**	5/8	2	3	1	2.54			
12	5.420	4.830	4.080	**2052B12**	¾	2	3	1¼	3.20	**2052A12**	¾	1.60
13	5.820	5.223	4.435	**2052B13**	¾	2	3	1¼	3.48	**2052A13**	¾	1.80
14	6.230	5.617	4.867	**2052B14**	¾	2	3	1¼	3.88	**2052A14**	¾	2.30
15	6.630	6.012	5.229	**2052B15**	¾	2¼	3¼	1¼	4.46	**2052A15**	¾	2.40
16	7.030	6.407	5.657	**2052B16**	¾	2¼	3¼	1¼	4.80	**2052A16**	¾	2.80
17	7.440	6.803	6.024	**2052B17**	¾	2¼	3¼	1¼	5.34	**2052A17**	¾	3.30
18	7.840	7.198	6.448	**2052B18**	¾	2¼	3¼	1¼	5.64	**2052A18**	¾	3.60
19	8.240	7.595	6.819	**2052B19**	¾	2¼	3¼	1¼	6.04	**2052A19**	¾	4.10
20	8.640	7.991	7.241	**2052B20**	¾	2¼	3¼	1¼	6.48	**2052A20**	¾	4.70
21	9.040	8.387	7.614	**2052B21**	¾	2¼	3¼	1¼	7.00	**2052A21**	¾	5.00
22	9.440	8.783	8.033	**2052B22**	¾	2¼	3¼	1¼	7.30	**2052A22**	¾	5.20
23	9.840	9.180	8.409	**2052B23**	1	2¾	3¾	1¼	8.66	**2052A23**	1	5.70
24	10.250	9.577	8.827	**2052B24**	1	2¾	3¾	1¼	9.32	**2052A24**	1	6.70
25	10.650	9.973	9.204	**2052B25**	1	2¾	3¾	1¼	10.30	**2052A25**	1	7.50
26	11.050	10.370	9.620	**2052B26**	1	2¾	3¾	1¼	11.00	**2052A26**	1	8.20
28	11.840	11.164	10.414	**2052B28**	1	2¾	3¾	1¼	11.70	**2052A28**	1	8.70
30	12.640	11.958	11.208	**2052B30**	1	2¾	3¾	1¼	12.90	**2052A30**	1	9.80

SEE CURRENT DISCOUNT SHEET FOR ALTERATION CHARGES

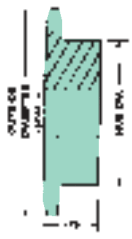
† Dimensions shown allow for standard keyway with set screw at 90°

CHAIN TECHNICAL DATA

Size	A2050	C2050	C2052
Pitch	1¼″	1¼″	1¼″
Inside Width	⅜″	⅜″	⅜″
Roller Diameter	.400″	.400″	.750″



TYPE A



TYPE B

Double Pitch Sprockets

Conveyor or Drive Series — Standard Roller Double Pitch Sprocket for C2060/A2060 Chain — 1½″ Pitch

Dimensions are in inches unless otherwise indicated.

Basic Sprocket Dimensions				Single — Type B						Single — Type A		
No. Teeth	Outside Diameter	Pitch Diameter	Caliper Diameter	Catalog Number	Plain Bore	†Max. Bore	Hub Dia.	LTB	Wt. Lbs.	Catalog Number	Plain Bore	Wt. Lbs.
11	3.000	2.773	2.276	2060B11	¾	1	2 1/16 ▲	1¼	1.14			
12	3.250	3.000	2.531	2060B12	¾	1⅜	2¼ ▲	1¼	1.46			
13	3.480	3.228	2.735	2060B13	¾	1 7/16	2 5/16 ▲	1¼	1.52			
14	3.740	3.457	2.988	2060B14	¾	1⅝	2½ ▲	1¼	1.86			
15	3.960	3.688	3.199	2060B15	¾	1¾	2½	1¼	2.24			
16	4.220	3.920	3.451	2060B16	¾	1⅞	2¾	1¼	2.64			
17	4.450	4.152	3.666	2060B17	¾	2 3/32	3 3/32	1¼	3.08			
18	4.700	4.386	3.917	2060B18	¾	2¼	3¼	1¼	3.56			
19	4.940	4.620	4.135	2060B19	¾	2¼	3¼	1½	3.94	2060A19	¾	2.10
20	5.190	4.854	4.385	2060B20	¾	2¼	3¼	1½	4.50	2060A20	¾	2.40
21	5.420	5.089	4.606	2060B21	¾	2¼	3¼	1½	5.02	2060A21	¾	2.50
22	5.670	5.324	4.855	2060B22	¾	2¼	3¼	1½	5.26	2060A22	¾	2.70
23	5.900	5.560	5.077	2060B23	¾	2¼	3¼	1½	5.54	2060A23	¾	3.00
24	6.150	5.796	5.327	2060B24	¾	2¼	3¼	1½	5.90	2060A24	¾	3.20
25	6.380	6.032	5.551	2060B25	¾	2¼	3¼	1½	6.08	2060A25	¾	3.30
26	6.630	6.268	5.799	2060B26	¾	2¼	3¼	1½	6.36	2060A26	¾	3.50
28	7.110	6.741	6.272	2060B28	¾	2¼	3¼	1½	7.02	2060A28	¾	4.00
30	7.590	7.215	6.746	2060B30	¾	2¼	3¼	1½	7.54	2060A30	¾	4.70

▲ Has recessed groove in hub for chain clearance

Conveyor Series — Large Roller Double Pitch Sprocket for C2062 Chain — 1½″ Pitch

Dimensions are in inches unless otherwise indicated.

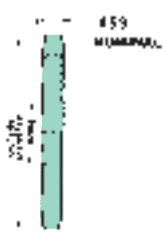
Basic Sprocket Dimensions				Single — Type B						Single — Type A		
No. Teeth	Outside Diameter	Pitch Diameter	Caliper Diameter	Catalog Number	Plain Bore	†Max. Bore	Hub Dia.	LTB	Wt. Lbs.	Catalog Number	Plain Bore	Wt. Lbs.
8	4.520	3.920	3.045	2062B8	¾	1 27/32	2 27/32	1¼	2.60			
9	5.020	4.386	3.444	2062B9	¾	2 9/32	3 11/32	1¼	3.48			
10	5.520	4.584	3.979	2062B10	¾	2 9/16	3 53/64	1¼	4.54			
11	6.010	5.324	4.395	2062B11	¾	2¾	4	1¼	5.20			
12	6.500	5.796	4.921	2062B12	¾	2¾	4	1½	5.70	2062A12	¾	3.00
13	6.990	6.268	5.347	2062B13	¾	2¾	4	1½	6.28	2062A13	¾	3.60
14	7.470	6.741	5.866	2062B14	¾	2¾	4	1½	6.82	2062A14	¾	4.00
15	7.960	7.215	6.300	2062B15	¾	2¾	4	1½	7.48	2062A15	¾	4.70
16	8.440	7.689	6.814	2062B16	¾	2¾	4	1½	8.18	2062A16	¾	5.70
17	8.920	8.163	7.253	2062B17	¾	2¾	4	1½	8.82	2062A17	¾	6.10
18	9.410	8.638	7.763	2062B18	¾	2¾	4	1½	9.36	2062A18	¾	7.00
19	9.890	9.113	8.207	2062B19	1	2¾	4¼	1½	11.10	2062A19	1	8.00
20	10.370	9.589	8.714	2062B20	1	2¾	4¼	1½	11.66	2062A20	1	8.50
21	10.850	10.064	9.161	2062B21	1	2¾	4¼	1½	13.24	2062A21	1	8.90
22	11.330	10.540	9.665	2062B22	1	2¾	4¼	1½	13.78	2062A22	1	10.70
23	11.810	11.016	10.115	2062B23	1	2¾	4¼	1½	14.90	2062A23	1	11.60
24	12.290	11.492	10.617	2062B24	1	2¾	4¼	1½	15.66	2062A24	1	12.60
25	12.770	11.968	11.070	2062B25	1	2¾	4¼	1½	16.80	2062A25	1	13.80
26	13.250	12.444	11.569	2062B26	1	2¾	4¼	1½	20.20	2062A26	1	15.00
28	14.210	13.397	12.522	2062B28	1	2¾	4¼	1½	21.86	2062A28	1	17.30
30	15.170	14.350	13.475	2062B30	1	2¾	4¼	1½	26.00	2062A30	1	19.50

SEE CURRENT DISCOUNT SHEET FOR ALTERATION CHARGES

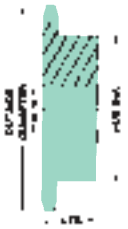
† Dimensions shown allow for standard keyway with set screw at 90°

CHAIN TECHNICAL DATA

Size	A2060	C2060	C2062
Pitch	1½″	1½″	1½″
Inside Width	½″	½″	½″
Roller Diameter	.469″	.469″	.875″



TYPE A



TYPE B

Double Pitch Sprockets

Conveyor or Drive Series — Standard Roller Double Pitch Sprocket for C2080/A2080 Chain — 2″ Pitch

Dimensions are in inches unless otherwise indicated.

Basic Sprocket Dimensions				Single — Type B						Single — Type A		
No. Teeth	Outside Diameter	Pitch Diameter	Caliper Diameter	Catalog Number	Plain Bore	†Max. Bore	Hub Dia.	LTB	Wt. Lbs.	Catalog Number	Plain Bore	Wt. Lbs.
11	4.010	3.694	3.074	**2080B11**	1	1½	2 13/16 ▲	1⅜	2.50			
12	4.330	4.000	3.375	**2080B12**	1	1¾	3 ▲	1⅜	3.20			
13	4.640	4.304	3.647	**2080B13**	1	1⅞	3 1/16 ▲	1⅜	3.30			
14	4.980	4.610	3.985	**2080B14**	1	2⅛	3⅛ ▲	1⅜	4.00			
15	5.290	4.917	4.265	**2080B15**	1	2⅜	3 7/16	1⅝	4.80			
16	5.630	5.226	4.601	**2080B16**	1	2¼	3¼	1⅝	5.70	**2080A16**	1	3.10
17	5.940	5.536	4.888	**2080B17**	1	2¼	3¼	1⅝	6.40	**2080A17**	1	3.50
18	6.270	5.848	5.223	**2080B18**	1	2¼	3¼	1⅝	7.40	**2080A18**	1	4.00
19	6.580	6.160	5.513	**2080B19**	1	2¾	4	1⅝	7.70	**2080A19**	1	4.40
20	6.910	6.472	5.845	**2080B20**	1	2¾	4	1⅝	8.30	**2080A20**	1	4.40
21	7.230	6.785	6.141	**2080B21**	1	2¾	4	1⅝	9.40	**2080A21**	1	5.00
22	7.560	7.099	6.474	**2080B22**	1	2¾	4	1⅝	10.00	**2080A22**	1	5.60
23	7.870	7.413	6.770	**2080B23**	1	2¾	4	1⅝	10.50	**2080A23**	1	6.20
24	8.200	7.727	7.102	**2080B24**	1	2¾	4	1⅝	11.10	**2080A24**	1	6.60
25	8.510	8.042	7.401	**2080B25**	1	2¾	4	1⅝	12.00	**2080A25**	1	7.00
26	8.840	8.357	7.732	**2080B26**	1⅜	3¼	4¾	1⅞	14.80	**2080A26**	1⅜	7.90
28	9.480	8.988	8.363	**2080B28**	1⅜	3¼	4¾	1⅞	16.60	**2080A28**	1⅜	9.00
30	10.110	9.620	8.995	**2080B30**	1⅜	3¼	4¾	1⅞	17.80	**2080A30**	1⅜	10.60

▲ Has recessed groove in hub for chain clearance

Conveyor Series — Large Roller Double Pitch Sprocket for C2082 Chain — 2″ Pitch

Dimensions are in inches unless otherwise indicated.

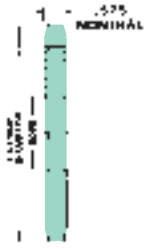
Basic Sprocket Dimensions				Single — Type B						Single — Type A		
No. Teeth	Outside Diameter	Pitch Diameter	Caliper Diameter	Catalog Number	Plain Bore	†Max. Bore	Hub Dia.	LTB	Wt. Lbs.	Catalog Number	Plain Bore	Wt. Lbs.
8	6.030	5.226	4.101	**2082B8**	1	2 17/32	3 51/64	1¾	6.40			
9	6.700	5.848	4.634	**2082B9**	1	2¾	4¼	1¾	8.20			
10	7.360	6.472	5.347	**2082B10**	1	2¾	4¼	1¾	9.20			
11	8.010	7.099	5.902	**2082B11**	1	2¾	4¼	1¾	10.10	**2082A11**	1	5.70
12	8.660	7.727	6.602	**2082B12**	1	2¾	4¼	1¾	11.20	**2082A12**	1	6.80
13	9.320	8.357	7.171	**2082B13**	1⅜	3¼	4¾	1⅞	15.00	**2082A13**	1⅜	7.70
14	9.960	8.988	7.863	**2082B14**	1⅜	3¼	4¾	1⅞	15.80	**2082A14**	1⅜	9.10
15	10.610	9.620	8.442	**2082B15**	1⅜	3¼	4¾	1⅞	17.80	**2082A15**	1⅜	10.70
16	11.260	10.252	9.127	**2082B16**	1⅜	3¼	4¾	1⅞	19.30	**2082A16**	1⅜	12.40
17	11.900	10.885	9.713	**2082B17**	1⅜	3¼	4¾	1⅞	21.40	**2082A17**	1⅜	14.10
18	12.540	11.518	10.393	**2082B18**	1⅜	3¼	4¾	1⅞	22.90	**2082A18**	1⅜	15.40
19	13.190	12.151	10.985	**2082B19**	1⅜	3¼	4¾	1⅞	24.40	**2082A19**	1⅜	18.00
20	13.830	12.785	11.660	**2082B20**	1⅜	3¼	4¾	1⅞	26.70	**2082A20**	1⅜	19.20
21	14.470	13.419	12.256	**2082B21**	1⅜	3¼	4¾	1⅞	28.40	**2082A21**	1⅜	20.80
22	15.110	14.053	12.928	**2082B22**	1⅜	3¼	4¾	1⅞	39.60	**2082A22**	1⅜	23.70
23	15.750	14.688	13.528	**2082B23**	1⅜	3¼	4¾	1⅞	32.20	**2082A23**	1⅜	24.90
24	16.390	15.323	14.198	**2082B24**	1⅜	3¼	4¾	1⅞	34.90	**2082A24**	1⅜	27.60
25	17.030	15.958	14.801	**2082B25**	1⅜	3¼	4¾	1⅞	37.80	**2082A25**	1⅜	30.20
26	17.670	16.593	15.468	**2082B26**	1⅜	3½	5¼	2	41.50	**2082A26**	1⅜	32.80
28	18.950	17.863	16.738	**2082B28**	1⅜	3½	5¼	2	47.70	**2082A28**	1⅜	38.60
30	20.230	19.134	18.009	**2082B30**	1⅜	3½	5¼	2	54.50	**2082A30**	1⅜	43.80

SEE CURRENT DISCOUNT SHEET FOR ALTERATION CHARGES

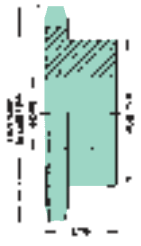
† Dimensions shown allow for standard keyway with set screw at 90°

CHAIN TECHNICAL DATA

Size	A2080	C2080	C2082
Pitch	2″	2″	2″
Inside Width	⅝″	⅝″	⅝″
Roller Diameter	.625″	.625″	1.125″



TYPE A



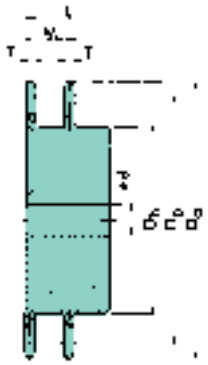
TYPE B

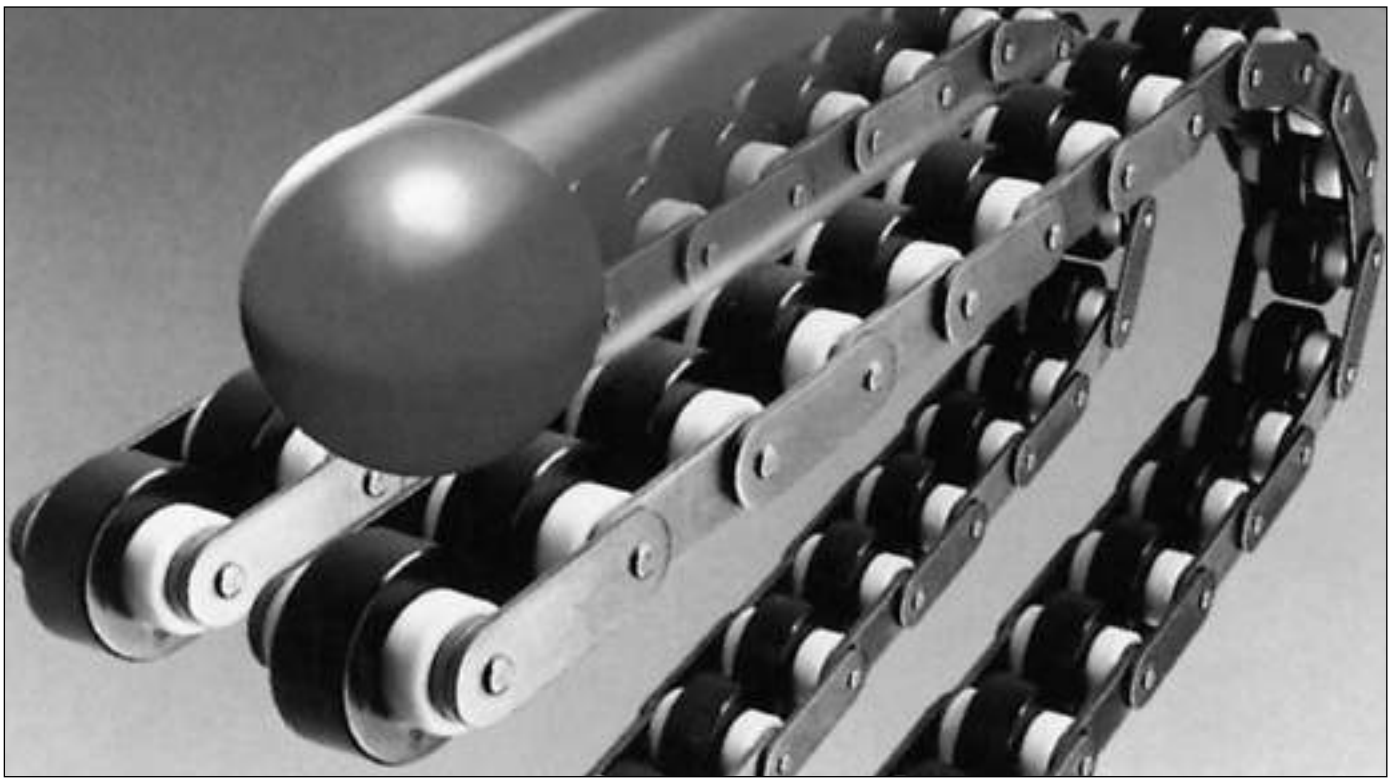
DOUBLE PLUS® Sprockets

Sprockets for DOUBLE PLUS Chain
(For DOUBLE PLUS "VR," "VRP," "VR-SC," & "VRP-SC")

Dimensions are in inches unless otherwise indicated.

No. Teeth	Outside Diameter D_o	Pitch Diameter D_p	Catalog Number	Plain Bore d	Hub Diameter D_h	Hub Length L	Hub Type	Tooth Thickness T	M	Weight Lbs.
10	2.480	2.427	**C2030VRP-10T-SC**	.500	1.457	.984	B	.118	.602	.44
10	3.346	3.236	**C2040VRP-10T-SC**	.630	2.047	1.575	B	.157	.803	1.76
10	4.213	4.045	**C2050VRP-10T-SC**	.630	2.598	1.772	B	.197	1.004	3.31
10	5.039	4.854	**C2060VRP-10T-SC**	.748	3.189	1.969	B	.236	1.201	5.52
10	6.772	6.472	**C2080VRP-10T-SC**	.906	4.331	2.638	B	.472	1.870	15.40





Double Single Sprockets

40 Double Single Sprockets ½″ Pitch

Dimensions are in inches unless otherwise indicated.

No. Teeth	Outside Diameter	Catalog Number	Plain Bore	Max. Bore	LTB	C	D	Wt. Lbs.
15	2.650	**DS40A15**	½	1¼	1 13/32	1⅛	1 13/16	1.20
16	2.810	**DS40A16**	½	1¼	1 13/32	1⅛	2	1.40
17	2.980	**DS40A17**	½	1 5/16	1 13/32	1⅛	2⅛	1.60
18	3.140	**DS40A18**	½	1½	1 13/32	1⅛	2 5/16	1.80
19	3.300	**DS40A19**	⅝	1 11/16	1 13/32	1⅛	2½	2.20
20	3.460	**DS40A20**	⅝	1¾	1 13/32	1⅛	2⅝	2.60
21	3.620	**DS40A21**	⅝	1¾	1 13/32	1⅛	2 25/32	2.90
22	3.780	**DS40A22**	⅝	1 15/16	1 13/32	1⅛	2 15/16	3.00
23	3.940	**DS40A23**	⅝	2 1/16	1 13/32	1⅛	3 3/32	3.50
24	4.100	**DS40A24**	⅝	2¼	1 13/32	1⅛	3 17/64	4.00

50 Double Single Sprockets ⅝″ Pitch

Dimensions are in inches unless otherwise indicated.

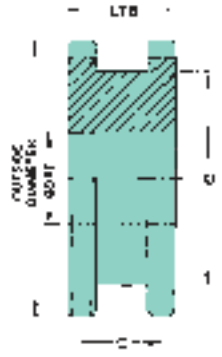
No. Teeth	Outside Diameter	Catalog Number	Plain Bore	Max. Bore	LTB	C	D	Wt. Lbs.
15	3.320	**DS50A15**	⅝	1½	1 21/32	1 5/16	2⅜	2.10
16	3.520	**DS50A16**	⅝	1 11/16	1 21/32	1 5/16	2½	2.40
17	3.720	**DS50A17**	⅝	1¾	1 21/32	1 5/16	2 11/16	2.90
18	3.920	**DS50A18**	⅝	1⅞	1 21/32	1 5/16	2 57/64	3.30
19	4.120	**DS50A19**	⅝	2 1/16	1 21/32	1 5/16	3 5/64	3.70
20	4.320	**DS50A20**	⅝	2¼	1 21/32	1 5/16	3 9/32	4.20
21	4.520	**DS50A21**	⅝	2¼	1 21/32	1 5/16	3 31/64	4.80
22	4.720	**DS50A22**	⅝	2 7/16	1 21/32	1 5/16	3 1/16	5.30
23	4.920	**DS50A23**	⅝	2⅝	1 21/32	1 5/16	3 57/64	5.80
24	5.120	**DS50A24**	⅝	2¾	1 21/32	1 5/16	4 5/64	6.30

60 Double Single Sprockets ¾″ Pitch

Dimensions are in inches unless otherwise indicated.

No. Teeth	Outside Diameter	Catalog Number	Plain Bore	Max. Bore	LTB	C	D	Wt. Lbs.
13	3.490	**DS60A13**	¾	1½	1 15/16	1 31/64	2 1/32	2.60
14	3.740	**DS60A14**	¾	1¾	1 15/16	1 31/64	2 9/16	3.20
15	3.980	**DS60A15**	¾	1⅞	1 15/16	1 31/64	2⅞	3.80
16	4.220	**DS60A16**	¾	2	1 15/16	1 31/64	3 3/64	4.50
17	4.460	**DS60A17**	¾	2¼	1 15/16	1 31/64	3¼	5.30
18	4.700	**DS60A18**	¾	2⅜	1 15/16	1 31/64	3½	6.50
19	4.950	**DS60A19**	¾	2½	1 15/16	1 31/64	3 45/64	6.80
20	5.190	**DS60A20**	¾	2¾	1 15/16	1 31/64	3 61/64	7.00
21	5.430	**DS60A21**	¾	2⅞	1 15/16	1 31/64	4 3/16	7.50

SEE CURRENT DISCOUNT SHEET FOR ALTERATION CHARGES



Double Single Sprockets

80 Double Single Sprockets 1″ Pitch

Dimensions are in inches unless otherwise indicated.

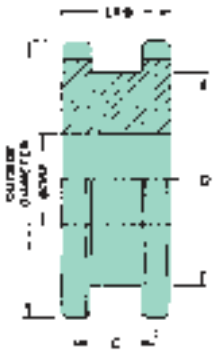
No. Teeth	Outside Diameter	Catalog Number	Plain Bore	Max. Bore	LTB	C	D	Wt. Lbs.
13	4.660	**DS80A13**	1	2	2 3/16	1 5/8	3 1/64	6.50
14	4.980	**DS80A14**	1	2 1/4	2 3/16	1 5/8	3 11/32	7.70
15	5.300	**DS80A15**	1	2 3/8	2 3/16	1 5/8	3 13/16	9.10
16	5.630	**DS80A16**	1	2 11/16	2 3/16	1 5/8	4	9.50
17	5.950	**DS80A17**	1	2 13/16	2 3/16	1 5/8	4 5/16	10.80
18	6.270	**DS80A18**	1	3 1/8	2 3/16	1 5/8	4 41/64	12.10
19	6.590	**DS80A19**	1	3 1/4	2 3/16	1 5/8	4 61/64	12.80
20	6.910	**DS80A20**	1	3 1/2	2 3/16	1 5/8	5 9/32	14.00
21	7.240	**DS80A21**	1	3 3/4	2 3/16	1 5/8	5 19/32	16.50
22	7.560	**DS80A22**	1	3 7/8	2 3/16	1 5/8	5 59/64	18.40

100 Double Single Sprockets 1¼″ Pitch

Dimensions are in inches unless otherwise indicated.

No. Teeth	Outside Diameter	Catalog Number	Plain Bore	Max. Bore	LTB	C	D	Wt. Lbs.
13	5.820	**DS100A13**	1	2 1/2	2 11/16	2	3 25/32	11.20
14	6.230	**DS100A14**	1 1/4	2 3/4	2 11/16	2	4 3/16	13.50
15	6.630	**DS100A15**	1 1/4	3 1/16	2 11/16	2	4 19/32	16.80
16	7.030	**DS100A16**	1 1/4	3 1/4	2 11/16	2	4 1/2	19.30
17	7.440	**DS100A17**	1 1/4	3 5/8	2 11/16	2	4 29/32	21.50
18	7.840	**DS100A18**	1 1/4	3 3/4	2 11/16	2	5 9/32	23.00
19	8.240	**DS100A19**	1 1/4	4 3/16	2 11/16	2	6 13/64	25.00
20	8.640	**DS100A20**	1 1/4	4 13/16	2 11/16	2	6 39/64	26.50
21	9.040	**DS100A21**	1 1/4	5 1/4	2 11/16	2	7	29.00

SEE CURRENT DISCOUNT SHEET FOR ALTERATION CHARGES



Double Single TAPER-LOCK®

40 Double Single TAPER-LOCK ½″ Pitch

Dimensions are in inches unless otherwise indicated.

No. Teeth	Outside Diameter	Catalog Number	Bushing	Max. Bore	LTB	C	D	Wt. Lbs.
19	3.300	**DS40ATL19**	1215	1¼	1 13/32	1⅛	2½	1.10
23	3.940	**DS40ATL23**	1615	1⅝	1 13/32	1⅛	3 3/32	1.50
24	4.100	**DS40ATL24**	1615	1⅝	1 13/32	1⅛	3 17/64	1.70

50 Double Single TAPER-LOCK ⅝″ Pitch

Dimensions are in inches unless otherwise indicated.

No. Teeth	Outside Diameter	Catalog Number	Bushing	Max. Bore	LTB	C	D	Wt. Lbs.
17	3.520	**DS50ATL17**	1615	1⅝	1 21/32	1 5/16	2 11/16	1.80
19	4.120	**DS50ATL19**	1615	1⅝	1 21/32	1 5/16	3 5/64	2.70
21	4.520	**DS50ATL21**	2012	2	1 21/32	1 5/16	3 15/32	3.30
24	5.120	**DA50ATL24**	2012	2	1 21/32	1 5/16	4 5/64	4.10

60 Double Single TAPER-LOCK ¾″ Pitch

Dimensions are in inches unless otherwise indicated.

No. Teeth	Outside Diameter	Catalog Number	Bushing	Max. Bore	LTB	C	D	Wt. Lbs.
17	4.460	**DS60ATL17**	1615	1⅝	1 15/16	1 31/64	3 7/32	4.50
18	4.700	**DS60ATL18**	2012	2	1 15/16	1 31/64	3 15/32	5.00
19	4.950	**DS60ATL19**	2012	2	1 15/16	1 31/64	3 45/64	5.80
20	5.190	**DS60ATL20**	2517	2½	1 15/16	1 31/64	3 31/64	5.60
21	5.430	**DS60ATL21**	2517	2½	1 15/16	1 31/64	4 3/16	6.40
24	6.150	**DA60ATL24**	2517	2½	1 15/16	1 31/64	4 29/32	8.20

80 Double Single TAPER-LOCK 1″ Pitch

Dimensions are in inches unless otherwise indicated.

No. Teeth	Outside Diameter	Catalog Number	Bushing	Max. Bore	LTB	C	D	Wt. Lbs.
17	5.950	**DS80ATL17**	2517	2½	2 3/16	1⅝	4 5/16	7.60
19	6.590	**DS80ATL19**	3020	3	2 3/16	1⅝	4 61/64	9.70
20	6.910	**DS80ATL20**	3020	3	2 3/16	1⅝	5 9/32	10.00

100 Double Single TAPER-LOCK 1¼″ Pitch

Dimensions are in inches unless otherwise indicated.

No. Teeth	Outside Diameter	Catalog Number	Bushing	Max. Bore	LTB	C	D	Wt. Lbs.
17	7.440	**DS100ATL17**	3020	3	2 11/16	2	5 15/32	14.00
21	9.040	**DS100ATL21**	3020	3	2 11/16	2	7	27.50

Some sizes are made to order. Consult U.S. Tsubaki for availability.
TAPER-LOCK® is a registered trademark of Rockwell Automation.

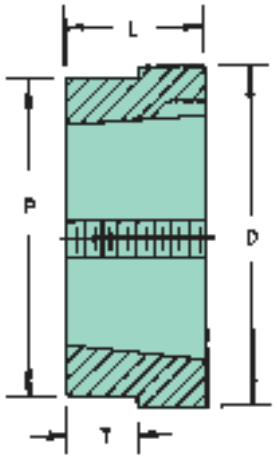
TAPER-LOCK® Weld-on Hubs

U.S. Tsubaki offers the most complete line of QD® and TAPER-LOCK weld-on hubs for insertion and welding to produce "B" style sprockets, sheaves, and other applications **without** hub protrusion. To provide greater strength for this type of shaft-locking mechanism and to reduce heat distortion caused by welding, these hubs are dimensionally the same as our sprocket items. Special dimensional hubs are available per your specifications on a made-to-order basis. All U.S. Tsubaki hubs are made from **steel bar stock** (not powdered or sintered metal). The QD and TAPER-LOCK weld-on hubs listed below include appropriate tapered bores and mounting holes.

TAPER-LOCK Weld-on Hubs

Dimensions are in inches unless otherwise indicated.

Catalog Number	Wt. Lbs.	Use Bushing	Dim D	Dim P	Dim L	Dim T
35TL1	.80	1610	3	2 7/8	1	9/64
41TL1	.80	1610	3	2 7/8	1	7/32
40TL1	.80	1610	3	2 7/8	1	1/4
40TL2	1.50	2012	3 5/8	3 7/16	1 1/4	1/4
40TL3	2.70	2517	4 1/4	4 1/8	1 3/4	1/4
50TL1	1.50	2012	3 5/8	3 7/16	1 1/4	5/16
50TL2	2.70	2517	4 1/4	4 1/8	1 3/4	5/16
60TL1	1.50	2012	3 5/8	3 7/16	1 1/4	7/16
60TL2	2.70	2517	4 1/4	4 1/8	1 3/4	7/16
80TL1	1.50	2012	3 5/8	3 7/16	1 1/4	9/16
80TL2	2.70	2517	4 1/4	4 1/8	1 3/4	9/16
80TL3	4.30	3020	5 1/4	5	2	9/16
100TL1	2.70	2517	4 1/2	4 1/8	1 3/4	11/16
100TL2	4.30	3020	5 1/4	5	2	11/16
120TL1	2.60	2517	4 1/4	4	1 3/4	7/8
120TL2	4.20	3020	5 1/4	5	2	7/8
120TL3	13.00	3535	6 1/2	6 1/2*	3 1/2	—
140TL1	25.00	4040	7 3/4	7 3/4*	4	—
160TL1	4.00	3020	5 1/4	5	2	1 1/8
160TL2	12.60	3535	6 1/2	6 1/4	3 1/2	1 1/8
160TL3	42.00	4545	8 3/4	8 3/4*	4 1/2	—

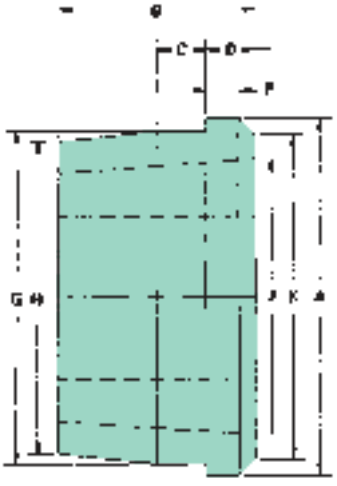


* These items have no hub step.

TAPER-LOCK Type W Weld-on Hubs

Dimensions are in inches unless otherwise indicated.

Hub Number	For Use with Bushing No.	Max. Bore of Bushing	A	B	C	D	F	G*	H	J	K	Wt. Lbs.
W12	1215	1 1/4	2 7/8	1 1/2	3/8	5/8	3/8	2 1/2	2 3/8	1 7/8	2 5/8	1.30
W16	1615	1 5/8	3 1/4	1 1/2	3/8	5/8	3/8	2 7/8	2 3/4	2 3/8	3	1.50
W25	2517	2 1/2	4 7/8	1 3/4	1/2	3/4	3/8	4 3/8	4 1/4	3 3/8	4 5/8	4.00
W30	3030	3	5 1/2	3	3/4	3/4	1/4	5 1/8	4 13/16	4 1/8	5	8.60
W35	3535	3 1/2	6 3/4	3 1/2	1 1/4	1	3/8	6 1/4	5 15/16	5	6	15.00
W40	4040	4	7 3/4	4	1 1/2	1	3/8	7 1/4	6 7/8	5 3/4	7	29.00
W45	4545	4 1/2	8 3/4	4 1/2	1 3/4	1	3/8	8	7 5/8	6 3/8	8	42.00



TAPER-LOCK type W weld-on hubs are designed for use in applications such as welding to plate sprockets, pulleys, and agitators. They are made of steel, drilled, tapped, and taper bored for TAPER-LOCK bushings.

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QD® Weld-on Hubs

Dimensions are in inches unless otherwise indicated.

Catalog Number	Wt. Lbs.	Use Bushing	Dim D	Dim P	Dim L	Dim T	Type
35SHW	.90	SH	3	2 7/8	13/16	9/64	B
40SDSW	1.00	SDS	3 1/2	3 1/8	3/4	1/4	B
40SKW	2.40	SK	4 1/4	3 7/8	1 1/4	1/4	B
50SDSW	1.00	SDS	3 5/8	3 7/16	3/4	5/16	B
50SKW	2.40	SK	4 1/4	4 1/8	1 1/4	5/16	B
50SFW	3.70	SF	5	4 5/8	1 1/4	5/16	B
60SDSW	1.00	SDS	3 1/2	3 1/8	3/4	7/16	B
60SKW	2.40	SK	4 1/4	3 7/8	1 1/4	7/16	B
60SFW	3.60	SF	5	4 5/8	1 1/4	7/16	B
60EW	7.80	E	6 1/4	5 7/8	1 5/8	7/16	B
80SFW	3.50	SF	5	4 5/8	1 1/4	9/16	B
80EW	7.70	E	6 1/4	5 7/8	1 5/8	9/16	C
80FW	14.70	F	7	6 5/8	2 1/2	9/16	C
100EWB	7.50	E	6 1/4	5 7/8	1 5/8	11/16	B
100EWC	7.50	E	6 1/4	5 7/8	1 5/8	11/16	C
100FW	14.60	F	7	6 5/8	2 1/2	11/16	C
120EW	7.40	E	6 1/4	5 7/8	1 5/8	7/8	B
120FW	14.30	F	7	6 5/8	2 1/2	7/8	C
120JW	23.70	J	8	7 1/2	3 3/16	7/8	C
160FW	14.00	F	7	6 5/8	2 1/2	1 3/32	B
160JW	23.30	J	8	7 1/2	3 3/16	1 1/8	C
160MW	59.30	M	10	9 1/2	5 3/16	2 1/4	C_1

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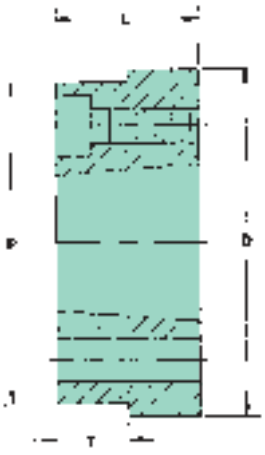
TYPE C



TYPE B and TYPE C_1

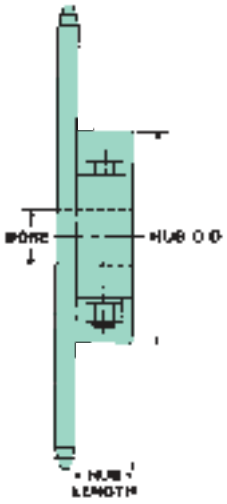
Steel Split Sprockets

Steel Split Hub

Dimensions are in inches unless otherwise indicated.

Hub Number	Bore	Hub O.D.	Hub Length	Bolts	Wt. Lbs.
S-1B	¾ — 1½	3⅛	1	⅜ x 2¼	1.80
S-2B	1⅜ — 2¼	4⅜	1¼	½ x 3	4.00
S-3B	2 — 3	6	1⅜	⅝ x 4½	8.40
S-4B	2¾ — 4	7⅝	1½	¾ x 5½	14.40
S-5B	3¾ — 5	9¼	2	1 x 6	27.70
S-6B	4¾ — 6	10¼	2¼	1 x 6½	35.40

NOTE: Length through bore can be determined by adding plate thickness to hub length. (All dimensions in inches.)



Sprocket Size for Instant Hubs

Dimensions are in inches unless otherwise indicated.

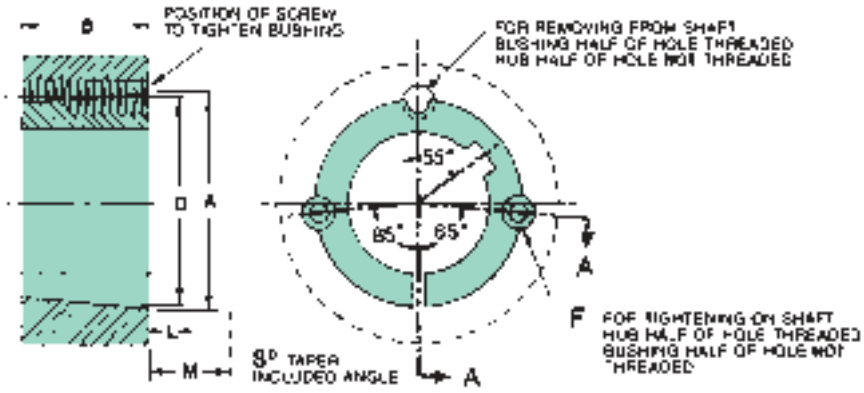
Hub Number	Bore	Minimum Number of Teeth — Chain Number										
		40	50	60	80	100	120	140	160	180	200	240
S-1B	¾ — 1½	28	23	20	16	—	—	—	—	—	—	—
S-2B	1⅜ — 2¼	38	30	26	20	17	15	14	—	—	—	—
S-3B	2 — 3	46	37	32	25	20	18	16	15	14	—	—
S-4B	2¾ — 4		48	40	30	25	21	19	17	16	15	12
S-5B	3¾ — 5					30	25	22	20	18	17	14
S-6B	4¾ — 6					32	27	24	22	19	18	15

TAPER-LOCK® Bushings

TAPER-LOCK Bushings — 1008 through 3030

Dimensions are in inches unless otherwise indicated.

Bushing No.	Bore Range★★	A	B	D	F 2 Required	L★ Std. Hex Key	L★ Short Key ◆	M★ Std. Hex Key	M★ Short Key ◆	Wt. Lbs.
1008	½ — 1	1.386	⅞	1 21/64	¼ x ½	1⅛	⅝	1¼	¾	.20
1108	½ — 1⅛	1.511	⅞	1 29/64	¼ x ½	1⅛	⅝	1¼	¾	.25
1210	½ — 1¼	1⅞	1	1¾	⅜ x ⅝	1⅜	13/16	1⅝	1 1/16	.55
1215	½ — 1¼	1⅞	1½	1¾	⅜ x ⅝	1⅜	13/16	1⅝	1 1/16	.70
1310	½ — 1⅜	2	1	1⅞	⅜ x ⅝	1⅜	13/16	1⅝	1 1/16	.65
1610	½ — 1⅝	2¼	1	2⅛	⅜ x ⅝	1⅜	13/16	1⅝	1 1/16	.70
1615	½ — 1⅝	2¼	1½	2⅛	⅜ x ⅝	1⅜	13/16	1⅝	1 1/16	1.00
2012	½ — 2	2¾	1¼	2⅝	7/16 x ⅞	1 9/16	15/16	2	1⅜	1.40
2517	½ — 2½	3⅜	1¾	3¼	½ x 1	1⅝	1	2¼	1⅝	3.20
2525	¾ — 2½	3⅜	2½	3¼	½ x 1	1⅝	1	2¼	1⅝	4.30
3020	15/16 — 3	4¼	2	4	⅝ x 1¼	1 13/16	1 3/16	2 11/16	2 1/16	5.80
3030	15/16 — 3	4¼	3	4	⅝ x 1¼	1 13/16	1 3/16	2 11/16	2 1/16	8.00



NOTE:
Metric bore sizes are available upon request and are subject to an alteration charge shown on discount multiplier sheets.

All TAPER-LOCK Bushings are available in steel from stock.

Stainless steel bushings are available on a quoted basis. Please consult factory for pricing.

- ⋆ Space required to tighten bushing. Also space required to loosen screws to permit removal of hub by puller.
- ★ Space required to remove bushing using jackscrews — no puller required.
- ★★ All bore ranges available in 1/16th inch increments.
- ◆ Standard hex key cut to minimum usable length.

TAPER-LOCK® is a registered trademark of Rockwell Automation.

TAPER-LOCK® Bushings

TAPER-LOCK Bushings — 3535 through 5050

Dimensions are in inches unless otherwise indicated.

Bushing No.	Bore Range	A	B	D	F 3 Required	G	L★ Std. Hex Key	L★ Short Key ▲	M★ Std. Hex Key	M★ Short Key ▲	Wt. Lbs.
3535	See Below	5	3½	4.83	½ x 1½	39°	2	1⁵⁄₁₆	3⅜	2¹¹⁄₁₆	11.00
4040	See Below	5¾	4	5.54	⅝ x 1¾	40°	2⅜	1⅝	4⅛	3⅜	17.00
4545	See Below	6⅜	4½	6.13	¾ x 2	40°	2⅝	1¹⁵⁄₁₆	4¾	4¹⁄₁₆	24.00
5050	See Below	7	5	6.72	⅞ x 2¼	37°	2¹³⁄₁₆	2⅝	5¼	4¹³⁄₁₆	32.00

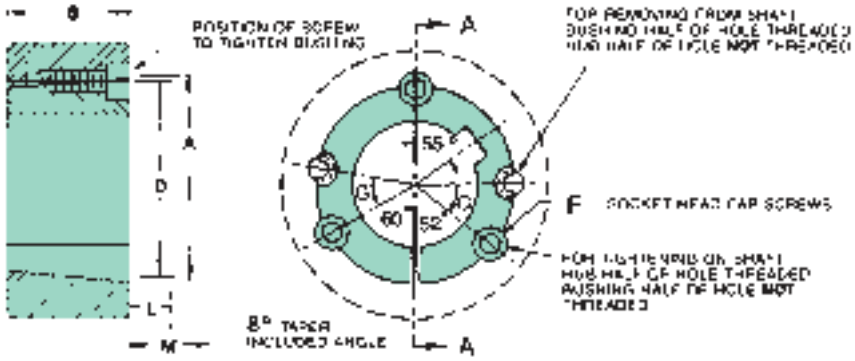
NOTE:
Metric bore sizes are available upon request.

▲ Standard hex key cut to minimum usable length.

Steel or stainless steel bushings are available on a quoted basis. Please consult factory for pricing.

★ Space required to tighten bushing. Also space required to loosen screws to permit removal of hub by puller.

★ Space required to remove bushing using jackscrews — no puller required.



Bushing	Bore Range 1³⁄₁₆	1¼	1⅜	1⁷⁄₁₆	1½	1⅝	1¹¹⁄₁₆	1¾	1⅞	1¹⁵⁄₁₆	2	2⅛	2³⁄₁₆	2¼	2⁵⁄₁₆	2⅜	2⁷⁄₁₆	2½	2⅝	2¹¹⁄₁₆	2¾	2⅞	2¹⁵⁄₁₆
3535	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
4040													X	X		X	X	X			X	X	X
4545										X	X		X			X	X		X		X	X	X
5050																	X						X

Bushing	Bore Range 3	3⅛	3³⁄₁₆	3¼	3⁵⁄₁₆	3⅜	3⁷⁄₁₆	3½	3⅝	3¹¹⁄₁₆	3¾	3⅞	3¹⁵⁄₁₆	4	4⅛	4³⁄₁₆	4¼	4⅜	4⁷⁄₁₆	4½	4¾	4⅞	4¹⁵⁄₁₆	5
3535	X	X	X	X	X	X	X	X	X	X	X	X	X											
4040	X	X	X	X		X	X	X	X	X	X	X	X	X	X	X	X	X	X					
4545	X	X	X	X		X	X	X	X		X	X	X	X	X	X	X	X	X	X	X	X	X	
5050						X	X		X			X	X	X			X	X	X	X		X	X	X

NOTE:
X = Available at list price.
No indicator = Available, but subject to alteration charges.

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QD® Bushings

Dimensions are in inches unless otherwise indicated.

QD® Bushing	Bore Range								
	Standard Keyway			Shallow Keyway			No Keyway		
JA	½	—	1	1 1/16	—	1 3/16		1 1/4	
SH	½	—	1 3/8	1 7/16	—	1 5/8		1 11/16	
SDS	½	—	1 11/16	1 3/4	—	1 15/16		2	
SD	½	—	1 11/16	1 3/4	—	1 15/16		2	
SK	½	—	2 1/8	2 3/16	—	2 1/2	2 9/16	—	2 5/8
SF	½	—	2 5/16	2 3/8	—	2 13/16	2 13/16	—	2 15/16
E	7/8	—	2 7/8	2 15/16	—	3 1/2		—	
F	1	—	3 1/4	3 5/16	—	3 15/16		4	
J	1 1/2	—	3 7/8	3 15/16	—	4 1/2		—	
M	2	—	4 3/4	4 7/8	—	5 1/2		—	
N	2 7/16	—	5	5 1/8	—	5 7/8		—	

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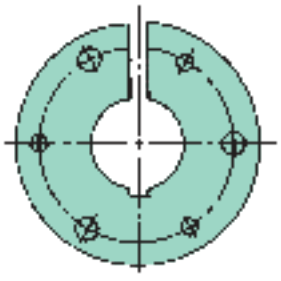
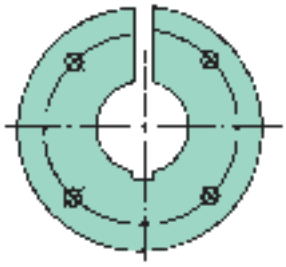
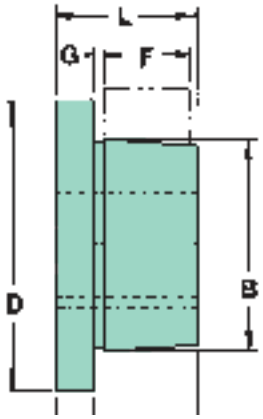


■ **Bushings JA to J**



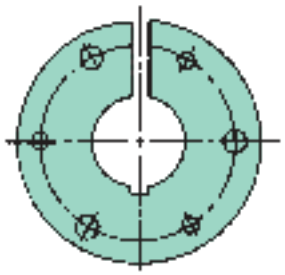
■ **Bushings M to N**



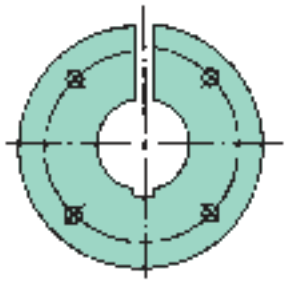
QD® Bushings

Dimensions are in inches unless otherwise indicated.

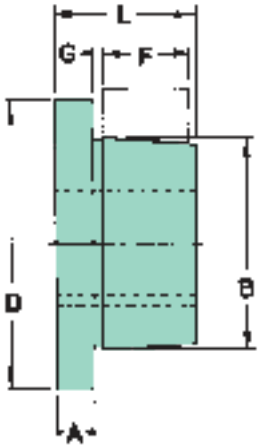
QD® Bushings								
Bushing	A	B	D	F	G	L	Bolt Circle*	Cap Screws Required	Wt. Lbs.
JA	5/16	1 3/8	2	9/16	1/8	1	1 21/32	(3) #10 x 1	.80
SH	7/16	1 7/8	2 5/8	3/4	1/8	1 5/16	2 1/4	(3) 1/4 x 1 3/8	.70
SDS	7/16	2 3/16	3 3/16	3/4	1/8	1 5/16	2 11/16	(3) 1/4 x 1 3/8	1.00
SD	7/16	2 3/16	3 3/16	1 1/4	1/8	1 13/16	2 11/16	(3) 1/4 x 1 7/8	1.20
SK	9/16	2 13/16	3 7/8	1 1/4	7/32	1 15/16	3 5/16	(3) 5/16 x 2	2.10
SF	5/8	3 1/8	4 5/8	1 1/4	7/32	2 1/16	3 7/8	(3) 3/8 x 2	3.10
E	7/8	3 53/64	6	1 5/8	1/4	2 3/4	5	(3) 1/2 x 2 3/4	7.10
F	1	4 7/16	6 5/8	2 1/2	11/32	3 3/4	5 5/8	(3) 9/16 x 3 5/8	8.70
J	1 1/8	5 9/64	7 1/4	3 3/16	3/8	4 5/8	6 1/4	(3) 5/8 x 4 1/2	16.80
M	1 1/4	6 1/2	9	5 3/16	13/32	6 3/4	7 7/8	(4) 3/4 x 6 3/4	56.00
N	1 1/2	7	10	6 1/4	9/16	8 1/8	8 1/2	(4) 7/8 x 8	68.00



■ Bushings JA to J



■ Bushings M to N



	Bore Range																					
Bushing	1	1 1/16	1 1/8	1 3/16	1 1/4	1 5/16	1 3/8	1 7/16	1 1/2	1 9/16	1 5/8	1 11/16	1 3/4	1 13/16	1 7/8	1 15/16	2	2 1/16	2 1/8	2 3/16	2 1/4	2 5/16	2 3/8
F	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
J									X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
M																	X	X	X	X	X	X	X
N																							

	Bore Range																						
Bushing	2 7/16	2 1/2	2 9/16	2 5/8	2 11/16	2 3/4	2 13/16	2 7/8	2 15/16	3	3 1/16	3 1/8	3 3/16	3 1/4	3 5/16	3 3/8	3 7/16	3 1/2	3 9/16	3 5/8	3 11/16	3 3/4	3 13/16
F	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
J	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
M	X	X	*	X	*	X	*	X	X	X	*	X	*	X	X	X	X	X	*	X	X	X	*
N	X	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	X	*	*	*	*	X	*

	Bore Range																						
Bushing	3 7/8	3 15/16	4	4 1/16	4 1/8	4 3/16	4 1/4	4 5/16	4 3/8	4 7/16	4 1/2	4 9/16	4 5/8	4 11/16	4 3/4	4 13/16	4 7/8	4 15/16	5	5 1/8	5 1/4	5 7/16	5 1/2	5 7/8	5 15/16
F	X	X	X																						
J	X	X	X	X	X	X	X	X	X	X	X														
M	X	X	X	X	*	X	X	*	X	X	X	*	*	X	X		X	X	X	*	X	X	X		
N	X	X	X	X	*	*	X	X	*	X	X	*	*	*	X	X	X	X	X	X	X	*	X	X	

* Available upon request

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Idler Sprockets—Chain Tensioners

Bronze Bushed Sprocket Idlers for Use with All Steel Tighteners

Dimensions are in inches unless otherwise indicated.

No. Teeth	Outside Diameter	Catalog Number	Suggested Tightener	ANSI Chain No.	Hub Dia.	LTB	Bushed Bore Dia.	Wt. Lbs.
15	1.990	**35B15T**	0	35	1⅜	15⁄16	½	.32
13	2.329	**41B13T**	0	41	1 9⁄16	15⁄16	½	.52
13	2.329	**40B13T**	0	40	1 9⁄16	15⁄16	½	.52
13	2.911	**50B13T**	0	50	2	15⁄16	½	.97
21	2.713	**35B21T**	1	35	2⅛	1 1⁄16	⅞	.82
19	3.296	**40B19T**	1	40	2 7⁄16	1 1⁄16	⅞	1.50
17	3.719	**50B17T**	1	50	2⅝	1 1⁄16	⅞	1.80
15	3.979	**60B15T**	1	60	2 11⁄16	1 1⁄16	⅞	2.50
17	4.462	**60B17T**	2	60	2⅞	1 9⁄16	1⅛	3.30
15	5.305	**80B15T**	2	80	3½	1 9⁄16	1⅛	5.60

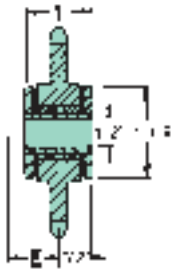
NOTE: Idlers other than stock furnished on a made-to-order basis

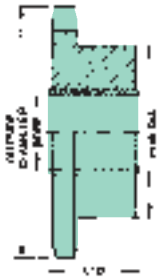
Bronze Bushed Idler Sprockets with Steel Journals

Dimensions are in inches unless otherwise indicated.

No. Teeth	Outside Diameter	Catalog Number	Chain Size	Stock Bore	E* Dim.	Wt. Lbs.
20	2.60	**31E20**	35	½″	.59″	.46
15	3.32	**51E15**	50	½″	.72″	.70
14	3.75	**61E14**	60	½″	.81″	.42

* Dimension E is minimum space for chain clearance





You need Adjustable Idler Sprockets to:

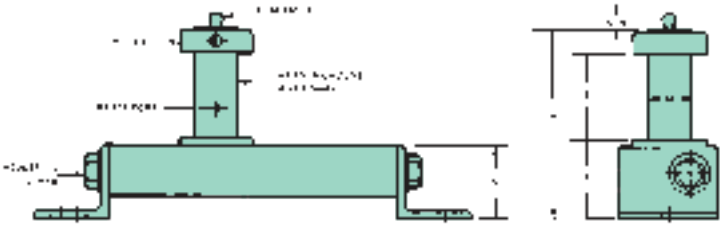
- Obtain proper chain tension when neither driving nor driven shaft is adjustable, and to take up slack chain developed through normal chain wear
- Guide chain around an obstruction
- Prevent whipping action in the slack span of chain transmitting an uneven load
- Bring about greater chain wrap around a small sprocket, particularly if it is the lower sprocket in a vertical drive
- Provide for reversed direction of rotation of a sprocket in contact with the outside of the chain

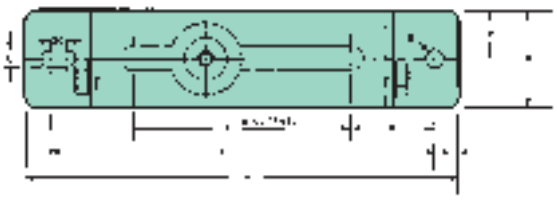
Idler sprockets should not rotate at greater speeds than are allowable for drive sprockets of the same size. They should be mounted in contact with the slack span of chain. Mount them on the outside of the chain when the arc of chain wrap on the smaller sprocket would otherwise be less than 120°.

It is advisable that idler sprockets have at least three teeth in mesh with the chain. Inside mounted idlers usually account for quieter operation, especially if centers are short and speed is moderately high.

- **Machined steel sprockets**
- **Hardened teeth**
- **Hardened & ground steel journals**
- **Oil-impregnated sintered bronze bushings**

NOTE: Idler rpm should not exceed 2500 and radial loading should be less than 50 pounds.





Chain Tensioners

Dimensions are in inches unless otherwise indicated.

Size	A	B	C	D	E	F	G	2G	H	J	K	L	M	P	Wt. Lbs.	Suggested Chain
#0-B	5⅞	1½	5¼	.500	1	2½	9⁄32	⅜	2 13⁄16	1 5⁄16	1⅜	1¼	⅜	¾	1.00	#35,40,41*
#1-B	9	2	8⅛	.875	1¾	4½	11⁄32	½	4	1⅝	1¾	1½	½	1	2.50	#40,50,60*
#2-B	13	3	11⅞	1.125	2⅞	6	9⁄16	¾	5 11⁄16	2 5⁄32	2⅞	2	⅝	1½	6.00	#80,100,120*
#3-B	14	4	12⅝	1.750	3⅛	6	9⁄16	¾	6¼	2 3⁄16	3¼	2	¾	2	12.00	#140,160,200*

* Single-strand chain. For multiple-strand chain, use larger tensioner.

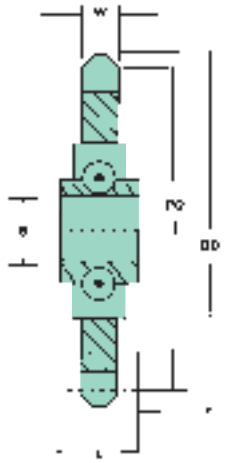
Idler Sprockets—Ball Bearing

Ball Bearing Idler Sprocket Hardened Teeth

Dimensions are in inches unless otherwise indicated.

No. Teeth	Catalog Number	Chain Size	O.D.	B	L	W	Wt. Lbs.
20	**35BB20**	35	2.60	.638	.72	.168	.38
17	**40BB17**	40	2.97	.638	.72	.284	.52
18	**40BB18**	40	3.14	.638	.72	.284	.53
15	**50BB15**	50	3.32	.638	.72	.343	.75
17	**50BB17**	50	3.72	.638	.72	.343	.78
13	**60BB13**	60	3.51	.638	.72	.459	.76
15	**60BB15**	60	3.98	.638	.72	.459	1.06
12	**80BB12**	80	4.36	.750	.61	.575	1.50

NOTE: 638 Dim. is + .005; 750 Dim. is + .005-.000.



Radial Load Capacity in Lbs. at Various Speeds (Outer Race Rotating)

Sprocket No.	RPM	50	100	300	500	750	1000	1200
35BB20—60BB13	LOAD	650	515	357	300	265	240	225
80BB12	LOAD	1630	1290	895	755	665	600	565

Sprocket No.	RPM	1500	1800	2400	2600	3000	3600	4000
35BB20—60BB13	LOAD	208	195	179	173	155	156	151
80BB12	LOAD	523	493	447	434	415	—	—

Sprocket No.	RPM	4500	5000
35BB20—60BB13	LOAD	143	140

Ratings shown above are based on an average bearing life of 2,500 hours.

Sprocket Hardening

Hardness Conversion Table				
Rockwell "C" 150 KG. Load	A 60 KG.	Shore Model C	3000 KG. Load Brinell No.	Tensile Str. Lbs. per Sq. In.
10		27	183	91,000
11		28	187	93,000
13		28	192	95,000
14		29	197	97,000
15		30	202	99,000
16		30	207	101,000
17		31	212	104,000
18		31	217	107,000
20	60.5	32	223	110,000
21	61.0	33	229	113,000
22	61.5	34	235	116,000
23	62.0	35	241	119,000
24	62.5	36	248	122,000
25	63.0	37	255	125,000
26	63.5	37	262	128,000
28	64.5	38	269	131,000
29	65.0	39	277	134,000
30	65.5	40	285	138,000
31	66.0	42	293	142,000
32	66.5	43	302	146,000
33	67.0	44	311	150,000
34	67.5	45	321	155,000
35	68.0	46	331	160,000
36	68.5	48	341	165,000
37	69.0	49	352	170,000
38	69.5	51	363	176,000
40	70.5	52	375	182,000
41	71.0	54	388	189,000
42	71.5	55	401	196,000
44	72.5	57	415	204,000
45	73.0	59	429	212,000
46	73.5	61	444	220,000
47	74.0	63	461	229,000
49	75.5	65	477	238,000
50	76.0	67	495	247,000
52	77.0	70	514	256,000
53	77.5	72	534	266,000
55	78.5	75	555	276,000
57	79.5	78	578	287,000
58	80.0	81	601	298,000
60	81.0	84	627	311,000
62	82.5	87	653	324,000
64	83.5	91	682	337,000
66	84.5	95	712	352,000
68	85.5	100	745	368,000
70	86.5	106	780	384,000

All U.S. Tsubaki sprockets are made from high quality steel. Since chain loadings are evenly distributed over all engaged sprocket teeth, tooth breakage or distortion is not normally a problem. It is seldom necessary to use special high strength material.

Sprocket diameter and pitch determine the specific material used.

The hardening process of small diameter, small pitch sprockets is usually a one-step procedure: heat treatment (electrical induction). Large diameter, large pitch sprockets can usually be directly flame hardened. These methods are used to provide a high hardness at the wear areas, plus provide the ability of the tooth to absorb shock loads. This is accomplished by hardening only the wear area of each tooth while maintaining a ductile tooth core which is tough and resilient. The hubs and bores remain soft to permit reworking.

The general guidelines for sprockets are:

Size	Rockwell Scales	
	A	C
Small pitch, small diameter	68-76	35-50
Large pitch, large diameter	63-70	25-40

Thru Hardened Teeth

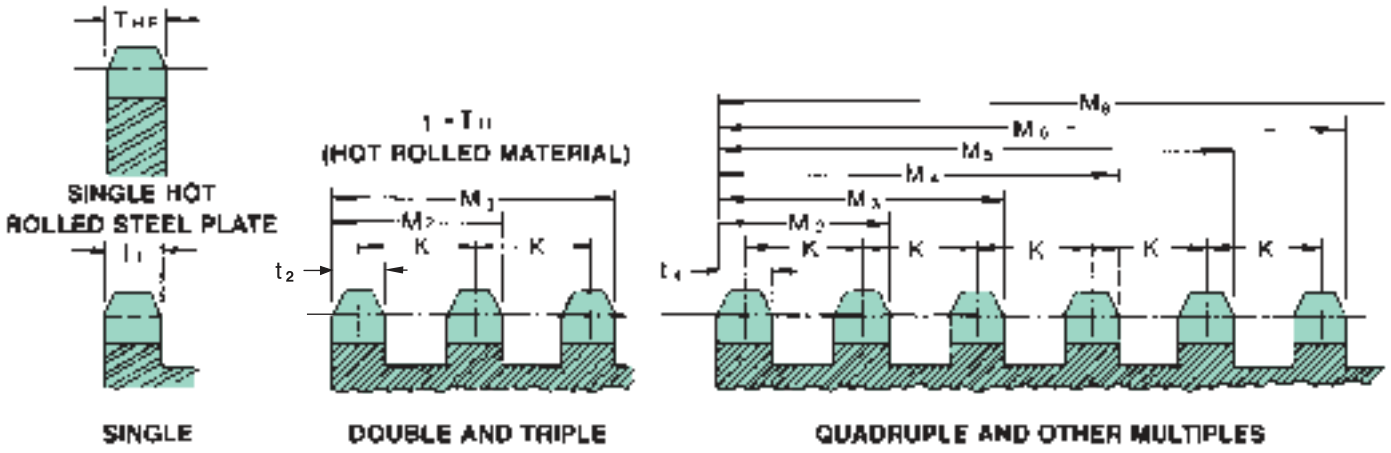
Case hardened on wear surfaces with a tough, resilient core.

Sprocket Tooth Dimensions

Sprocket Tooth Dimensions — Standard and Heavy Series

Dimensions are in inches unless otherwise indicated.

Chain Data for All Sprockets				Single Strand t_1 and T_{HR}	Double and Triple Strand			For 4 or more Strands								Machining Tolerance on "t" and "M"	Hot Rolled Tolerance on T_{HR}
ANSI & U.S.T. No.	Pitch P	Roller Width W	Roller Diam.		t_2	M_2	M_3	t_4	M_2	M_3	M_4	M_5	M_6	M_8	K		
STANDARD SERIES CHAIN SPROCKETS																	
25	¼	⅛	.130	.110	.107	.359	.611	.096	.348	.600	.852	1.140	1.356	1.860	.252	—.007	—.021
35	⅜	3/16	.200	.168	.162	.561	.960	.149	.548	.947	1.346	1.745	2.144	2.942	.399	—.008	—.027
40	½	5/16	.312	.284	.275	.841	1.407	.256	.822	1.388	1.954	2.520	3.086	4.218	.566	—.009	—.035
50	⅝	⅜	.400	.343	.332	1.045	1.758	.311	1.024	1.737	2.450	3.163	3.876	5.302	.713	—.010	—.036
60	¾	½	.469	.459	.444	1.341	2.238	.418	1.315	2.212	3.109	4.006	4.903	6.697	.897	—.011	—.036
80	1	⅝	.625	.575	.557	1.710	2.863	.526	1.679	2.832	3.985	5.138	6.291	8.597	1.153	—.012	—.040
100	1¼	¾	.750	.692	.669	2.077	3.485	.633	2.041	3.449	4.857	6.265	7.673	10.489	1.408	—.014	—.046
120	1½	1	.875	.924	.894	2.683	4.472	.848	2.637	4.426	6.215	8.004	9.793	13.371	1.789	—.016	—.057
140	1¾	1	1.000	.924	.894	2.818	4.742	.848	2.772	4.696	6.620	8.544	10.468	14.316	1.924	—.016	—.057
160	2	1¼	1.125	1.156	1.119	3.424	5.729	1.063	3.368	5.673	7.978	10.283	12.588	17.198	2.305	—.019	—.062
180	2¼	1 13/32	1.406	1.301	1.259	3.851	6.443	1.197	3.789	6.381	8.973	11.565	14.157	19.341	2.592	—.020	—.068
200	2½	1½	1.562	1.389	1.344	4.161	6.978	1.278	4.095	6.912	9.729	12.546	15.363	20.997	2.817	—.021	—.072
240	3	1⅞	1.875	1.738	1.682	5.140	8.598	1.601	5.059	8.517	11.975	15.433	18.891	—	3.458	—.025	—.087
HEAVY SERIES CHAIN SPROCKETS																	
60H	¾	½	.469	.459	.444	1.472	2.500	.418	1.446	2.474	3.502	4.530	5.558	7.614	1.028	—.011	—.036
80H	1	⅝	.625	.575	.557	1.840	3.123	.526	1.809	3.092	4.375	5.568	6.941	9.507	1.283	—.012	—.040
100H	1¼	¾	.750	.692	.669	2.208	3.747	.633	2.172	3.711	5.250	6.789	8.328	11.406	1.539	—.014	—.046
120H	1½	1	.875	.924	.894	2.818	4.742	.848	2.772	4.696	6.620	8.544	10.468	14.316	1.924	—.016	—.057
140H	1¾	1	1.000	.924	.894	2.949	5.004	.848	2.903	4.958	7.013	9.068	11.123	15.233	2.055	—.016	—.057
160H	2	1¼	1.125	1.156	1.119	3.555	5.991	1.063	3.499	5.935	8.371	10.807	13.243	18.115	2.436	—.019	—.062
180H	2¼	1 13/32	1.406	1.301	1.259	3.982	6.705	1.197	3.920	6.643	9.366	12.089	14.812	20.258	2.723	—.020	—.068
200H	2½	1½	1.562	1.389	1.344	4.427	7.510	1.278	4.361	7.444	10.527	13.610	16.693	22.859	3.083	—.021	—.072



Sprocket Formulas & Standard Keyways

Dimensions are in inches unless otherwise indicated.

Chain No.	35		40		50		60		80		100		120		140		160		200		Chain No.
Pitch	3/8″		1/2″		5/8″		3/4″		1″		1 1/4″		1 1/2″		1 3/4″		2″		2 1/2″		Pitch
Teeth	Hub Diam.	Max. Bore	Hub Diam.	Max. Bore	Hub Diam.	Max. Bore	Hub Diam.	Max. Bore	Hub Diam.	Max. Bore	Hub Diam.	Max. Bore	Hub Diam.	Max. Bore	Hub Diam.	Max. Bore	Hub Diam.	Max. Bore	Hub Diam.	Max. Bore	Teeth
6	1/4		23/64		7/16		9/16	3/8	49/64	17/32	63/64	5/8	1 3/16	27/32	1 21/64	7/8	1 1/2	1 1/16	2	1 3/8	6
7	3/8		17/32	5/16	41/64	7/16	53/64	9/16	1 7/64	25/32	1 13/32	31/32	1 45/64	1 3/16	1 15/16	1 1/4	2 13/64	1 1/2	2 55/64	1 15/16	7
8	1/2	5/16	45/64	15/32	55/64	9/16	1 5/64	3/4	1 29/64	1	1 53/64	1 1/4	2 13/64	1 1/2	2 33/64	1 3/4	2 7/8	2	3 45/64	2 9/16	8
9	5/8	7/16	55/64	9/16	1 1/16	23/32	1 21/64	7/8	1 25/32	1 1/4	2 1/4	1 9/16	2 45/64	1 13/16	3 7/64	2 3/16	3 17/32	2 7/16	4 17/32	3 3/16	9
10	3/4	17/32	1 1/64	11/16	1 17/64	7/8	1 37/64	1 1/8	2 1/8	1 7/16	2 21/32	1 3/4	3 13/64	2 1/4	3 11/16	2 9/16	4 13/64	2 7/8	5 23/64	3 3/4	10
11	7/8	9/16	1 3/16	27/32	1 31/64	1	1 13/16	1 1/4	2 7/16	1 3/4	3 5/64	2 3/16	3 45/64	2 9/16	4 1/4	2 15/16	4 55/64	3 5/16	6 3/16	4 7/16	11
12	1	11/16	1 23/64	7/8	1 11/16	1 3/16	2 1/16	1 3/8	2 49/64	1 7/8	3 31/64	2 3/8	4 3/16	2 7/8	4 53/64	3 5/16	5 1/2	3 3/4	7	5 7/16	12
13	1 1/8	25/32	1 33/64	1 1/16	1 57/64	1 1/4	2 5/16	1 5/8	3 3/32	2 3/16	3 57/64	2 3/4	4 43/64	3 1/4	5 25/64	3 3/4	6 5/32	4 3/8	7 13/16	6 1/16	13
14	1 15/64	7/8	1 11/16	1 3/16	2 3/32	1 7/16	2 35/64	1 3/4	3 27/64	2 5/16	4 19/64	2 15/16	5 5/32	3 5/8	5 31/32	4 3/16	6 13/16	5 1/4	8 5/8	6 1/2	14
15	1 23/64	7/8	1 27/32	1 1/4	2 9/32	1 5/8	2 51/64	1 7/8	3 3/4	2 5/8	4 45/64	3 1/4	5 41/64	3 7/8	6 17/32	5	7 29/64	5 11/16	9 7/16	7	15
16	1 31/64	1	2	1 3/8	2 31/64	1 3/4	3 1/32	2 1/8	4 1/16	2 3/4	5 3/32	3 1/2	6 1/8	4 9/16	7 3/32	5 1/2	8 3/32	6 5/16	10 15/64	7 9/16	16
17	1 39/64	1 1/8	2 11/64	1 1/2	2 11/16	1 13/16	3 9/32	2 1/4	4 25/64	3 1/16	5 1/2	3 3/4	6 39/64	5 1/16	7 21/32	5 7/8	8 3/4	7	11 3/64	8 3/8	17
18	1 23/32	1 3/16	2 21/64	1 5/8	2 57/64	2	3 33/64	2 3/8	4 49/64	3 1/4	5 29/32	4 1/8	7 3/32	5 1/2	8 7/32	6 7/16	9 25/64	7	11 27/32	8 15/16	18
19	1 27/32	1 1/4	2 31/64	1 3/4	3 3/32	2 3/16	3 49/64	2 5/8	5 1/32	3 1/2	6 5/16	4 3/4	7 37/64	5 13/16	8 25/32	7	10 1/32	7 1/2	12 21/32	9 9/16	19
20	1 31/32	1 3/8	2 21/32	1 3/4	3 19/64	2 1/4	4	2 3/4	5 23/64	3 3/4	6 45/64	5 1/8	8 1/16	6 5/16	9 11/32	7	10 43/64	8	13 29/64	10 3/8	20
21	2 3/32	1 7/16	2 13/16	1 15/16	3 1/2	2 3/8	4 15/64	2 7/8	5 43/64	3 7/8	7 7/64	5 1/2	8 35/64	6 3/4	9 29/32	7 1/2	11 5/16	8 9/16	14 1/4	10 15/16	21
22	2 13/64	1 1/2	2 31/32	2 1/16	3 45/64	2 9/16	4 31/64	3 1/8	6	4 1/4	7 33/64	5 3/4	9 1/64	7	10 15/32	8 1/16	11 61/64	9	15 1/16	11 9/16	22
23	2 21/64	1 5/8	3 1/8	2 1/4	3 57/64	2 3/4	4 23/32	3 1/4	6 5/16	4 3/4	7 29/32	6 1/8	9 1/2	7 1/16	11 1/32	8 5/8	12 19/32	9 3/8	15 55/64	12 5/16	23
24	2 29/64	1 3/4	3 19/64	2 1/4	4 3/32	2 3/4	4 61/64	3 7/16	6 41/64	5 1/16	8 5/16	6 1/2	9 63/64	7 9/16	11 19/32	9	13 15/64	10 1/8	16 21/32	12 15/16	24
25	2 9/16	1 3/4	3 29/64	2 5/16	4 19/64	2 15/16	5 13/64	3 5/8	6 61/64	5 3/8	8 45/64	6 1/2	10 15/32	8 1/16	12 5/32	9 5/16	13 7/8	10 3/16	17 29/64	13 1/16	25

SPROCKET DIAMETER FORMULAS

$$\text{Suggested Maximum Hub Diameter} = \text{Cosine } \frac{180^{o}}{N} \times \text{P.D.} - (H + .050).$$

P.D. = Pitch diameter N = Number of teeth. H = Height of inside plate.

The above maximum bores are not approved for severe service conditions or for Cast Iron Sprockets.

For severe service conditions maximum bores should not be greater than ⅔ of the diameter of the hub.

Maximum bores for Cast Iron Sprockets should be about 15% less than for steel with ¼″ as the minimum difference.

Standard Keyways and Set Screw

Dimensions are in inches unless otherwise indicated.

Diameter of Shaft	Keyseat Width x Depth	*Diameter of Set Screw	Diameter of Shaft	Keyseat Width x Depth	*Diameter of Set Screw
5/16 — 7/16	3/32 x 3/64	8 — 32	2 13/16 — 3 1/4	3/4 x 3/8	3/4
1/2 — 9/16	1/8 x 1/16	10 — 24	3 5/16 — 3 3/4	7/8 x 7/16	3/4
5/8 — 7/8	3/16 x 3/32	1/4	3 13/16 — 4 1/2	1 x 1/2	3/4
15/16 — 1 1/4	1/4 x 1/8	5/16	4 9/16 — 5 1/2	1 1/4 x 5/8	3/4
1 5/16 — 1 3/8	5/16 x 5/32	5/16	5 9/16 — 6 1/2	1 1/2 x 3/4	1
1 7/16 — 1 3/4	3/8 x 3/16	3/8	6 9/16 — 7 1/2	1 3/4 x 7/8	1
1 13/16 — 2 1/4	1/2 x 1/4	1/2	7 9/16 — 8 15/16	2 x 1	1
2 5/16 — 2 3/4	5/8 x 5/16	5/8	9 — 10 15/16	2 1/2 x 1 1/4	1

NOTE: As a general rule, the hub wall over the keyway should be equal to or greater than the diameter of the set screw.
*Set screw size may vary depending on the hub wall thickness.

Sprocket Pitch Diameter Constants

Dimensions are in inches unless otherwise indicated.

Number of Teeth	Constant	Number of Teeth	Constant	Number of Teeth	Constant
4	1.4142	**53**	16.8803	**102**	32.473
5	1.7013	**54**	17.1984	**103**	32.791
6	2.0000	**55**	17.5166	**104**	33.109
7	2.3048	**56**	17.8347	**105**	33.427
8	2.6131	**57**	18.1529	**106**	33.746
9	2.9238	**58**	18.4710	**107**	34.064
10	3.2361	**59**	18.7892	**108**	34.382
11	3.5495	**60**	19.1073	**109**	34.701
12	3.8637	**61**	19.4255	**110**	35.019
13	4.1785	**62**	19.7437	**111**	35.337
14	4.4940	**63**	20.0618	**112**	35.655
15	4.8097	**64**	20.3800	**113**	35.974
16	5.1259	**65**	20.6982	**114**	36.292
17	5.4423	**66**	21.0164	**115**	36.610
18	5.7588	**67**	21.3346	**116**	36.929
19	6.0756	**68**	21.6528	**117**	37.247
20	6.3925	**69**	21.9710	**118**	37.565
21	6.7095	**70**	22.2892	**119**	37.883
22	7.0266	**71**	22.6074	**120**	38.201
23	7.3439	**72**	22.9256	**121**	38.519
24	7.6613	**73**	23.2438	**122**	38.837
25	7.9787	**74**	23.5620	**123**	39.156
26	8.2962	**75**	23.8802	**124**	39.475
27	8.6138	**76**	24.1984	**125**	39.794
28	8.9315	**77**	24.5166	**126**	40.112
29	9.2491	**78**	24.8349	**127**	40.430
30	9.5668	**79**	25.1531	**128**	40.748
31	9.8845	**80**	25.4713	**129**	41.066
32	10.2023	**81**	25.7896	**130**	41.384
33	10.5201	**82**	26.1079	**131**	41.702
34	10.8380	**83**	26.4261	**132**	42.020
35	11.1558	**84**	26.7442	**133**	42.338
36	11.4737	**85**	27.0626	**134**	42.656
37	11.7917	**86**	27.3807	**135**	42.975
38	12.1096	**87**	27.6989	**136**	43.293
39	12.4275	**88**	28.0170	**137**	43.611
40	12.7455	**89**	28.3355	**138**	43.930
41	13.0635	**90**	28.6537	**139**	44.249
42	13.3815	**91**	28.9723	**140**	44.567
43	13.6995	**92**	29.2901	**141**	44.885
44	14.0175	**93**	29.6082	**142**	45.203
45	14.3356	**94**	29.9268	**143**	45.521
46	14.6536	**95**	30.2447	**144**	45.840
47	14.9717	**96**	30.5632	**145**	46.158
48	15.2898	**97**	30.8815	**146**	46.477
49	15.6079	**98**	31.1999	**147**	46.796
50	15.9260	**99**	31.5177	**148**	47.114
51	16.2441	**100**	31.8362	**149**	47.432
52	16.5619	**101**	32.1540	**150**	47.750

To obtain the pitch diameter of a sprocket, multiply the constant for the number of teeth (as shown above) by the chain pitch.

To determine the pitch diameter of a 28-tooth sprocket for 140 chain — use a constant of 8.9315 and multiply by chain pitch (1¾″) to obtain a pitch diameter of 15.63″.

Speed Ratios

Speed Ratios for Sprocket Combinations

	Driver Sprocket Teeth																	
	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26
9	1.00																	
10	1.11	1.00																
11	1.22	1.10	1.00															
12	1.33	1.20	1.09	1.00														
13	1.44	1.30	1.18	1.08	1.00													
14	1.56	1.40	1.27	1.17	1.08	1.00												
15	1.67	1.50	1.36	1.25	1.15	1.07	1.00											
16	1.78	1.60	1.45	1.33	1.23	1.14	1.07	1.00										
17	1.89	1.70	1.55	1.42	1.31	1.21	1.13	1.06	1.00									
18	2.00	1.80	1.64	1.50	1.38	1.29	1.20	1.13	1.06	1.00								
19	2.11	1.90	1.73	1.58	1.46	1.36	1.27	1.19	1.12	1.06	1.00							
20	2.22	2.00	1.82	1.67	1.54	1.43	1.33	1.25	1.18	1.11	1.05	1.00						
21	2.33	2.10	1.91	1.75	1.61	1.50	1.40	1.31	1.23	1.17	1.10	1.05	1.00					
22	2.44	2.20	2.00	1.83	1.69	1.57	1.47	1.38	1.29	1.22	1.16	1.10	1.05	1.00				
23	2.56	2.30	2.09	1.92	1.77	1.64	1.53	1.44	1.35	1.28	1.21	1.15	1.09	1.04	1.00			
24	2.67	2.40	2.18	2.00	1.85	1.71	1.60	1.50	1.41	1.33	1.26	1.20	1.14	1.09	1.04	1.00		
25	2.78	2.50	2.27	2.08	1.92	1.79	1.67	1.56	1.47	1.39	1.32	1.25	1.19	1.14	1.09	1.04	1.00	
26	2.89	2.60	2.36	2.17	2.00	1.86	1.73	1.63	1.53	1.45	1.37	1.30	1.24	1.18	1.13	1.08	1.04	1.00
27	3.00	2.70	2.45	2.25	2.08	1.93	1.80	1.69	1.59	1.50	1.42	1.35	1.29	1.23	1.17	1.12	1.08	1.04
28	3.11	2.80	2.54	2.33	2.15	2.00	1.87	1.75	1.65	1.56	1.47	1.40	1.33	1.27	1.22	1.17	1.12	1.08
29	3.22	2.90	2.64	2.42	2.23	2.07	1.93	1.81	1.71	1.61	1.53	1.45	1.38	1.32	1.26	1.21	1.16	1.12
30	3.33	3.00	2.73	2.50	2.31	2.14	2.00	1.88	1.76	1.67	1.58	1.50	1.43	1.36	1.31	1.25	1.20	1.15
31	3.44	3.10	2.82	2.58	2.38	2.21	2.07	1.94	1.82	1.72	1.63	1.55	1.48	1.41	1.35	1.29	1.24	1.19
32	3.56	3.20	2.91	2.67	2.46	2.28	2.13	2.00	1.88	1.78	1.68	1.60	1.52	1.45	1.39	1.33	1.28	1.23
33	3.67	3.30	3.00	2.75	2.54	2.36	2.20	2.06	1.94	1.83	1.74	1.65	1.57	1.50	1.43	1.38	1.32	1.27
34	3.78	3.40	3.09	2.83	2.62	2.43	2.27	2.13	2.00	1.89	1.79	1.70	1.62	1.55	1.48	1.42	1.36	1.31
35	3.89	3.50	3.18	2.92	2.69	2.50	2.33	2.19	2.06	1.95	1.84	1.75	1.67	1.59	1.52	1.46	1.40	1.34
36	4.00	3.60	3.27	3.00	2.77	2.57	2.40	2.25	2.12	2.00	1.89	1.80	1.71	1.63	1.57	1.50	1.44	1.38
37	4.11	3.70	3.36	3.08	2.85	2.64	2.47	2.31	2.18	2.06	1.95	1.85	1.76	1.68	1.61	1.54	1.48	1.42
38	4.22	3.80	3.45	3.17	2.92	2.71	2.53	2.38	2.24	2.11	2.00	1.90	1.81	1.73	1.65	1.58	1.52	1.46
39	4.33	3.90	3.55	3.25	3.00	2.79	2.60	2.44	2.29	2.17	2.05	1.95	1.86	1.77	1.70	1.63	1.56	1.50
40	4.44	4.00	3.64	3.33	3.08	2.86	2.67	2.50	2.35	2.22	2.10	2.00	1.90	1.82	1.74	1.67	1.60	1.54
41	4.56	4.10	3.73	3.42	3.15	2.93	2.73	2.56	2.41	2.28	2.16	2.05	1.95	1.86	1.78	1.71	1.64	1.58
42	4.67	4.20	3.82	3.50	3.23	3.00	2.80	2.63	2.47	2.34	2.21	2.10	2.00	1.91	1.83	1.75	1.68	1.61
43	4.78	4.30	3.91	3.58	3.31	3.07	2.87	2.69	2.53	2.39	2.26	2.15	2.05	1.95	1.87	1.79	1.72	1.65
44	4.89	4.40	4.00	3.67	3.38	3.14	2.93	2.75	2.59	2.44	2.32	2.20	2.10	2.00	1.91	1.83	1.76	1.69
45	5.00	4.50	4.09	3.75	3.46	3.21	3.00	2.81	2.65	2.50	2.37	2.25	2.14	2.04	1.96	1.88	1.80	1.73
46	5.11	4.60	4.18	3.83	3.54	3.29	3.07	2.88	2.71	2.56	2.42	2.30	2.19	2.09	2.00	1.92	1.84	1.77
47	5.22	4.70	4.27	3.92	3.62	3.36	3.13	2.94	2.76	2.61	2.47	2.35	2.24	2.14	2.04	1.96	1.88	1.81
48	5.33	4.80	4.36	4.00	3.69	3.43	3.20	3.00	2.82	2.67	2.52	2.40	2.28	2.19	2.09	2.00	1.92	1.84
49	5.44	4.90	4.45	4.08	3.77	3.50	3.27	3.06	2.88	2.72	2.58	2.45	2.33	2.23	2.13	2.04	1.96	1.88
50	5.56	5.00	4.55	4.17	3.85	3.57	3.33	3.13	2.94	2.78	2.63	2.50	2.38	2.27	2.17	2.08	2.00	1.92
51	5.67	5.10	4.64	4.25	3.92	3.64	3.40	3.19	3.00	2.83	2.68	2.55	2.43	2.32	2.22	2.13	2.04	1.96
52	5.78	5.20	4.73	4.33	4.00	3.71	3.47	3.25	3.06	2.89	2.74	2.60	2.48	2.36	2.26	2.17	2.08	2.00
53	5.89	5.30	4.82	4.42	4.08	3.79	3.53	3.31	3.12	2.94	2.79	2.65	2.52	2.41	2.30	2.21	2.12	2.04
54	6.00	5.40	4.91	4.50	4.15	3.86	3.60	3.38	3.18	3.00	2.84	2.70	2.57	2.45	2.35	2.25	2.16	2.07
55	6.11	5.50	5.00	4.58	4.23	3.93	3.67	3.44	3.24	3.06	2.90	2.75	2.62	2.50	2.39	2.29	2.20	2.12
56	6.22	5.60	5.09	4.67	4.31	4.00	3.73	3.50	3.29	3.11	2.95	2.80	2.67	2.55	2.43	2.33	2.24	2.15
57	6.33	5.70	5.18	4.75	4.38	4.07	3.80	3.56	3.35	3.17	3.00	2.85	2.71	2.59	2.49	2.38	2.28	2.19
58	6.44	5.80	5.27	4.83	4.46	4.14	3.87	3.63	3.41	3.22	3.05	2.90	2.76	2.64	2.52	2.42	2.32	2.23
59	6.56	5.90	5.36	4.92	4.54	4.21	3.93	3.69	3.47	3.28	3.11	2.95	2.81	2.68	2.57	2.46	2.36	2.27
60	6.67	6.00	5.45	5.00	4.61	4.28	4.00	3.75	3.53	3.34	3.16	3.00	2.86	2.72	2.61	2.50	2.40	2.30
68	7.55	6.80	6.18	5.66	5.23	4.86	4.54	4.25	4.00	3.78	3.58	3.40	3.24	3.09	2.96	2.84	2.72	2.61
70	7.78	7.00	6.36	5.83	5.38	5.00	4.67	4.38	4.12	3.89	3.68	3.50	3.33	3.18	3.05	2.92	2.80	2.69
72	8.00	7.20	6.54	6.00	5.54	5.14	4.80	4.50	4.24	4.00	3.79	3.60	3.43	3.27	3.13	3.00	2.88	2.77
76			6.91	6.33	5.84	5.43	5.07	4.75	4.47	4.23	4.00	3.80	3.62	3.45	3.31	3.17	3.04	2.92
80			7.27	6.66	6.15	5.71	5.34	5.00	4.70	4.45	4.21	4.00	3.81	3.63	3.48	3.34	3.20	3.07
84				7.00	6.46	6.00	5.60	5.25	4.94	4.67	4.42	4.20	4.00	3.81	3.65	3.50	3.36	3.23
95					7.31	6.78	6.33	5.94	5.59	5.28	5.00	4.75	4.52	4.32	4.13	3.96	3.80	3.65
96					7.38	6.85	6.40	6.00	5.64	5.34	5.05	4.80	4.57	4.36	4.18	4.00	3.84	3.69
102						7.28	6.80	6.38	6.00	5.67	5.37	5.10	4.86	4.63	4.44	4.25	4.08	3.92
112								7.00	6.59	6.23	5.89	5.60	5.33	5.08	4.87	4.67	4.48	4.30

Sprocket Diameters

No. of Teeth	RS25 ¼″ Pitch		
	Pitch Dia.	Outside Dia.	Caliper Dia.
9	.731	.837	.590
10	.809	.919	.679
11	.887	1.001	.748
12	.966	1.083	.836
13	1.045	1.164	.907
14	1.123	1.245	.993
15	1.203	1.326	1.066
16	1.282	1.407	1.152
17	1.361	1.487	1.225
18	1.440	1.568	1.310
19	1.519	1.648	1.384
20	1.598	1.728	1.468
21	1.677	1.809	1.543
22	1.757	1.889	1.627
23	1.836	1.969	1.702
24	1.915	2.049	1.785
25	1.995	2.129	1.861
26	2.074	2.209	1.944
28	2.233	2.369	2.103
30	2.392	2.529	2.262
32	2.551	2.688	2.421
35	2.789	2.928	2.656
36	2.868	3.008	2.738
40	3.186	3.327	3.056
45	3.584	3.725	3.452
48	3.822	3.964	3.692
54	4.300	4.442	4.170
60	4.777	4.920	4.647
70	5.572	5.717	5.442
72	5.731	5.876	5.601

No. of Teeth	RS35 ⅜″ Pitch		
	Pitch Dia.	Outside Dia.	Caliper Dia.
9	1.096	1.255	.880
10	1.214	1.379	1.014
11	1.331	1.502	1.118
12	1.449	1.625	1.249
13	1.567	1.746	1.356
14	1.685	1.868	1.485
15	1.804	1.989	1.594
16	1.922	2.110	1.722
17	2.041	2.231	1.832
18	2.160	2.352	1.960
19	2.278	2.472	2.071
20	2.397	2.593	2.197
21	2.516	2.713	2.309
22	2.635	2.833	2.435
23	2.754	2.953	2.548
24	2.873	3.073	2.673
25	2.992	3.194	2.786
26	3.111	3.313	2.911
27	3.230	3.434	3.025
28	3.349	3.553	3.149
30	3.588	3.793	3.388
32	3.826	4.032	3.626
35	4.183	4.392	3.979
36	4.303	4.511	4.103
40	4.780	4.990	4.580
42	5.018	5.229	4.818
45	5.376	5.588	5.173
48	5.734	5.946	5.534
54	6.449	6.664	6.249
60	7.165	7.380	6.965
70	8.358	8.575	8.158
72	8.597	8.814	8.397
80	9.552	9.770	9.352
84	10.029	10.247	9.829
96	11.461	11.680	11.261
112	13.371	13.590	13.171

No. of Teeth	RS40 ½″ Pitch		
	Pitch Dia.	Outside Dia.	Caliper Dia.
8	1.307	1.507	.995
9	1.462	1.674	1.127
10	1.618	1.839	1.305
11	1.775	2.003	1.444
12	1.932	2.166	1.620
13	2.089	2.328	1.761
14	2.247	2.490	1.934
15	2.405	2.652	2.079
16	2.563	2.814	2.250
17	2.721	2.974	2.397
18	2.879	3.136	2.567
19	3.038	3.292	2.715
20	3.196	3.457	2.883
21	3.355	3.618	3.033
22	3.513	3.778	3.201
23	3.672	3.938	3.351
24	3.831	4.098	3.518
25	3.989	4.258	3.669
26	4.148	4.418	3.835
27	4.307	4.578	3.987
28	4.465	4.738	4.153
29	4.625	4.898	4.305
30	4.783	5.057	4.471
31	4.942	5.217	4.623
32	5.101	5.376	4.788
33	5.260	5.536	4.941
34	5.419	5.696	5.107
35	5.578	5.856	5.260
36	5.737	6.015	5.425
38	6.055	6.334	5.742
40	6.373	6.653	6.061
42	6.691	6.972	6.379
44	7.009	7.291	6.696
45	7.168	7.450	6.851
46	7.327	7.609	7.014
47	7.486	7.769	7.169
48	7.645	7.928	7.332
50	7.963	8.248	7.650
54	8.599	8.884	8.286
60	9.554	9.840	9.241
70	11.145	11.433	10.832
72	11.463	11.752	11.151
80	12.736	13.026	12.423
84	13.372	13.663	13.059
96	15.282	15.573	14.969
112	17.827	18.121	17.515

No. of Teeth	RS50 ⅝″ Pitch		
	Pitch Dia.	Outside Dia.	Caliper Dia.
8	1.633	1.880	1.233
9	1.827	2.093	1.400
10	2.023	2.299	1.623
11	2.219	2.504	1.796
12	2.415	2.708	2.015
13	2.612	2.911	2.193
14	2.809	3.113	2.409
15	3.006	3.315	2.590
16	3.204	3.517	2.804
17	3.401	3.718	2.987
18	3.599	3.919	3.199
19	3.798	4.121	3.384
20	3.995	4.321	3.595
21	4.194	4.522	3.782
22	4.392	4.722	3.992
23	4.590	4.923	4.179
24	4.788	5.123	4.388
25	4.987	5.323	4.577
26	5.185	5.523	4.785
27	5.384	5.723	4.975
28	5.582	5.922	5.182
29	5.781	6.122	5.371
30	5.979	6.321	5.579
31	6.178	6.521	5.770
32	6.376	6.721	5.976
33	6.575	6.921	6.168
34	6.774	7.120	6.374
35	6.973	7.319	6.565
36	7.171	7.519	6.771
37	7.370	7.718	6.963
38	7.569	7.918	7.169
39	7.768	8.117	7.361
40	7.966	8.316	7.566
42	8.364	8.715	7.964
43	8.563	8.914	8.157
44	8.761	9.114	8.361
45	8.960	9.313	8.554
48	9.556	9.911	9.156
49	9.755	10.110	9.350
50	9.954	10.309	9.554
52	10.351	10.708	9.951
54	10.749	11.106	10.349
55	10.948	11.305	10.543
56	11.147	11.504	10.747
60	11.942	12.301	11.542
70	13.931	14.292	13.531
72	14.329	14.690	13.929
80	15.919	16.283	15.519
84	16.715	17.079	16.315
96	19.102	19.467	18.702
112	22.284	22.651	21.884

Sprocket Diameters

No. of Teeth	RS60 ¾″ Pitch		
	Pitch Dia.	Outside Dia.	Caliper Dia.
8	1.959	2.260	1.491
9	2.193	2.511	1.691
10	2.427	2.759	1.958
11	2.662	3.005	2.166
12	2.898	3.249	2.429
13	3.134	3.493	2.642
14	3.371	3.736	2.902
15	3.608	3.978	3.119
16	3.845	4.220	3.375
17	4.082	4.462	3.595
18	4.319	4.703	3.850
19	4.557	4.945	4.072
20	4.794	5.186	4.325
21	5.033	5.426	4.549
22	5.270	5.666	4.801
23	5.508	5.907	5.026
24	5.746	6.147	5.277
25	5.984	6.387	5.503
26	6.222	6.627	5.753
27	6.461	6.867	5.980
28	6.698	7.106	6.229
29	6.937	7.346	6.458
30	7.175	7.586	6.706
31	7.413	7.826	6.935
32	7.652	8.065	7.183
33	7.890	8.305	7.412
34	8.129	8.544	7.660
35	8.367	8.783	7.889
36	8.606	9.023	8.137
37	8.844	9.262	8.367
38	9.083	9.501	8.614
39	9.321	9.740	8.844
40	9.560	9.980	9.091
41	9.798	10.219	9.321
42	10.037	10.458	9.568
44	10.514	10.937	10.045
45	10.752	11.176	10.276
46	10.991	11.414	10.522
48	11.468	11.893	10.999
49	11.706	12.132	11.231
50	11.945	12.371	11.476
52	12.422	12.849	11.953
54	12.889	13.327	12.430
60	14.330	14.761	13.861
70	16.717	17.150	16.248
72	17.195	17.628	16.726
80	19.103	19.539	18.634
84	20.058	20.495	19.589
96	22.922	23.360	22.453
112	26.741	27.181	26.272

No. of Teeth	RS80 1″ Pitch		
	Pitch Dia.	Outside Dia.	Caliper Dia.
8	2.613	3.014	1.988
9	2.924	3.348	2.254
10	3.236	3.678	2.611
11	3.550	4.006	2.888
12	3.864	4.332	3.239
13	4.179	4.657	3.523
14	4.494	4.981	3.869
15	4.810	5.304	4.158
16	5.126	5.627	4.501
17	5.442	5.949	4.794
18	5.759	6.271	5.134
19	6.076	6.593	5.430
20	6.392	6.914	5.767
21	6.710	7.235	6.066
22	7.027	7.555	6.402
23	7.344	7.876	6.702
24	7.661	8.196	7.036
25	7.979	8.526	7.338
26	8.296	8.836	7.671
27	8.614	9.156	7.974
28	8.931	9.475	8.306
29	9.249	9.795	8.611
30	9.567	10.114	8.942
31	9.884	10.434	9.247
32	10.202	10.753	9.577
33	10.520	11.073	9.883
34	10.838	11.392	10.213
35	11.156	11.711	10.520
36	11.474	12.030	10.849
37	11.792	12.349	11.156
38	12.110	12.668	11.485
40	12.746	13.306	12.121
42	13.382	13.944	12.757
45	14.336	14.901	13.702
46	14.654	15.219	14.029
48	15.290	15.857	14.665
49	15.608	16.176	14.975
54	17.198	17.769	16.573
60	19.107	19.681	18.482
65	20.698	21.270	20.067
70	22.289	22.867	21.644
72	22.926	23.504	22.301
80	25.471	26.052	24.846
84	26.744	27.326	26.119
96	30.563	31.147	29.938
112	35.655	36.241	35.030

No. of Teeth	RS100 1¼″ Pitch		
	Pitch Dia.	Outside Dia.	Caliper Dia.
8	3.266	3.770	2.516
9	3.655	4.185	2.849
10	4.045	4.598	3.295
11	4.438	5.008	3.642
12	4.830	5.415	4.080
13	5.224	5.821	4.435
14	5.618	6.226	4.868
15	6.013	6.630	5.229
16	6.408	7.034	5.658
17	6.803	7.436	6.024
18	7.199	7.839	6.449
19	7.595	8.241	6.819
20	7.990	8.643	7.240
21	8.388	9.044	7.613
22	8.784	9.444	8.034
23	9.180	9.845	8.409
24	9.576	10.245	8.826
25	9.974	10.645	9.204
26	10.370	11.045	9.620
27	10.768	11.445	9.999
28	11.164	11.844	10.414
30	11.959	12.643	11.209
32	12.753	13.441	12.003
35	13.945	14.639	13.181
36	14.343	15.038	13.593
40	15.933	16.633	15.183
42	16.728	17.430	15.978
45	17.920	18.626	17.159
48	19.113	19.821	18.363
54	21.498	22.211	20.748
60	23.884	24.601	23.134
70	27.861	28.584	27.111
72	28.657	29.380	27.908
80	31.839	32.565	31.089
84	33.430	34.158	32.680
90	35.817	36.545	35.068
96	38.204	38.934	37.454

Sprocket Diameters

No. of Teeth	RS120 1½″ Pitch		
	Pitch Dia.	Outside Dia.	Caliper Dia.
9	4.386	5.022	3.444
10	4.854	5.517	3.979
11	5.325	6.009	4.395
12	5.796	6.498	4.921
13	6.269	6.986	5.347
14	6.741	7.472	5.866
15	7.215	7.956	6.300
16	7.689	8.441	6.814
17	8.163	8.924	7.254
18	8.639	9.407	7.764
19	9.114	9.890	8.207
20	9.588	10.371	8.713
21	10.065	10.853	9.161
22	10.541	11.333	9.666
23	11.016	11.814	10.115
24	11.492	12.294	10.617
25	11.969	12.774	11.070
26	12.444	13.254	11.569
27	12.921	13.734	12.024
28	13.397	14.213	12.522
30	14.351	15.171	13.476
32	15.303	16.130	14.428
35	16.734	17.567	15.842
36	17.211	18.045	16.336
40	19.119	19.959	18.244
42	20.073	20.916	19.198
45	21.504	22.352	20.615
48	22.935	23.786	22.060
54	25.797	26.654	24.922
60	28.661	29.522	27.786
70	33.434	34.301	32.559
80	38.207	39.078	37.332

No. of Teeth	RS140 1¾″ Pitch		
	Pitch Dia.	Outside Dia.	Caliper Dia.
11	6.213	7.011	5.148
12	6.762	7.581	5.762
13	7.313	8.150	6.259
14	7.865	8.717	6.865
15	8.418	9.282	7.371
16	8.971	9.847	7.971
17	9.524	10.411	8.483
18	10.078	10.974	9.078
19	10.633	11.538	9.596
20	11.186	12.100	10.186
21	11.743	12.661	10.709
22	12.297	13.221	11.297
23	12.852	13.783	11.822
24	13.407	14.343	12.407
25	13.963	14.903	12.935
26	14.518	15.463	13.518
28	15.629	16.581	14.629
30	16.742	17.700	15.742
32	17.854	18.818	16.854
35	19.523	20.494	18.503
36	20.080	21.053	19.080
40	22.306	23.286	21.306
45	25.088	26.077	24.072
48	26.758	27.750	25.758
54	30.097	31.096	29.097
60	33.437	34.442	32.437
70	39.006	40.017	38.006
80	44.574	45.591	43.574

No. of Teeth	RS160 2″ Pitch		
	Pitch Dia.	Outside Dia.	Caliper Dia.
8	5.226	6.028	4.101
9	5.848	6.696	4.635
10	6.472	7.356	5.347
11	7.100	8.012	5.902
12	7.728	8.664	6.603
13	8.358	9.314	7.171
14	8.988	9.962	7.863
15	9.620	10.608	8.442
16	10.252	11.254	9.127
17	10.844	11.898	9.713
18	11.518	12.542	10.393
19	12.152	13.186	10.985
20	12.784	13.828	11.659
21	13.420	14.470	12.256
22	14.054	15.110	12.929
23	14.688	15.752	13.529
24	15.322	16.392	14.197
25	15.958	17.032	14.801
26	16.592	17.672	15.467
27	17.228	18.312	16.073
28	17.862	18.950	16.737
30	19.134	20.228	18.009
35	22.312	23.422	21.164
36	22.948	24.060	21.823
40	25.492	26.612	24.367
45	28.672	29.802	27.529
48	30.580	31.714	29.455
54	34.396	35.538	33.271
60	38.214	39.362	37.089
70	44.578	45.734	43.453
80	50.942	52.104	49.817

No. of Teeth	RS180 2 ¼″ Pitch		
	Pitch Dia.	Outside Dia.	Caliper Dia.
11	7.986	9.010	6.499
12	8.693	9.750	7.287
13	9.402	10.480	7.927
14	10.111	11.210	8.705
15	10.822	11.940	9.357
16	11.533	12.660	10.127
17	12.245	13.390	10.787
18	12.957	14.110	11.551
19	13.670	14.830	12.217
20	14.383	15.560	12.977
21	15.096	16.280	13.648
22	15.810	17.000	14.404
23	16.524	17.720	15.079
24	17.238	18.440	15.832
25	17.952	19.160	16.511
28	20.096	21.320	18.690
30	21.525	22.760	20.119
35	25.101	26.350	23.669
40	28.677	29.940	27.271
45	32.255	33.530	30.829
54	38.695	39.980	37.290
60	42.992	44.280	41.586

No. of Teeth	RS200 2½″ Pitch		
	Pitch Dia.	Outside Dia.	Caliper Dia.
10	8.090	9.195	6.528
11	8.872	10.020	7.219
12	9.660	10.830	8.098
13	10.447	11.640	8.808
14	11.235	12.460	9.673
15	12.025	13.260	10.397
16	12.815	14.070	11.253
17	13.605	14.870	11.985
18	14.397	15.680	12.835
19	15.190	16.480	13.576
20	15.982	17.290	14.420
21	16.775	18.090	15.166
22	17.567	18.890	16.005
23	18.360	19.690	16.755
24	19.152	20.490	17.590
25	19.947	21.290	18.346
26	20.740	22.090	19.178
28	22.330	23.690	20.768
30	23.917	25.290	22.355
32	25.505	26.880	23.943
35	27.890	29.280	26.300
40	31.865	33.270	30.303
45	35.840	37.250	34.256
54	42.995	44.420	41.433
60	47.767	49.200	46.205

No. of Teeth	RS240 3″ Pitch		
	Pitch Dia.	Outside Dia.	Caliper Dia.
10	9.708	11.030	7.833
11	10.648	12.020	8.665
12	11.591	13.000	9.716
13	12.536	13.970	10.569
14	13.482	14.940	11.607
15	14.429	15.910	12.475
16	15.377	16.880	13.502
17	16.327	17.850	14.382
18	17.276	18.810	15.401
19	18.227	19.780	16.289
20	19.177	20.740	17.302
21	20.129	21.700	18.197
25	23.936	25.550	22.014
30	28.700	30.340	26.825
35	33.467	35.130	31.559
40	38.237	39.920	36.362
45	43.007	44.700	41.106
54	51.595	53.310	49.720
60	57.322	59.040	55.447

U.S. TSUBAKI
PT COMPONENTS

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U.S. Tsubaki Shock Relay

- the Electronic Shear Pin!

Protect your equipment and your investment with the U.S. Tsubaki Shock Relay.

Unexpected shock loads – overloads and underloads – can damage chains, drives, gears, turbines – the entire mechanical assembly. That means high maintenance, costly repairs and expensive downtime.

Mechanical devices like shear pins and torque limiters don't provide enough protection. They are just not reliable.

Electronic Shock Relay from U.S. Tsubaki Acts before the Damage Occurs
These accurate, adjustable devices can determine if the equipment is operating properly. If the Shock Relay detects a problem, it shuts down the line – fast, safe and secure. That means big savings in time and money for you or your customers.

Reset at the Touch of a Button
After the problem is corrected, the Shock Relay can be reset at the touch of a button. No teardown is required. That means improved efficiency and reduced downtime.

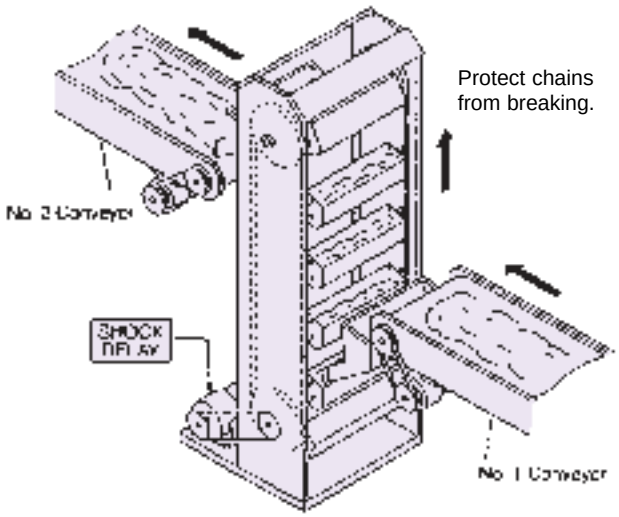
- Accurate Protection
- Repeatable Performance
- Rapid, Easy Reset
- Quick Installation
- Wide Range of Applications
- Easy Selection

Features	U.S. Tsubaki Shock Relay	Mechanical Device
Stability of operation	excellent	poor
Accuracy of operation	excellent	unsatisfactory
Adjustment of operational range	simple	difficult
Fine adjustment	yes	no
Reset	only push the “RESET” button	considerable time and labor is required
Selection	simple	new design for each application required
Life cycle	long	short
Threshold point	low	high

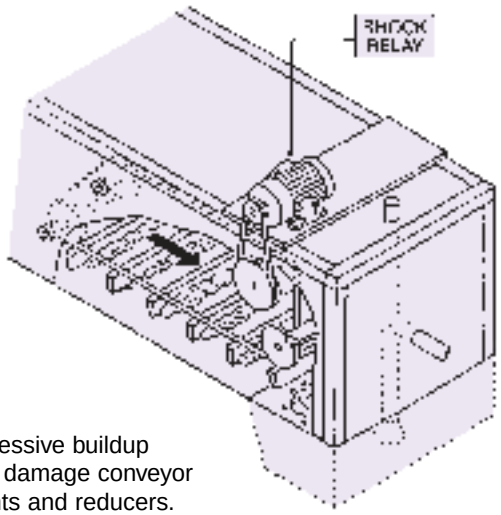
U.S. Tsubaki Shock Relay

Invented by U.S. Tsubaki, the Shock Relay is a precise electronic protector that adapts to virtually all types of equipment driven by an electric motor. The Shock Relay is installed on applications in the Material Handling Industry, Water Treatment Industry, Food Processing Industry, Agriculture Industry, Machine Tool Industry, Chemical Industry, and others.

BUCKET ELEVATORS

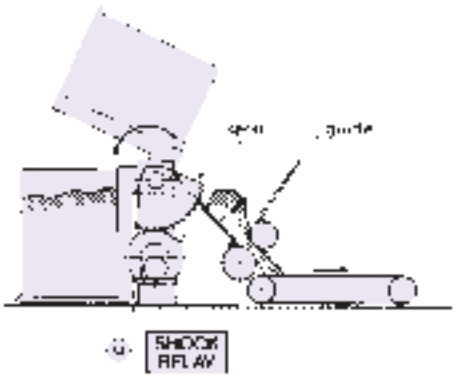


DRAG CONVEYORS



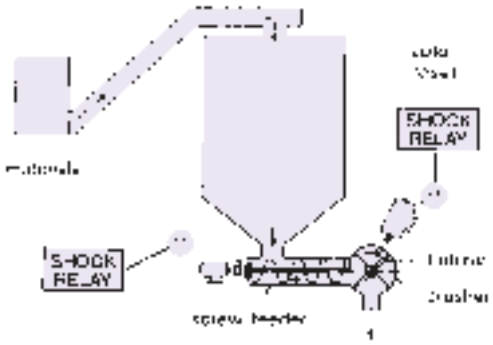
Excessive buildup
can damage conveyor
flights and reducers.

GEAR DRIVES



Protect gears from damage.

SCREW CONVEYORS

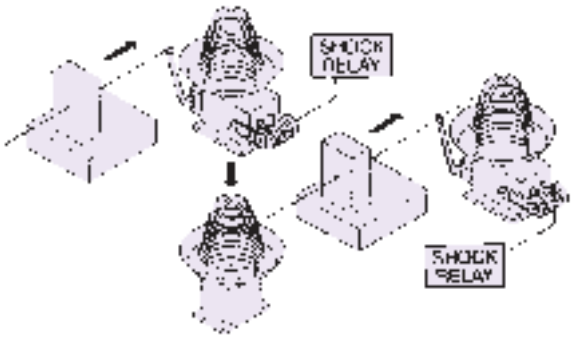


Prevent damage to the screw.

Protects Your Application!

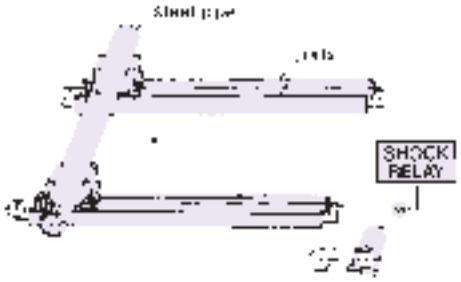
- **Material Handling**
  Conveyors, Turntables, Elevators
- **Water Treatment Plants**
  Pumps, Scrappers, Water Screens
- **Food Machinery**
  Pumps, Agitators, Mixers
- **Agriculture**
  Screw and Belt Conveyors, Bucket Elevators
- **Machine Tool**
  Tapping Machines, Drill Press
- **Chemical Industry**
  Pumps, Agitators, Packagers

WINDING APPLICATIONS



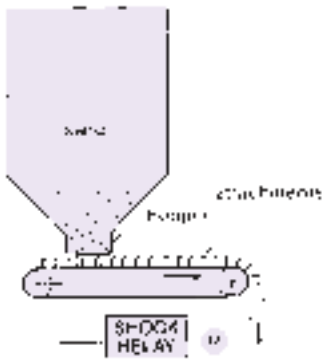
Sense excessive torque and shut off the equipment prior to damage occurring.

CONVEYOR APPLICATIONS



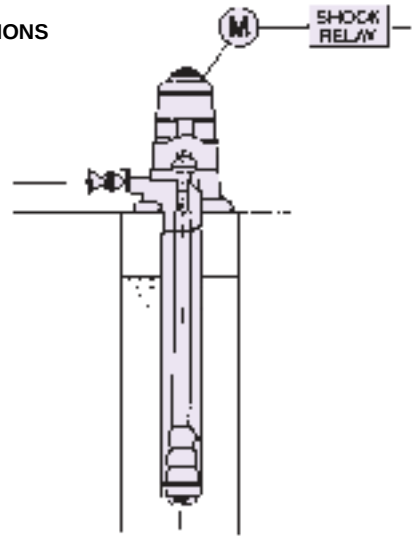
Detect damaging overloads that lead to downtime.

CHAIN FEEDERS



Protect attachments from damage.

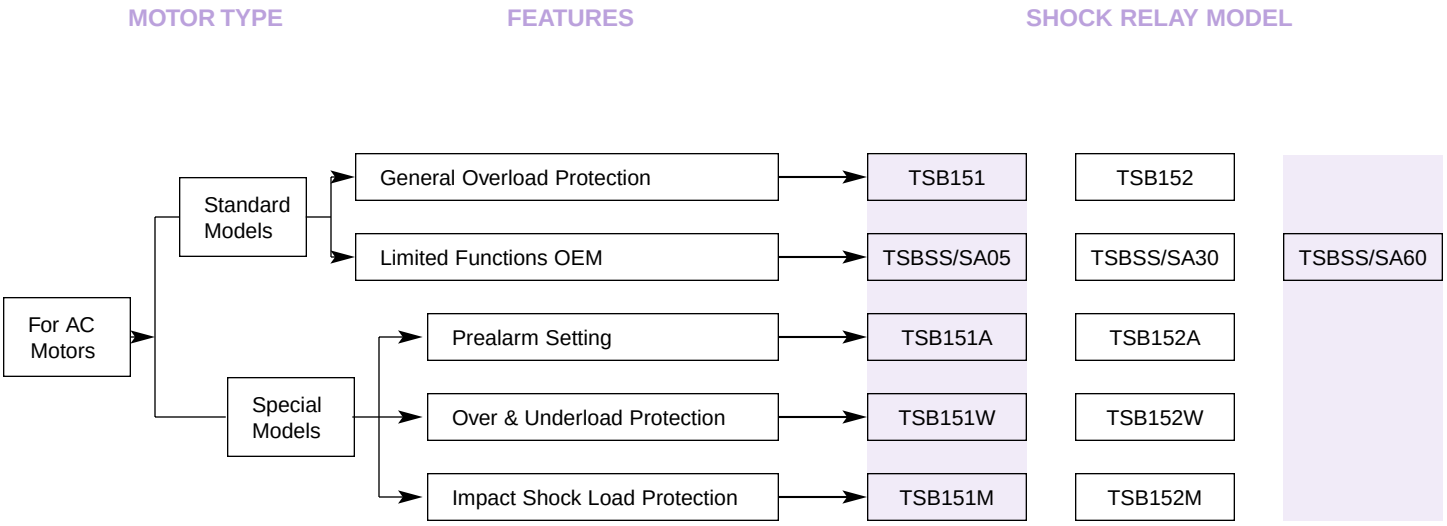
PUMP APPLICATIONS



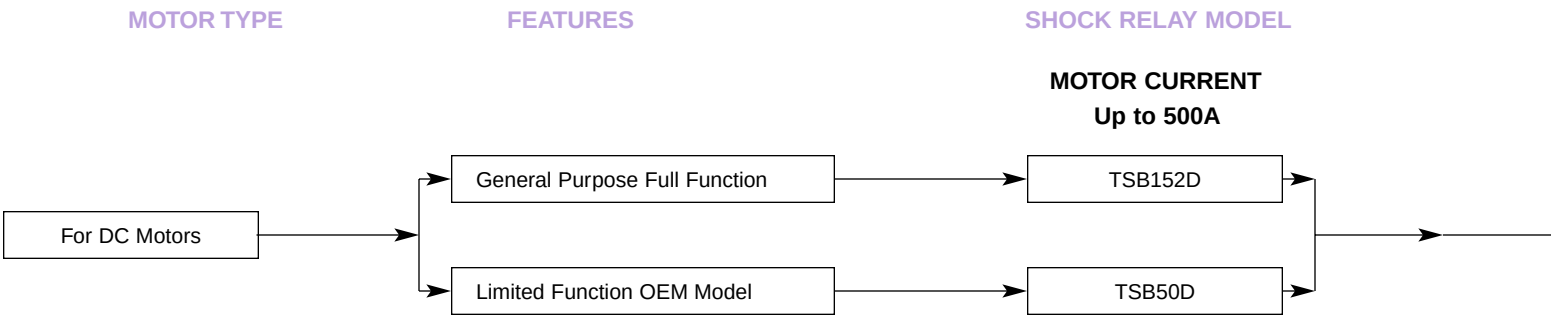
Protect pump from both overloads and underloads.

U.S. TSUBAKI SHOCK RELAY

SELECTION GUIDE



Note: Shock Relay is designed to accept all standard single-phase and 3-phase AC motors and all standard DC motors (above 600VAC, Contact U.S. Tsubaki).



SHUNT SELECTION

Motor Current	Shunt No.
1.0 amp	Shunt 1-50
1.5 amp	Shunt 1.5-50
2.0 amp	Shunt 2-50
5 amp	Shunt 5-50
10 amp	Shunt 10-50
20 amp	Shunt 20-50
50 amp	Shunt 50-50
100 amp	Shunt 100-50
150 amp	Shunt 150-50
200 amp	Shunt 200-50
250 amp	Shunt 250-50
300 amp	Shunt 300-50
400 amp	Shunt 400-50
500 amp	Shunt 500-50

AC MOTOR FULL-LOAD CURRENT LIST*

HP	RPM	Amperages	
		230 VAC	460 VAC
¼	1800 1200 900	.95 1.140 1.160	.48 .70 .80
⅓	1800 1200 900	1.19 1.59 1.80	.60 .80 .90
½	1800 1200 900	1.72 2.15 2.38	.86 1.08 1.19
¾	1800 1200 900	2.46 2.92 3.26	1.23 1.46 1.63
1	3600 1800 1200 900	2.80 3.56 3.76 4.30	1.40 1.78 1.88 2.15
1 ½	3600 1800 1200 900	4.36 4.86 5.28 5.60	2.18 2.43 2.64 2.80
2	3600 1800 1200 900	5.60 6.40 6.84 7.90	2.80 3.20 3.42 3.95
3	3600 1800 1200 900	8.34 9.40 10.2 11.4	4.17 4.70 5.12 5.70
5	3600 1800 1200 900	13.5 14.4 15.8 15.9	6.76 7.21 7.91 7.92
7 ½	3600 1800 1200 900	19.5 21.5 21.8 23.0	9.79 10.7 10.9 11.5

HP	RPM	Amperages	
		230 VAC	460 VAC
10	3600 1800 1200 900	25.4 26.8 28.0 30.5	12.7 13.4 14.0 15.2
15	3600 1800 1200 900	36.4 39.2 41.4 44.5	18.2 19.6 20.7 22.2
20	3600 1800 1200 900	50.4 51.2 52.8 54.9	25.2 25.6 26.4 27.4
25	3600 1800 1200 900	60.8 64.8 65.6 67.3	30.4 32.4 32.8 33.7
30	3600 1800 1200	73.7 75.6 78.8	36.8 37.8 39.4
40	3600 1800 1200	96.4 101 102	48.2 50.4 50.6
50	3600 1800 1200	120 124 126	60.1 62.2 63.0
60	3600 1800 1200	143 149 150	71.7 74.5 75.0
75	3600 1800 1200	179 183 184	89.6 91.6 92.0
100	3600 1800 1200	231 236 239	115 118 120
125	3600 1800 1200	292 293 298	146 147 149

*Amperages shown are approximates only. Shock Relay can also be used on motors below 1/4 hp and above 125 hp.

TSB151, TSB152

Shock Relay for Overload Protection

ACTUAL LOAD METER

Actual current of the motor is indicated in percentages, which makes it easy to set "LOAD CURRENT," regardless of the value of the actual current load.

LOAD CURRENT

This presets the load current at the optimum setting in the range from 30% to 130% of the motor's current. When the actual load current exceeds the preset current for the preset SHOCK TIME, the SHOCK RELAY trips to break the motor circuit. Audible alarm devices or warning lamps may be installed if desired.

The LOAD CURRENT should be preset by observing the ACTUAL LOAD METER condition because the motor generally runs under its rated current value.

FINE ADJUSTMENT

Adjustment is preset at the factory. When fine adjustment of actual load current is required, this may be used to adjust from –5% to +30% of the indicated meter value.

START TIME

When starting a motor, the starting current value is greater than the running current. This starting current value continues until the motor reaches normal speed. During this starting period, the time of which mainly depends on the type of load, the function of detecting the overload current is disabled. Adjustable range is from 0.2 to 20 seconds.

TERMINALS FOR CONNECTION

All terminals are located on the upper surface to provide easy access.

POWER INDICATOR

Indicates that the power supply is on.

TRIP INDICATOR

Lamp comes on when SHOCK RELAY trips.

TEST BUTTON

This switch is used to verify SHOCK RELAY operation.

RESET BUTTON (manual)

Reset can be done quickly whenever a cycle restart is desired.

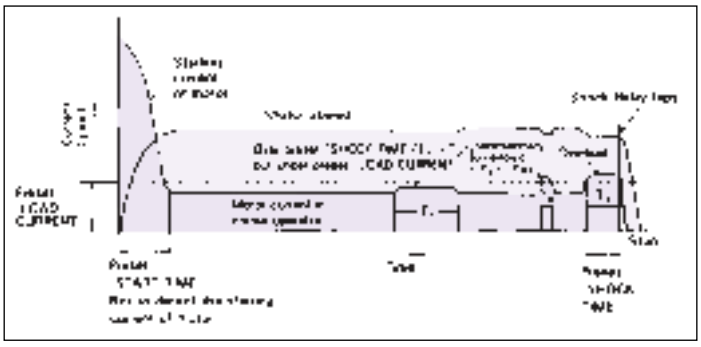
SHOCK TIME

This presets the overload period. Range is variable from 0.2 to 3 seconds. Every momentary load over the preset current with a shorter period than the preset period is ignored. When the overload equals the preset period, the SHOCK RELAY will trip immediately to break the power supply to the motor.

UL® listed

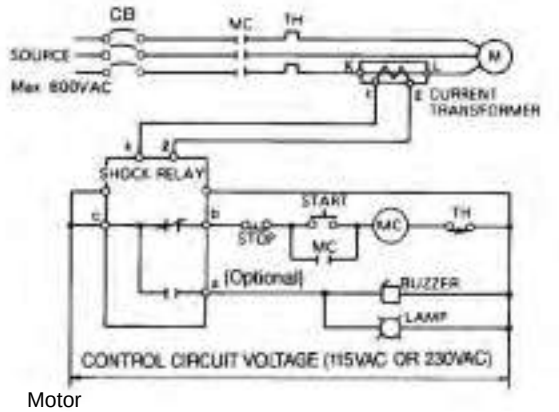
U.S. Tsubaki SHOCK RELAY monitors the change in motor current that closely approximates the torque output of the motor. Should the motor current exceed the preset LOAD CURRENT point for a preset length of SHOCK TIME (continuous overload time), the SHOCK RELAY will shut down the motor power supply.

DIAGRAM OF OPERATION



TYPICAL CONNECTING DIAGRAM

TSB151, TSB152



M Motor
MC Electromagnetic Contactor
TH Thermal Overload Relay
CB Circuit Breaker

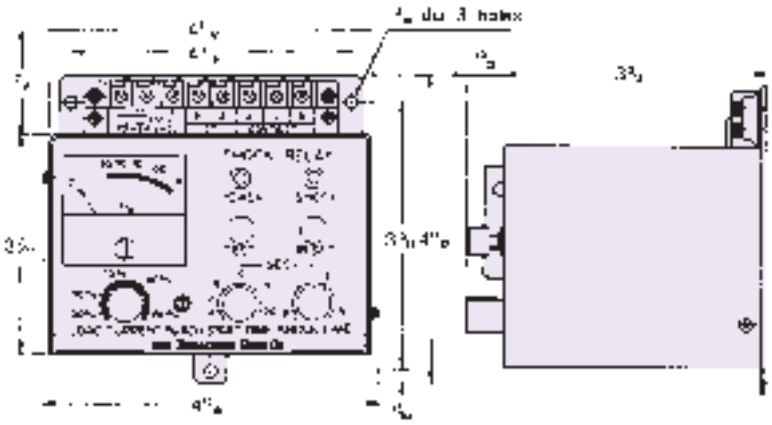
Note: Refer to Specifications on page D-15.

The TSB151 and TSB152 series SHOCK RELAY allows easy connection into new or existing applications. For single or three phase motors, simply wire the current transformer that we supply into one line of the motor and the SHOCK RELAY into the control circuit (stop-start circuit).

The SHOCK RELAY is powered by the same voltage as the control circuit to the motor starter, usually 115V or 230V single phase. If a different control voltage is used, a step down transformer may be required.

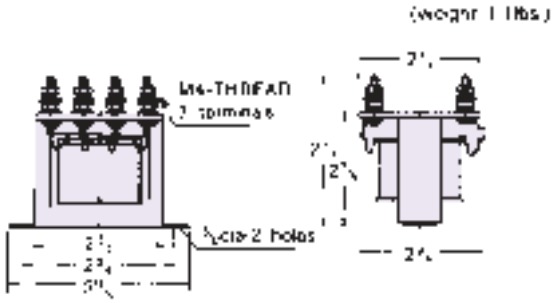
The supplied current transformer is then connected in one line of the motor that is being monitored. Motor voltages above 600 volts require special considerations. Contact U.S. Tsubaki.

Dimension: TSB151, TSB152, +A/M/W Models



*TSB151 is shown

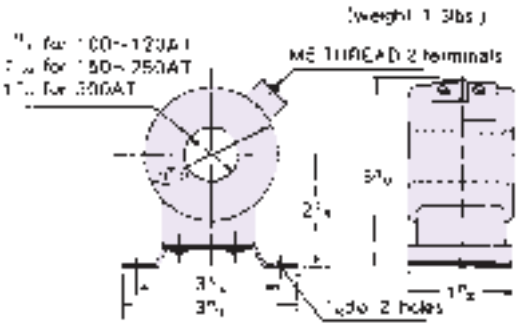
Common Type 50/151 Current Transformer



For use with TSB151, TSB151A, TSB151M, TSB151W

This current transformer has connections to accept motor amperages up to 16.0 amps. This current transformer is included with the TSB151 and by selecting the correct terminals, accepts the full range of motors acceptable for this Shock Relay.

TSB152 Current Transformer



For use with TSB152, TSB152A, TSB152M, TSB152W

When ordering the TSB152, please select the correct size current transformer from the chart below. The transformer selected should closely match the motor amperage. U.S. Tsubaki will include the transformer you select with the TSB152 Shock Relay.

Current Transformer for TSB152			
Full-Load Current (amps)	**Selected CT**	**Full-Load Current (amps)**	**Selected CT**
20	100AT	83	250AT
25	100AT	100	100AT
30	120AT	120	120AT
33	100AT	125	250AT
37	150AT	150	150AT
40	120AT	200	200AT
50	100AT	250	250AT
60	120AT	300	300AT
		400	400AT

When selecting a Shock Relay and compatible Current Transformer, locate the closest rating to the actual motor current in the list.

Selection Example

1. For 4 pole, 230V, 7½HP motor: rated current 21.5 amps, choose TSB152, 100AT current transformer.
2. For 4 pole 230V, 50HP motor: rated current 124 amps, choose TSB152, 250AT current transformer.

TSBSS Series — Manual Reset
TSBSA Series — Automatic Reset

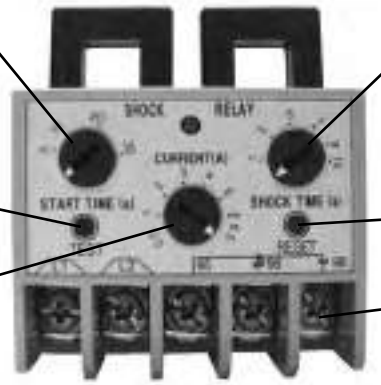
Overload Protection – OEM Model

For use with single and three-phase motors up to 300 amps

START TIME
During startup, the current draw of a motor is greater than the running current. In order to prevent the Shock Relay from engaging during startup, the start time is adjustable from 0.2 seconds to 30 seconds.

TEST
The test button simulates a current overload.

CURRENT (A)
The trip current level is user adjustable and varies according to the Shock Relay model selected. The Shock Relay will only trip when the current draw of the motor exceeds both the current setting and the shock time setting.

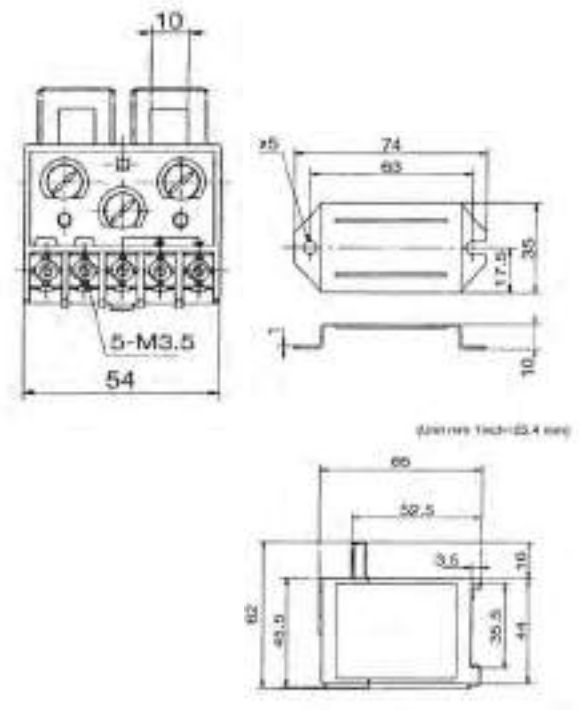


SHOCK TIME
The shock time feature allows the current overload time to be set. The shock time is adjustable from 0.2 seconds to 10 seconds. The Shock Relay will only trip when the current draw of the motor exceeds the trip current and when the shock time is exceeded.

RESET BUTTON (SS model)
SA is auto reset.

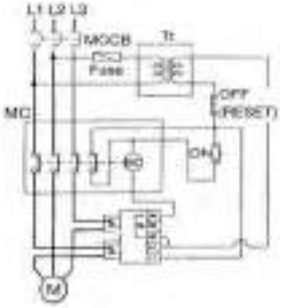
CONNECTION TERMINALS (CONTACTS)
L1 & L2: Used to provide power to the Shock Relay. 95, 96 & 98: Provide output from the Shock Relay. The application - such as a motor - can be wired into these terminals. When the Shock Relay trips, the circuit opens and the application stops.

DIMENSIONS (mm)

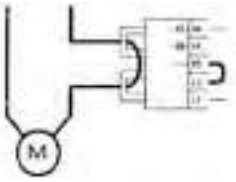


TYPICAL CONNECTING DIAGRAM

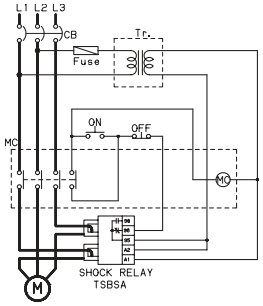
SS Series Three-Phase



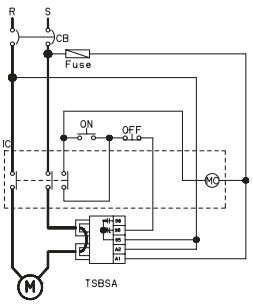
SS Series Single-Phase



SA Series Three-Phase



SA Series Single-Phase



CB:	Circuit Breaker	**Off:**	Stop Switch
MC:	Magnetic Contactor	**M:**	Motor
On:	Start Switch	**Tr:**	Transformer

Note: Refer to Specifications on page D-15.

TSBSS/SA Shock Relay with External Current Transformer

SS/SA SERIES
Shock Relay

EXTERNAL CURRENT TRANSFORMER
The external current transformer is wired together with the SS/SA Series Shock Relay to provide overload protection for applications using larger motors, typically more than 60A.

SPECIFICATIONS

Shock Relay Model	**TSBSS/SA05**	**TSBSA10**	**TSBSS/SA30**	**TSBSS/SA60**
Motor HP 230 VAC	0.125 hp ~ 1.5 hp	0.75 hp ~ 3 hp	2 hp ~ 7.5 hp	10 hp ~ 15 hp
Motor HP 460 VAC	0.25 hp ~ 3 hp	1.5 hp ~ 7.5 hp	5 hp ~ 15 hp	20 hp ~ 30 hp
Load Current Setting Range	0.5A ~ 5A	1A ~ 10A	3A ~ 30A	5A ~ 60A
Shock Relay with External Current Transformer Model	**TSBSS/SA100**	**N/A**	**TSBSS/SA200**	**TSBSS/SA300**
Transformer	TSB2CT100	N/A	TSB2CT200	TSB2CT300
Motor HP 230 VAC	20 hp ~ 25 hp	N/A	30 hp ~ 50 hp	60 hp ~ 100 hp
Motor HP 460 VAC	40 hp ~ 60 hp	N/A	75 hp ~ 125 hp	150 hp ~ 200 hp
Load Current Setting Range	60A ~ 100A	N/A	100A ~ 200A	200A ~ 300A
Common to all TSBSS/SA units	**TSBSS/SA05 TSBSS/SA100**	**TSBSA10**	**TSBSS/SA30 TSBSS/SA200**	**TSBSS/SA60 TSBSS/SA300**
Trip Output Relay Status				
Energized/Fail Safe to Open	SS only	N/A	SS only	SS only
Not Energized	SA only	SA only	SA only	SA only
Trip Output Relay Contact rating	3A load			
Start Time Setting Range	0.2 ~ 30 sec			
Shock Time Setting Range	0.2 ~ 10 sec			
Shock Relay Power Supply	90 ~ 240 VAC			
Test Function	Built In			
Mounting	35mm DIN Rail or Panel			
Operating Temperature Range	-4°F ~ 158°F			

TSB151A, TSB152A

Overload Protection Plus Pre-Alarm Setting

ACTUAL LOAD METER

Actual current of the motor is indicated in percentages, which makes it easy to set "LOAD CURRENT," regardless of the value of the actual current load.

LOAD CURRENT

This presets the load current at the optimum setting in the range from 30% to 130% of the motor's current. When the actual load current exceeds the preset current for the preset SHOCK TIME, the SHOCK RELAY trips to break the motor circuit.

ALARM SET POINT

This presets the level at which an Alarm will sound. The Alarm can provide prior warning of an impending problem that may be correctable prior to the need to shut down the equipment.

POWER INDICATOR

Indicates that the power supply is on.

TRIP INDICATOR

Lamp comes on when SHOCK RELAY trips.

TEST BUTTON

This switch is used to verify SHOCK RELAY operation. The TSB151A and TSB152A have a test switch for both the alarm set point and the overload set point.

RESET BUTTON (manual)

Reset can be done quickly whenever a restart is desired.

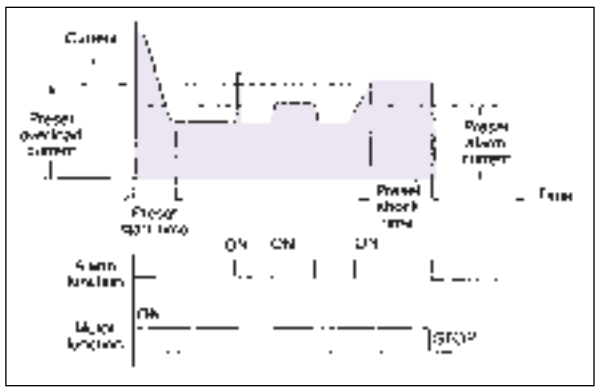
SHOCK TIME

This presets the overload period. Range is variable from 0.2 to 3 seconds. Every momentary load over the preset current with a shorter period than the preset period is ignored. When the overload equals the preset period, the SHOCK RELAY will trip immediately to break the power supply to the motor.

START TIME

When starting a motor, the starting current value is greater than the running current. This starting current value continues until the motor reaches normal speed. During this starting period, the time of which mainly depends on the type of load, the function of detecting the overload current is disabled. Adjustable range is from 0.2 to 20 seconds.

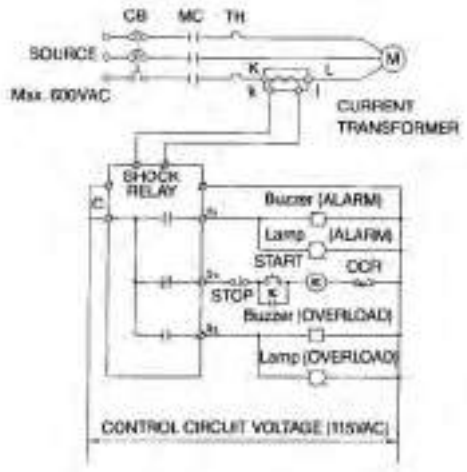
DIAGRAM OF OPERATION



Dimensions and current transformer selection are the same as for the TSB151 and TSB152.
Refer to page D-8.

TYPICAL CONNECTING DIAGRAM

TSB151A, TSB152A



M Motor
MC Electromagnetic Contactor
TH Thermal Overload Relay
CB Circuit Breaker

Note: Refer to Specifications on page D-15.

TSB151M, TSB152M

Overload Protection Plus Impact Detection

ACTUAL LOAD METER

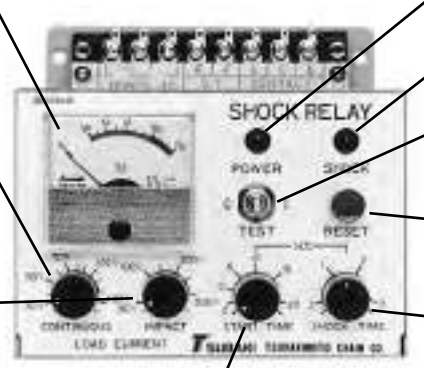
Actual current of the motor is indicated in percentages, which makes it easy to set "LOAD CURRENT," regardless of the value of the actual current load.

LOAD CURRENT

This presets the load current at the optimum setting in the range from 30% to 130% of the motor's current. When the actual load current exceeds the preset current for the preset SHOCK TIME, the SHOCK RELAY trips to break the motor circuit.

IMPACT SET POINT

This presets the point at which an Impact Shock Load is deemed dangerous. When the actual load current exceeds this level for more than 5/100 of a second, the SHOCK RELAY trips to break the motor circuit.



POWER INDICATOR

Indicates that the power supply is on.

TRIP INDICATOR

Lamp comes on when SHOCK RELAY trips.

TEST BUTTON

This switch is used to verify SHOCK RELAY operation.

RESET BUTTON (manual)

Reset can be done quickly whenever a cycle restart is desired.

SHOCK TIME

This presets the overload period. Range is variable from 0.2 to 3 seconds. Every momentary load over the preset current with a shorter period than the preset period is ignored. When the overload equals the preset period, the SHOCK RELAY will trip immediately to break the power supply to the motor.

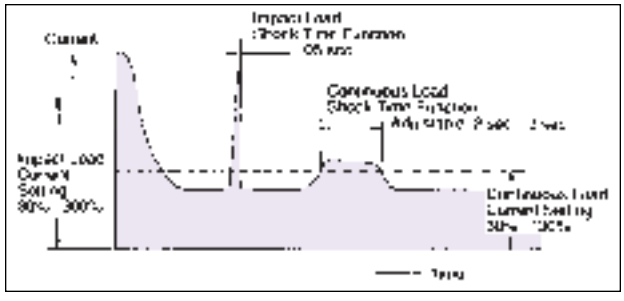
START TIME

When starting a motor, the starting current value is greater than the running current. This starting current value continues until the motor reaches normal speed. During this starting period, the time of which mainly depends on the type of load, the function of detecting the overload current is disabled. Adjustable range is from 0.2 to 20 seconds.

SPECIFICATIONS

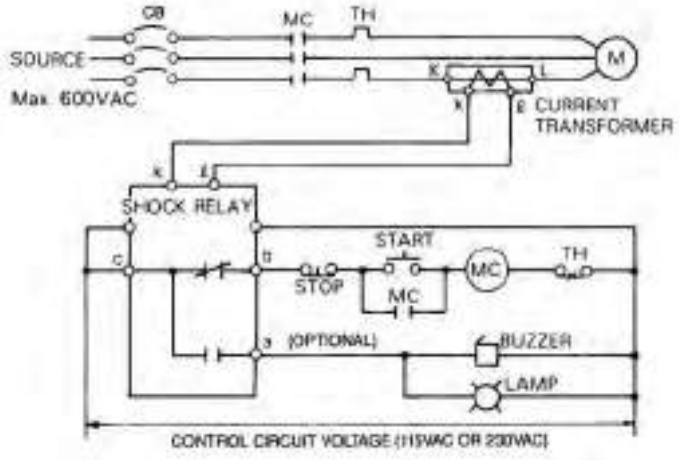
Load Current Setting	**For Impact Load**	**30% ~ 300%**
	For Continuous Load	**30% ~ 130%**
Shock Time Setting	**For Impact Load**	**.05 sec. (fixed)**
	For Continuous Load	**.2 sec. ~ 3 sec.**

DIAGRAM OF OPERATION



TYPICAL CONNECTING DIAGRAM

TSB151M, TSB152M



M	Motor
MC	Electromagnetic Contactor
TH	Thermal Overload Relay
CB	Circuit Breaker

Note: Refer to Specifications on page D-16.

Dimensions and current transformer selection are the same as for the TSB151 and TSB152. Refer to page D-8.

TSB151W, TSB152W

Overload and Underload Protection

ACTUAL LOAD METER

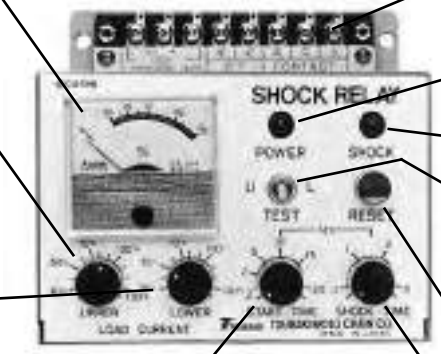
Actual current of the motor is indicated in percentages, which makes it easy to set "LOAD CURRENT," regardless of the value of the actual current load.

OVERLOAD CURRENT

This presets the load current at the optimum setting in the range from 30% to 130% of the motor's current. When the actual current exceeds the preset current for the preset SHOCK TIME, the SHOCK RELAY trips to break the motor circuit.

UNDERLOAD CURRENT

This presets the lower acceptable load current limit. When the actual load current falls below this level for the preset SHOCK TIME, the SHOCK RELAY trips to break the motor circuit.



TERMINALS FOR CONNECTION

All terminals are located on the upper surface to provide easy access.

POWER INDICATOR

Indicates that the power supply is on.

TRIP INDICATOR

Lamp comes on when SHOCK RELAY trips.

TEST BUTTON

This switch is used to verify SHOCK RELAY operation.

TSB151W and TSB152W have a test switch for both upper and lower levels.

RESET BUTTON (manual)

Reset can be done quickly whenever a restart is desired.

SHOCK TIME

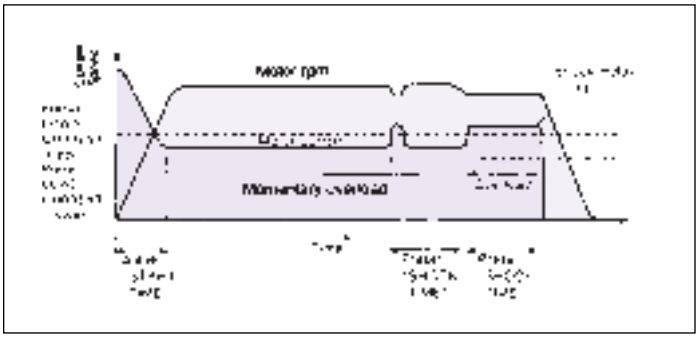
This presets the overload period. Range is variable from 0.2 to 3 seconds. Every momentary load over the preset current with a shorter period than the preset is ignored. When the overload equals the preset period, the SHOCK RELAY will trip immediately to break the power supply to the motor.

START TIME

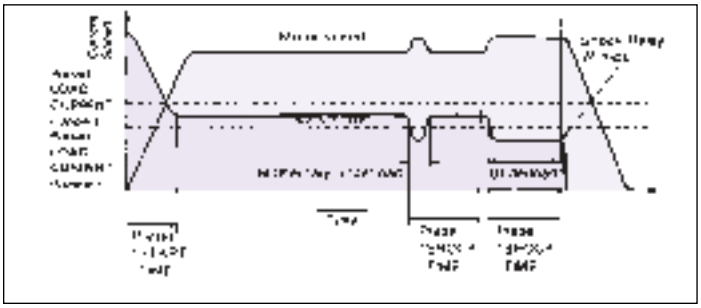
When starting a motor, the starting current value is greater than the running current. This starting current value continues until the motor reaches normal speed. During this starting period, the time of which mainly depends on the type of load, the function of detecting the overload is disabled. Adjustable range is from 0.2 to 20 seconds.

DIAGRAM OF OPERATION

OVERLOAD

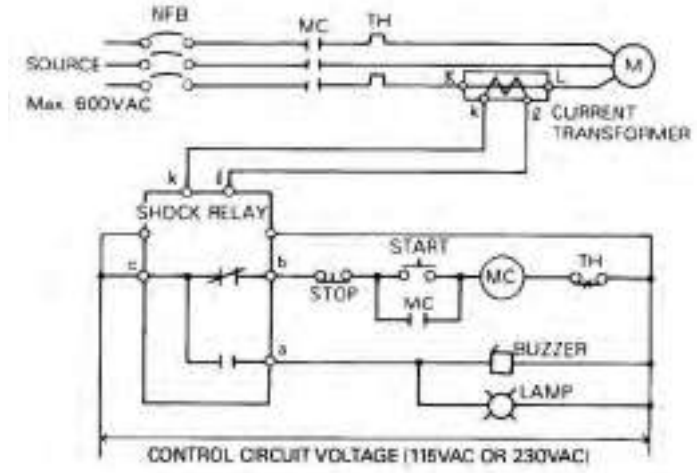


UNDERLOAD



STANDARD CONNECTING DIAGRAM

TSB151W, TSB152W



M	Motor
MC	Electromagnetic Contactor
TH	Thermal Overload Relay
CB	Circuit Breaker

Note: Refer to Specifications on page D-16.

Dimensions and current transformer selection is the same as for TSB151 and TSB152. Refer to page D-8.

TSB50D, TSB152D

Overload Protection for D.C. Motors

ACTUAL LOAD METER

Actual current of the motor is indicated in percentages, which makes it easy to set "LOAD CURRENT," regardless of the value of the actual current load.

LOAD CURRENT

This presets the load current at the optimum setting in the range from 30% to 130% of the motor's current. When the actual load current exceeds the preset current for the preset SHOCK TIME, the SHOCK RELAY trips to break the motor circuit.

START TIME

When starting a motor, the starting current value is greater than the running current. This starting current value continues until the motor reaches normal speed. During this starting period, the time of which mainly depends on the type of load, the function of detecting the overload current is disabled. Adjustable range is from 0.2 to 20 seconds.

POWER INDICATOR

Indicates that the power supply is on.

TRIP INDICATOR

Lamp comes on when SHOCK RELAY trips.

TEST BUTTON

This switch is used to verify SHOCK RELAY operation.

RESET BUTTON (manual)

Reset can be done quickly whenever a cycle restart is desired.

SHOCK TIME

This presets the overload period. Range is variable from 0.2 to 3 seconds. Every momentary load over the preset current with a shorter period than the preset is ignored. When the overload equals the preset period, the SHOCK RELAY will trip immediately to break the power supply to the motor.

CURRENT FLOW INDICATOR

This lamp lights when the load current flows into the SHOCK RELAY. This is after the fixed 3-second start time.

LOAD CURRENT ADJUSTMENT

Adjustable range is from 50% to 130%.

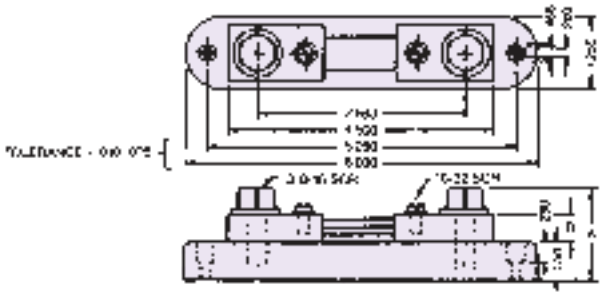
SHOCK TIME

Adjustable range is from 0.3 to 3 seconds.

Note: TSB50D automatically resets when the motor power is disconnected. If manual reset is required, it is possible by installing a separate reset button.

SHUNT SELECTION

The D.C. Motor Shock Relay has basically the same functions and dimensions as the standard TSB152 and TSB50. Differences exist in that a shunt is required to monitor direct current of the D.C. motor in place of using a current transformer.

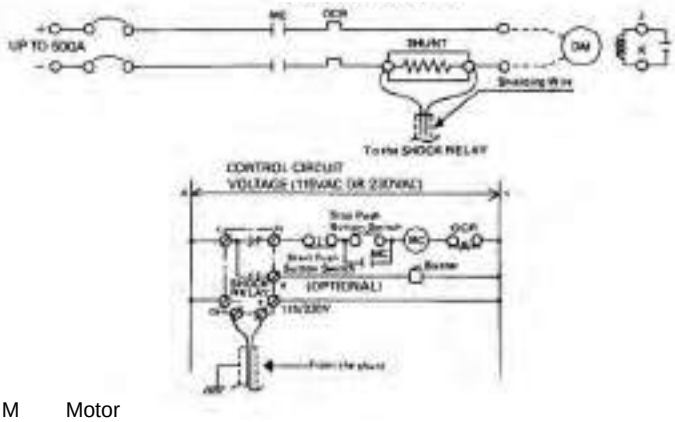


When ordering the TSB152D or TSB50D, select the correct shunt from the chart. The shunt selected should closely match the motor's armature amperage. U.S. Tsubaki will include the shunt you select with the Shock Relay.

CATALOG NUMBER	AMP	A	B
Shunt 1-50	1	1.38	.500
Shunt 2-50	2	1.38	.500
Shunt 5-50	5	1.38	.500
Shunt 10-50	10	1.38	.500
Shunt 20-50	20	1.38	.500
Shunt 50-50	50	1.38	.500
Shunt 100-50	100	1.38	.500
Shunt 150-50	150	1.38	.500
Shunt 200-50	200	1.38	.500
Shunt 250-50	250	1.63	.750
Shunt 300-50	300	1.63	.750
Shunt 400-50	400	1.63	.750
Shunt 500-50	500	1.63	.750

TYPICAL CONNECTING DIAGRAM

TSB152D SHOWN



M Motor
MC Electromagnetic Contactor
TH Thermal Overload Relay
CB Circuit Breaker

Note: Refer to Specifications on page D-16.

U.S. TSUBAKI SHOCK RELAY

SPECIFICATIONS

SPECIFICATIONS*

FEATURES	TSB151	TSB152
Motor Amps	0.25 - 16 amps	17 - 400 amps
Load Current Range	30 - 130%	30 - 130%
Start Time Setting Range	0.2 - 20 sec.	0.2 - 20 sec.
Shock Time Setting Range	0.2 - 3 sec.	0.2 - 3 sec.
Input Voltage for Operation	115/230 Volt 50/60 Hz	115/230 Volt 50/60 Hz
Allow. Input Voltage Fluctuation	10%	10%
Input Current from C.T. Secondary	5mA	5A
Meter Fine Tuning Adjustment	Yes	Yes
Output Contact	Transfer Contact 250VAC 0.2A at inductive load*	Transfer Contact 250VAC 0.2A at inductive load*
Test Button	Yes	Yes
Withstanding Voltage	1500VAC @ 60Hz for 1 min. between terminal and enclosure	1500VAC @ 60Hz for 1 min. between terminal and enclosure
Surface Color	Munsell 7.5BG4/1.5	Munsell 2.5Y/2
Weight	2.2 lbs.	2.6 lbs.
Power Consumption	1.2VA	1.2VA
Operating Temperature Range	14°F - 122°F	14°F - 122°F
Operating Humidity	85% R.H. or less	85% R.H. or less
Max. Elevation	1,000m	1,000m
Atmosphere	Free of corrosive gas and dust	Free of corrosive gas and dust

SPECIFICATIONS*

FEATURES	TSBSS	TSBSA
Motor Amps	Refer to page D-10	Refer to page D-10
Load Current Range	10 - 130%	10 - 130%
Start Time Setting Range	0.2 ~ 30 sec.	0.2 - 30 sec.
Shock Time Setting Range	0.2 ~ 10 sec.	0.2 - 10 sec.
Input Voltage for Operation	90 ~ 250 VAC	90 ~ 250 VAC
Allow. Input Voltage Fluctuation	10%	10%
Input Current from C.T. Secondary	NA	NA
Meter Fine Tuning Adjustment	NA	NA
Output Contact	3A/250 VAC, Resistive	3A/250 VAC, Resistive
Test Button	Yes	Yes
Withstanding Voltage	2000VAC, 5mA @ 60Hz for 1 min. between terminal and enclosure	2000VAC, 5mA @ 60Hz for 1 min. between terminal and enclosure
Surface Color	NA	NA
Weight	0.35 lbs.	0.35 lbs.
Power Consumption	2.7VA	2.7VA
Operating Temperature Range	-4°F - 158°F	-4°F - 158°F
Operating Humidity	45 - 85% R.H.	45 - 85% R.H.
Max. Elevation	2,000m	2,000m
Atmosphere	Free of corrosive gas and dust	Free of corrosive gas and dust

SPECIFICATIONS*

FEATURES	TSB151A	TSB152A
Motor Amps	0.25 - 16 amps	17 - 400 amps
Load Current Range	30 - 130%	30 - 130%
Alarm Load Current Range	30 - 130%	30 - 130%
Start Time Setting Range	0.2 - 20 sec.	0.2 - 20 sec.
Shock Time Setting Range	0.2 - 3 sec.	0.2 - 3 sec.
Input Voltage for Operation	115 Volt 50/60 Hz	115 Volt 50/60 Hz
Allow. Input Voltage Fluctuation	10%	10%
Input Current from C.T. Secondary	5mA	5A
Meter Fine Tuning Adjustment	Yes	Yes
Output Contact	Transfer Contact 250VAC 0.2A at inductive load*	Transfer Contact 250VAC 0.2A at inductive load*
Test Button	Yes	Yes
Withstanding Voltage	1500VAC @ 60Hz for 1 min. between terminal and enclosure	1500VAC @ 60Hz for 1 min. between terminal and enclosure
Surface Color	Munsell 7.5BG4/1.5	Munsell 2.5Y7/2
Weight	2.2 lbs.	2.6 lbs.
Power Consumption	1.2VA	1.2VA
Operating Temperature Range	14°F - 122°F	14°F - 122°F
Operating Humidity	85% R.H. or less	85% R.H. or less
Max. Elevation	1,000m	1,000m
Atmosphere	Free of corrosive gas and dust	Free of corrosive gas and dust

*CAUTION: If the starter coil in the magnetic contactor (MC) of the monitored motor exceeds the Shock Relay output contact's capacity, an auxiliary relay must be installed to prevent damage to the Shock Relay. The instruction manual included with each Shock Relay details how to add this auxiliary relay if required.

U.S. TSUBAKI SHOCK RELAY

SPECIFICATIONS

SPECIFICATIONS*

FEATURES	TSB151M	TSB152M
Motor Amps	0.25 - 16 amps	17 - 400 amps
Load Current Range	30 - 130%	30 - 130%
Impact Load Current Range	30 - 300%	30 - 300%
Start Time Setting Range	0.2 - 20 sec.	0.2 - 20 sec.
Shock Time Setting Range	0.2 - 3 sec.	0.2 - 3 sec.
Impact Shock Time Setting	0.05 sec. (fixed)	0.05 sec. (fixed)
Input Voltage for Operation	115/230 Volt 50/60 Hz	115/230 Volt 50/60 Hz
Allow. Input Voltage Fluctuation	10%	10%
Input Current from C.T. Secondary	5mA	5A
Meter Fine Tuning Adjustment	Yes	Yes
Output Contact	Transfer Contact 250VAC 0.2A at inductive load*	Transfer Contact 250VAC 0.2A at inductive load*
Test Button	Yes	Yes
Withstanding Voltage	1500VAC @ 60Hz for 1 min. between terminal and enclosure	1500VAC @ 60Hz for 1 min. between terminal and enclosure
Surface Color	Munsell 7.5BG4/1.5	Munsell 2.5Y7/2
Weight	2.2 lbs.	2.6 lbs.
Power Consumption	1.2VA	1.2VA
Operating Temperature Range	14°F - 122°F	14°F - 122°F
Operating Humidity	85% R.H. or less	85% R.H. or less
Max. Elevation	1,000m	1,000m
Atmosphere	Free of corrosive gas and dust	Free of corrosive gas and dust

SPECIFICATIONS*

FEATURES	TSB151W	TSB152W
Motor Amps	0.25 - 16 amps	17 - 400 amps
Overload Current Range	30 - 130%	30 - 130%
Underload Current Range	30 - 130%	30 - 130%
Start Time Setting Range	0.2 - 20 sec.	0.2 - 20 sec.
Shock Time Setting Range	0.2 - 3 sec.	0.2 - 3 sec.
Input Voltage for Operation	115/230 Volt 50/60 Hz	115/230 Volt 50/60 Hz
Allow. Input Voltage Fluctuation	10%	10%
Input Current from C.T. Secondary	5mA	5A
Meter Fine Tuning Adjustment	Yes	Yes
Output Contact	Transfer Contact 250VAC 0.2A at inductive load*	Transfer Contact 250VAC 0.2A at inductive load*
Test Button	Yes	Yes
Withstanding Voltage	1500VAC @ 60Hz for 1 min. between terminal and enclosure	1500VAC @ 60Hz for 1 min. between terminal and enclosure
Surface Color	Munsell 7.5BG4/1.5	Munsell 2.5Y7/2
Weight	2.2 lbs.	2.6 lbs.
Power Consumption	1.2VA	1.2VA
Operating Temperature Range	14°F - 122°F	14°F - 122°F
Operating Humidity	85% R.H. or less	85% R.H. or less
Max. Elevation	1,000m	1,000m
Atmosphere	Free of corrosive gas and dust	Free of corrosive gas and dust

SPECIFICATIONS*

FEATURES	TSB152D	TSB50D
Motor Amps	Up to 500A	Up to 500A
Load Current Range	30 - 130%	50 - 130%
Start Time Setting Range	0.2 - 20 sec.	3 sec. (fixed)
Shock Time Setting Range	0.2 - 3 sec.	0.3 - 3 sec.
Input Voltage for Operation	115/230 Volt 50/60 Hz	115/230 Volt 50/60 Hz
Allow. Input Voltage Fluctuation	10%	10%
Input Current from C.T. Secondary	50mV	50mV or 100mV
Meter Fine Tuning Adjustment	Yes	No
Output Contact	Transfer Contact 250VAC 0.2A at inductive load*	Transfer Contact 250VAC 0.1A at inductive load*
Test Button	Yes	No
Withstanding Voltage	1500VAC @ 60Hz for 1 min. between terminal and enclosure	1500VAC @ 60Hz for 1 min. between terminal and enclosure
Surface Color	Munsell 10GY8/4	Munsell N-2.0
Weight	2.2 lbs.	0.7 lbs.
Power Consumption	1.2VA	0.6VA
Operating Temperature Range	14°F - 122°F	14°F - 122°F
Operating Humidity	85% R.H. or less	85% R.H. or less
Max. Elevation	1,000m	1,000m
Atmosphere	Free of corrosive gas and dust	Free of corrosive gas and dust

*CAUTION: If the starter coil in the magnetic contactor (MC) of the monitored motor exceeds the Shock Relay output contact's capacity, an auxiliary relay must be installed to prevent damage to the Shock Relay. The instruction manual included with each Shock Relay details how to add this auxiliary relay if required.

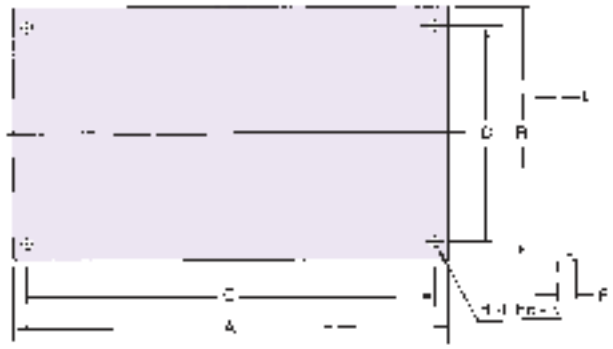
Shock Relay Accessories

When purchasing Shock Relay, consider these convenient accessories, also available from U.S. Tsubaki.

■ Fitting Plate

When mounting Shock Relay in your electrical panel box, save yourself time and money with our fitting plate. Pre-drilled to fit the appropriate model, our fitting plate eliminates the need for you to fabricate and drill your own holes. Refer to the chart below for dimensions.

FITTING PLATE

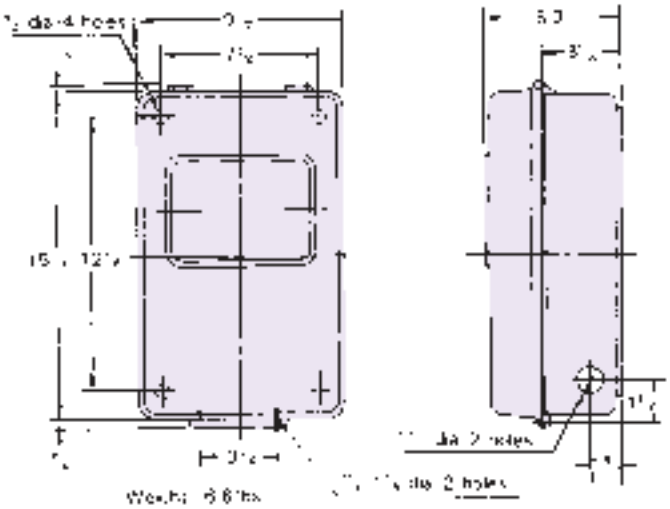


Type	A	B	C	D	E	t	d	Weight
TSB50	7 3/32	4 11/32	6 3/8	3 5/8	13/32	1/16	3/64	.8 lbs.
TSB151-152	9 7/16	5 17/32	8 29/32	4 13/16	13/32	5/64	7/32	1.4 lbs.

■ Shock Relay Enclosure

Protect your Shock Relay from casual contact, dust and intermittent exposure to splashes and spills of water and other chemicals. Includes a window for easy viewing of the meter and settings. Meets ISO IP44 standards.

Available for models TSB151 and TSB152 series units.



⚠ WARNING

USE CARE TO PREVENT INJURY
COMPLY WITH THE FOLLOWING
TO AVOID SERIOUS PERSONAL INJURY

1. Disconnect power. Always lock out power switch before installing, removing, or servicing unit. Comply with Occupational Safety and Health Standards 1910.147 “The Control of Hazardous Energy (Lock Out/Tag Out).”

2. Install in proper enclosure in accordance with NEMA 250-2003 “Enclosures for Electrical Equipment (1000 Volts Maximum)” and NFPA 496 2003 edition “Purged and Pressurized Enclosures for Electrical Equipment, 2003 Edition.” When revisions of these standards are published, the updated edition shall apply.

3. Guards must be provided on all power transmission and conveyor applications in accordance with provisions of ANSI/ASME B 15.1-2000 “Safety Standards for Mechanical Power Transmission Apparatus” and ANSI/ASME B 20.1-2006 “Safety Standards for Conveyors and Related Equipment,” or other applicable standards. When revisions of these standards are published, the updated edition shall apply.

Rev. 11-06

U.S. Tsubaki AS Series

ENTER THE "KEYLESS" SOCIETY

Our POWER-LOCK® solves your problems.

Eliminate backlash damage to keyways from heavy loads… the U.S. Tsubaki POWER-LOCK fits tightly around the shaft/hub and is not affected by load reversals.

End your high machining expenses for long shaft keyways, splined shafts, threads, grooves and steps… the U.S. Tsubaki POWER-LOCK offers exacting, slip-free location.

Erase the headaches of shrink and press fits. The U.S. Tsubaki POWER-LOCK simplifies installation and removal.

This easy-to-install unit slides into position and offers a keyless shaft-hub lock that will simultaneously handle both high torque and thrust while increasing your shaft strength.

The POWER-LOCK is easy to assemble… you only need one tool. It is ideal for locking in large or small sprockets, gears, pulleys, timing cams and rollers. Best of all, the POWER-LOCK is in stock for immediate shipment.

Features & Applications

- **High Durability Against Reversing or Impacting Loads**
  The POWER-LOCK connection is not affected by tortional load reversal or impact, which damages the key and keyway connection. U.S. Tsubaki POWER-LOCK fits tightly around the shaft/hub and is free of backlash.

- **Easy and Precise Positioning**
  The POWER-LOCK offers 360-degree angular adjustment and is excellent for indexing tables, cam mechanisms, gear drives and double-strand conveyor sprockets.

- **Thrust Capability**
  The U.S. Tsubaki POWER-LOCK can hold axial forces, too. Typical applications with these forces include indexing tables and bevel gears.

- **Easy Assembly and Disassembly**
  The POWER-LOCK can be assembled and disassembled frequently, so maintenance or replacement of worn parts is simple and easy as compared to other methods (key and keyway, spline, shrink or press fits and welding).

- **Increased Shaft Strength**
  By using the POWER-LOCK, no metal needs to be removed from the shaft (such as the cutting of a keyway). The strength of the shaft can be kept at its original diameter. This savings can be especially noted on hollow-shaft applications.

- **Eliminates Costly Machining**
  There is no need for time-consuming machining of keyways. The POWER-LOCK offers substantial savings on long, heavy shafts.

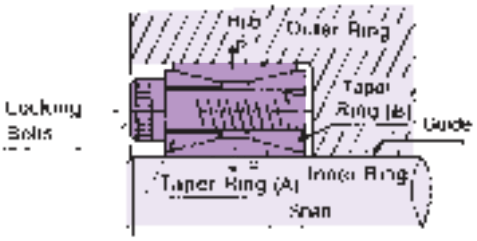
U.S. Tsubaki POWER-LOCK® Offers a

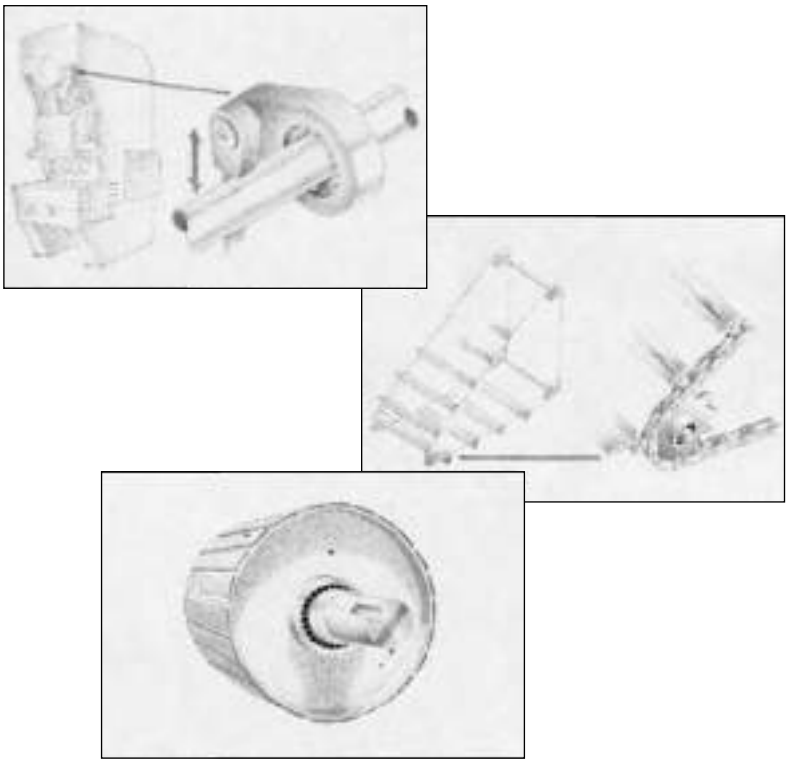
POWER-LOCK®

Construction

Locking Bolts | Taper Ring (A) | Outer Ring | Inner Ring | Taper Ring (B)

The POWER-LOCK® is composed of five parts: taper ring (A), taper ring (B), outer ring, inner ring, and locking bolts. Locking is achieved by tightening the bolts.





Connecting Principle

Taper rings (A) and (B) fit perfectly with the tapered inner and outer rings. By tightening the locking bolts, taper rings (A) and (B) generate clamping pressure (P′ and P) against the outer and inner rings to produce the frictional force to join the shaft and hub. A slit is provided on the circumference of the outer and inner rings to secure the clamping force.

Whole New Approach to Replacing Keyways

SPECIFICATIONS

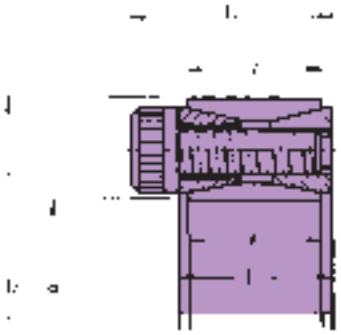
AS Inch Series

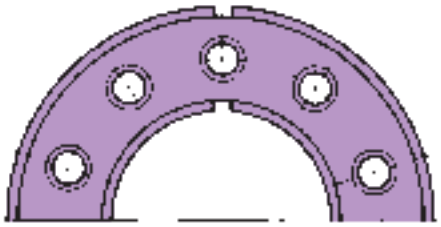
Model Number

PL 2

Shaft Dia. (inch)

POWER-LOCK® AS Series

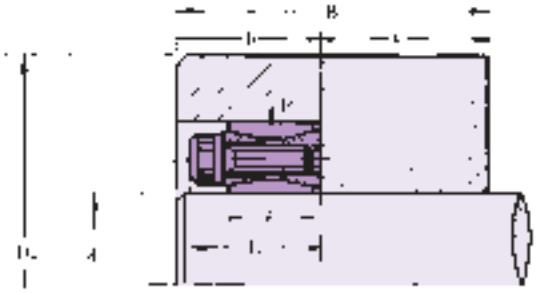




Model Number	Shaft O.D.		Hub Counter I.D.		Dimensions (inch)			Transmissible Torque Mt ft./lbs.	Transmissible Thrust Pax lbs.	Contact Pressure psi		Locking Bolts			Wt. lbs.
	d	Tolerance t_1	D	Tolerance t_2	L	ℓ	L_1			Shaft P	Hub Bore P′	Qty.	Size	Tightening Torque Ma ft./lbs.	
PL ¾	.750		1.850		.787	.709	1.024	188	5,940	30,290	12,370	6	M6 X 18	12.3	.462
PL ⅞	.875	–0.0013″	1.850	+0.0013″	.787	.709	1.024	217	5,940	26,020	12,370	6	M6 X 18	12.3	.396
PL1	1.000	+0	1.969	–0	.787	.709	1.024	318	7,480	29,010	14,650	8	M6 X 18	12.3	.484
PL1 ⅛	1.125		2.165		.787	.709	1.024	354	7,480	25,450	13,370	8	M6 X 18	12.3	.550
PL1 3/16	1.1875		2.159		.819	.709	1.055	376	7,480	24,320	13,370	8	M6 X 18	12.3	.528
PL1 ¼	1.250		2.362		.787	.709	1.024	499	9,460	29,010	15,360	10	M6 X 18	12.3	.660
PL1 ⅜	1.375		2.365		.773	.709	1.009	550	9,460	26,310	15,360	10	M6 X 18	12.3	.594
PL1 7/16	1.4375		2.559		.787	.709	1.024	637	10,560	27,730	15,500	11	M6 X 18	12.3	.748
PL1 ½	1.500	–0.0015″	2.559	+0.0015″	.787	.709	1.024	658	10,560	26,590	15,500	11	M6 X 18	12.3	.704
PL1 ⅝	1.625	+0	2.953	–0	.945	.827	1.260	1,085	15,840	31,570	17,490	9	M8 X 22	29.7	1.232
PL1 11/16	1.6875		2.953		.945	.827	1.260	1,122	15,840	30,480	17,490	9	M8 X 22	29.7	1.236
PL1 ¾	1.75		2.953		.945	.827	1.260	1,164	15,840	29,940	17,490	9	M8 X 22	29.7	1.227
PL1 ⅞	1.875		3.150		.945	.827	1.260	1,244	15,840	27,440	16,350	9	M8 X 22	29.7	1.298
PL1 15/16	1.9375		3.150		.945	.827	1.260	1,287	15,840	26,590	16,350	9	M8 X 22	29.7	1.232
PL2	2.000		3.346		.945	.827	1.260	1,627	19,360	31,570	18,910	11	M8 X 22	29.7	1.474
PL2 ⅛	2.125		3.346		.945	.827	1.260	1,729	19,360	29,360	18,910	11	M8 X 22	29.7	1.364
PL2 3/16	2.1875		3.543		.945	.827	1.260	1,779	19,360	28,870	17,780	11	M8 X 22	29.7	1.584
PL2 ¼	2.250		3.543		.945	.827	1.260	1,827	19,360	28,070	17,780	11	M8 X 22	29.7	1.496
PL2 ⅜	2.375		3.531		1.008	.827	1.323	1,931	19,360	26,590	17,780	11	M8 X 22	29.7	1.408
PL2 7/16	2.4375		3.740		.945	.827	1.260	2,170	21,120	28,010	18,340	12	M8 X 22	29.7	1.650
PL2 ½	2.500	–0.0018″	3.740	+0.0018″	.945	.827	1.260	2,228	21,120	27,300	18,340	12	M8 X 22	29.7	1.584
PL2 9/16	2.5625	+0	3.737	–0	.962	.827	1.277	2,278	21,120	26,730	18,340	12	M8 X 22	29.7	1.518
PL2 ⅝	2.625		4.337		1.073	.984	1.467	3,400	31,020	31,940	19,340	11	M10 X 25	60.1	2.908
PL2 11/16	2.6875		4.337		1.073	.984	1.467	3,480	31,020	31,200	19,340	11	M10 X 25	60.1	2.832
PL2 ¾	2.750		4.337		1.073	.984	1.467	3,537	31,020	30,430	19,340	11	M10 X 25	60.1	2.662
PL2 ⅞	2.875		4.528		1.102	.984	1.496	3,732	31,020	29,150	18,490	11	M10 X 25	60.1	2.926
PL2 15/16	2.9375		4.528		1.102	.984	1.496	3,812	31,020	28,580	18,490	11	M10 X 25	60.1	2.816
PL3	3.000		4.724		1.102	.984	1.496	3,855	31,020	28,010	17,780	11	M10 X 25	60.1	3.190
PL3 ⅜	3.375		4.921		1.102	.984	1.496	4,745	33,660	27,160	18,630	12	M10 X 25	60.1	3.058
PL3 7/16	3.4375		5.118		1.102	.984	1.496	4,846	33,660	26,730	17,920	12	M10 X 25	60.1	3.432
PL3 ½	3.500		5.118		1.102	.984	1.496	4,933	33,660	26,160	17,920	12	M10 X 25	60.1	3.322
PL3 ¾	3.750	–0.0021″	5.305	+0.0021″	1.151	.984	1.544	5,729	36,520	26,590	18,770	13	M10 X 25	60.1	3.388
PL3 15/16	3.9375	+0	5.708	–0	1.302	1.142	1.774	7,378	45,100	26,730	18,490	11	M12 X 30	105	4.598
PL4	4.000		5.843		1.299	1.142	1.772	7,522	45,100	26,310	18,060	11	M12 X 30	105	4.796
PL4 7/16	4.4375		6.496		1.299	1.142	1.772	9,114	49,280	25,880	17,780	12	M12 X 30	105	6.160
PL4 ½	4.500		6.496		1.299	1.142	1.772	9,258	49,280	25,600	17,780	12	M12 X 30	105	5.984
PL4 15/16	4.9375		7.087		1.496	1.339	1.969	12,730	61,600	24,890	17,350	15	M12 X 35	105	8.118
PL5	5.000		7.087		1.496	1.339	1.969	12,870	61,600	24,600	17,350	15	M12 X 35	105	7.876
PL5 ½	5.500	–0.0025″	7.492	+0.0025″	1.438	1.339	1.910	15,120	65,560	23,750	17,490	16	M12 X 35	106	7.898
PL6	6.000	+0	8.268	–0	1.496	1.339	1.969	19,530	77,880	25,880	18,770	19	M12 X 35	105	10.230
PL6 ½	6.500		8.858		1.732	1.575	2.283	24,450	90,200	23,460	17,210	16	M14 X 40	167	13.200
PL7	7.000		9.252		1.732	1.575	2.283	27,990	95,700	23,180	17,490	17	M14 X 40	167	13.240
PL7 ½	7.500		9.823		2.144	1.890	2.695	35,220	112,640	21,330	16,210	20	M14 X 45	167	17.360
PL7 ⅞	7.875		10.235		2.052	1.890	2.603	38,910	118,360	21,190	16,350	21	M14 X 45	167	18.170
PL8	8.000	–0.0028″	10.504	+0.0028″	2.047	1.890	2.598	39,560	118,360	20,900	15,930	21	M14 X 45	167	19.360
PL8 ½	8.500	+0	11.220	–0	2.205	2.008	2.835	50,050	141,020	22,040	16,640	18	M16 X 50	257	24.860
PL9	9.000		11.669		2.205	2.008	2.835	53,020	141,020	20,760	15,930	18	M16 X 50	257	25.620
PL9 ½	9.500		12.154		2.205	2.008	2.835	62,200	156,640	21,900	17,210	20	M16 X 50	257	26.620
PL10	10.000		12.795		2.205	2.008	2.835	75,220	180,180	23,890	18,770	23	M16 X 50	257	29.920
PL10 ½	10.500	–0.0032″	13.319	+0.0032″	2.205	2.008	2.835	78,840	180,180	22,750	18,060	23	M16 X 50	257	30.800
PL11	11.000	+0	14.000	–0	2.482	2.402	3.191	95,480	207,240	20,900	16,500	22	M18 X 60	351	41.140
PL11 13/16	11.8125		14.762		2.606	2.402	3.314	111,400	224,400	21,330	17,060	24	M18 X 60	351	43.780

Note: If your application requires slightly larger tolerances than noted, refer to page D-28.

AS Inch Series



Suggested hub outside diameter for a single POWER-LOCK®.
This table shows the minimum hub diameter D_N, which can tolerate surface pressure P′ based on:
$b \geq L_1$
$B \geq 2\ell$
The value, d/2 or more, is to be suggested as the guide length c.

<EXAMPLE> Hub Material 1030. Yield Point = 50,000 psi
PL2 to be used.
} Min. D_N = 4.220″ required.

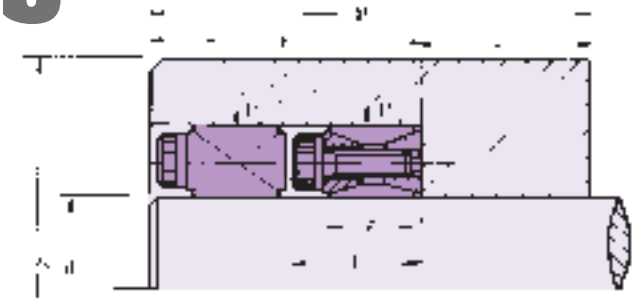
Min. Hub Dia. (D_N in inches)

Model Number	Contact Pressure in the Hub Bore P′ lbs./inch²	Yield Point of Various Hub Material Y.P. (psi) Y.P. = σ_{02}					
		32,000	35,000	40,000	45,000	50,000	56,000
			1015	1018, 1020, 1117	1118	1030	1040, 1045, 1137,1141, 1144
		Class No. 40 Grade No. 60-30	Class No. 50 Grade No. 65-35	Class No. 60 Grade No. 40010	Grade No. 45006	Grade No. 50005 Grade No. 80-65	Grade No. 60004
PL ¾	12,370	2.345	2.295	2.235	2.185	2.150	2.115
PL ⅞	12,370	2.345	2.295	2.235	2.185	2.150	2.115
PL1	14,650	2.615	2.550	2.465	2.400	2.355	2.310
PL1 ⅛	13,370	2.790	2.730	2.650	2.590	2.540	2.495
PL1 3⁄16	13,370	2.790	2.730	2.650	2.590	2.540	2.495
PL1 ¼	15,360	3.180	3.095	2.990	2.910	2.850	2.790
PL1 ⅜	15,360	3.185	3.100	2.995	2.915	2.850	2.790
PL1 7⁄16	15,500	3.455	3.360	3.245	3.160	3.090	3.030
PL1 ½	15,500	3.455	3.360	3.245	3.160	3.090	3.030
PL1 ⅝	17,490	4.155	4.025	3.865	3.745	3.655	3.570
PL1 11⁄16	17,490	4.155	4.025	3.865	3.745	3.655	3.570
PL1 ¾	17,490	4.155	4.025	3.865	3.745	3.655	3.570
PL1 ⅞	16,305	4.325	4.205	4.050	3.935	3.845	3.760
PL1 15⁄16	16,305	4.325	4.205	4.050	3.935	3.845	3.760
PL2	18,910	4.850	4.685	4.480	4.330	4.220	4.110
PL2 ⅛	18,910	4.850	4.685	4.480	4.330	4.220	4.110
PL2 3⁄16	17,780	5.015	4.855	4.660	4.515	4.405	4.300
PL2 ¼	17,780	5.015	4.855	4.660	4.515	4.405	4.300
PL2 ⅜	17,780	4.995	4.840	4.645	4.500	4.390	4.285
PL2 7⁄16	18,340	5.355	5.180	4.965	4.805	4.680	4.565
PL2 ½	18,340	5.355	5.180	4.965	4.805	4.680	4.565
PL2 9⁄16	18,340	5.350	5.175	4.960	4.800	4.675	4.565
PL2 ⅝	19,340	6.345	6.125	5.850	5.650	5.495	5.355
PL2 11⁄16	19,340	6.345	6.125	5.850	5.650	5.495	5.355
PL2 ¾	19,340	6.345	6.125	5.850	5.650	5.495	5.355
PL2 ⅞	18,490	6.505	6.290	6.020	5.825	5.675	5.535
PL2 15⁄16	18,490	6.505	6.290	6.020	5.825	5.675	5.535
PL3	17,780	6.685	6.475	6.210	6.020	5.870	5.730
PL3 ⅜	18,630	7.090	6.855	6.560	6.345	6.180	6.025
PL3 7⁄16	17,920	7.260	7.035	6.745	6.530	6.370	6.220
PL3 ½	17,920	7.260	7.035	6.745	6.530	6.370	6.220
PL3 ¾	18,770	7.665	7.410	7.090	6.855	6.675	6.505
PL3 15⁄16	18,490	8.200	7.930	7.590	7.345	7.155	6.980
PL4	18,060	8.315	8.050	7.715	7.470	7.285	7.110
PL4 7⁄16	17,780	9.190	8.900	8.540	8.275	8.070	7.880
PL4 ½	17,780	9.190	8.900	8.540	8.275	8.070	7.880
PL4 15⁄16	17,350	9.935	9.635	9.255	8.970	8.755	8.555
PL5	17,350	9.935	9.635	9.255	8.970	8.755	8.555
PL5 ½	17,490	10.535	10.210	9.805	9.505	9.275	9.060
PL6	18,770	11.945	11.545	11.045	10.680	10.400	10.140
PL6 ½	17,210	12.380	12.010	11.540	11.190	10.925	10.675
PL7	17,490	13.010	12.610	12.105	11.735	11.450	11.185
PL7 ½	16,210	13.445	13.070	12.590	12.240	11.965	11.710
PL7 ⅞	16,350	14.050	13.655	13.150	12.775	12.490	12.220
PL8	15,930	14.295	13.905	13.405	13.035	12.750	12.480
PL8 ½	16,640	14.495	15.050	14.480	14.060	13.740	13.440
PL9	15,930	15.880	15.445	14.890	14.480	14.165	13.865
PL9 ½	17,210	16.985	16.475	15.830	15.355	14.990	14.650
PL10	18,770	18.485	17.865	17.090	16.525	16.095	15.690
PL10 ½	18,060	18.950	18.345	17.585	17.030	16.600	16.205
PL11	16,500	12.280	18.725	18.030	17.510	17.115	16.740
PL11 13⁄16	17,060	20.565	19.955	19.180	18.610	18.170	17.760

Note: Min. Hub Dia. (D_N) calculated based upon the Formula (3) at (K3) = 0.6. Refer to page D-29.

SPECIFICATIONS

AS Inch Series



Minimum Hub Diameter (D_N) When Using One POWER-LOCK®

Suggested hub outside diameter for two or more POWER-LOCK. This table shows minimum hub diameters D_N, which can tolerate surface pressure P′.

$b \geq n \bullet L_1$ **n: number of POWER-LOCK**

$B \geq n \bullet L_1 + L_1$ $(2 \leq n \leq 4)$

The value, d/2 or more, is to be suggested as the guide length c.

<EXAMPLE> Hub Material 1030. Yield Point = 50,000 psi
PL2 to be used. } Min. D_N = 4.575″ required.

Min. Hub Dia. (D_N in inches)

Model Number	Contact Pressure in the Hub Bore P′ lbs./inch²	Yield Point of Various Hub Material Y.P. (psi) Y.P. = σ_{02}					
		32,000	35,000	40,000	45,000	50,000	56,000
		Class No. 40 Grade No. 60-30	1015 Class No. 50 Grade No. 65-35	1018, 1020, 1117 Class No. 60 Grade No. 40010	1118 Grade No. 45006	1030 Grade No. 50005 Grade No. 80-65	1040, 1045, 1137,1141, 1144 Grade No. 60004
PL ¾	12,370	2.550	2.475	2.385	2.315	2.265	2.215
PL ⅞	12,370	2.550	2.475	2.385	2.315	2.265	2.215
PL1	14,650	2.895	2.790	2.665	2.575	2.505	2.435
PL1 ⅛	13,370	3.060	2.965	2.840	2.755	2.685	2.620
PL1 3⁄16	13,370	3.060	2.965	2.840	2.755	2.685	2.620
PL1 ¼	15,360	3.545	3.410	3.245	3.130	3.040	2.955
PL1 ⅜	15,360	3.545	3.415	3.250	3.130	3.040	2.960
PL1 7⁄16	15,500	3.855	3.710	3.530	3.400	3.300	3.210
PL1 ½	15,500	3.855	3.710	3.530	3.400	3.300	3.210
PL1 ⅝	17,490	4.720	4.510	4.255	4.075	3.940	3.815
PL1 11⁄16	17,490	4.720	4.510	4.255	4.075	3.940	3.815
PL1 ¾	17,490	4.720	4.510	4.255	4.075	3.940	3.815
PL1 ⅞	16,305	4.865	4.670	4.425	4.250	4.120	4.000
PL1 15⁄16	16,305	4.865	4.670	4.425	4.250	4.120	4.000
PL2	18,910	5.595	5.315	4.985	4.750	4.575	4.415
PL2 ⅛	18,910	5.595	5.315	4.985	4.750	4.575	4.415
PL2 3⁄16	17,780	5.715	5.455	5.140	4.915	4.750	4.595
PL2 ¼	17,780	5.715	5.455	5.140	4.915	4.750	4.595
PL2 ⅜	17,780	5.695	5.440	5.125	4.900	4.735	4.580
PL2 7⁄16	18,340	6.140	5.850	5.495	5.250	5.065	4.895
PL2 ½	18,340	6.140	5.850	5.495	5.250	5.065	4.895
PL2 9⁄16	18,340	6.135	5.845	5.495	5.245	5.060	5.890
PL2 ⅝	19,340	7.355	6.975	6.525	6.210	5.975	5.760
PL2 11⁄16	19,340	7.355	6.975	6.525	6.210	5.975	5.760
PL2 ¾	19,340	7.355	6.975	6.525	6.210	5.975	5.760
PL2 ⅞	18,490	7.470	7.110	6.680	6.375	6.145	5.935
PL2 15⁄16	18,490	7.470	7.110	6.680	6.375	6.145	5.935
PL3	17,780	7.620	7.275	6.855	6.555	6.330	6.125
PL3 ⅜	18,630	8.155	7.755	7.280	6.945	6.695	6.465
PL3 7⁄16	17,920	8.290	7.910	7.450	7.120	6.875	6.650
PL3 ½	17,920	8.290	7.910	7.450	7.120	6.875	6.650
PL3 ¾	18,770	8.835	8.400	7.880	7.510	7.240	6.990
PL3 15⁄16	18,490	9.415	8.960	8.420	8.035	7.745	7.485
PL4	18,060	9.510	9.065	8.530	8.155	7.870	7.610
PL4 7⁄16	17,780	10.480	10.000	9.425	9.015	8.705	8.425
PL4 ½	17,780	10.480	10.000	9.425	9.015	8.705	8.425
PL4 15⁄16	17,350	11.280	10.785	10.180	9.750	9.425	9.130
PL5	17,350	11.280	10.785	10.180	9.750	9.425	9.130
PL5 ½	17,490	11.975	11.445	10.795	10.335	9.990	9.675
PL6	18,770	13.760	13.085	12.270	11.700	11.275	10.885
PL6 ½	17,210	14.035	13.425	12.685	12.155	11.755	11.390
PL7	17,490	14.790	14.130	13.335	12.765	12.335	11.945
PL7 ½	16,210	15.100	14.495	13.755	13.215	12.810	12.440
PL7 ⅞	16,350	15.800	15.160	14.375	13.810	13.380	12.985
PL8	15,930	16.015	15.385	14.615	14.055	13.635	13.245
PL8 ½	16,640	17.475	16.750	15.860	15.225	14.740	14.300
PL9	15,930	17.790	17.095	16.235	15.615	15.145	14.715
PL9 ½	17,210	19.260	18.420	17.405	16.675	16.125	15.625
PL10	18,770	21.290	20.245	18.990	18.105	17.445	16.845
PL10 ½	18,060	21.670	20.660	19.445	18.580	17.935	17.345
PL11	16,500	21.710	20.820	19.725	18.940	18.350	17.805
PL11 13⁄16	17,060	23.285	22.280	21.065	20.195	19.535	18.935

Note: Min. Hub Dia. (D_N) calculated based upon the Formula (3) at (K3) = 0.6. Refer to page D-29.

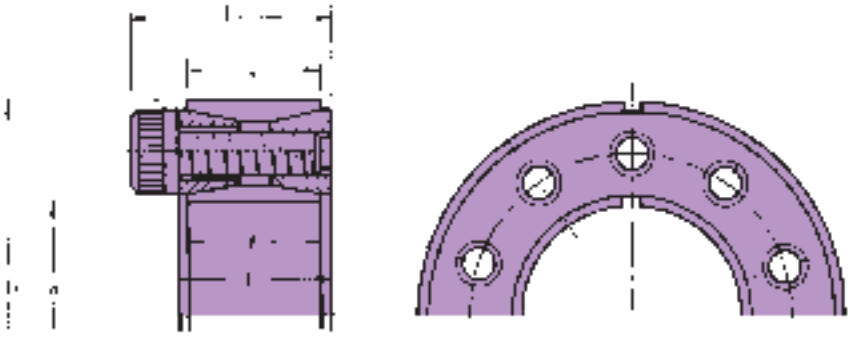
AS Inch Series

Stainless Steel

Model Number

PL 2 – SS

- SS: Stainless Series
- 2: Shaft Dia. (inch)
- PL: POWER-LOCK® AS Series



■ Features

1. All dimensions are the same as POWER-LOCK® AS Inch Series.
2. All component parts are Stainless Steel, Inner & Outer Ring are SUS304, the rest are SUS630.
3. POWER-LOCK AS Metric Stainless Series is also available.

Model Number	Shaft O.D.		Hub Counter I.D.		Dimensions inch			Transmissible Torque Mt ft./lbs.	Transmissible Thrust Pax lbs.	Contact Pressure psi		Locking Bolts			Wt. lbs.
	d	Tolerance t_1	D	Tolerance t_2	L	ℓ	L_1			Shaft P	Hub Bore P′	Qty.	Size	Tightening Torque ft./lbs.	
PL ¾ SS	.750	–0.0013″ +0	1.850	+0.0013″ –0	.787	.709	1.024	152	4,870	25,400	10.300	6	M6 X 18	10.1	.462
PL ⅞ SS	.875		1.850		.787	.709	1.024	178	4,870	21,770	10.300	6	M6 X 18	10.1	.396
PL1SS	1.000		1.969		.787	.709	1.024	271	6,490	25,400	12.900	8	M6 X 18	10.1	.484
PL1 ⅛ SS	1.125		2.165		.787	.709	1.024	305	6,490	22,580	11.730	8	M6 X 18	10.1	.550
PL1 3⁄16 SS	1.1875	–0.0015″ +0	2.159	+0.0015″ –0	.819	.709	1.055	322	6,490	21,390	11.760	8	M6 X 18	10.1	.528
PL1 ¼ SS	1.250		2.362		.787	.709	1.024	423	8,120	25,400	13.440	10	M6 X 18	10.1	.660
PL1 ⅜ SS	1.375		2.365		.773	.709	1.009	465	8,120	23,090	13.420	10	M6 X 18	10.1	.594
PL1 7⁄16 SS	1.4375		2.559		.787	.709	1.024	535	8,930	24,300	13.650	11	M6 X 18	10.1	.748
PL1 ½ SS	1.500		2.559		.787	.709	1.024	559	8,930	23,280	13.650	11	M6 X 18	10.1	.704
PL1 ⅝ SS	1.625		2.953		.945	.827	1.260	901	13,300	27,440	15.100	9	M8 X 22	24.6	1.232
PL1 ¾ SS	1.75		2.953		.945	.827	1.260	970	13,300	25,480	15.100	9	M8 X 22	24.6	1.227
PL1 ⅞ SS	1.875		3.150		.945	.827	1.260	1,040	13,300	23,780	14.150	9	M8 X 22	24.6	1.298
PL1 15⁄16 SS	1.9375		3.150		.945	.827	1.260	1,074	13,300	23,010	14.150	9	M8 X 22	24.6	1.232
PL2 SS	2.000	–0.0018″ +0	3.346	+0.0018″ –0	.945	.827	1.260	1,355	16,260	27,250	16.290	11	M8 X 22	24.6	1.474
PL2 ⅛ SS	2.125		3.346		.945	.827	1.260	1,440	16,260	25,650	16.290	11	M8 X 22	24.6	1.364
PL2 3⁄16 SS	2.1875		3.543		.945	.827	1.260	1,482	16,260	24,910	15.380	11	M8 X 22	24.6	1.584
PL2 ¼ SS	2.250		3.543		.945	.827	1.260	1,525	16,260	24,220	15.380	11	M8 X 22	24.6	1.496
PL2 ⅜ SS	2.375		3.531		1.008	.827	1.323	1,610	16,260	22,950	15.430	11	M8 X 22	24.6	1.408
PL2 7⁄16 SS	2.4375		3.740		.945	.827	1.260	1,802	17,740	24,390	15.890	12	M8 X 22	24.6	1.650
PL2 ½ SS	2.500		3.740		.945	.827	1.260	1,848	17,740	23,780	15.890	12	M8 X 22	24.6	1.584
PL2 9⁄16 SS	2.5625		3.737		.962	.827	1.277	1,894	17,740	23,200	15.910	12	M8 X 22	24.6	1.518
PL2 ¾ SS	2.750		4.337		1.073	.984	1.467	3,011	26,270	26,910	17.060	11	M10 X 25	50.0	2.662
PL2 ⅞ SS	2.875		4.528		1.102	.984	1.496	3,147	26,270	25,740	16.340	11	M10 X 25	50.0	2.926
PL2 15⁄16 SS	2.9375		4.528		1.102	.984	1.496	3,216	26,270	25,190	16.340	11	M10 X 25	50.0	2.816
PL3 SS	3.000		4.724		1.102	.984	1.496	3,284	26,270	24,660	15.660	11	M10 X 25	50.0	3.190
PL3 ⅜ SS	3.375	–0.0021″ +0	4.921	+0.0021″ –0	1.102	.984	1.496	4,031	28,660	23,920	16.400	12	M10 X 25	50.0	3.058
PL3 7⁄16 SS	3.4375		5.118		1.102	.984	1.496	4,105	28,660	23,480	15.770	12	M10 X 25	50.0	3.432
PL3 ½ SS	3.500		5.118		1.102	.984	1.496	4,180	28,660	23,060	15.770	12	M10 X 25	50.0	3.322
PL3 ¾ SS	3.750		5.350		1.151	.984	1.544	4,852	31,050	23,320	16.480	13	M10 X 25	50.0	3.388
PL3 15⁄16 SS	3.9375		5.708		1.302	1.142	1.774	6,275	38,240	23,570	16.260	11	M12 X 30	86.9	4.598
PL4 SS	4.000		5.843		1.299	1.142	1.772	6,375	38,240	23,200	15.880	11	M12 X 30	86.9	4.796

Note: Min. Hub Dia. (D_h) should be calculated by formula (3). Refer to page D-29.
If your application requires slightly larger tolerances than noted, refer to page D-28.

SPECIFICATIONS

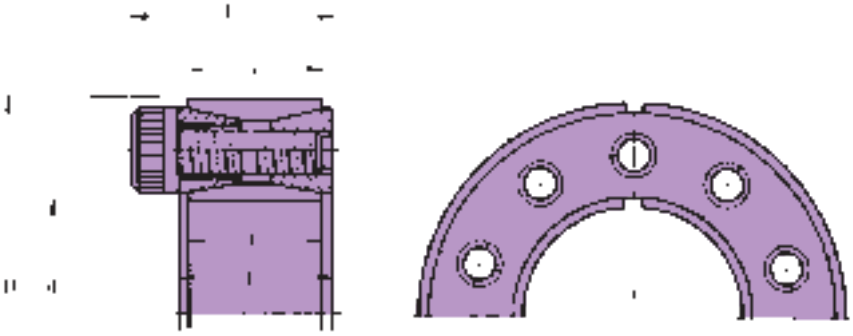
AS Metric Series

Model Number

PL 020 x 047

- 047: Outside Dia. (mm)
- 020: Shaft Dia. (mm)
- PL: POWER-LOCK® AS Series

<Conversion>
1 ft./lbs. = 0.1382 kgf/m = 1.3550 N•m
1 psi = 0.0007 kgf/mm² = 0.0069 MPa



NOTE: AS Metric available in stainless steel in standard sizes up to PL065X095. Larger sizes available as special orders.

Model Number Inside Dia. X Outside Dia. (d X D)	Tolerance Shaft O.D. t_1	Tolerance Hub I.D. t_2	Dimensions inch L	Dimensions inch ℓ	Dimensions inch L_1	Transmissible Torque Mt ft./lbs.	Transmissible Thrust Pax lbs.	Contact Pressure psi Shaft P	Contact Pressure psi Hub bore P′	Locking Bolts Qty.	Locking Bolts Size	Locking Bolts Tightening Torque Ma ft./lbs.	Wt. lbs.
PL019X047			.7874	.7087	1.0236	180.8	5,960	30,470	12,330	6	M6 X 18	12.3	.442
PL020X047			.7874	.7087	1.0236	195.6	5,960	28,870	12,330	6	M6 X 18	12.3	.442
PL022X047			.7874	.7087	1.0236	217.0	5,960	26,260	12,330	6	M6 X 18	12.3	.419
PL024X050	–0.0013″	+0.0013″	.7874	.7087	1.0236	296.7	7,490	30,620	14,660	8	M6 X 18	12.3	.486
PL025X050	+0	–0	.7874	.7087	1.0236	310.7	7,490	29,460	14,660	8	M6 X 18	12.3	.486
PL028X055			.7874	.7087	1.0236	346.9	7,490	26,129	13,350	8	M6 X 18	12.3	.552
❊ PL030X055 (PL 1 3/16)			.7874	.6299	1.0236	376.4	7,490	24,520	13,350	8	M6 X 18	12.3	.530
PL032X060			.7874	.7087	1.0236	498.9	9,470	28,730	15,380	10	M6 X 18	12.3	.596
❊ PL035X060 (PL1 3/8)			.7874	.7087	1.0236	549.8	9,470	26,260	15,380	10	M6 X 18	12.3	.596
PL038X065			.7874	.7087	1.0236	658.3	10,570	26,550	15,530	11	M6 X 18	12.3	.662
PL040X065	–0.0015″	+0.0015″	.7874	.7087	1.0236	694.5	10,570	25,250	15,530	11	M6 X 18	12.3	.662
PL042X075	+0	–0	.9449	.8268	1.2598	1100.0	15,880	31,050	17,560	9	M8 X 22	29.7	1.126
PL045X075			.9449	.8268	1.2598	1181.0	15,880	29,020	17,560	9	M8 X 22	29.7	1.126
PL048X080			.9449	.8268	1.2598	1255.0	15,880	27,290	16,400	9	M8 X 22	29.7	1.214
PL050X080			.9449	.8268	1.2598	1306.0	15,880	26,120	16,400	9	M8 X 22	29.7	1.214
PL055X085			.9449	.8268	1.2598	1764.0	19,390	29,170	18,860	11	M8 X 22	29.7	1.325
❊ PL060X090 (PL 2 3/8)			.9449	.8268	1.2598	1926.0	19,390	26,700	17,850	11	M8 X 22	29.7	1.413
❊ PL065X095 (PL 2 9/16)	–0.0018″	+0.0018″	.9449	.8268	1.2598	2280.0	21,170	26,700	18,280	12	M8 X 22	29.7	1.523
❊ PL070X110 (PL 2 3/4)	+0	–0	1.1024	.9843	1.4961	3542.0	31,050	30,470	19,300	11	M10 X 25	60.0	2.671
PL075X115			1.1024	.9843	1.4961	3830.0	31,050	28,440	18,430	11	M10 X 25	60.0	2.804
PL080X120			1.1024	.9843	1.4961	4052.0	31,050	26,700	17,850	11	M10 X 25	60.0	2.936
PL085X125			1.1024	.9843	1.4961	4701.0	33,750	27,420	18,570	12	M10 X 25	60.0	3.113
PL090X130			1.1024	.9843	1.4961	4989.0	33,750	25,830	17,850	12	M10 X 25	60.0	3.245
❊ PL095X135 (PL 3 3/4)	–0.0021″	+0.0021″	1.1024	.9843	1.4961	5712.0	36,670	26,560	18,720	13	M10 X 25	60.0	3.400
❊ PL100X145 (PL 3 15/16)	+0	–0	1.2992	1.1417	1.7717	7380.0	45,225	26,700	18,430	11	M12 X 30	105.0	4.614
PL110X155			1.2992	1.1417	1.7717	8192.0	45,225	24,380	17,410	11	M12 X 30	105.0	4.967
PL120X165			1.2992	1.1417	1.7717	9668.0	49,500	24,380	17,850	12	M12 X 30	105.0	5.342
PL130X180			1.4961	1.3386	1.9685	13,140.0	61,650	24,090	17,410	15	M12 X 35	105.0	7.461
❊ PL140X190 (PL 5 1/2)			1.4961	1.3386	1.9685	15,130.0	65,700	23,800	17,560	16	M12 X 35	105.0	7.925
PL150X200	–0.0025″	+0.0025″	1.4961	1.3386	1.9685	18,230.0	74,020	24,960	18,720	18	M12 X 35	105.0	8.433
PL160X210	+0	–0	1.4961	1.3386	1.9685	20,440.0	78,070	24,670	18,720	19	M12 X 35	105.0	8.896
PL170X225			1.7323	1.5748	2.2835	25,170.0	90,450	22,780	17,270	16	M14 X 40	166.0	12.119
PL180X235			1.7323	1.5748	2.2835	28,340.0	95,850	22,930	17,560	17	M14 X 40	166.0	12.759
❊ PL190X250 (PL 7 1/2)			2.0472	1.8898	2.5984	35,130.0	112,950	21,330	16,250	20	M14 X 45	166.0	17.417
❊ PL200X260 (PL 7 7/8)	–0.0028″	+0.0028″	2.0472	1.8898	2.5984	38,890.0	118,570	21,180	16,400	21	M14 X 45	166.0	18.234
PL220X285	+0	–0	2.2047	2.0079	2.8346	51,000.0	141,300	21,620	16,690	18	M16 x 50	257.0	23.400
PL240X305			2.2047	2.0079	2.8346	61,840.0	157,050	22,060	17,410	20	M16 x 50	257.0	25.386
PL260X325			2.2047	2.0079	2.8346	76,750.0	180,670	23,360	18,720	23	M16 x 50	257.0	27.815
❊ PL280X355 (PL11)	–0.0032″	+0.0032″	2.5984	2.4016	3.3071	95,200.0	207,670	20,890	16,540	22	M18 x 60	351.0	41.280
❊ PL300X375 (PL 11 13/16)	+0	–0	2.5984	2.4016	3.3071	111,400.0	225,000	21,330	17,120	24	M18 x 60	351.0	43.929

Note: If your application requires slightly larger tolerances than noted, refer to page D-28.
❊ Identical unit with inch size AS POWER LOCK.

Minimum Hub Diameter (D_N) When Using One POWER-LOCK®

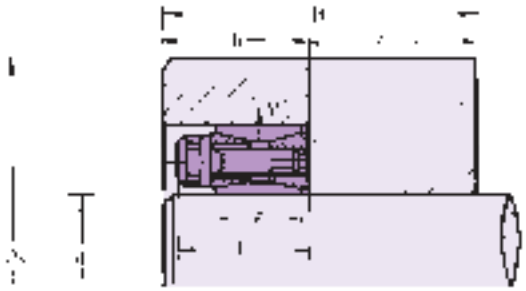
Suggested hub diameter for a single POWER-LOCK. This table shows minimum hub diameter D_N, which can tolerate surface pressure P′ based on:

$b \geq L_1$

$B \geq 2\ell$

The value, d/2 or more, is to be suggested as the guide length c.

<EXAMPLE> Hub Material Yield Point = 50,000 psi
PL030X055 to be used
} Min. D_N = 2.559″

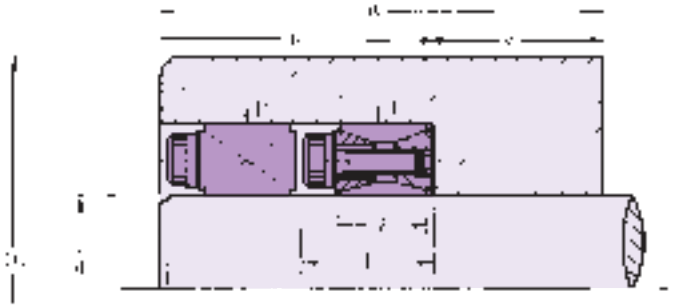


<Conversion>
1 psi = 0.0007 kgf/mm² = 0.0069 Mpa

Model Number	Contact Pressure in the Hub Bore P′ psi	Yield Point of Various Hub Material Y.P. (psi) Y.P. = $\sigma_{0.2}$					
		32,000	35,000	40,000	45,000	50,000	56,000
			1015	1018, 1020, 1117	1118	1030	1040, 1045, 1137, 1141, 1144
		Class No. 40 Grade No. 60-30	Class No. 50 Grade No. 65-35	Class No. 60 Grade No. 40010	Grade No. 45006	Grade No. 50005 Grade No. 80-65	Grade No. 60004
PL019X047	12,330	2.3622	2.3228	2.2441	2.2047	2.1654	2.1260
PL020X047	12,330	2.3622	2.3228	2.2441	2.2047	2.1654	2.1260
PL022X047	12,330	2.3622	2.3228	2.2441	2.2047	2.1654	2.1260
PL024X050	14,660	2.6378	2.5590	2.4803	2.4016	2.3622	2.3228
PL025X050	14,660	2.6378	2.5590	2.4803	2.4016	2.3622	2.3228
PL028X055	13,350	2.7953	2.7559	2.6772	2.5984	2.5590	2.5200
PL030X055	13,350	2.7953	2.7559	2.6772	2.5984	2.5590	2.5200
PL032X060	15,380	3.1890	3.1102	2.9921	2.9134	2.8740	2.7953
PL035X060	15,380	3.1890	3.1102	2.9921	2.9134	2.8740	2.7953
PL038X065	15,530	3.4646	3.3858	3.2677	3.1890	3.1102	3.0315
PL040X065	15,530	3.4646	3.3858	3.2677	3.1890	3.1102	3.0315
PL042X075	17,560	4.1732	4.0551	3.8976	3.7795	3.6614	3.5827
PL045X075	17,560	4.1732	4.0551	3.8976	3.7795	3.6614	3.5827
PL048X080	16,400	4.3307	4.2126	4.0551	3.9370	3.8583	3.7795
PL050X080	16,400	4.3307	4.2126	4.0551	3.9370	3.8583	3.7795
PL055X085	18,860	4.8425	4.6850	4.4882	4.3307	4.2126	4.1339
PL060X090	17,850	5.0394	4.8819	4.6850	4.5276	4.4094	4.3307
PL065X095	18,280	5.3543	5.1969	4.9606	4.8031	4.6850	4.5669
PL070X110	19,300	6.3386	6.1417	5.8661	5.6693	5.5118	5.3543
PL075X115	18,430	6.4961	6.2992	6.0236	5.8268	5.6693	5.5512
PL080X120	17,850	6.6929	6.4961	6.2205	6.0236	5.9055	5.7480
PL085X125	18,570	7.0866	6.8504	6.5748	6.3386	6.1811	6.0236
PL090X130	17,850	7.2835	7.0472	6.7323	6.5354	6.3780	6.2205
PL095X135	18,720	7.6772	7.4409	7.1260	6.8898	6.6930	6.5354
PL100X145	18,430	8.1890	7.9528	7.5984	7.3622	7.1654	7.0079
PL110X155	17,410	8.5827	8.3071	7.9921	7.7559	7.5591	7.4016
PL120X165	17,850	9.2126	8.9370	8.5433	8.3070	8.0709	7.9136
PL130X180	17,410	9.9606	9.6457	9.2913	8.9764	8.7795	8.5827
PL140X190	17,560	10.5512	10.2362	9.8031	9.5276	9.2913	9.0551
PL150X200	18,720	11.3780	10.9843	10.5118	10.1575	9.9213	9.6457
PL160X210	18,720	11.9291	11.5354	11.0630	10.6693	10.3937	10.1575
PL170X225	17,270	12.4016	12.0472	11.5748	11.2205	10.9449	10.7087
PL180X235	17,560	13.0315	12.6378	12.1260	11.7717	11.4567	11.2205
PL190X250	16,250	13.5039	13.1102	12.6378	12.2835	12.0079	11.7323
PL200X260	16,400	14.0945	13.6614	13.1890	12.7953	12.5197	12.2441
PL220X285	16,690	15.5118	15.0787	14.4882	14.0945	13.7795	13.4646
PL240X305	17,410	16.8504	16.3386	15.7087	15.2362	14.8425	14.5276
PL260X325	18,720	18.4646	17.8740	17.0866	16.5354	16.1024	15.7087
PL280X355	16,540	19.2913	18.7402	18.0315	17.5197	17.1260	16.7323
PL300X375	17,120	20.5906	20.0000	19.2126	18.6614	18.1890	17.7953

Note: Min. Hub Dia. (D_N) calculated based upon the Formula (3) at (K3) = 0.6. Refer to page D-29.

Minimum Hub Diameter (D_N) When Using Multiple POWER-LOCK®



Suggested outside hub diameter for two or more POWER-LOCK. This table shows minimum hub diameter D_N, which can tolerate surface pressure P′ based on:

$b \geq N \bullet L_1$ **n: number of POWER-LOCK**

$B \geq n \bullet L_1 + L_1$ $(2 \leq N \leq 4)$

The value, d/2 or more, is to be suggested as the guide length c.

<EXAMPLE> Hub Material Yield Point = 50,000 psi
PL030X055 to be used
} Min. D_N = 2.7165"

<Conversion>
1 psi = 0.0007 kgf/mm² = 0.0069 Mpa

Min. Hub Dia. (D_N in inches)

Model Number	Contact Pressure in the Hub Bore P′ psi	Yield Point of Various Hub Material Y.P. (psi) Y.P. = $\sigma_{0.2}$					
		32,000	35,000	40,000	45,000	50,000	56,000
			1015	1018, 1020, 1117	1118	1030	1040, 1045, 1137, 1141, 1144
		Class No. 40 Grade No. 60-30	Class No. 50 Grade No. 65-35	Class No. 60 Grade No. 40010	Grade No. 45006	Grade No. 50005 Grade No. 80-65	Grade No. 60004
PL019X047	12,330	2.5591	2.4803	2.4016	2.3228	2.2835	2.2441
PL020X047	12,330	2.5591	2.4803	2.4016	2.3228	2.2835	2.2441
PL022X047	12,330	2.5591	2.4803	2.4016	2.3228	2.2835	2.2441
PL024X050	14,660	2.9134	2.7953	2.6772	2.5984	2.5197	2.4409
PL025X050	14,660	2.9134	2.7953	2.6772	2.5984	2.5197	2.4409
PL028X055	13,350	3.0709	2.9921	2.8740	2.7559	2.7165	2.6378
PL030X055	13,350	3.0709	2.9921	2.8740	2.7559	2.7165	2.6378
PL032X060	15,380	3.5433	3.4252	3.2677	3.1496	3.0709	2.9528
PL035X060	15,380	3.5433	3.4252	3.2677	3.1496	3.0709	2.9528
PL038X065	15,530	3.8583	3.7402	3.5433	3.4252	3.3070	3.2283
PL040X065	15,530	3.8583	3.7402	3.5433	3.4252	3.3070	3.2283
PL042X075	17,560	4.7638	4.5276	4.2913	4.0945	3.9370	3.8189
PL045X075	17,560	4.7638	4.5276	4.2913	4.0945	3.9370	3.8189
PL048X080	16,400	4.8819	4.6850	4.4488	4.2520	4.1339	4.0157
PL050X080	16,400	4.8819	4.6850	4.4488	4.2520	4.1339	4.0157
PL055X085	18,860	5.5906	5.3150	5.0000	4.7638	4.5669	4.4094
PL060X090	17,850	5.7480	5.4724	5.1575	4.9213	4.7638	4.6063
PL065X095	18,280	6.1417	5.8661	5.5118	5.2756	5.0787	4.9213
PL070X110	19,300	7.3622	6.9685	6.5354	6.2205	5.9843	5.7480
PL075X115	18,430	7.4803	7.1260	6.6929	6.3780	6.1417	5.9449
PL080X120	17,850	7.6378	7.2835	6.8848	6.5748	6.3386	6.1417
PL085X125	18,570	8.1496	7.7559	7.2835	6.9685	6.6929	6.4567
PL090X130	17,850	8.2677	7.9134	7.4409	7.1260	6.8898	6.6535
PL095X135	18,720	8.8583	8.4252	7.8740	7.5197	7.2441	7.0079
PL100X145	18,430	9.4094	8.9764	8.4251	8.0315	7.7559	7.4803
PL110X155	17,410	9.7638	9.3307	8.7795	8.4252	8.1496	7.8740
PL120X165	17,850	10.5118	10.0394	9.4488	9.0551	8.7402	8.4646
PL130X180	17,410	11.2992	10.8268	10.1969	9.7638	9.4488	9.1339
PL140X190	17,560	12.0079	11.4567	10.8268	10.3543	10.0000	9.6850
PL150X200	18,720	13.1102	12.4410	11.6429	11.1418	10.7480	10.3543
PL160X210	18,720	13.7402	13.0709	12.2835	11.6929	11.2598	10.9055
PL170X225	17,270	14.0945	13.4646	12.7165	12.1654	11.7717	11.4173
PL180X235	17,560	14.8425	14.1732	13.3858	12.7952	12.3622	11.9685
PL190X250	16,250	15.1575	14.5669	13.8189	13.2677	12.8740	12.4803
PL200X260	16,400	15.8268	15.1964	14.4094	13.8189	13.4252	12.9921
PL220X285	16,690	17.5197	16.7716	15.9055	15.2362	14.7638	14.3307
PL240X305	17,410	19.1732	18.3070	17.2835	16.5354	15.9843	15.5118
PL260X325	18,720	21.2598	20.2362	18.9764	18.1102	17.4409	16.8504
PL280X355	16,540	21.7322	20.8268	19.7244	18.9370	18.3465	17.7953
PL300X375	17,120	23.3465	22.3228	21.1024	20.2362	19.5669	18.9764

Note: Min. Hub Dia. (D_N) calculated based upon the Formula (3) at (K) = 0.8. Refer to page D-29.

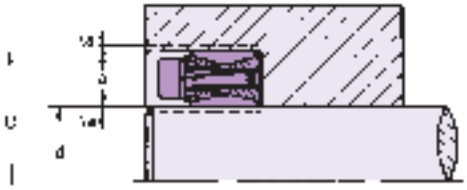
AS Inch/Metric Series

Special Tolerance Information

In cases where a slightly larger tolerance is required, the chart below can be used. To use this chart it is important to understand that the goal is to have the POWER-LOCK® centered in the middle of the machined opening (i.e.: Δa = Δa). Under these conditions the POWER-LOCK will transmit the published torque figures.

EXAMPLE: POWER-LOCK PL2
inside diameter = 2.0000 inch
outside diameter = 3.3460 inch

Shaft diameter 1.9976 inch (0.0024 inch undersize)
Counter-bore diameter 3.3484 inch (0.0024 inch oversize)



d = nominal I.D.
D = nominal O.D.
Δa = deviation increment from nominal size

Note: Maximum tolerances applicable only when the absolute value of Δa of the shaft side is equal to that of the bore side.

Model Number	Model Number	Max. Clearance (inch)	
		Shaft	Bore
PL 3/4 ~ PL1 1/8	PL019X047 ~ PL030X055	–0.002″ +0	+0.002″ –0
PL1 3/16 ~ PL1 15/16	PL032X060 ~ PL050X080	–0.0025″ +0	+0.0025″ –0
PL2 ~ PL3	PL055X085 ~ PL080X120	–0.0029″ +0	+0.0029″ –0
PL3 3/8 ~ PL4 1/2	PL085X125 ~ PL120X165	–0.0034″ +0	+0.0034″ –0
PL4 15/16 ~ PL7	PL130X180 ~ PL180X235	–0.004″ +0	+0.004″ –0
PL7 1/2 ~ PL10	PL190X250 ~ PL240X305	–0.0045″ +0	+0.0045″ –0
PL10 1/2 ~ PL11 13/16	PL260X325 ~ PL300X375	–0.0051″ +0	+0.0051″ –0

AS Inch/Metric Series

Selection Guide and Specifications

1. Selection of POWER-LOCK®

a) When only torque is applied:
Compare the max. transmitting torque (T max.) of the devices to be driven with the transmissible torque (Mt) of the POWER-LOCK listed on pages D-21, D-24, and D-25.
Mt ≥ T max . . . OK
Mt < T max . . . Select a larger POWER-LOCK or use two or more POWER-LOCK units.
The transmissible torque (Mt) of multiple POWER-LOCK units is obtained by multiplying Mt by the number of units used. Peak torque expected should be regarded as T max.

$$\text{Torque T max.} = \frac{5252 \bullet HP \bullet s.f.}{n} \text{ (ft./lbs.)} \qquad \text{- - - (1)}$$

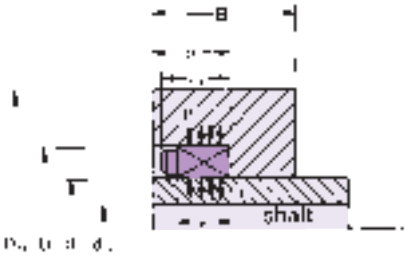
n: RPM s.f.: Safety Factor

b) When torque and thrust are applied:
Compare Mt with composite torque M_R.

$$M_R = \sqrt{T^2 \text{ max.} + (P \text{ max.} \bullet \frac{d}{2})^2} \leq Mt. \qquad \text{- - - (2)}$$

T max: Maximum torque (ft./lbs.)
P max: Maximum thrust load (lbs.)
d: Shaft O.D. (ft.)

2. Hub diameter calculation



a) Standard hub diameter (flange coupling, V sheave, etc.):
Min. hub outside diameters (D_N) are shown on pages D-22, D-23, D-26 and D-27 based on the yield point of hub material and the length of the hub. Hub diameter must be equal to or larger than (D_N). Special hub diameter can be calculated by the following:

b) Hubs of special material:
Calculate hub diameter using the following formula (not applicable to non-ferrous metals).

Y.P. (hub) ≥ 1.4P′
Y.P. (shaft) ≥ 1.4P

$$\text{Min. hub. dia. } D_N \geq D \sqrt{\frac{Y.P. + K_3 \bullet P'}{Y.P. - K_3 \bullet P'}} \qquad \text{- - - (3)}$$

K_3 : 0.6 ....Using single unit
$b \geq L_1$, $B \geq 2\ell$
K_3 : 0.8 ....Using multiple units
$b \geq n \bullet L_1$
$B \geq n \bullet L_1 + L_1$
K_3 : 1.0 ....Using single unit
$\ell \leq B < 2 \bullet \ell$
Using multiple units
$\ell + L_1 \leq B < L_1 (n + 1)$
(n: number of POWER-LOCK)

P′: Contact pressure on hub (psi)
Y.P.: Yield point of hub material (psi)
D: Hub bore inside dia. (in.)
D_N: Min. hub dia. (in.)

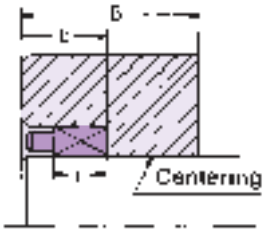
c) Hollow Shaft Application:
Inside diameter of the hollow shaft: d_B
Compute inside diameter of hollow shaft.

$$d_B \leq d \sqrt{\frac{Y.P. - 2 \bullet P \bullet K_3}{Y.P.}} \qquad \text{- - - (4)}$$

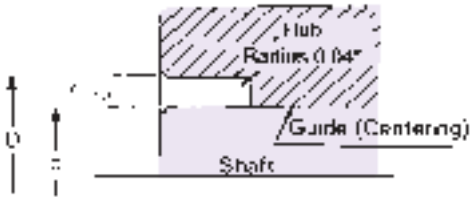
d: Outside diameter of shaft (in.)
P: Contact pressure on shaft side
(Refer to pages D-21, D-24 and D-25) (psi)
K3: 0.6 ... Using single POWER-LOCK
K3: 0.8 ... Using multiple POWER-LOCK

3. Hub width

The AS Series POWER-LOCK is not self-aligning.
Thus centering (B – b) must be performed.
Suggested "guide length" (B – b) is to be equal to or greater than one half of the shaft diameter.
B – b ≥ d/2 (d: shaft diameter)
Hub width (B) can be calculated as follows:
B ≥ b + d/2 **- - - (5)**
Note: POWER-LOCK cannot be centered under the condition of B = ℓ.



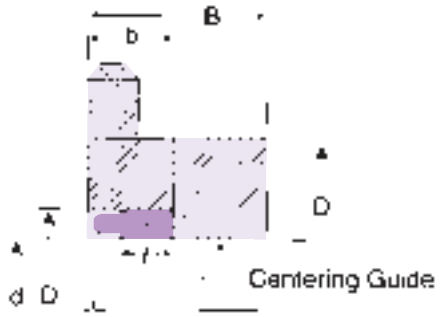
4. Machining tolerance and surface roughness



Machining tolerance for counter bore diameter of hub "D" and shaft diameter "d" are listed on pages D-21, D-24 and D-25. Required surface roughness of 125 RMS. Determine the tolerance of the guide according to the centering accuracy required.

Example Selection 1

A sprocket to be tightened by a POWER-LOCK® on a shaft.



<Conditions>

Shaft Dia. d: 1½″
Max. required torque Tmax. = 400 ft./lbs.
Sprocket Hub Material 1144 Y.P. = 56,000 psi
Sprocket Hub Length (B) = 1.875″
Sprocket Hub Dia. (D_S) = 3.5″
Counter Bore Length (b) = L_1 (Total PL Length)

Step 1

Select PL1½ since shaft dia. is 1½″
See Transmissible Torque (Mt) on page D-21
Mt (658) ≥ Tmax. (400) OK
POWER-LOCK Outside Dia. D = 2.559″
POWER-LOCK Total Length L_1 = 1.024″
POWER-LOCK Length ℓ = 0.709″

Step 2

Confirm Min. Hub Dia. D_N
$2\ell = 2 \bullet 0.709 = 1.418$ B (1.875) ≥ 2ℓ (1.418) OK
Refer Min. Hub Dia. D_N to page D-22
D_N = 3.030
D_S (3.5) ≥ D_N (3.030) OK

Step 3

Confirm Sprocket Hub Length B
Min. Hub Length Bmin. =

$$b + \frac{d}{2} = L_1 + \frac{d}{2} = 1.024 + \frac{15}{2} = 1.774$$

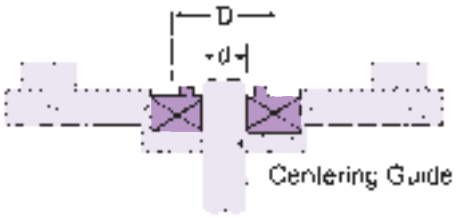
B (1.875) > Bmin(1.774) OK
Centering Guide will be 1.875 – b
= 1.875 – 1.024 = 0.851
0.851 > $\frac{d}{2}$ (0.75) OK

Step 4

Machining Tolerance. See page D-21
Shaft size (d) = 1.5″ + 0/–.0015″
Hub Bore Size (D) = 2.559″ + .0015″/–0

Example Selection 2

Turn table to be fixed on a vertical straight shaft by a POWER-LOCK.



<Conditions>

Shaft Dia. d = 2″ = 1/6 (ft.)
Max. Required Torque Tmax. = 500 ft./lbs.
Total Table Weight Pmax. = 500 ft./lbs.
Material for table and hub is 1040

Step 1

Select PL2 since shaft Dia. is 2″
See Transmissible Torque Mt and Thrust Pax on page D-21
Mt = 1627 ft./lbs. Pax = 19,360 lbs.

Step 2

Compare Mt with composite torque MR. Calculate composite torque MR.

$$MR = \sqrt{T^2 \text{ max.} + (Pmax. \bullet \frac{d}{2})^2} = 501.7 \text{ ft./lbs.}$$

MR (501.7) ≤ Mt (1,627) OK

Step 3

Hub Dimensions. See page D-22
Suggested Min. Hub Dia. (D_N) = 4.110″
Suggested Guide Length = $\frac{d}{2}$ = 1″

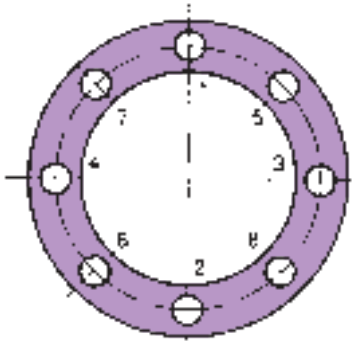
Step 4

Machining Tolerance. See page D-21
Shaft Size (d) = 2″ + 0/–0.0018″
Hub Bore Size (D) = 3.346 + 0.0018″/–0

Mounting and Removal

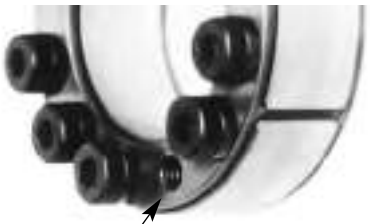
Mounting

1) Clean and lightly oil or grease the shaft and hub bore. (Do not use oil or grease containing molybdenum disulphide.)
2) Remove the locking bolts from the POWER-LOCK® and clean and lightly oil, or grease the contact surfaces. Threads and seats of the locking bolts must also be sufficiently lubricated.
3) Slip the POWER-LOCK and hub onto the shaft, tighten the locking bolts by hand until a slight positive contact is felt, and set them at the predetermined position, just as you would tighten lug bolts on a car wheel. When it is difficult to slip on, loosen the bolts. (Do not strike with a hammer.)
4) Next, determine the relative positioning between the hub and shaft (on the circumference and shaft line), and tighten the four bolts positioned diagonally with 1/4 of the required tightening torque. Proceed to tighten the remaining bolts in the same manner.
5) Increase the tightening torque to half of M_A and tighten the bolts in the same way as in Step 4.
6) Increase tightening torque to M_A and tighten the bolts.
7) Check the tightening torque of the locking bolts in sequence. This completes the mounting procedure.

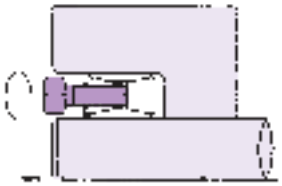


Removal

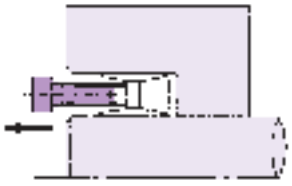
1) Make sure that no torque or thrust is being applied to the shaft and hub. When shaft and hub are heavy, take them off the shaft carefully.
2) After completing Step 1, loosen the locking bolts. (No definite sequence is required.)
3) If the POWER-LOCK is still locked even after loosening the bolts, insert bolts into the jack screw holes (see photo below) and screw them in until it unlocks.



Jack Screw Holes for Removal



Insert bolts into jack screw holes



Take out the POWER-LOCK by pulling the bolts

Tightening Torque of Locking Bolts

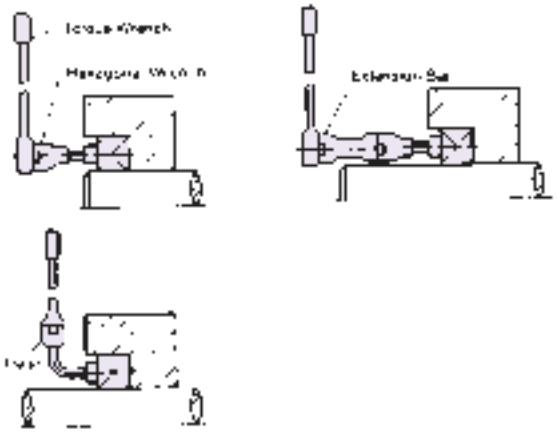
Locking Bolt Size	POWER-LOCK® Model Number (inch)	❊ Tightening Torque M_A (ft./lbs.)
M6	PL¾ ~ PL1½	12.3 (10.1)
M8	PL1⅝ ~ PL2⁹⁄₁₆	29.7 (24.6)
M10	PL2⅝ ~ PL3¾	60.1 (50.5)
M12	PL3¹⁵⁄₁₆ ~ PL6	105 (87.0)
M14	PL6½ ~ PL8	167
M16	PL8½ ~ PL10½	257
M18	PL11 ~ PL11¹³⁄₁₆	351

Locking Bolt Size	POWER-LOCK® Model Number (metric)	❊ Tightening Torque M_A (ft./lbs.)
M6	PL019X047 ~ PL040X065	12.3 (10.1)
M8	PL042X075 ~ PL065X095	29.7 (24.6)
M10	PL070X110 ~ PL095X135	60.1 (50.5)
M12	PL100X145 ~ PL160X210	105 (87.0)
M14	PL170X225 ~ PL200X260	167
M16	PL220X285 ~ PL260X325	257
M18	PL250X355 ~ PL300X375	351

❊ Figures above in parentheses indicate the tightening torque M_A for stainless steel bolts, which can be supplied upon request.

Use a Torque Wrench to Tighten Locking Bolts

The POWER-LOCK ensures transmissible torque (Mt) and thrust (Pax) only when the locking bolts are tightened to the proper torque. For this reason, use a torque wrench to tighten the locking bolts and thus obtain maximum performance from the POWER-LOCK.



General Information

1) Shafts with existing keyways:
Transmissible torque and thrust capacities of the POWER-LOCK® must be decreased by 10% when used with a shaft with a keyway such as a motor shaft.
Transmissible torque: Mt • 0.9
Transmissible thrust: Pax • 0.9

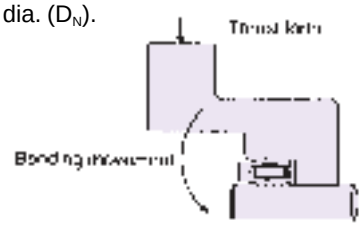
2) Surface pressure (P) and (P′):
Contact pressure values of shaft (P) and hub bore (P′) listed on pages D-21, D-24 and D-25 indicate mean values only. These rated surface pressures will fluctuate from –20% to +40% due to the variable friction component forces resulting from the locking bolts. Transmissible torque (Mt) and thrust (Pax) are calculated as minimum values, provided that POWER-LOCK is to be used under the listed surface pressures, (P) and (P′). Transmissible torque (Mt) and thrust (Pax) may increase by approximately 70% above the listed ratings in actual applications.

3) Radial load applications:
Should POWER-LOCK be subjected to heavy radial loads (Pr) in such applications as wheel drives, calculate surface pressure (Prad) on the shaft and (P′rad) on the hub as follows:
POWER-LOCK may be used if the surface pressure on the shaft (Prad) and the surface pressure on the hub (P′rad) are equal to or less than one half of (P) and (P′).

$$Prad = \frac{1.3 \bullet Pr}{d \bullet \ell} \leq \frac{1}{2}P \qquad P'rad = \frac{1.3 \bullet Pr}{D \bullet \ell} \leq \frac{1}{2}P'$$

Pr: Radial load (N) (lbs.)
ℓ: POWER-LOCK inside width (in.)
d: Shaft dia. (in.)
D: Hub bore inside dia. (in.)
P: Surface pressure on shaft (psi)
P′: Surface pressure on hub (psi)
When radial load is applied to POWER-LOCK, the above values of (Prad) and (P′rad) should be added to (P) and (P′) respectively in order to calculate the hub outside dia. (D_N) or hollow shaft inside dia. (d_B).

4) Bending moments:
POWER-LOCK is not designed to transmit bending moments. However, POWER-LOCK will tolerate limited bending moments as shown in table listed below.
$M \leq Mo. \bullet n^2$
M: Bending moment working on POWER-LOCK (in./lbs.)
Mo: Allowable bending moment (in./lbs.)
n: Number of POWER-LOCK ($N \leq 4$)
Should bending moment values be close to the allowable bending moments values listed in the table, use (Pt_M) instead of hub surface pressure (P) when calculating hub outside dia. (D_N).



5) Allowable value of tightening torque (M_A):
Transmissible torque (Mt) and thrust (Pax) values are based on the correct tightening torque of the locking bolts. Acceptable range of the tightening torque is ±5% of the listed value. Use an accurate torque wrench to tighten it.

6) Loosening of locking bolts:
Manufactured of special high-tensile steel, the locking bolts will not loosen due to vibration.

7) Influence of temperature:
The use of POWER-LOCK at temperatures above 400°F (200°C) is not suggested, since the tensile strength of the locking bolts may decrease substantially.

8) Outdoor use:
When a standard POWER-LOCK is to be used outdoors, it should be lubricated with grease and a cover should be installed to protect against corrosion. If this is not practical, stainless steel POWER-LOCK (see page D-24) and special coating POWER-LOCK are available.

Model Number	Allowable Bending Moment Mo (ft./lbs.)	Max. Surface Pressure on Hub Pt_M (psi)
PL ¾	152	16,640
PL ⅞	195	17,630
PL1	174	19,050
PL1 ⅛	212	18,210
PL1 3/16	253	19,340
PL1 ¼	282	21,330
PL1 ⅜	297	21,610
PL1 7/16	333	22,180
PL1 ½	434	24,030
PL1 ⅝	434	23,040
PL1 11/16	434	23,040
PL1 ¾	434	23,040
PL1 ⅞	564	23,040
PL1 15/16	564	23,040
PL2	506	24,600
PL2 ⅛	506	24,600
PL2 3/16	644	24,600
PL2 ¼	644	24,600
PL2 ⅜	542	23,640
PL2 7/16	694	25,310
PL2 ½	694	25,310
PL2 9/16	665	25,030
PL2 ⅝	866	25,450
PL2 11/16	866	25,450
PL2 ¾	991	25,450
PL2 ⅞	1,120	25,030

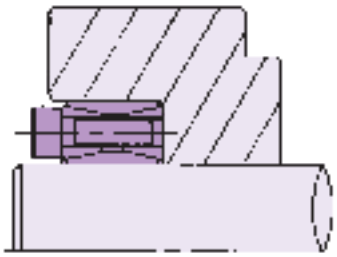
Model Number	Allowable Bending Moment Mo (ft./lbs.)	Max. Surface Pressure on Hub Pt_M (psi)
PL2 15/16	1,120	25,030
PL3	1,310	25,170
PL3 ⅜	1,330	25,880
PL3 7/16	1,530	25,880
PL3 ½	1,530	25,880
PL3 ¾	1,410	25,740
PL3 15/16	2,050	25,600
PL4	2,130	25,310
PL4 7/16	2,800	26,310
PL4 ½	2,780	26,160
PL4 15/16	4,310	26,020
PL5	4,300	26,020
PL5 ½	4,910	27,020
PL6	5,060	27,590
PL6 ½	8,460	27,160
PL7	8,900	27,440
PL7 ½	14,000	26,450
PL7 ⅞	15,600	27,300
PL8	16,100	26,880
PL8 ½	18,800	27,300
PL9	22,300	28,160
PL9 ½	20,300	27,870
PL10	20,800	29,150
PL10 ½	21,800	28,580
PL11	37,500	28,440
PL11 13/16	37,600	28,440

Model Number	Allowable Bending Moment Mo (ft./lbs.)	Max. Surface Pressure on Hub Pt_M (psi)
PL019X047	151.3	16,690
PL020X047	151.3	16,690
PL022X047	187.5	17,700
PL024X050	144.6	18,430
PL025X050	166.1	19,010
PL028X055	231.0	18,720
PL030X055	274.5	19,880
PL032X060	281.9	21,470
PL035X060	281.9	21,470
PL038X065	332.1	22,200
PL040X065	332.1	22,200
PL042X075	426.6	22,930
PL045X075	426.6	22,930
PL048X080	563.8	23,220
PL050X080	563.8	23,220
PL055X085	506.3	24,670
PL060X090	643.5	24,810
PL065X095	687.1	25,250
PL070X110	915.1	24,960
PL075X115	1,107.0	25,100
PL080X120	1,306.0	25,100
PL085X125	1,328.0	25,830
PL090X130	1,520.0	25,830

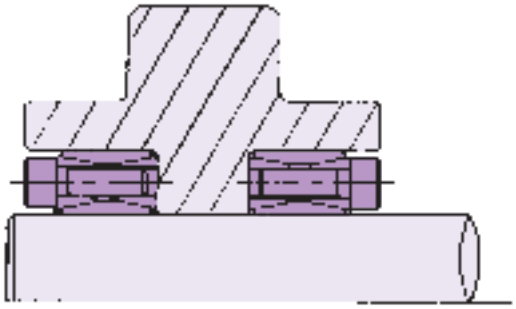
Model Number	Allowable Bending Moment Mo (ft./lbs.)	Max. Surface Pressure on Hub Pt_M (psi)
PL095X135	1,542	26,410
PL100X145	2,037	25,540
PL110X155	2,553	25,540
PL120X165	2,782	26,260
PL130X180	4,303	26,120
PL140X190	4,658	26,410
PL150X200	4,686	29,280
PL160X210	5,041	27,570
PL170X225	8,044	25,970
PL180X235	8,856	29,420
PL190X250	14,760	27,130
PL200X260	15,570	27,280
PL220X285	18,670	27,280
PL240X305	20,070	28,000
PL260X325	20,520	29,020
PL280X355	29,000	28,000
PL300X375	37,860	28,580

DESIGN EXAMPLES

1. Hub mounting utilizing one POWER-LOCK:

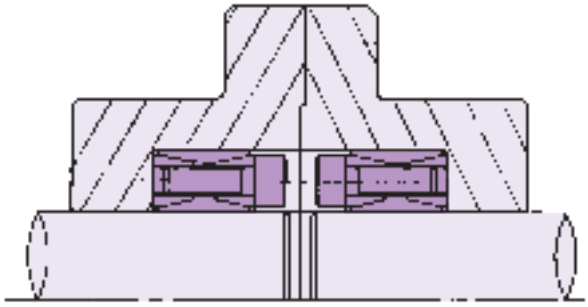


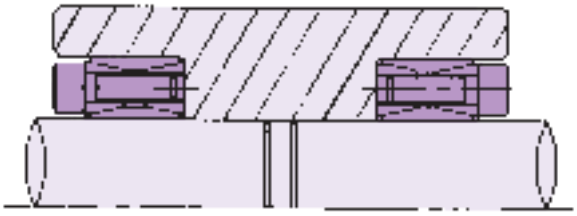
2. Hub mounting with POWER-LOCK located on opposite sides of hub:



With this arrangement, twice the torque will be transmitted.

3. Rigid shaft coupling mounting with two POWER-LOCK:

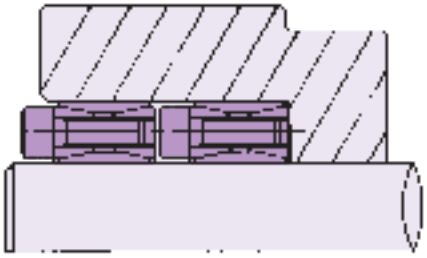




4. Hub mounting in the middle of a shaft:

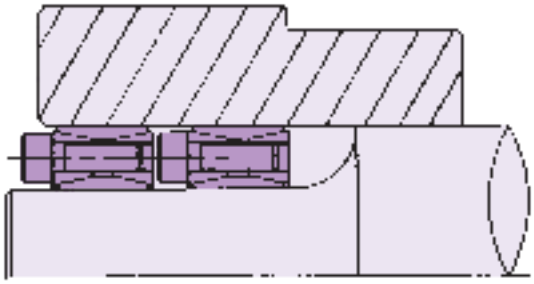
POWER-LOCK can be used at any place on the shaft without keyway.

5. Hub mounting utilizing two POWER-LOCK:



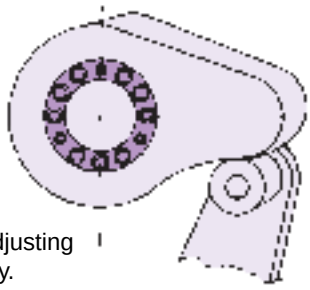
In this arrangement, POWER-LOCK transmits twice the torque.

6. Hub mounted on a stepped shaft:



This arrangement is often used in conjunction with thin hub wall applications, for hubs with a straight through bore.

7. Lever or cam mounting:



Positioning and adjusting are extremely easy.

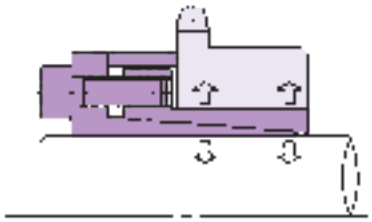
Innovative POWER-LOCK® Solutions

Consider these additional types of POWER-LOCK for your operation.
Each is designed to provide keyless locking power for special applications.

TF Series

Applicable shaft size: 18 to 90 mm

- Designed for hubs with smaller outside diameters.
- Self-centering function aligns the hub and shaft during installation.



SL Series

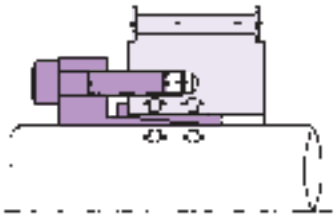
Applicable shaft size: 19 to 245 mm

- Connects to the outside of the hub.
- Suited for applications where a thick hub is not possible.
- High transmissible torque.

EF Series

Applicable shaft size: 10 to 120 mm

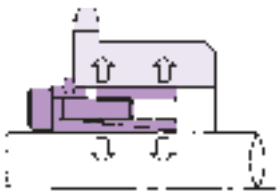
- Same inner and outer diameter as the EL Series.
- Small ratio between inner and outer diameters allows for smaller hub diameters.



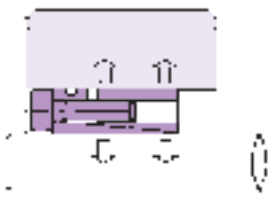
RE Series

Applicable shaft size: 5 to 50 mm

- Stainless steel construction.
- Designed with a convenient removable flange.
- Excellent for small shaft diameters.



with Flange



without Flange

KE Inch Series

Self-Centering Keyless Locking Power

POWER-LOCK® KE is a self-centering keyless locking device for connecting hubs and shafts. Use KE Series to lock on A-type sprockets and narrow gears. Pre-centering is not required.

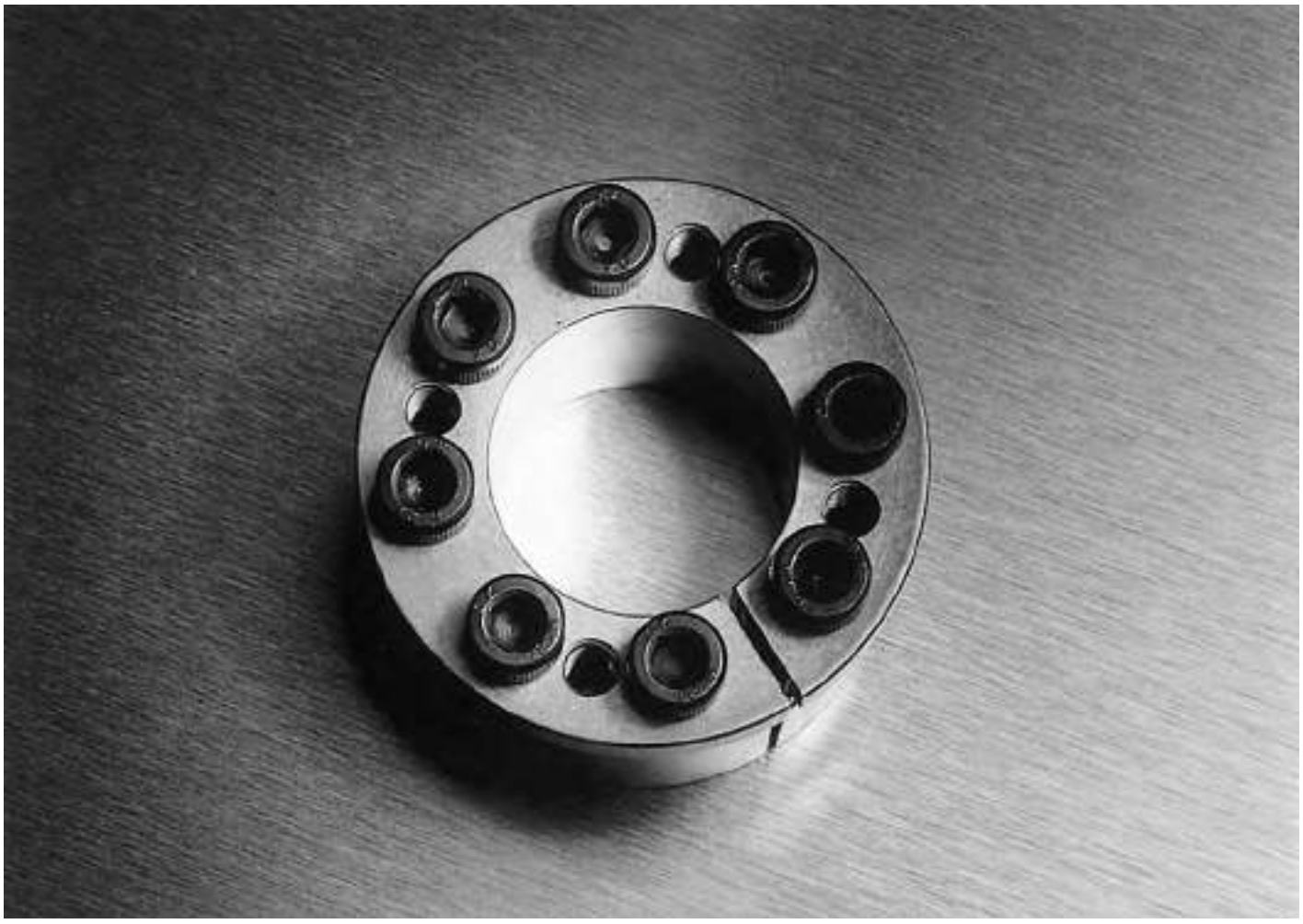
1. **Self-Centering**
   Ideal for A-type sprockets and narrow gears, POWER-LOCK KE actually strengthens the shaft. Pre-centering is not required.

2. **Strong, Long-Lasting Performance**
   POWER-LOCK KE has been tested in hundreds of applications. It offers high durability against reversing or impacting loads.

3. **Precise Locking**
   Features a single-taper design with a shallow taper angle that maintains concentricity when you tighten the locking bolts.

4. **Wide Tolerance for Shafts**
   POWER-LOCK KE is designed with a slit construction to yield a wider tolerance of shaft sizes, such as motor shafts.

5. **Range of Sizes Available**
   Available in a variety of sizes, including fractional inch sizes for smaller motors or sensors. No costly machining.



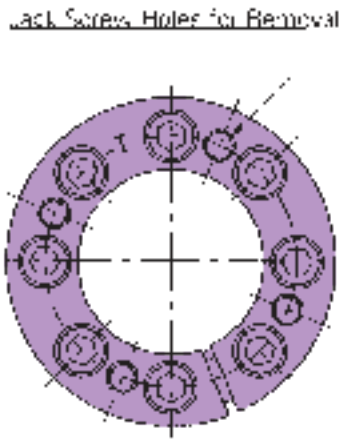
Model Number

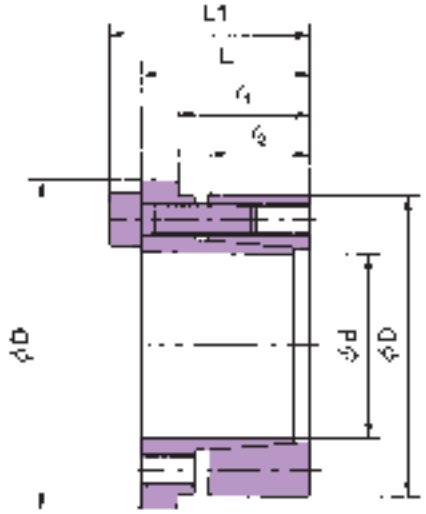
PL 1 KE

KE Series

Shaft Diameter

POWER-LOCK®





KE Inch Series POWER-LOCK® Specifications

Model Number	Shaft O.D. d	Tolerance t_1	❊ Special Tolerance t90 Mt & Pax	O.D. of KE D_1	Hub Counter I.D. D	Tolerance t_2	Length (inches) L1	L	ℓ_1	ℓ_2	Transmissible Torque & Thrust Torque Mt ft./lbs.	Thrust Pax lbs.	Contact Pressure psi Shaft P	Hub Bore P′	Locking Bolts Qty.	Size	Tightening Torque ft./lbs.	Approx. Weight lbs.
PL ⅜ KE	0.3750	+.0006 -.0009	+.0006 -.0023	1.0625	0.9375	-0+.0013	0.807	0.650	0.563	0.394	22	1,339	28,261	11,304	3	M4X12	3.5	0.09
PL ½ KE	0.5000	+.0007 -.0011	+.0007 -.0028	1.1875	1.0625	-0+.0013	0.807	0.650	0.563	0.394	39	1,784	28,261	13,333	4	M4X12	3.5	0.11
PL ⅝ KE	0.6250			1.3125	1.1875	-0+.0015	0.965	0.807	0.688	0.472	74	2,679	28,261	14,928	6	M4X16	3.5	0.15
PL ¾ KE	0.7500	+.0008 -.0013	+.0008 -.0033	1.4375	1.3125	-0+.0015	0.965	0.807	0.688	0.472	89	2,679	23,623	13,478	6	M4X16	3.5	0.18
PL ⅞ KE	0.8750			1.7500	1.5625	-0+.0015	1.181	0.984	0.813	0.591	169	4,375	26,377	14,783	6	M5X20	7.2	0.33
PL1 KE	1.0000			1.8750	1.6875	-0+.0015	1.181	0.984	0.813	0.591	258	5,834	30,870	18,261	8	M5X20	7.2	0.35
PL1 ⅛ KE	1.1250			2.0000	1.8750	-0+.0015	1.299	1.102	0.938	0.669	326	6,562	27,246	16,377	9	M5X20	7.2	0.49
PL1 3/16 KE	1.1875	+.0010 -.0015	+.0010 -.0039	2.0625	1.9375	-0+.0015	1.299	1.102	0.938	0.669	382	7,292	28,551	17,536	10	M5X20	7.2	0.51
PL1 ¼ KE	1.2500			2.1250	2.0000	-0+.0018	1.299	1.102	0.938	0.669	402	7,292	27,246	16,957	10	M5X20	7.2	0.53
PL1 ⅜ KE	1.3750			2.2500	2.1250	-0+.0018	1.299	1.102	0.938	0.669	443	7,292	24,783	15,942	10	M5X20	7.2	0.57
PL1 7/16 KE	1.4375			2.5000	2.3125	-0+.0018	1.496	1.260	1.063	0.748	523	8,232	23,913	14,783	8	M6X25	12.3	0.84
PL1 ½ KE	1.5000			2.5625	2.3750	-0+.0018	1.496	1.260	1.063	0.748	682	10,290	28,551	18,116	10	M6X25	12.3	0.86
PL1 ⅝ KE	1.6250			2.6875	2.5000	-0+.0018	1.496	1.260	1.063	0.748	738	10,290	26,377	17,102	10	M6X25	12.3	0.93
PL1 11/16 KE	1.6875			2.7500	2.5625	-0+.0018	1.496	1.260	1.063	0.748	767	10,290	25,362	16,812	10	M6X25	12.3	0.95
PL1 ¾ KE	1.7500			2.8125	2.6250	-0+.0018	1.496	1.260	1.063	0.748	795	10,290	24,493	16,377	10	M6X25	12.3	0.97
PL1 ⅞ KE	1.8750			2.9375	2.7500	-0+.0018	1.496	1.260	1.063	0.748	1,022	12,349	27,391	18,696	12	M6X25	12.3	1.04
PL1 15/16 KE	1.9375			3.0000	2.8125	-0+.0018	1.496	1.260	1.063	0.748	1,144	13,378	28,841	19,855	13	M6X25	12.3	1.06
PL2 KE	2.0000	+.0012 -.0018	+.0012 -.0047	3.0625	2.8750	-0+.0018	1.594	1.358	1.125	0.748	1,181	13,378	27,826	19,420	13	M6X25	12.3	1.13
PL2 ⅛ KE	2.1250			3.1875	3.0000	-0+.0018	1.594	1.358	1.125	0.748	1,351	14,405	28,261	20,000	14	M6X25	12.3	1.19
PL2 3/16 KE	2.1875			3.2500	3.0625	-0+.0018	1.594	1.358	1.125	0.748	1,391	14,405	27,391	19,565	14	M6X25	12.3	1.21
PL2 ¼ KE	2.2500			3.3125	3.1250	-0+.0018	1.594	1.358	1.125	0.748	1,431	14,405	26,667	19,275	14	M6X25	12.3	1.24
PL2 ⅜ KE	2.3750			3.4375	3.2500	-0+.0021	1.594	1.358	1.125	0.748	1,618	15,434	27,102	19,855	15	M6X25	12.3	1.30
PL2 7/16 KE	2.4375			3.5000	3.3125	-0+.0021	1.594	1.358	1.125	0.748	1,661	15,434	26,377	19,420	15	M6X25	12.3	1.32
PL2 ½ KE	2.5000			3.5625	3.3750	-0+.0021	1.594	1.358	1.125	0.748	1,703	15,434	25,797	19,130	15	M6X25	12.3	1.35
PL2 ⅝ KE	2.6250			3.6875	3.5000	-0+.0021	1.594	1.358	1.125	0.748	1,789	15,434	24,493	18,406	15	M6X25	12.3	1.41
PL2 11/16 KE	2.6875			3.9375	3.7500	-0+.0021	1.909	1.594	1.250	0.866	2,708	22,814	30,580	22,319	12	M8X30	29.7	2.01
PL2 ¾ KE	2.7500			4.0000	3.8125	-0+.0021	1.909	1.594	1.250	0.866	2,770	22,814	29,855	21,594	12	M8X30	29.7	2.21
PL2 ⅞ KE	2.8750			4.1250	3.9375	-0+.0021	1.909	1.594	1.250	0.866	2,896	22,814	28,551	20,870	12	M8X30	29.7	2.30
PL2 15/16 KE	2.9375			4.1875	4.0000	-0+.0021	1.909	1.594	1.250	0.866	2,959	22,814	27,971	20,580	12	M8X30	29.7	2.34
PL3 KE	3.0000			4.1875	4.0625	-0+.0021	1.909	1.594	1.250	0.866	3,022	22,814	27,391	20,290	12	M8X30	29.7	2.36
PL3 ⅜ KE	3.3750	+.0014 -.0021	+.0014 -.0055	4.6250	4.4375	-0+.0021	1.949	1.634	1.313	0.866	3,967	26,619	28,406	21,594	14	M8X30	29.7	2.69
PL3 7/16 KE	3.4375			4.6875	4.5000	-0+.0021	1.949	1.634	1.313	0.866	4,041	26,619	27,826	21,304	14	M8X30	29.7	2.74
PL3 ½ KE	3.5000			5.0000	4.7500	-0+.0025	2.520	2.126	1.688	1.142	6,532	42,265	33,044	24,348	14	M10X40	60.0	4.39
PL3 ¾ KE	3.7500			5.2500	5.0625	-0+.0025	2.520	2.126	1.688	1.142	6,999	42,265	30,725	22,754	14	M10X40	60.0	4.92
PL3 15/16 KE	3.9375			5.5000	5.2500	-0+.0025	2.520	2.126	1.688	1.142	7,348	42,265	28,275	22,029	14	M10X40	60.0	5.14
PL4 KE	4.0000			5.5000	5.3125	-0+.0025	2.520	2.126	1.688	1.142	7,465	42,265	28,841	21,739	14	M10X40	60.0	5.21

❊ When you apply this wider tolerance to your shaft, transmissible torque Mt and Thrust Pax will be 90% of the rating.

KE Inch Series

Calculate the minimum hub diameter using the following formula. (This does not apply to nonferrous metals.)

Y.P. (hub) $\geq$ 1.2 P′
Y.P. (shaft) $\geq$ 1.2 P

Min. hub dia. $D_N \geq D \sqrt{\dfrac{Y.P. + K_3 \bullet P'}{Y.P. - K_3 \bullet P'}}$

Where
P′ = Surface pressure on hub (psi)
P = Surface pressure on shaft (psi)
B = Length thru hub or sprocket
Y.P. = Yield point of hub material (psi)

$K_3 = 0.8$ $B \geq 2 \bullet \ell_2$
(Use table below.)
$K_3 = 1.0$ $\ell_1 \leq B < 2 \bullet \ell_2$
(Use table on the following page.)

ℓ_1 and ℓ_2 are defined in the drawing on the previous page. If $B < \ell_1$, consult the Engineering Department of the Power Transmission Group of U.S. Tsubaki.

Min. Hub Dia. (D_N in inches) **$K_3 = 0.8$**

Model Number	Contact Pressure in the Hub Bore P′ lbs./inch²	Yield Point of Various Hub Material Y.P. (psi) Y.P. = $\sigma_{0.2}$					
		32,000	35,000	40,000	45,000	50,000	56,000
		Class No. 40 Grade No. 60-30	1015 Class No. 50 Grade No. 65-35	1018, 1020 1117 Class No. 60 Grade No. 40010	1118 Grade No. 45006	1030 Grade No. 50005 Grade No. 80-65	1040, 1045 1137, 1141 1144 Grade No. 50005
PL ⅜ KE	11,304	1.2535	1.2212	1.1800	1.1493	1.1256	1.1034
PL ½ KE	13,333	1.5026	1.4555	1.3964	1.3529	1.3195	1.2885
PL ⅝ KE	14,928	1.7577	1.6944	1.6157	1.5585	1.5150	1.4747
PL ¾ KE	13,478	1.8637	1.8046	1.7303	1.6758	1.6340	1.5951
PL ⅞ KE	14,783	2.3030	2.2211	2.1192	2.0450	1.9885	1.9361
PL1 KE	18,261	2.7626	2.6321	2.4748	2.3633	2.2800	2.2040
PL1 ⅛ KE	16,377	2.8966	2.7789	2.6345	2.5305	2.4520	2.3797
PL1 3⁄16 KE	17,536	3.1008	2.9625	2.7945	2.6748	2.5849	2.5027
PL1 ¼ KE	16,957	3.1444	3.0105	2.8470	2.7299	2.6417	2.5608
PL1 ⅜ KE	15,942	3.2404	3.1134	2.9569	2.8439	2.7583	2.6794
PL1 7⁄16 KE	14,783	3.4085	3.2872	3.1364	3.0266	2.9430	2.8655
PL1 ½ KE	18,116	3.8703	3.6896	3.4714	3.3166	3.2008	3.0951
PL1 ⅝ KE	17,102	3.9479	3.7779	3.5705	3.4221	3.3104	3.2080
PL1 11⁄16 KE	16,812	4.0110	3.8422	3.6358	3.4878	3.3762	3.2738
PL1 ¾ KE	16,377	4.0552	3.8905	3.6882	3.5427	3.4328	3.3316
PL1 ⅞ KE	18,696	4.5646	4.3416	4.0738	3.8849	3.7441	3.6158
PL1 15⁄16 KE	19,855	4.8480	4.5886	4.2814	4.0670	3.9084	3.7649
PL2 KE	19,420	4.8852	4.6326	4.3317	4.1210	3.9646	3.8227
PL2 ⅛ KE	20,000	5.1962	4.9151	4.5826	4.3510	4.1798	4.0249
PL2 3⁄16 KE	19,565	5.2286	4.9551	4.6300	4.4026	4.2340	4.0811
PL2 ¼ KE	19,275	5.2849	5.0147	4.6924	4.4662	4.2983	4.1458
PL2 ⅜ KE	19,855	5.6021	5.3024	4.9474	4.6997	4.5164	4.3505
PL2 7⁄16 KE	19,420	5.6286	5.3375	4.9909	4.7481	4.5679	4.4044
PL2 ½ KE	19,130	5.6809	5.3937	5.0506	4.8095	4.6302	4.4674
PL2 ⅝ KE	18,406	5.7561	5.4812	5.1501	4.9159	4.7410	4.5815
PL2 11⁄16 KE	22,319	7.0403	6.5843	6.0613	5.7064	5.4484	5.2180
PL2 ¾ KE	21,594	6.9743	6.5474	6.0526	5.7139	5.4664	5.2444
PL2 ⅞ KE	20,870	7.0237	6.6172	6.1416	5.8133	5.5721	5.3550
PL2 15⁄16 KE	20,580	7.0648	6.6651	6.1955	5.8705	5.6312	5.4153
PL3 KE	20,290	7.1051	6.7120	6.2487	5.9269	5.6895	5.4751
PL3 ⅜ KE	21,594	8.1176	7.6207	7.0448	6.6506	6.3625	6.1041
PL3 7⁄16 KE	21,304	8.1486	7.6609	7.0935	6.7037	6.4183	6.1618
PL3 ½ KE	24,348	9.6311	8.8989	8.0866	7.5500	7.1666	6.8286
PL3 ¾ KE	22,754	9.6570	9.0099	8.2726	7.7749	7.4144	7.0933
PL3 15⁄16 KE	22,029	9.7537	9.1361	8.4248	7.9403	7.5874	7.2716
PL4 KE	21,739	9.7682	9.1365	8.4641	7.9861	7.6372	7.3245

Min. Hub Dia. (D_N in inches) K_3 = 1.0

Model Number	Contact Pressure in the Hub Bore P′ lbs./inch²	Yield Point of Various Hub Material Y.P. (psi) Y.P. = $\sigma_{0.2}$					
		32,000	35,000	40,000	45,000	50,000	56,000
		Class No. 40 Grade No. 60-30	1015 Class No. 50 Grade No. 65-35	1018, 1020 1117 Class No. 60 Grade No. 40010	1118 Grade No. 45006	1030 Grade No. 50005 Grade No. 80-65	1040, 1045 1137, 1141 1144 Grade No. 50005
PL 3/8 KE	11,304	1.3561	1.3105	1.2535	1.2119	1.1800	1.1504
PL 1/2 KE	13,333	1.6558	1.5869	1.5026	1.4421	1.3964	1.3544
PL 5/8 KE	14,928	1.9688	1.8729	1.7577	1.6764	1.6157	1.5605
PL 3/4 KE	13,478	2.0566	1.9698	1.8637	1.7877	1.7303	1.6777
PL 7/8 KE	14,783	2.5756	2.4519	2.3030	2.1978	2.1192	2.0476
PL1 KE	18,261	3.2276	3.0101	2.7626	2.5956	2.4748	2.3672
PL1 1/8 KE	16,377	3.2294	3.1143	2.8966	2.7457	2.6345	3.5341
PL1 3/16 KE	17,536	3.5856	3.3605	3.1008	2.9236	2.7945	2.6789
PL1 1/4 KE	16,957	3.6080	3.3939	3.1444	2.9728	2.8470	2.7340
PL1 3/8 KE	15,942	3.6717	3.4742	3.2404	3.0774	2.9569	2.8478
PL1 7/16 KE	14,783	3.8119	3.6288	3.4085	3.2527	3.1364	3.0305
PL1 1/2 KE	18,116	4.5123	4.2125	3.8703	3.6390	2.4714	3.3219
PL1 5/8 KE	17,102	4.5386	4.2655	3.9479	3.7300	3.5705	3.4272
PL1 11/16 KE	16,812	4.5939	4.3250	4.0110	3.7946	3.6358	3.4929
PL1 3/4 KE	16,377	4.6192	4.3600	4.0552	3.8439	3.6882	3.5478
PL1 7/8 KE	18,696	5.3682	4.9906	4.5646	4.2794	4.0738	3.8914
PL1 15/16 KE	19,855	5.8115	5.3526	4.8480	4.5169	4.2814	4.0744
PL2 KE	19,420	5.8125	5.3732	4.8852	4.5624	4.3317	4.1282
PL2 1/8 KE	20,000	6.2450	5.7446	5.1962	4.8374	4.5826	4.3589
PL2 3/16 KE	19,565	6.2364	5.7581	5.2286	4.8793	4.6300	4.4104
PL2 1/4 KE	19,275	6.2730	5.8057	5.2849	4.9396	4.6924	4.4740
PL2 3/8 KE	19,855	6.7155	6.1852	5.6021	5.2195	4.9474	4.7082
PL2 7/16 KE	19,420	6.6970	6.1909	5.6286	5.2567	4.9909	4.7564
PL2 1/2 KE	19,130	6.7270	6.2331	5.6809	5.3138	5.0506	4.8177
PL2 5/8 KE	18,406	6.7396	6.2790	5.7561	5.4043	5.1501	4.9239
PL2 11/16 KE	22,319	8.8827	7.9727	7.0403	6.4605	6.0613	5.7184
PL2 3/4 KE	21,594	8.6522	7.8333	6.9743	6.4308	6.0526	5.7254
PL2 7/8 KE	20,870	8.5818	7.8296	7.0237	6.5056	6.1416	5.8245
PL2 15/16 KE	20,580	8.5830	7.8530	7.0648	6.5550	6.1955	5.8816
PL3 KE	20,290	8.5847	7.8761	7.1051	6.6036	6.2487	5.9379
PL3 3/8 KE	21,594	10.0706	9.1175	8.1176	7.4850	7.0448	6.6640
PL3 7/16 KE	21,304	10.0457	9.1240	8.1486	7.5274	7.0935	6.7170
PL3 1/2 KE	24,348	12.8898	11.2119	9.6311	8.7042	8.0866	7.5680
PL3 3/4 KE	22,754	12.3196	10.9941	9.6570	8.8350	8.2726	7.7917
PL3 15/16 KE	22,029	12.2209	11.0083	9.7537	8.9681	8.4248	7.9567
PL4 KE	21,739	12.1576	10.9888	9.7682	8.9986	8.4641	8.0024

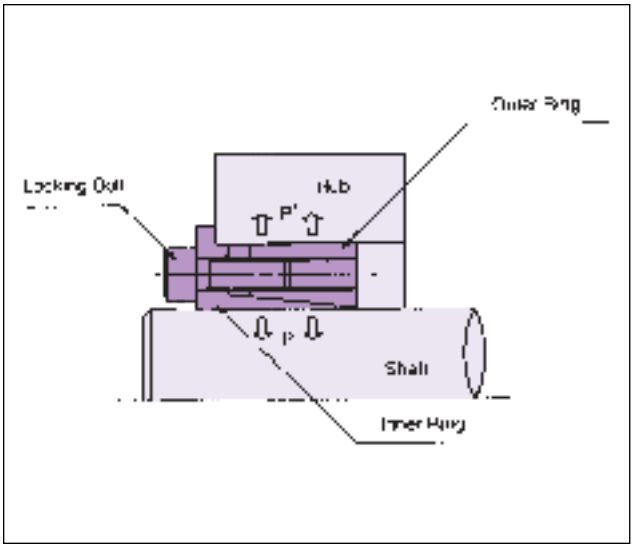
SELF-CENTERING SERIES

AE Metric Series

19mm ~ 150mm Shaft Size Available

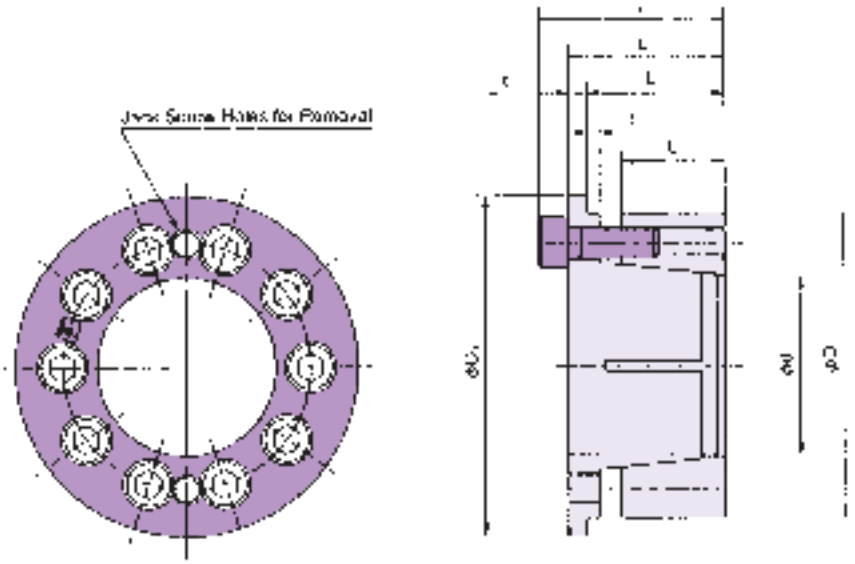
Features & Applications

- **Self-Centering Function**
  Straight and narrow hubs can be used with AE Series POWER-LOCK®.
- **Interchangeable POWER-LOCK AS Metric Series to AE Metric Series**
  Have the same size inside diameter and outside diameter as AS Series POWER-LOCK.
- **Easy and Precise Positioning**
- **Simple Construction**



PL 019 x 047 AE

- AE Series
- Outside Dia. (mm)
- Shaft Size (mm)
- POWER-LOCK



<Conversion>
1 ft./lbs. = 0.1382 kgfm = 1.3550 N•m
1 psi = 0.0007 kgf/mm^2 = 0.0069 MPa

unit:mm

Model Number Inside Dia. X Outside Dia. (d X D)	Tolerance		Dimensions inch							Transmissible Torque Mt ft./lbs.	Transmissible Thrust Pax lbs.	Contact Pressure		Locking Bolts			Wt. lbs.
	Shaft O.D.	Hub I.D.	L_1	L_2	L	L_t	t_1	t_2	D_1			Shaft P psi	Hub P′ psi	Qty.	Size	Tightening Torque M_A ft./lbs.	
PL019X047 AE			0.7480	0.9764	1.0748	1.3110	0.0984	0.0787	2.0866	195.6	6,320	41,640	13,490	6	M6X18	12.3	0.618
PL020X047 AE			0.7480	0.9764	1.0748	1.3110	0.0984	0.0787	2.0866	202.2	6,320	39,470	13,490	6	M6X18	12.3	0.596
PL022X047 AE			0.7480	0.9764	1.0748	1.3110	0.0984	0.0787	2.0866	224.4	6,320	35,980	13,490	6	M6X18	12.3	0.574
PL024X050 AE	–0.0013″	+0.0013″	0.7480	0.9961	1.0945	1.3307	0.0984	0.0787	2.2441	289.3	7,380	39,760	14,800	7	M6X18	12.3	0.640
PL025X050 AE	+0	–0	0.7480	0.9961	1.0945	1.3307	0.0984	0.0787	2.2441	304.1	7,380	40,920	14,800	7	M6X18	12.3	0.640
PL028X055 AE			0.7480	0.9961	1.1260	1.3622	0.1299	0.0787	2.4409	383.0	8,440	39,030	15,380	8	M6X18	12.3	0.773
PL030X055 AE			0.7480	0.9961	1.1260	1.3622	0.1299	0.0787	2.4409	412.5	8,440	36,420	15,380	8	M6X18	12.3	0.751
PL032X060 AE			0.8070	1.0748	1.2165	1.4528	0.1417	0.0984	2.6378	549.8	10.570	38,740	16,400	10	M6X18	12.3	0.971
PL035X060 AE			0.8070	1.0748	1.2165	1.4528	0.1417	0.0984	2.6378	607.4	10.570	35,400	16,400	10	M6X18	12.3	0.905
PL038X065 AE	–0.0015″	+0.0015″	0.8070	1.0827	1.2244	1.4606	0.1417	0.0984	2.8740	658.3	10.570	33,080	15,090	10	M6X18	12.3	1.060
PL040X065 AE	+0	–0	0.8070	1.0827	1.2244	1.4606	0.1417	0.0984	2.8740	687.1	10.570	31,490	15,090	10	M6X18	12.3	0.993
PL042X075 AE			0.9252	1.2126	1.3701	1.6850	0.1575	0.1181	3.2677	1,210.0	17,590	41,350	18,860	9	M8X22	29.7	1.678
PL045X075 AE			0.9252	1.2126	1.3701	1.6850	0.1575	0.1181	3.2677	1,292.0	17,590	38,600	18,860	9	M8X22	29.7	1.567
PL048X080 AE			0.9252	1.2205	1.3780	1.6929	0.1575	0.1181	3.4646	1,520.0	19,550	40,630	19,730	10	M8X22	29.7	1.788
PL050X080 AE			0.9252	1.2205	1.3780	1.6929	0.1575	0.1181	3.4646	1,594.0	19,550	39,130	19,730	10	M8X22	29.7	1.700
PL055X085 AE			0.9252	1.2126	1.3701	1.6850	0.1575	0.1181	3.7008	1,734.0	19,550	35,110	18,570	10	M8X22	29.7	1.854
PL060X090 AE	–0.0018″	+0.0018″	0.9252	1.2126	1.3701	1.6850	0.1575	0.1181	3.8976	1,882.0	19,550	31,780	17,700	10	M8X22	29.7	1.987
PL065X095 AE	+0	–0	0.9252	1.2126	1.3701	1.6850	0.1575	0.1181	4.0946	2,458.0	23,390	35,690	19,880	12	M8X22	29.7	2.119
PL070X110 AE			1.1024	1.4370	1.6142	2.0079	0.1772	0.1575	4.7244	3,542.0	30,900	35,840	19,150	10	M10X25	60.0	3.753
PL075X115 AE			1.1024	1.4370	1.6142	2.0079	0.1772	0.1575	4.9213	3,764.0	30,900	33,370	18,280	10	M10X25	60.0	3.951
PL080X120 AE			1.1024	1.4370	1.6142	2.0079	0.1772	0.1575	5.1181	4,849.0	37,080	37,080	21,040	12	M10X25	60.0	4.172
PL085X125 AE			1.1024	1.4370	1.6142	2.0079	0.1772	0.1575	5.3150	5,136.0	37,080	35,400	20,170	12	M10X25	60.0	4.371
PL090X130 AE	–0.0021″	+0.0021″	1.1024	1.4763	1.6929	2.0866	0.2165	0.1575	5.5118	5,498.0	37,080	34,970	19,440	12	M10X25	60.0	4.746
PL095X135 AE	+0	–0	1.1024	1.4763	1.6929	2.0866	0.2165	0.1575	5.7087	6,723.0	43,480	38,740	21,910	14	M10X25	60.0	4.945
PL100X145 AE			1.3386	1.7323	1.9685	2.3622	0.2362	0.1575	6.1024	7,601.0	46,570	31,595	17,850	15	M10X25	60.0	6.777
PL110X155 AE			1.3386	1.7323	1.9685	2.3622	0.2362	0.1575	6.5748	8,413.0	46,570	28,730	16,830	15	M10X25	60.0	7.395
PL120X165 AE			1.3386	1.7323	1.9685	2.3622	0.2362	0.1575	6.9685	10,996.0	55,840	31,595	18,860	18	M10X25	60.0	7.925
PL130X180 AE	–0.0025″	+0.0025″	1.4961	1.9685	2.2441	2.7165	0.2756	0.2362	7.6772	14,460.0	67,770	31,050	18,720	15	M12X35	105.0	11.126
PL140X190 AE	+0	–0	1.4961	1.9685	2.2441	2.7165	0.2756	0.2362	8.0709	15,570.0	67,770	28,730	17,850	15	M12X35	105.0	11.876
PL150X200 AE			1.4961	1.9685	2.2835	2.7559	0.3150	0.2362	8.4646	19,930.0	81,230	32,070	20,310	18	M12X35	105.0	12.826

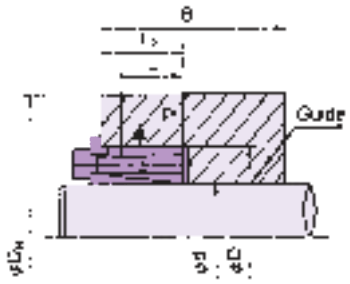
Note: If your application requires slightly larger tolerances than noted, refer to page D-28.

AE Metric Series

Minimum Hub Diameter (D_N) When Using Hub with Guide

This table shows minimum hub D_N, which can tolerate surface pressure P′.

Based on: $B \geq 2L_1$



<EXAMPLE> Hub Material Yield Point = 50,000 psi
PL030X055AE
} Min. D_N = 2.7953″

<Conversion>
1 psi = 0.0007 kgf/mm² = 0.0069 MPa

Min. Hub Dia. (D_N in inches)

Model Number	Contact Pressure in the Hub Bore P′ psi	Yield Point of Various Hub Material Y.P. (psi) Y.P. = $\sigma_{0.2}$					
		32,000	35,000	40,000	45,000	50,000	56,000
			1015	1018, 1020 1117	1118	1030	1040, 1045 1137, 1141 1144
		Class No. 40 Grade No. 60-30	Class No. 50 Grade No. 65-35	Class No. 60 Grade No. 40010	Grade No. 45006	Grade No. 50005 Grade No. 80-65	Grade No. 60004
PL019X047 AE	13,490	2.6378	2.5591	2.4409	2.3622	2.3228	2.2835
PL020X047 AE	13,490	2.6378	2.5591	2.4409	2.3622	2.3228	2.2835
PL022X047 AE	13,490	2.6378	2.5591	2.4409	2.3622	2.3228	2.2835
PL024X050 AE	14,800	2.9134	2.8346	2.6772	2.5984	2.5197	2.4409
PL025X050 AE	14,800	2.9134	2.8346	2.6772	2.5984	2.5197	2.4409
PL028X055 AE	15,380	3.2677	3.1496	2.9921	2.8740	2.7953	2.7165
PL030X055 AE	15,380	3.2677	3.1496	2.9921	2.8740	2.7953	2.7165
PL032X060 AE	16,400	3.6614	3.5039	3.3465	3.1890	3.1102	3.0315
PL035X060 AE	16,400	3.6614	3.5039	3.3465	3.1890	3.1102	3.0315
PL038X065 AE	15,090	3.8189	3.7008	3.5039	3.3858	3.3071	3.1890
PL040X065 AE	15,090	3.8189	3.7008	3.5039	3.3858	3.3071	3.1890
PL042X075 AE	18,860	4.9606	4.6850	4.4094	4.2126	4.0551	3.8976
PL045X075 AE	18,860	4.9606	4.6850	4.4094	4.2126	4.0551	3.8976
PL048X080 AE	19,730	5.4331	5.1181	4.8031	4.5669	4.3701	4.2126
PL050X080 AE	19,730	5.4331	5.1181	4.8031	4.5669	4.3701	4.2126
PL055X085 AE	18,570	5.5512	5.2756	4.9606	4.7244	4.5669	4.4094
PL060X090 AE	17,700	5.7087	5.4724	5.1575	4.9213	4.7638	4.6063
PL065X095 AE	19,880	6.4567	6.1417	5.7087	5.4331	5.1969	5.0394
PL070X110 AE	19,150	7.3220	6.9291	6.4961	6.1811	5.9449	5.7480
PL075X115 AE	18,280	7.4409	7.0866	6.6535	6.3780	6.1417	5.9449
PL080X120 AE	21,040	8.5039	7.9921	7.4016	7.0079	6.7323	6.4567
PL085X125 AE	20,170	8.5827	8.1102	7.5591	7.1654	6.8898	6.6535
PL090X130 AE	19,440	8.7008	8.2677	7.7165	7.3622	7.0866	6.8110
PL095X135 AE	21,910	9.8425	9.2126	8.5039	8.0315	7.6772	7.3622
PL100X145 AE	17,850	9.2520	8.8189	8.3071	7.9528	7.6772	7.4409
PL110X155 AE	16,830	9.5669	9.1732	8.6614	8.3071	8.0709	7.7953
PL120X165 AE	18,860	10.8661	10.3150	9.6850	9.2126	8.8976	8.5827
PL130X180 AE	18,720	11.7717	11.2205	10.5118	10.0394	9.6850	9.3307
PL140X190 AE	17,850	12.0866	11.5354	10.8661	10.3937	10.0394	9.7244
PL150X200 AE	20,310	13.7795	13.0315	12.1260	11.4961	11.0630	10.6299

Note: Min. Hub Dia. (D_N) calculated based upon the Formula (3) at (K) = 0.8. Refer to page D-29.

Minimum Hub Diameter (D_N)

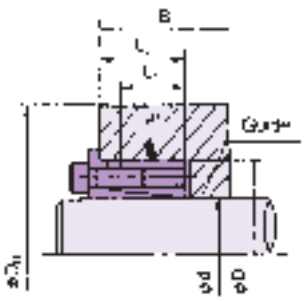
1. When Using Hub with Guide

Based on: $L_2 < B < 2L_1$

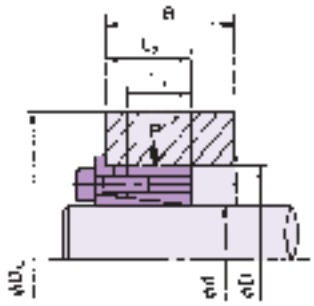
or

2. When Using Hub without Guide

This table shows minimum hub D_N, which can tolerate surface pressure P′



Hub with Guide



Hub without Guide

<EXAMPLE> Hub Material Yield Point = 50,000 psi
PL030X055AE
} Min. D_N = 2.9921″

Min. Hub Dia. (D_N in inches)

<Conversion>
1 psi = 0.0007 kgf/mm^2 = 0.0069 MPa

Model Number	Contact Pressure in the Hub Bore P′ psi	Yield Point of Various Hub Material Y.P. (psi) Y.P. = $\sigma_{0.2}$					
		32,000	35,000	40,000	45,000	50,000	56,000
		Class No. 40 Grade No. 60-30	1015 Class No. 50 Grade No. 65-35	1018, 1020 1117 Class No. 60 Grade No. 40010	1118 Grade No. 45006	1030 Grade No. 50005 Grade No. 80-65	1040, 1045 1137, 1141 1144 Grade No. 60004
PL019X047 AE	13,490	2.9134	2.7953	2.6378	2.5147	2.4409	2.3622
PL020X047 AE	13,490	2.9134	2.7953	2.6378	2.5197	2.4409	2.3622
PL022X047 AE	13,490	2.9134	2.7953	2.6378	2.5197	2.4409	2.3622
PL024X050 AE	14,800	3.2678	3.1102	2.9134	2.7953	2.6772	2.5984
PL025X050 AE	14,800	3.2678	3.1102	2.9134	2.7953	2.6772	2.5984
PL028X055 AE	15,380	3.6614	3.5039	3.2677	3.1102	2.9921	2.8740
PL030X055 AE	15,380	3.6614	3.5039	3.2677	3.1102	2.9921	2.8740
PL032X060 AE	16,400	4.1732	3.9370	3.6614	3.4646	3.3465	3.2283
PL035X060 AE	16,400	4.1732	3.9370	3.6614	3.4646	3.3465	3.2283
PL038X065 AE	15,090	4.2913	4.0945	3.8189	3.6614	3.5039	3.3858
PL040X065 AE	15,090	4.2913	4.0945	3.8189	3.6614	3.5039	3.3858
PL042X075 AE	18,860	5.8268	5.3937	4.9606	4.6457	4.4094	4.2126
PL045X075 AE	18,860	5.8268	5.3937	4.9606	4.6457	4.4094	4.2126
PL048X080 AE	19,730	6.4961	5.9843	5.4331	5.0394	4.8031	4.5669
PL050X080 AE	19,730	6.4961	5.9843	5.4331	5.0394	4.8031	4.5669
PL055X085 AE	18,570	6.4961	6.0630	5.5512	5.1969	4.9606	4.7244
PL060X090 AE	17,700	6.6142	6.1811	5.7087	5.3937	5.1575	4.9213
PL065X095 AE	19,880	7.7559	7.1260	6.4567	6.0236	5.7087	5.4331
PL070X110 AE	19,150	8.6614	8.0315	7.3228	6.8504	6.4961	6.1811
PL075X115 AE	18,280	8.7008	8.1102	7.4409	6.9685	6.6535	6.3780
PL080X120 AE	21,040	10.3937	9.4882	8.5039	7.8740	7.4016	7.0472
PL085X125 AE	20,170	10.3543	9.4882	8.5827	7.9921	7.5591	7.2047
PL090X130 AE	19,440	10.3937	9.6063	8.7008	8.1496	7.7165	7.3622
PL095X135 AE	21,910	12.2835	11.1024	9.8425	9.0551	8.5039	8.0315
PL100X145 AE	17,850	10.7480	10.0394	9.2520	8.7008	8.3071	7.9528
PL110X155 AE	16,830	10.9843	10.3150	9.5667	9.0551	8.6614	8.3465
PL120X165 AE	18,860	12.7953	11.8898	10.8661	10.1575	9.2520	9.2520
PL130X180 AE	18,720	13.8583	12.8740	11.7717	11.0630	10.5118	10.0394
PL140X190 AE	17,850	14.0551	13.1496	12.0866	11.3780	10.8661	10.4331
PL150X200 AE	20,310	16.6929	15.3150	13.7795	12.8346	12.1260	11.5354

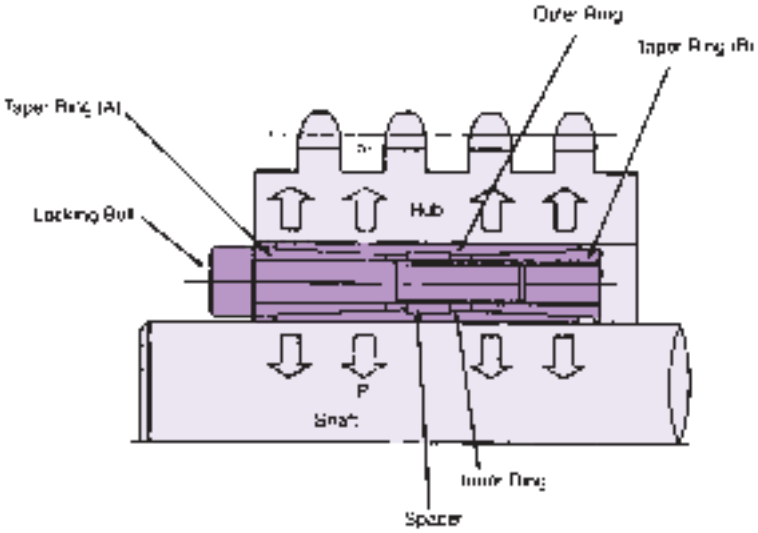
Note: Min. Hub Dia. (D_N) calculated based upon the Formula (3) at (K) = 1.0. Refer to page D-29.

DOUBLE TORQUE SERIES

AD Inch/Metric Series

Features & Applications

- **Over 2 Times Larger Transmissible Torque than that of AS Series**
- **Interchangeable with POWER-LOCK® AS Series**
  Has the same size inside and outside diameter as AS Series POWER-LOCK in most cases.
- **Self-Centering Function**
  Straight and narrow hubs can be used with AD Series POWER-LOCK
- **Easy and Precise Positioning**

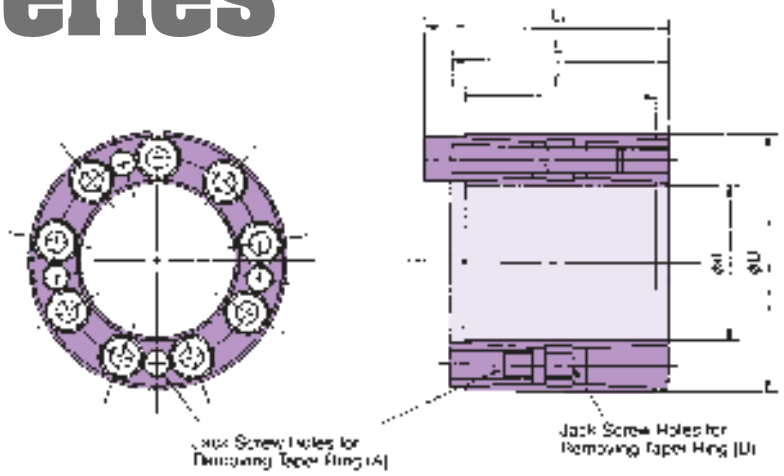


AD Inch Series

Model Number

PL 1 ¾ AD

- PL — POWER-LOCK®
- 1 ¾ — Shaft Size (inches)
- AD — AD Series



AD Inch Series POWER-LOCK® Specifications

Model Number	Shaft O.D.		Hub Counter I.D.		Dimensions (inch)			Transmissible Torque Mt ft./lbs.	Transmissible Thrust Pax lbs.	Contact Pressure psi		Locking Bolts			Wt. lbs.
	d	Tolerance t_1	D	Tolerance t_2	L	ℓ	L_1			Shaft P	Hub P'	Qty.	Size	Tightening Torque Ma ft./lbs.	
PL1 3/4 AD	1.750	-0.0015" +0	2.953	+0.0015" -0	2.520	2.205	2.835	2,965	8,301	26,283	15,670	9	M8X50	29.7	2.835
PL1 7/8 AD	1.875		3.150		2.520	2.205	2.835	2,965	8,822	24,668	14,650	9	M8X50	29.7	3.212
PL1 15/16 AD	1.938		3.150		2.520	2.205	2.835	2,965	9,116	23,872	14,650	9	M8X50	29.7	3.096
PL2 AD	2.000	-0.0018" +0	3.346	+0.0018" -0	2.520	2.205	2.835	2,965	9,368	23,083	13,780	9	M8X50	29.7	3.612
PL2 1/8 AD	2.125		3.346		2.520	2.205	2.835	2,965	9,953	21,725	13,780	9	M8X50	29.7	3.361
PL2 3/16 AD	2.188		3.543		2.520	2.205	2.835	2,965	12,570	25,843	15,960	11	M8X50	29.7	3.883
PL2 1/4 AD	2.250		3.543		2.520	2.205	2.835	2,965	12,929	25,125	15,960	11	M8X50	29.7	3.748
PL2 3/8 AD	2.375		3.531		2.520	2.205	2.835	2,965	13,648	23,802	15,960	11	M8X50	29.7	3.467
PL2 7/16 AD	2.438		3.740		2.520	2.205	2.835	2,965	14,166	19,795	12,910	11	M8X50	29.7	4.048
PL2 1/2 AD	2.500		3.740		2.520	2.205	2.835	2,965	14,529	19,300	12,910	11	M8X50	29.7	3.898
PL2 9/16 AD	2.563		3.737		2.520	2.205	2.835	2,965	14,892	18,830	12,910	11	M8X50	29.7	3.744
PL2 5/8 AD	2.625		4.337		3.071	2.756	3.465	5,997	24,308	27,256	16,540	11	M10X70	60.0	7.418
PL2 11/16 AD	2.688		4.337		3.071	2.756	3.465	5,997	24,887	26,623	16,540	11	M10X70	60.0	7.216
PL2 3/4 AD	2.750		4.337		3.071	2.756	3.465	5,997	25,465	26,018	16,540	11	M10X70	60.0	7.009
PL2 7/8 AD	2.875		4.528		3.071	2.756	3.465	5,997	26,347	24,876	15,810	11	M10X70	60.0	7.657
PL2 15/16 AD	2.938		4.528		3.071	2.756	3.465	5,997	26,920	24,347	15,810	11	M10X70	60.0	7.436
PL3 AD	3.000		4.724		3.071	2.756	3.465	5,997	30,175	26,038	16,540	12	M10X70	60.0	8.300
PL3 3/8 AD	3.375	-0.0021" +0	4.921	+0.0021" -0	3.071	2.756	3.465	5,997	33,947	23,154	15,810	12	M10X70	60.0	8.016
PL3 7/16 AD	3.438		5.118		3.071	2.756	3.465	5,997	37,350	24,668	16,540	13	M10X70	60.0	8.991
PL3 1/2 AD	3.500		5.118		3.071	2.756	3.465	5,997	38,029	24,227	16,540	13	M10X70	60.0	8.727
PL3 3/4 AD	3.750		5.305		3.071	2.756	3.465	5,997	40,807	22,567	15,960	13	M10X70	60.0	8.888
PL3 15/16 AD	3.938		5.708		3.937	3.543	4.409	10,474	58,307	22,768	15,670	12	M12X90	104.8	13.473
PL4 AD	4.000		5.843		3.937	3.543	4.409	10,474	59,233	22,412	15,310	12	M12X90	104.8	14.036
PL4 7/16 AD	4.438		6.496		3.937	3.543	4.409	10,474	82,449	25,324	17,260	15	M12X90	104.8	17.750
PL4 1/2 AD	4.500		6.496		3.937	3.543	4.409	10,474	83,610	24,972	17,260	15	M12X90	104.8	17.313
PL4 15/16 AD	4.938	-0.0025" +0	7.087	+0.0025" -0	4.567	4.094	5.118	16,596	107,604	23,003	16,100	13	M14X90	166.1	19.936
PL5 AD	5.000		7.087		4.567	4.094	5.118	16,596	108,966	22,715	16,100	13	M14X90	166.1	19.374
PL5 1/2 AD	5.500		7.492		4.567	4.094	5.118	16,596	138,083	23,837	17,550	15	M14X90	166.1	19.198
PL6 AD	6.000		8.268		4.567	4.094	5.118	16,596	170,783	24,820	17,840	17	M14X90	166.1	24.651
PL6 1/2 AD	6.500		8.858		5.748	5.276	6.378	25,668	226,478	21,804	15,960	15	M16X120	256.8	41.804
PL7 AD	7.000		9.252		5.748	5.276	6.378	25,668	260,773	21,584	16,390	16	M16X120	256.8	42.072
PL7 1/2 AD	7.500	-0.0028" +0	9.823	+0.0028" -0	5.748	5.276	6.378	25,668	295,576	21,409	16,390	17	M16X120	256.8	46.844
PL7 7/8 AD	7.875		10.235		5.748	5.276	6.378	25,668	310,239	20,303	15,670	17	M16X120	256.8	49.401
PL8 AD	8.000		10.504		5.748	5.276	6.378	25,668	315,163	19,986	14,670	17	M16X120	256.8	51.040
PL8 1/2 AD	8.500		11.220		5.748	5.276	6.378	25,668	395,097	22,169	17,120	20	M16X120	256.8	61.815
PL9 AD	9.000		11.669		5.748	5.276	6.378	25,668	418,338	20,937	16,460	20	M16X120	256.8	69.300
PL9 1/2 AD	9.500		12.154		5.748	5.276	6.378	25,668	441,579	19,835	15,800	20	M16X120	256.8	71.280
PL10 AD	10.000		12.795		5.748	5.276	6.378	25,668	511,517	16,925	13,200	22	M16X120	256.8	73.577
PL10 1/2 AD	10.500	-0.0032" +0	13.319	+0.0032" -0	5.748	5.276	6.378	25,668	537,093	16,119	13,740	22	M16X120	256.8	78.760
PL11 AD	11.000		14.000		6.969	6.496	7.756	49,862	799,084	21,802	17,120	20	M20X150	498.9	103.674
PL11 13/16 AD	11.813		14.762		6.969	6.496	7.756	49,862	943,918	22,333	17,840	22	M20X150	498.9	109.211

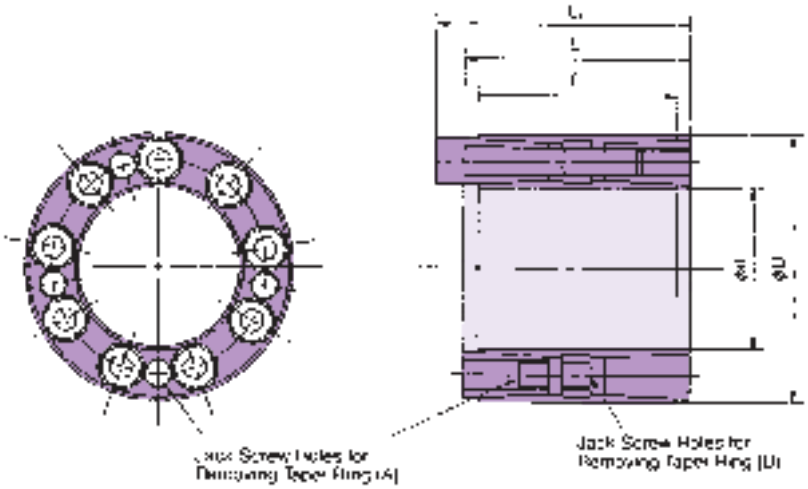
Note: Min. Hub Dia. (D_N) calculated based upon the Formula (3) at (K) = 0.6. Refer to page D-29.

AD Metric Series

Model Number

PL 045 x 075 AD

- AD Series
- Outside Dia. (mm)
- Shaft Size (mm)
- POWER-LOCK®



AD Metric Series POWER-LOCK® Specifications

Model Number Inside Dia. X Outside Dia. (d X D)	Tolerance		Dimensions inch			Transmissible Torque Mt	Transmissible Thrust Pax	Locking Bolts			Contact Pressure		Weight
	Shaft O.D. t_1	Hub I.D. t_2	ℓ	L	L_1	ft./lbs.	lbs.	Qty.	Size	Tightening Torque Ma ft./lbs.	Shaft P psi	Hub P′ psi	lbs.
PL045X075 AD	-0.0015″ +0	+0.0015″ -0	2.2047	2.5197	2.8346	2,819	38,180	9	M8X50	29.7	25,970	15,670	2.759
PL048X080 AD			2.2047	2.5197	2.8346	3,004	38,180	9	M8X50	29.7	24,380	14,660	3.113
PL050X080 AD			2.2047	2.5197	2.8346	3,107	38,180	9	M8X50	29.7	23,510	14,660	2.980
PL055X085 AD	-0.0018″ +0	+0.0018″ -0	2.2047	2.5197	2.8346	3,402	38,180	9	M8X50	29.7	21,330	13,780	3.201
PL060X090 AD			2.2047	2.5197	2.8346	4,553	46,790	11	M8X50	29.7	23,940	15,960	3.422
PL065X095 AD			2.2047	2.5197	2.8346	4,989	46,790	11	M8X50	29.7	18,860	12,910	4.238
PL070X110 AD			2.7560	3.0709	3.4646	8,561	74,390	11	M10X70	60.0	25,970	16,540	6.865
PL075X115 AD			2.7560	3.0709	3.4646	9,077	74,390	11	M10X70	60.0	24,230	15,820	7.241
PL080X120 AD			2.7560	3.0709	3.4646	10,630	81,010	12	M10X70	60.0	24,810	16,540	7.616
PL085X125 AD	-0.0021″ +0	+0.0021″ -0	2.7560	3.0709	3.4646	11,290	81,010	12	M10X70	60.0	23,360	15,820	8.013
PL090X130 AD			2.7560	3.0709	3.4646	12,920	87,850	13	M10X70	60.0	23,940	16,540	8.389
PL095X135 AD			2.7560	3.0709	3.4646	13,650	87,850	13	M10X70	60.0	22,640	15,960	8.764
PL100X145 AD			3.5433	3.9370	4.4094	19,560	119,600	12	M12X90	104.8	22,780	15,670	13.510
PL110X155 AD			3.5433	3.9370	4.4094	23,390	129,800	13	M12X90	104.8	22,490	15,961	14.614
PL120X165 AD			3.5433	3.9370	4.4094	29,450	149,700	15	M12X90	104.8	23,800	17,270	15.717
PL130X180 AD	-0.0025″ +0	+0.0025″ -0	4.0945	4.5670	5.1181	37,420	175,500	13	M14X90	166.1	22,200	16,110	21.943
PL140X190 AD			4.0945	4.5670	5.1181	46,420	202,600	15	M14X90	166.1	23,800	17,560	23.400
PL150X200 AD			4.0945	4.5670	5.1181	53,060	216,100	16	M14X90	166.1	23,800	17,850	24.724
PL160X210 AD			4.0945	4.5670	5.1181	60,150	229,600	17	M14X90	166.1	23,650	17,850	26.270
PL170X225 AD			5.2756	5.7480	6.3780	78,230	280,400	15	M16X120	256.8	21,180	15,960	39.514
PL180X235 AD			5.2756	5.7480	6.3780	88,560	300,200	16	M16X120	256.8	21,330	16,400	41.722
PL190X250 AD	-0.0028″ +0	+0.0028″ -0	5.2756	5.7480	6.3780	98,890	317,900	17	M16X120	256.8	21,470	16,400	48.124
PL200X260 AD			5.2756	5.7480	6.3780	104,100	317,900	17	M16X120	256.8	20,310	15,670	50.331
PL220X285 AD			5.2756	5.7480	6.3780	135,100	375,300	20	M16X120	256.8	21,770	17,120	54.746
PL240X305 AD			5.2756	5.7480	6.3780	162,400	412,800	22	M16X120	256.8	21,910	17,410	64.680
PL260X325 AD	-0.0032″ +0	+0.0032″ -0	5.2756	5.7480	6.3780	175,600	412,800	22	M16X120	256.8	16,540	13,200	85.430
PL280X355 AD			6.4960	6.9685	7.7560	268,600	585,000	20	M20X150	498.9	21,770	17,120	107.064
PL300X375 AD			6.4960	6.9685	7.7560	316,600	644,600	22	M20X150	498.9	22,350	17,850	113.687

AD Inch/Metric Series POWER-LOCK® Minimum Hub Diameter (D_N) When Using Hub with Guide

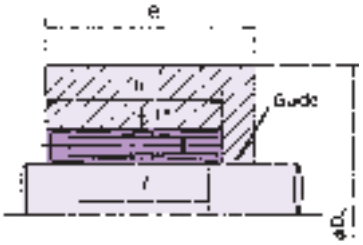
Or When Using Hub without Guide

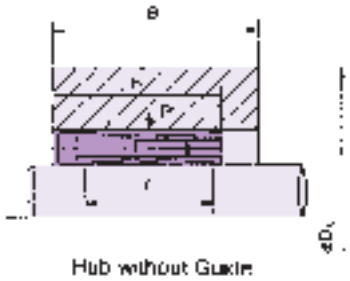
Based on: $b < B < 2\ell$

This table shows minimum hub D_N, which can tolerate surface pressure P′.

<EXAMPLE> Hub Material Yield Point = 50,000 psi

PL060X090AD





} Min. D_N = 4.960″

<Conversion>

1 psi = 0.0007 kgf/mm² = 0.0069 MPa

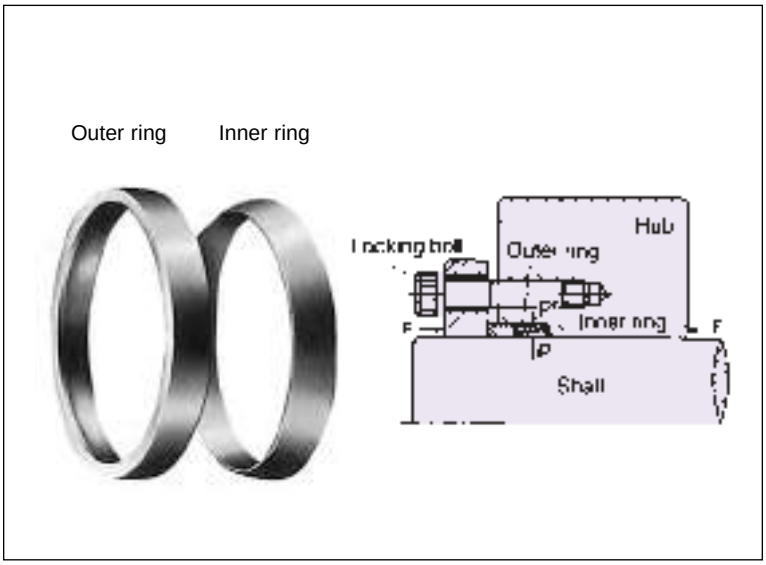
Min. Hub Dia. (D_N in inches)

Model Number		Contact Pressure in the Hub Bore P′ (psi)	Yield Point of Various Hub Material Y.P. (psi) Y.P. = $\sigma_{0.2}$					
			32,000	35,000	40,000	45,000	50,000	56,000
			Class No. 40 Grade No. 60-30	1015 Class No. 50 Grade No. 65-35	1018, 1020 1117 Class No. 60 Grade No. 40010	1118 Grade No. 45006	1030 Class No. 50005 Grade No. 80-65	1040, 1045 1137, 1141 1144 Grade No. 60004
PL045X075AD	PL1 3/4 AD	15,670	5.08	4.80	4.49	4.25	4.09	3.94
PL048X080AD	PL1 7/8 AD	14,650	5.20	4.92	4.65	4.45	4.29	4.13
PL050X080AD	PL1 15/16 AD	14,650	5.20	4.92	4.65	4.45	4.29	4.13
PL055X085AD	PL2 AD	13,780	5.31	5.08	4.80	4.61	4.45	4.33
	PL2 1/8 AD	13,780	5.31	5.08	4.80	4.61	4.45	4.33
PL060X090AD	PL2 3/16 AD	15,960	6.14	5.83	5.43	5.16	4.96	4.76
	PL2 1/4 AD	15,960	6.14	5.83	5.43	5.16	4.96	4.76
	PL2 3/8 AD	15,960	6.14	5.83	5.43	5.16	4.96	4.76
PL065X095AD	PL2 7/16 AD	12,910	5.75	5.51	5.24	5.04	4.88	4.76
	PL2 1/2 AD	12,910	5.75	5.51	5.24	5.04	4.88	4.76
	PL2 9/16 AD	12,910	5.75	5.51	5.24	5.04	4.88	4.76
PL070X110AD	PL2 5/8 AD	16,540	7.68	7.24	6.73	6.38	6.14	5.91
	PL2 11/16 AD	16,540	7.68	7.24	6.73	6.38	6.14	5.91
	PL2 3/4 AD	16,540	7.68	7.24	6.73	6.38	6.14	5.91
PL075X115AD	PL2 7/8 AD	15,810	7.80	7.40	6.89	6.54	6.30	6.06
	PL2 15/16 AD	15,810	7.80	7.40	6.89	6.54	6.30	6.06
PL080X120AD	PL3 AD	16,540	8.39	7.91	7.36	6.97	6.69	6.42
PL085X125AD	PL3 3/8 AD	15,820	8.46	8.03	7.48	7.13	6.85	6.61
PL090X130AD	PL3 7/16 AD	16,540	9.09	8.58	7.95	7.56	7.24	6.97
	PL3 1/2 AD	16,540	9.09	8.58	7.95	7.56	7.24	6.97
PL095X135AD	PL3 3/4 AD	15,960	9.21	8.70	8.11	7.72	7.40	7.13
PL100X145AD	PL3 15/16 AD	15,670	9.76	9.25	8.66	8.23	7.91	7.64
	PL4 AD	15,310	9.84	9.34	8.75	8.33	8.02	7.74
PL110X155AD		15,960	10.55	10.00	9.33	8.86	8.50	8.19
PL120X165AD	PL4 7/16 AD	17,270	11.89	11.18	10.31	9.76	9.33	8.94
	PL4 1/2 AD	17,270	11.89	11.18	10.31	9.76	9.33	8.94
PL130X180AD	PL4 15/16 AD	16,110	12.36	11.65	10.87	10.31	9.92	9.53
	PL5 AD	16,110	12.36	11.65	10.87	10.31	9.92	9.53
PL140X190AD	PL5 1/2 AD	17,560	13.86	12.99	12.01	11.30	10.83	10.35
PL150X200AD	PL6 AD	17,850	14.80	13.82	12.76	12.01	11.46	10.98
PL160X210AD		17,850	15.55	14.53	13.39	12.60	12.01	11.54
PL170X225AD	PL6 1/2 AD	15,960	15.31	14.53	13.54	12.83	12.36	11.89
PL180X235AD	PL7 AD	16,400	16.30	15.39	14.33	13.58	13.03	12.52
PL190X250AD	PL7 1/2 AD	16,400	17.36	16.38	15.24	14.45	13.86	13.31
PL200X260AD	PL7 7/8 AD	15,670	17.52	16.57	15.51	10.79	14.17	13.66
	PL8 AD	14,670	17.24	16.42	15.43	14.73	14.21	13.74
PL220X285AD	PL8 1/2 AD	17,120	20.39	19.16	17.73	16.45	16.03	15.39
	PL9 AD	16,460	20.61	19.44	18.07	17.12	16.43	15.80
PL240X305AD		17,410	22.13	20.75	19.17	18.07	17.28	16.57
	PL9 1/2 AD	15,800	20.88	19.77	18.46	17.54	16.86	16.24
PL260X325AD	PL10 AD	13,200	19.84	19.06	18.03	17.32	16.77	16.30
	PL10 1/2 AD	13,740	21.08	20.17	19.05	18.26	17.66	17.11
PL280X355AD	PL11 AD	17,120	25.39	23.90	22.09	20.87	20.00	19.17
PL300X375AD	PL11 13/16 AD	17,850	27.72	25.94	23.86	22.48	21.46	20.55

Note: Min. Hub Dia. (D_N) calculated based upon the Formula (3) at (K) = 1.0. Refer to page D-29.

EL Metric Series

POWER-LOCK® EL is a frictional keyless shaft-hub locking device for connecting hubs and shafts subject to large torque variations. The EL series POWER-LOCK is a simple structure consisting of two tapered rings.



1. **COMPACT**
   POWER-LOCK EL is very compact and lightweight, and does not require a wide fitting space.
2. **DESIGN VERSATILITY**
   Proven performance and reliability in hundreds of applications worldwide.
3. **EASY ANGULAR AND AXIAL POSITIONING**
   Extremely easy to position, and can be used at any place on the shaft.
4. **COMPLETELY TIGHT FIT WITH NO BACKLASH**
   POWER-LOCK EL provides a completely tight fit, so there is no backlash and no seizure.
5. **BALANCES**
   Being a complete ring with no slit, POWER-LOCK EL provides a well-balanced fitting.
6. **EASY ASSEMBLY AND DISASSEMBLY**
   POWER-LOCK EL has no moving parts, and wear is negligible. Frequent disassembly and reassembly is possible.

■ CONNECTING PRINCIPLE

When locking force F is applied to POWER-LOCK EL, it pushes the inner ring and outer ring together, generating radial direction pressures (P, P′) on the shaft and to the hub bore.

These pressures (P, P′) create the frictional connection. When the locking bolt is untightened, POWER-LOCK EL can be easily disassembled and removed.

PL 015 x 019 E

- PL — POWER-LOCK
- 015 — Shaft Size (mm)
- 019 — Outside Dia. (mm)
- E — EL Series

Lock on Corrosion Resistance

POWER-LOCK® with Ultra-Polymer Coating

U.S. Tsubaki offers POWER-LOCK with an exclusive Ultra-Polymer coating for corrosion resistance. If your operating environment involves exposure to some chemicals or even sea water, Ultra-Polymer-coated POWER-LOCK offers real value over stainless steel.

The Ultra-Polymer Coating is a complex combination of nickel and Teflon®. It will not corrode or peel. That makes it an excellent choice for food applications. In fact, the coating is approved by the U.S. Department of Agriculture.

And, best of all, POWER-LOCK with Ultra-Polymer Coating is readily available, which reduces your lead time.

Protect your equipment with POWER-LOCK and protect your POWER-LOCK with Ultra-Polymer Coating. It's a cost-effective way to extend the life of your equipment.

Corrosion Resistance of Stainless Steel Versus Ultra-Polymer Coating

Substance	Stainless Steel (304)	Ultra-Polymer Coating
Acetone	●	●
Oil (Plant, Mineral)	●	●
Alcohol	●	●
Ammonia Water	●	●
Sodium Chloride	○	●
Sea Water	○	●
Hydrogen Peroxide (10%)	●	●
Caustic Soda (25%)	●	●
Gasoline	●	●
Formic Acid (10%)	X	●
Formaldehyde	●	●
Milk	●	●
Lactic Acid	●	●
Citric Acid	●	●
Chromic Acid (10%)	●	●
Acetic Acid (5%)	●	○
Carbon Tetrachloride	○	●
Potassium Hydroxide (20%)	●	X
Sodium Hydroxide (20%)	●	○
Nitric Acid (5%)	●	X
Vinegar	○	○
Soft Drinks	●	●
Soap & Water Solution	●	●
Paraffin	●	●
Beer	●	●
Fruit Juice	●	●
Wine	●	●
Whiskey	●	●
Benzene	●	●
Water	●	●
Vegetable Juice	●	●
Sulphuric Acid	X	○
Phosphoric Acid (10%)	○	●

● = Highly corrosion resistant
○ = Marginally corrosion resistant (depending on application conditions)
X = Not corrosion resistant

Teflon® is a registered trademark of E.I. du Pont de Nemours and Company.

U.S. Tsubaki DISCO

Powerful, flexible and reliable speed variation backed by U.S. Tsubaki high technology.

DISCO

■ **Low Maintenance**
- Use of a synthetic oil means virtually no maintenance is necessary.
- DISCO is shipped fully lubricated, and can be put to use immediately.

■ **Compact, lightweight design**
- Compact design for use almost anywhere in your environment.
- Lightweight aluminum case allows for easier handling.

■ **Flexible placement of speed control knob**
- Removing just one screw allows you to change the speed control knob position, and use it on the side appropriate for the installation position.
- Ergonomically designed, easy-to-grip knob.

■ **Remote control related options available**
- The electrical type speed variation range has been increased to a 6-to-1 speed range, the same as that for the speed control knob type.

■ **Uses the ANSI key**
- The input-output shaft keys meet ANSI standards.

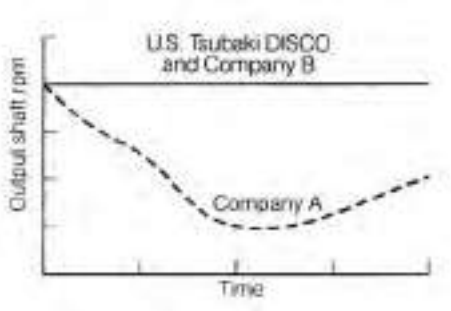
INFINITELY VARIABLE SPEED DRIVES

U.S. Tsubaki DISCO is one of the most competitive traction drive units on the market today.

DISCO combines compactness and simplicity with energy efficiency to ensure quiet operation and long, trouble-free performance.

Starting with materials of the highest quality, U.S. Tsubaki carefully manufactures and assembles DISCO according to strict quality control and efficient manufacturing processes.

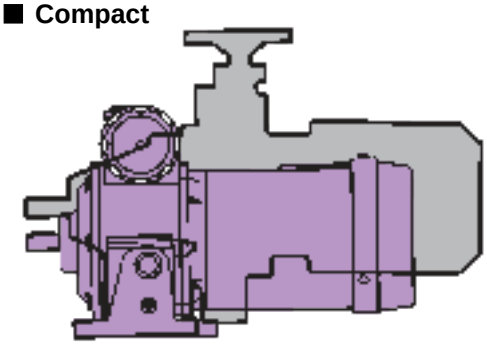
■ Speed stability



Comparison of speed stability

DISCO uses precisely machined parts. This provides very low speed drift under changing loads or over long periods of operation; speed is stable right throughout the range, with very little noise or vibration.

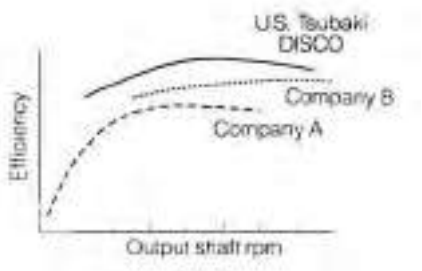
■ Compact



Size comparison

The unique construction of DISCO minimizes the number of parts required, yielding a lightweight, compact design—the smallest in its class.

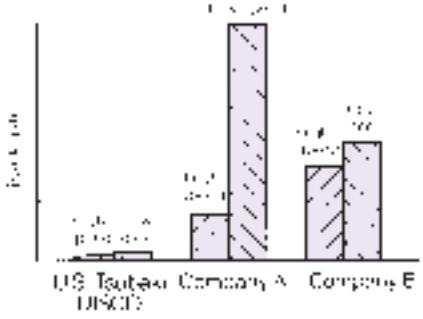
■ High efficiency & long life



Comparison of mechanical efficiency

To achieve long-term, high torque capacity and wide speed variation with low surface pressure, DISCO employs a planetary design utilizing specially formulated synthetic lubricants.

■ Low backlash and good shock resistance

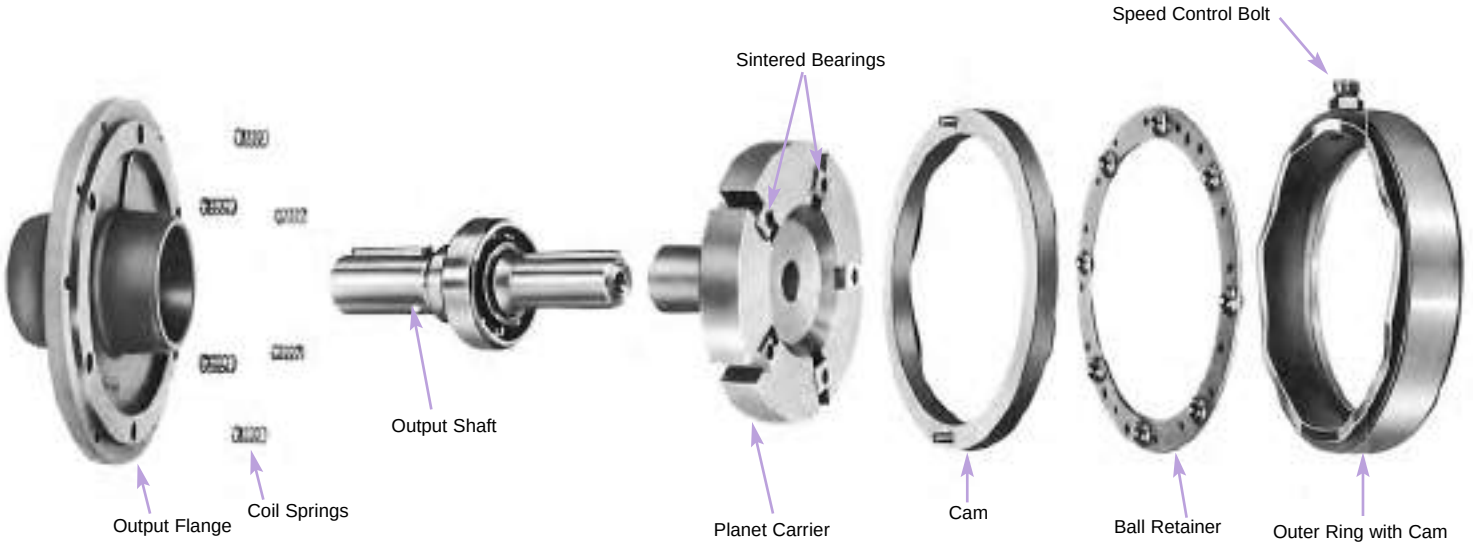


Comparison of amount of backlash

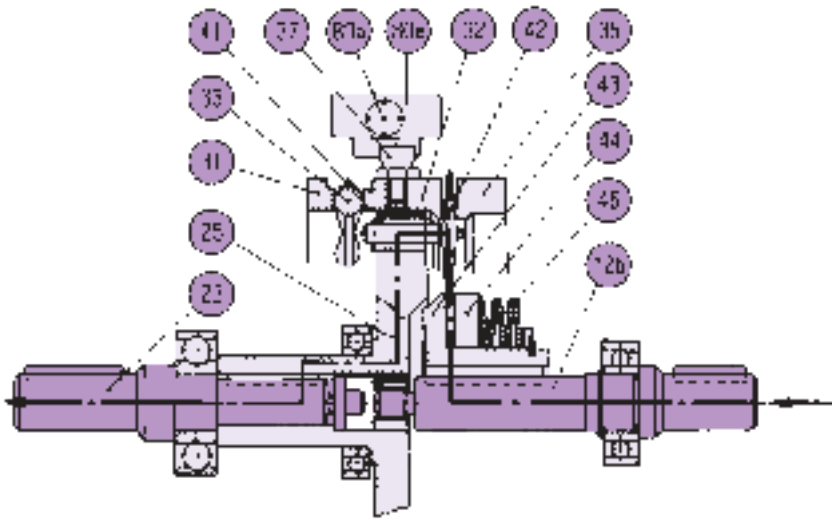
DISCO is constructed to allow for constant pressure, eliminating backlash and providing good shock resistance. This allows you to use DISCO with confidence in situations requiring frequent start/stop cycles or reversing.

Variable Speed Mechanism

The secret to the dependability of DISCO lies in its simple construction.

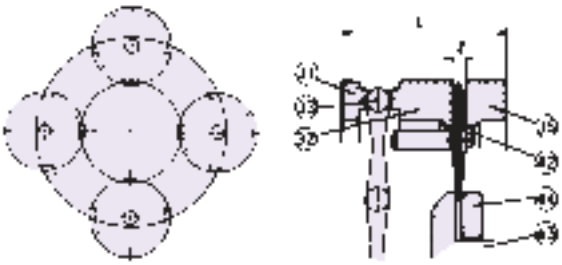


■ DISCO basic construction



■ Speed variation arrangements

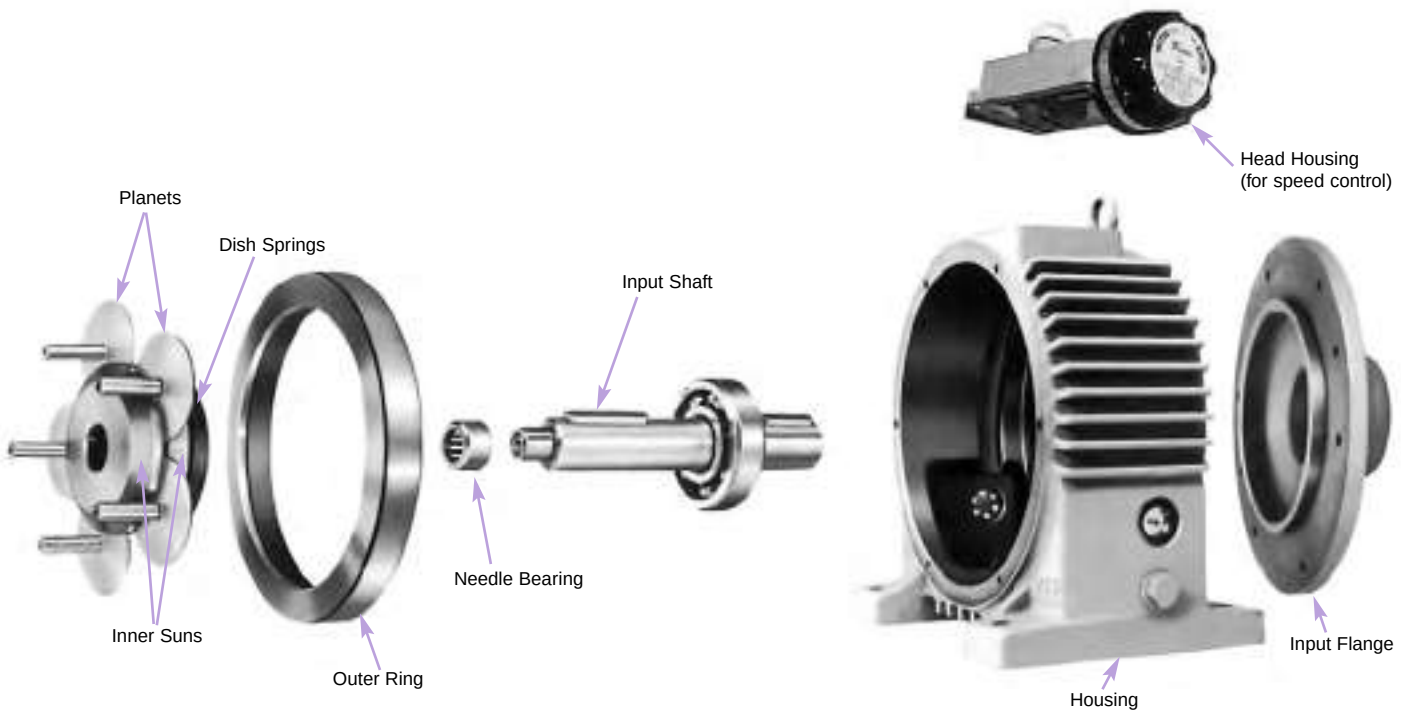
(a) Output shaft at minimum speed



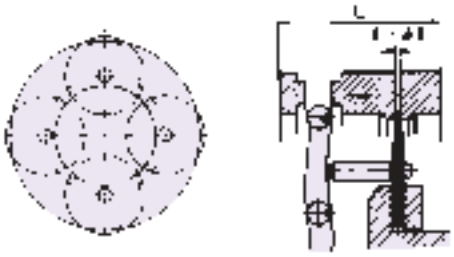
1. **Power transfer**

   Power is transferred through the route shown by the thick dotted line in the diagram. First, the rotation of the input shaft (12b) is transferred to the inner sun with hub (43), and then the inner sun (44). The inner sides of the circular parts of the planets (42) are pushed by both suns by the force of the dish spring (46), and the outer sides are pressed against the outer ring and outer ring with cam.

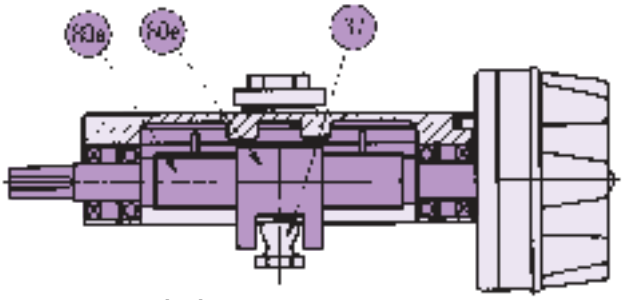
   When the suns rotate, the planets revolve in a fixed orbit as shown in the drawings (a) and (b). The sintered bearings (41), fitted into the grooves of the planet carrier (25), transmit the rotation to the output shaft (23).



(b) Output shaft at maximum speed



■ Speed control head housing construction



2. **Speed variation**

   Speed adjustment is achieved by modifying the gap ℓ between the outer ring (35) and the outer ring with cam (32), and changing the radius of the planet's orbital revolution.

   The outer ring with cam has a special shape (32), holding the ball retainer (33) in place. Turning the speed control shaft (80a) acts through the speed control nut (80e) and the speed control bolt (37) to move the outer ring with cam in the direction of rotation. The cam moves only $\triangle\ell$ in the direction of the shaft, and changes the gap ℓ.

3. **Power transmission**

   Power is transmitted via a traction drive through an oil membrane that forms between the ground contact surfaces.

   The low surface pressure on the contact surfaces assures long life. Planet positioning is the secret to achieving strength in this compact design.

Standard Types

K Series (constant torque)

● Stock product ○Short lead time product

DISCO capacity H.P.				1/4 (0.2kW)	1/2 (0.4kW)	1 (0.75kW)	2 (1.5kW)	3 (2.2kW)	5 (3.7kW)	7.5 (5.5kW)	10 (7.5kW)	Speed range (rpm) with 60 Hz — 4P motor directly connected
Model				DK002	DK004	DK007	DK015	DK022	DK037	DK055	DK075	2 4 6 8 10 20 40 60 80 100 200 400 600 1000 2000
Basic type		NEMA C-flange input type	Free output type	●	●	●	●	●	●	●	●	1/4 H.P. to 5 H.P. 200 1200
		Free input type		●	●	●	●	●	●	●	●	
		NEMA C-flange input type	NEMA-C flange output type	●	●	●	●	●	●	—	—	7.5 H.P. to 30 H.P. 240 1200
with Helical Gear Speed Reducer	R type	NEMA C-flange input type	Speed reduction ratio 2.5:1	●	●	●	●	●	●	●	●	1/4 H.P. to 5 H.P. 80 480
		Free input type		●	●	●	●	●	●	●	●	7.5 H.P. to 30 H.P. 96 480
		NEMA C-flange input type	Speed reduction ratio 5:1	●	●	●	●	●	●	●	●	1/4 H.P. to 5 H.P. 40 240
		Free input type		●	●	●	●	●	●	●	●	7.5 H.P. to 30 H.P. 40 240

*In stock unless temporarily sold out.

Explanation of model number

DK 007 A FN

- Input style (FN: NEMA-C flange input type, if not specified: free input type)
- DISCO mounting system (A: foot mounted)
- Capacity (DISCO capacity 007: 1 hp)
- DISCO K Series

DK 004 A

- DISCO mounting (A: foot mounted)
- Capacity (DISCO capacity 004: 1/2 hp)
- DISCO K Series

DK 015 FNFN - 1

- NEMA-C flange output/input combination mark
- DISCO mounting system (FNFN: NEMA-C flange output/input type)
- Capacity (DISCO capacity 015: 2 hp)
- DISCO K Series

DK007A R 5 FN

- Speed reduction ratio 5:1
- R model — one-stage speed reducer

Models and Special Symbols

Example of Model Number

DISCO with speed reducers | Special symbols

D	K	007	F	S	30	A	FN	—	D	E

D: DISCO infinitely variable speed drive

K: Series name
K Series (constant torque type)

007: Capacity symbol
002: ¼ HP (0.2 kw)
004: ½ HP (0.4 kw)
007: 1 HP (0.75 kw)
015: 2 HP (1.5 kw)
022: 3 HP (2.2 kw)
037: 5 HP (3.7 kw)
055: 7½ HP (5.5 kw)
075: 10 HP (7.5 kw)

F: DISCO section installation method
A : Foot mounted
F : Flange mounted
FN : NEMA-C flange mounted

NOTE: DISCO selection covered on pages D-79 and D-80.

S: Speed reducer symbol
R model (1 stage speed reducer)
S model (2 stage speed reducer)

30: Speed reduction ratio 30:1

A: Speed reduction section mounting method (A: Foot mounted)

FN: DISCO input installation method
FN: NEMA-C flange

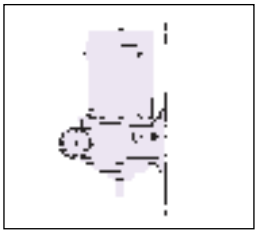
D: Variable speed drive mounting direction (when there is nothing under the special type, an entry is not necessary)
Select the special specification symbols in the order given.
(Example: D, R, U)

E: Electrical remote control operation (when there is nothing under the special type, an entry is not necessary).
Select the special specification symbols in the order given.
(Example: E, P)

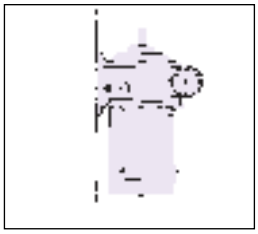
Special Specification Symbols

Variable speed drive mounting direction

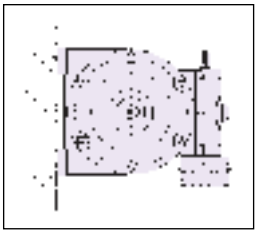
D Vertical mounted, output shaft down



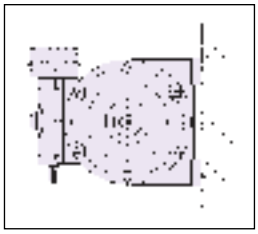
F Vertical mounted, output shaft up



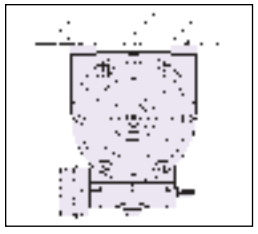
R Wall mounted, right operation



L Wall mounted, left operation

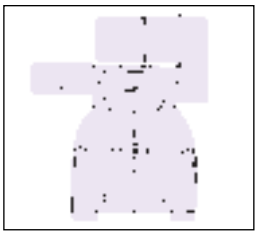


U Ceiling mounted



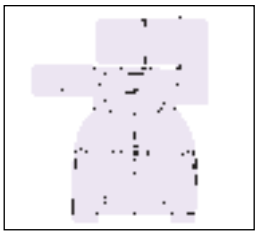
Electrical remote control operation

E Basic type



Pilot motor to vary speed

P Potentiometer system



Pilot motor and analog meter

K Series DISCO

Specifications

DISCO infinitely variable speed drive K series	
Characteristics	Constant torque and constant horsepower interim characteristics
Output shaft torque	At low speed, twice the high-speed torque
Variable speed ratio	6 to 1 (Note: for 15 h.p. and above — 5 to 1)
Output shaft speed	200 to 1,200 rpm with 60 Hz - 4P Motor directly connected (Note: 240 to 1200 rpm for 15 h.p. and above)
Use and selection points	Use for applications where load torque is constant regardless of speed, and select by calculating the load torque at maximum speed
Available Type	Basic (without speed reducer)
	With helical gear speed reducer (2.5:1 through 45:1)

NOTE: DISCO selection covered on pages D-79 and D-80.

Output Shaft Torque vs. Output Shaft Speed (Basic Type)

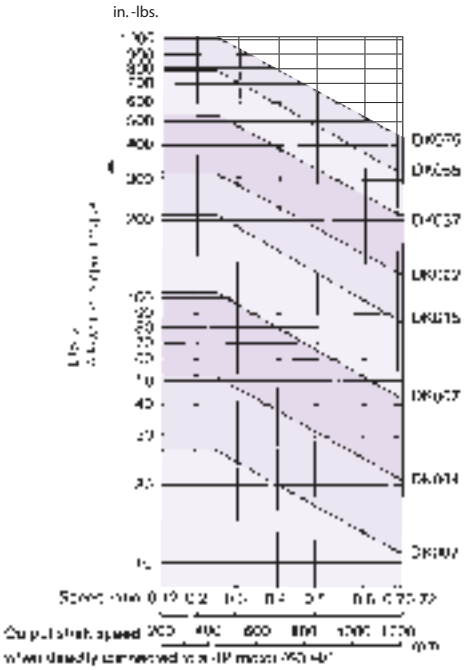


Table of Standard Characteristics

Please refer to the “Output Shaft Torque vs. Output Shaft Speed” graph for the relationship between speed and output shaft torque.

Basic type

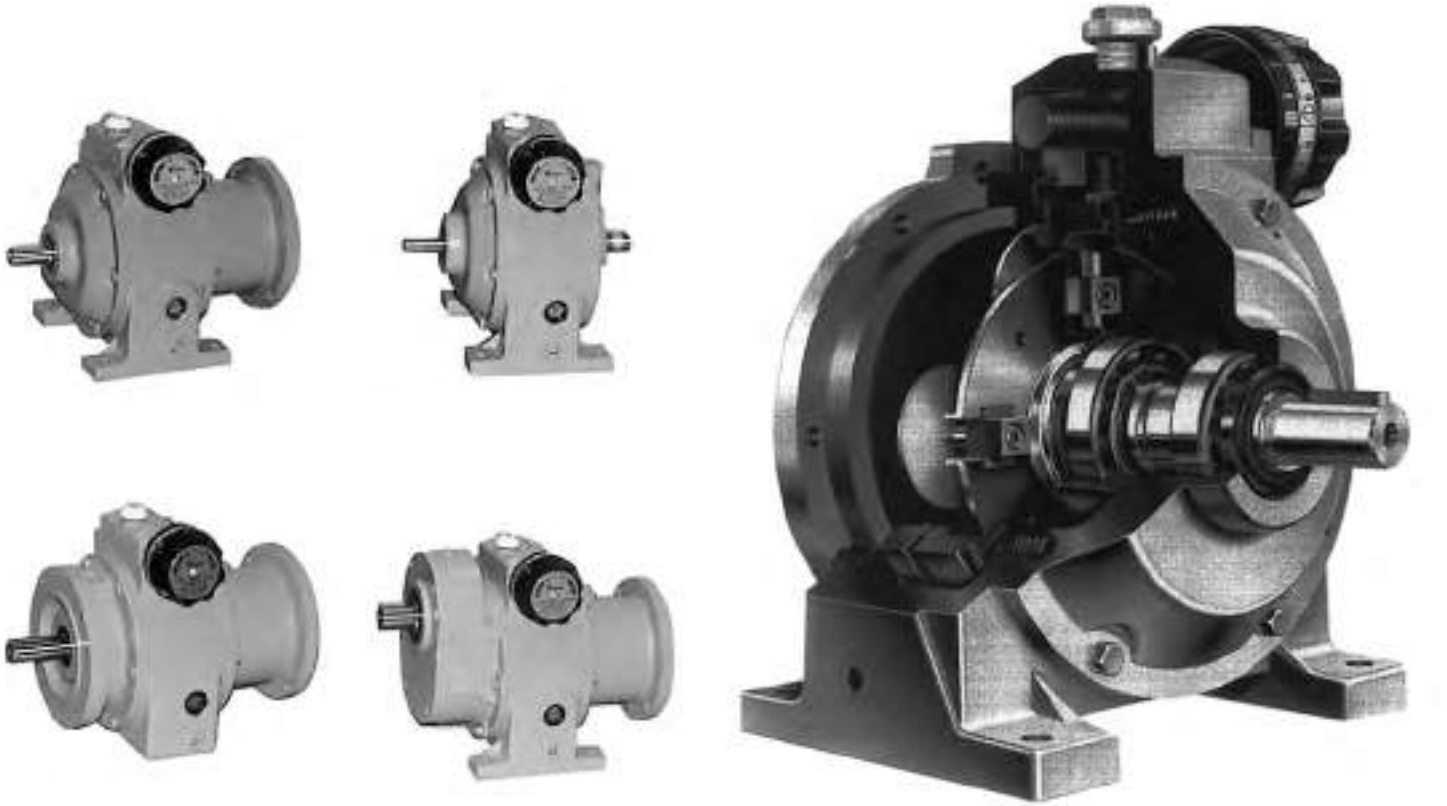
Model number			Variable Speed Range	Ratio Range Output rpm / Input rpm	Output shaft speed when directly connected to a 4P-60HZ motor rpm	Output shaft torque in./lbs.	Allowable overhang load lbs.		Allowable thrust load lbs.	
NEMA C-flange input type		Free input type								
Foot mounted	NEMA C-flange mounted	Foot mounted				Input shaft speed up to 1800 rpm	Input shaft	Output shaft	Input shaft	Output shaft
DK002AFN DK004AFN DK007AFN	DK002FNFN DK004FNFN DK007FNFN	DK002A DK004A DK007A	6 to 1	1/8.4 ~ 1/1.4	200 ~ 1200	26.0 ~ 11.2 52.0 ~ 21.6 104 ~ 43	66 88 110	88 132 220	44 77 96	66 110 220
DK015AFN DK022AFN DK037AFN	DK015FNFN DK022FNFN DK037FNFN	DK015A DK022A DK037A				208 ~ 87 312 ~ 130 520 ~ 217	165 330 330	286 418 418	136 308 308	286 374 374
DK055AFN DK075AFN	— —	DK055A DK075A				780 ~ 329 1,040 ~ 433	385 385	484 484	330 330	440 440

Note: Output shaft turns same direction as input.
Ratio range is ratio of output rpm to input rpm.

With R type speed reducer (reduction ratio 2.5:1 and 5:1)

Speed reducer reduction ratio	Model number		Variable Speed Range	Ratio Range (Output rpm / Input rpm)	Output shaft speed when directly connected to a 4P-60HZ motor rpm	Output shaft torque in./lbs.	Allowable overhang load lbs.		Allowable thrust load lbs.	
	NEMA C-flange input type	Free input type								
	Foot mounted	Foot mounted				Input shaft speed up to 1800 rpm	Input shaft	Output shaft	Input shaft	Output shaft
2.5:1	DK002A R2.5FN DK004A R2.5FN DK007A R2.5FN	DK002A R2.5 DK004A R2.5 DK007A R2.5	6 to 1	1/21 ~ 1/3.5	80 ~ 480	62 ~ 27 124 ~ 51 247 ~ 102	66 88 110	154 242 374	44 77 96	50 81 125
	DK015A R2.5FN DK022A R2.5FN DK037A R2.5FN	DK015A R2.5 DK022A R2.5 DK037A R2.5				444 ~ 207 741 ~ 309 1,235 ~ 515	165 330 330	726 1,057 1,057	136 308 308	242 352 352
	DK055A R2.5FN DK075A R2.5FN	DK055A R2.5 DK075A R2.5				1,855 ~ 771 2,470 ~ 1,031	385 385	1,431 1,431	330 330	477 477
5:1	DK002A R5FN DK004A R5FN DK007A R5FN	DK002A R5 DK004A R5 DK007A R5	6 to 1	1/42 ~ 1/7	40 ~ 240	124 ~ 54 248 ~ 102 494 ~ 204	66 88 110	154 242 374	44 77 96	50 81 125
	DK015A R5FN DK022A R5FN DK037A R5FN	DK015A R5 DK022A R5 DK037A R5				988 ~ 414 1,482 ~ 618 2,470 ~ 1,030	165 330 330	726 1,057 1,057	136 308 308	242 352 352
	DK055A R5FN DK075A R5FN	DK055A R5 DK075A R5				3,710 ~ 1,543 4,841 ~ 2,063	385 385	1,431 1,431	330 330	477 477

Output shaft turns opposite direction as input.



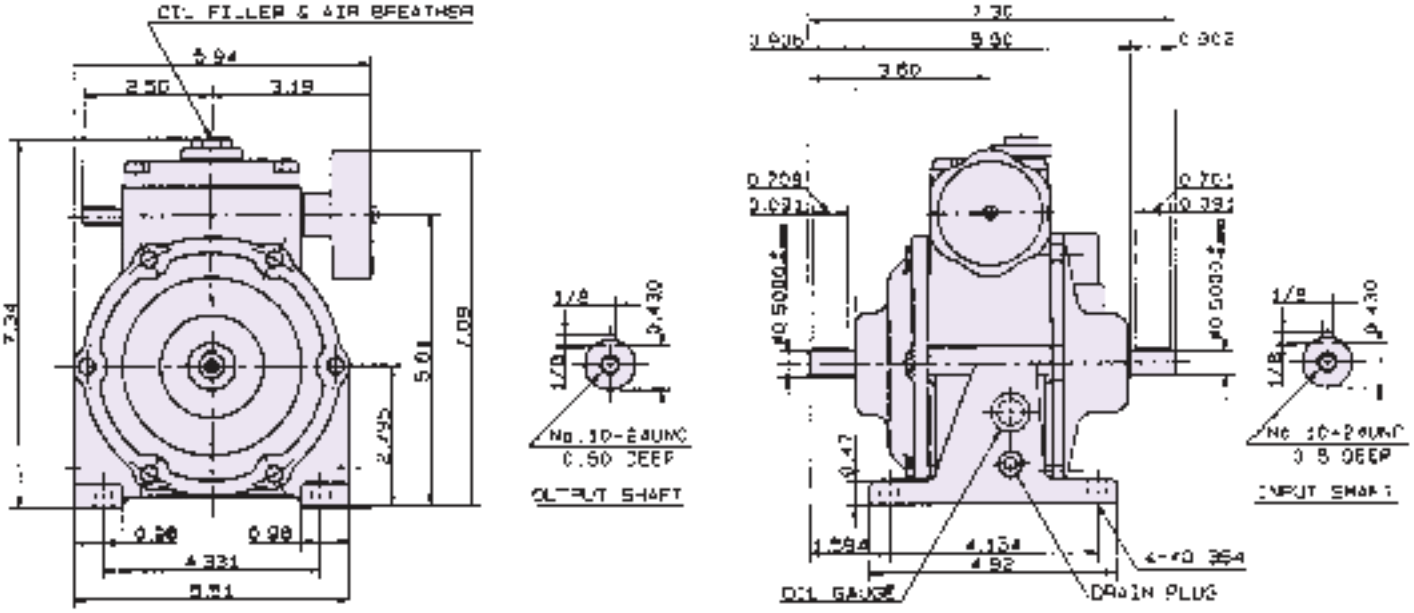
Free Input/Free Output Type (1/4 H.P. to 30 H.P.)

DK 002 A

- A: DISCO mounting (A: foot mounted)
- 002: Capacity (DISCO capacity 002: 1/4 hp)
- DK: DISCO K Series

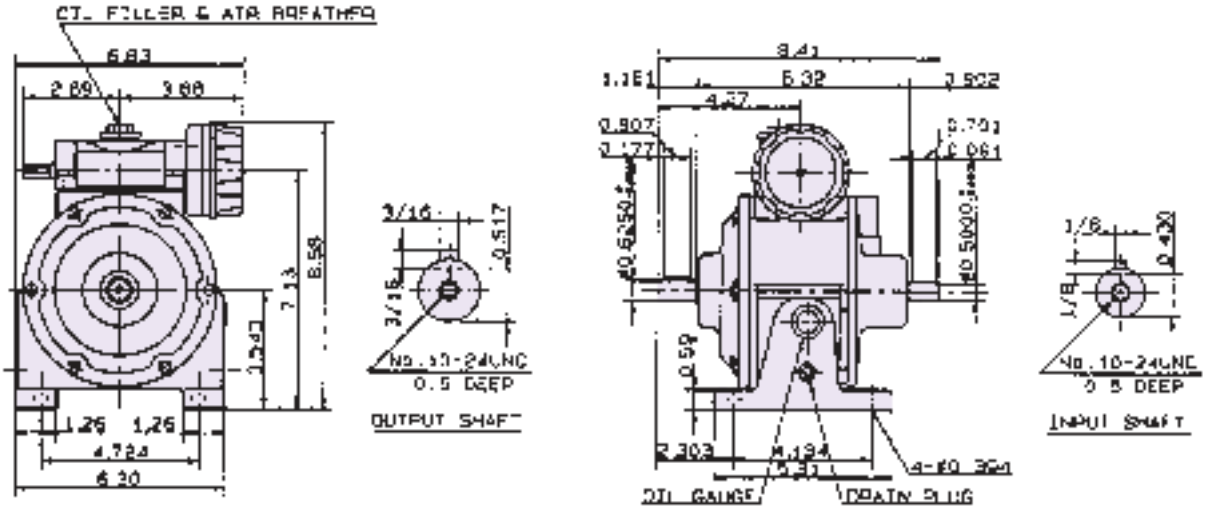
All dimensions in inches, unless otherwise noted.
All weights are approximate and include lubrication.

DK002A



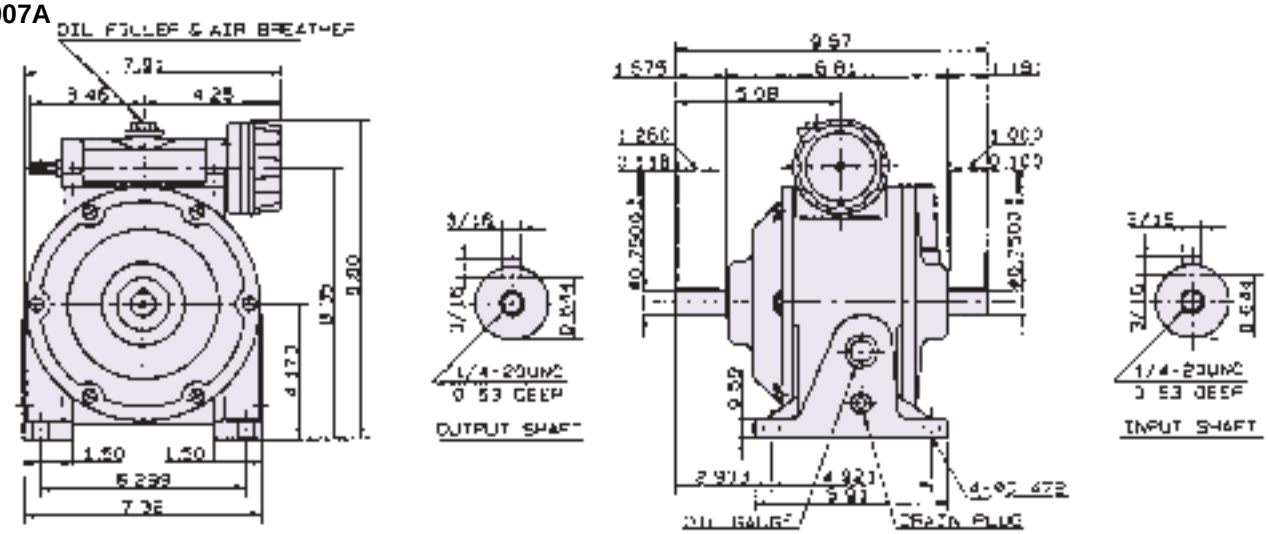
Weight: 11 lbs.

DK004A



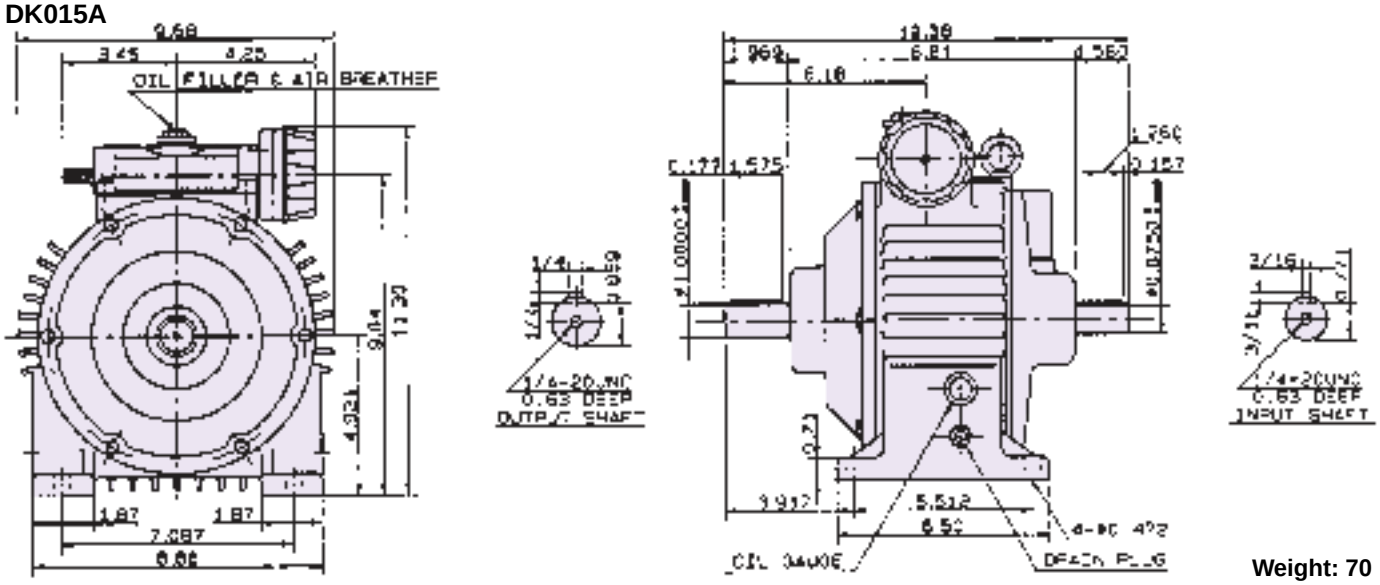
Weight: 26 lbs.

DK007A



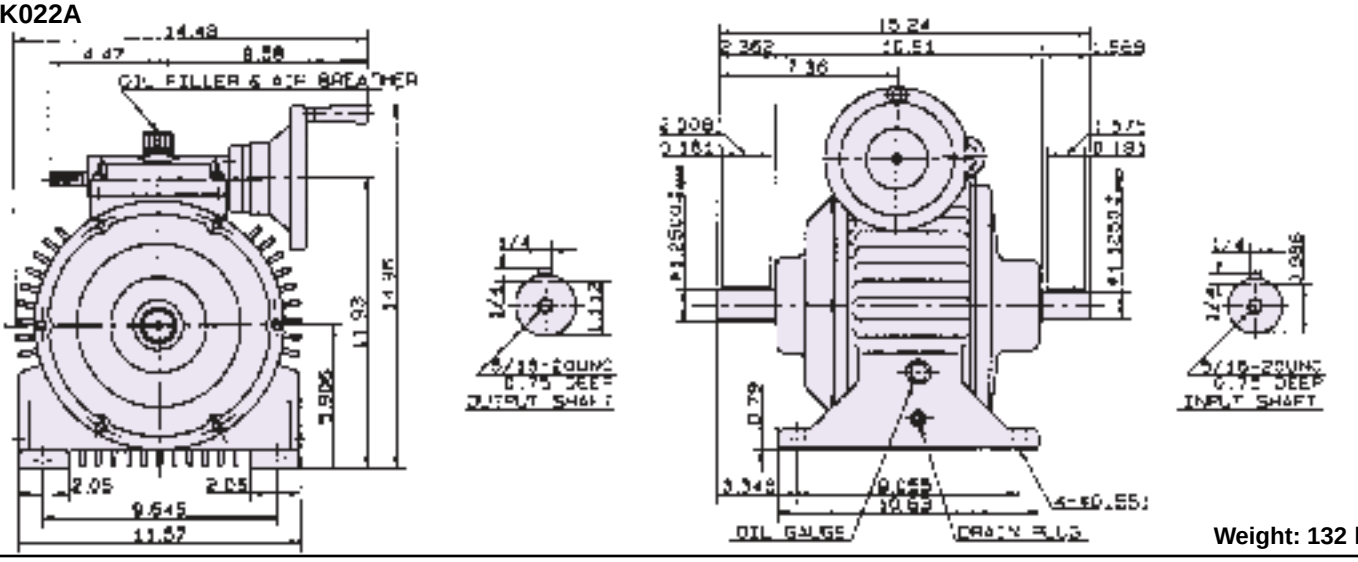
Weight: 40 lbs.

DK015A



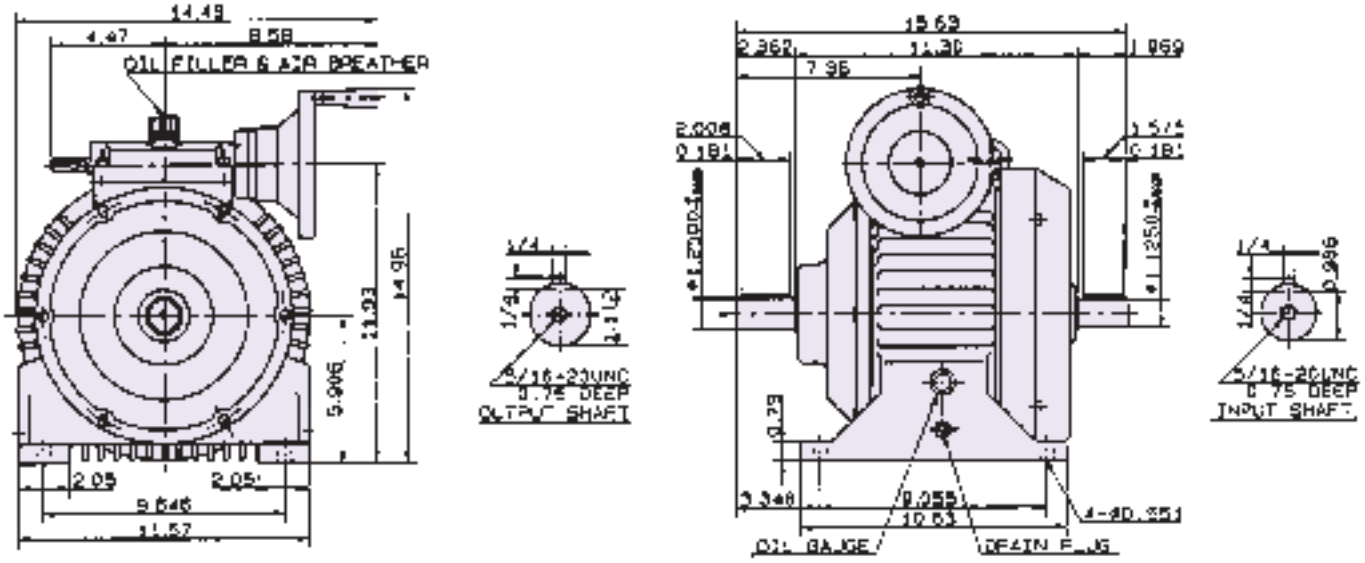
Weight: 70 lbs.

DK022A



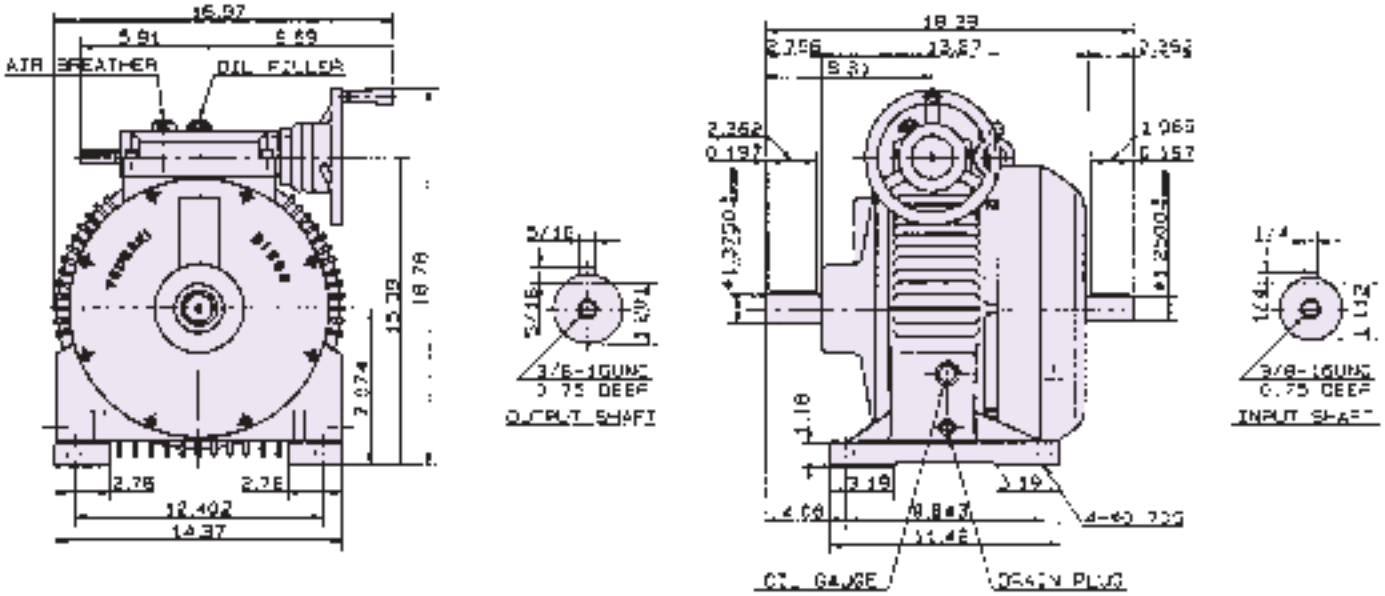
Weight: 132 lbs.

DK037A



Weight: 141 lbs.

DK055A
DK075A



Weight: 249 lbs.

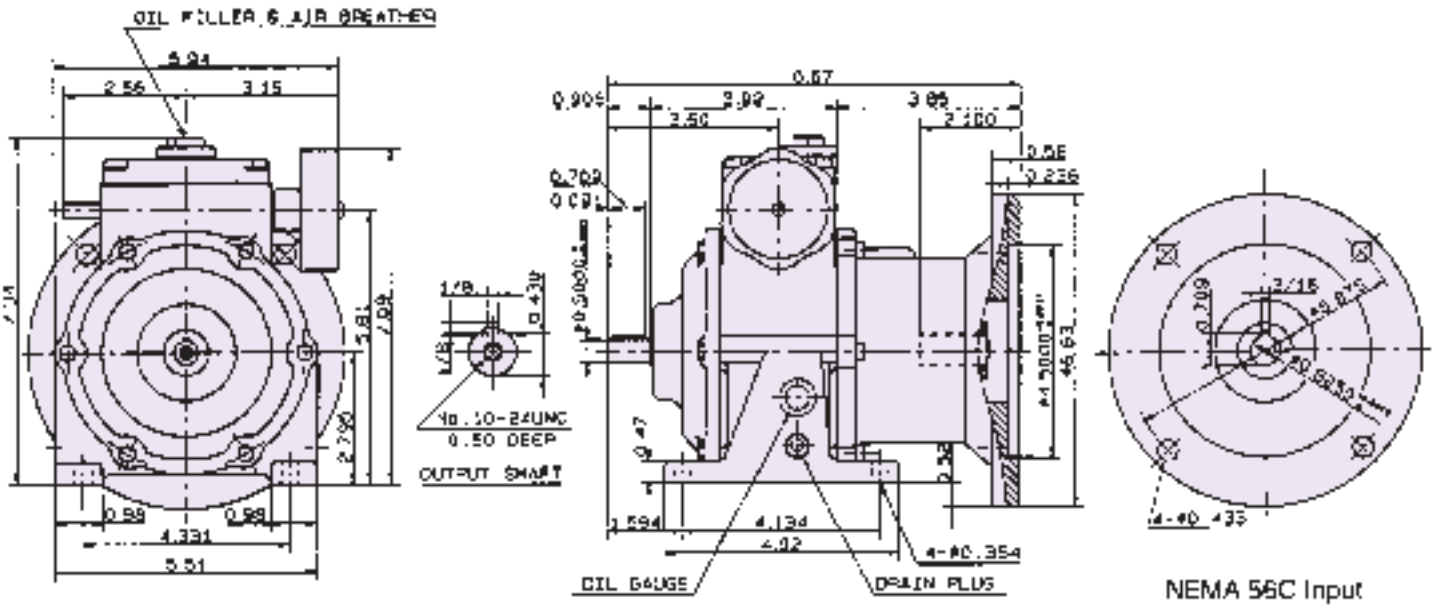
NEMA-C Flange Input/Free Output Type (1/4 H.P. to 10 H.P.)

Example of model number

DK 002 A FN

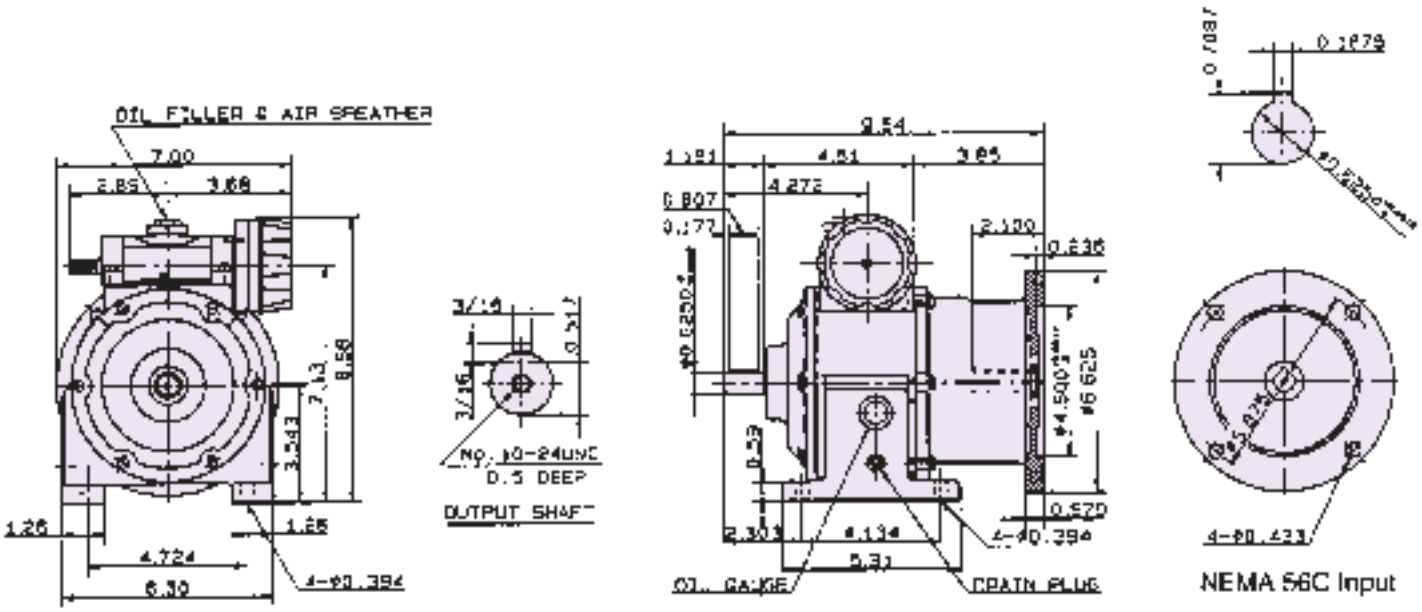
- FN: NEMA-C flange DISCO input installation
- A: DISCO mounting (A: foot mounted)
- 002: Capacity (DISCO capacity 002: 1/4 hp)
- DK: DISCO K Series

DK002AFN



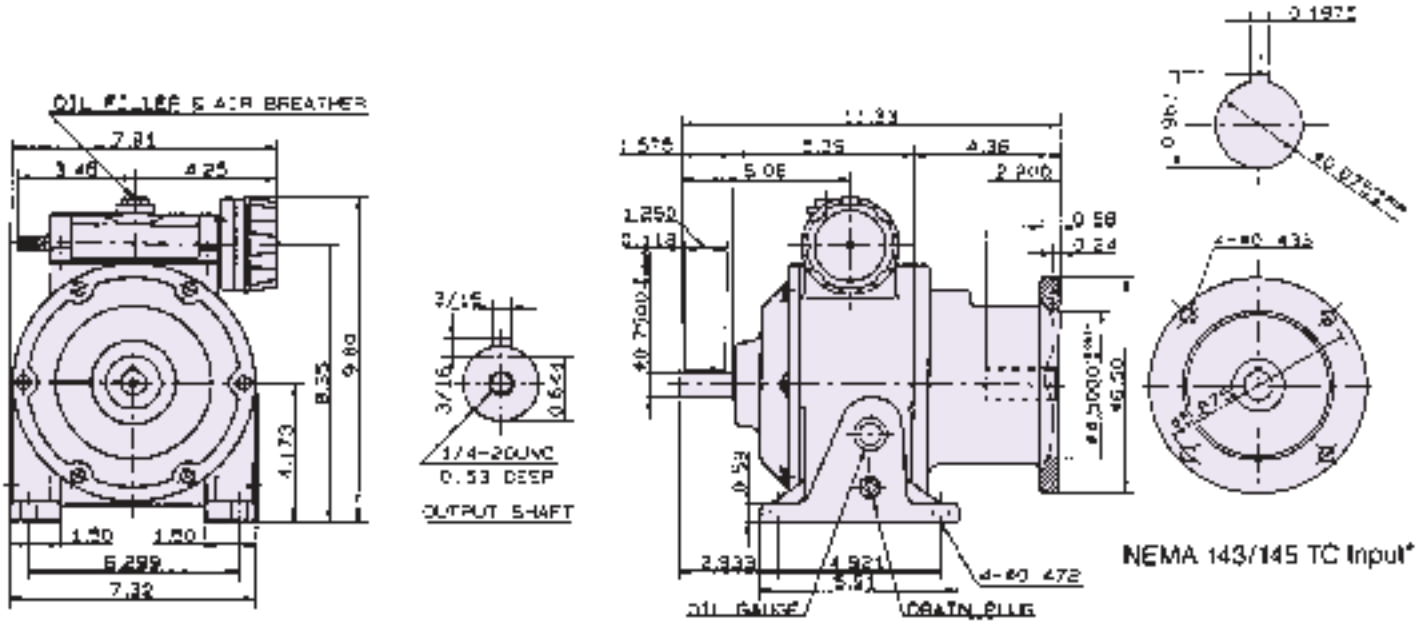
Weight: 18 lbs.

DK004AFN



Weight: 26 lbs.

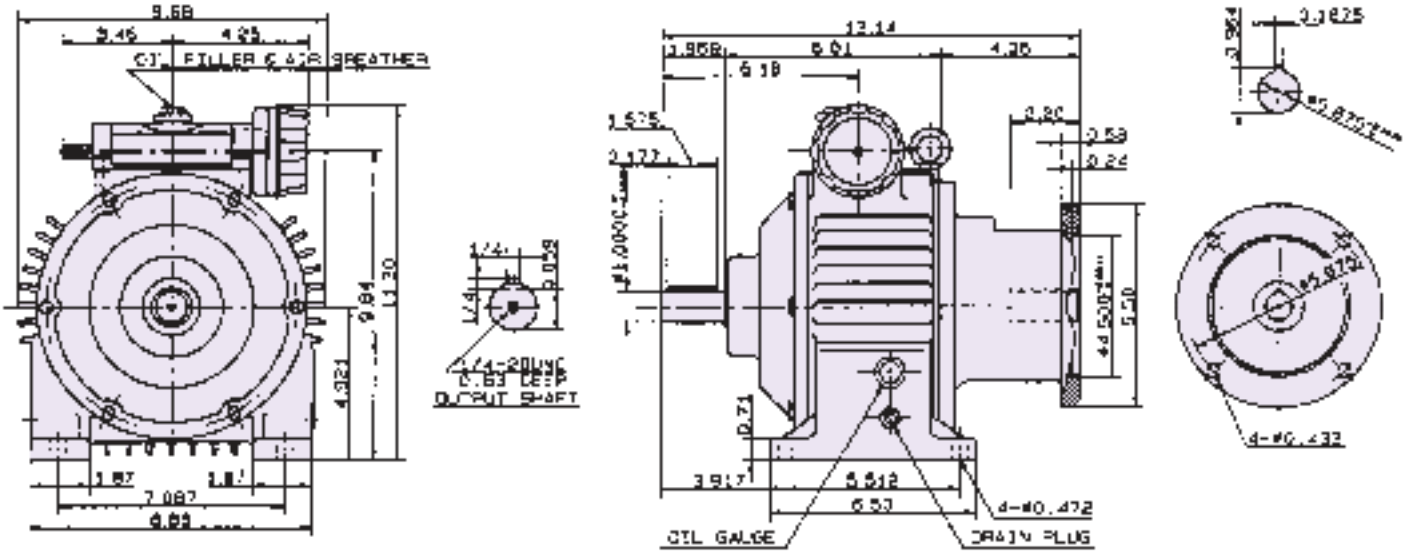
DK007AFN



*56C adapter available

Weight: 37 lbs.

DK015AFN

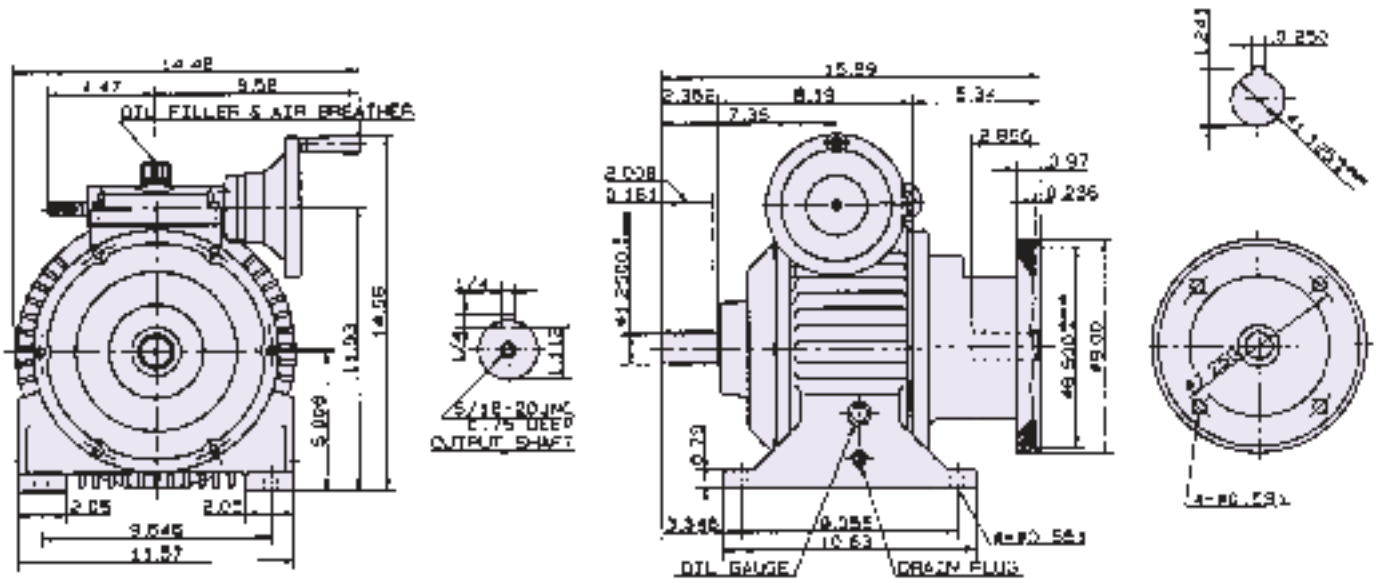


NEMA 143/145 TC Input*

*56C adapter available

Weight: 75 lbs.

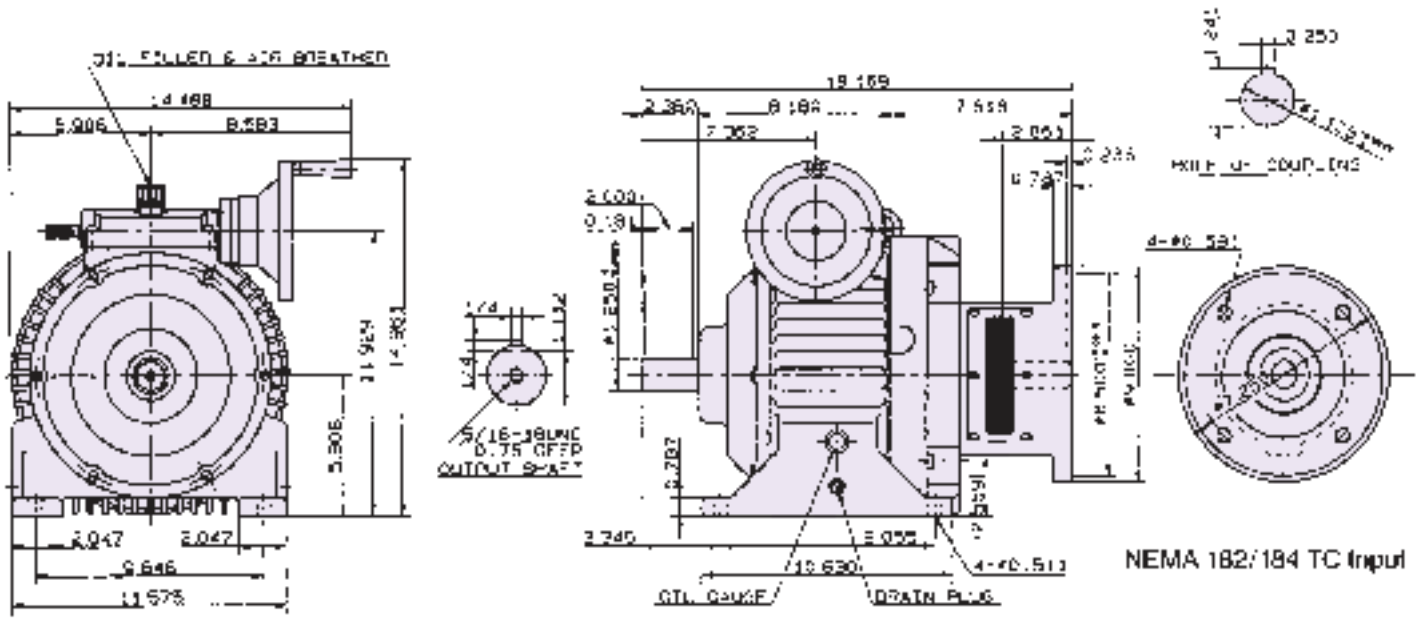
DK022AFN



NEMA 182/184 TC Input

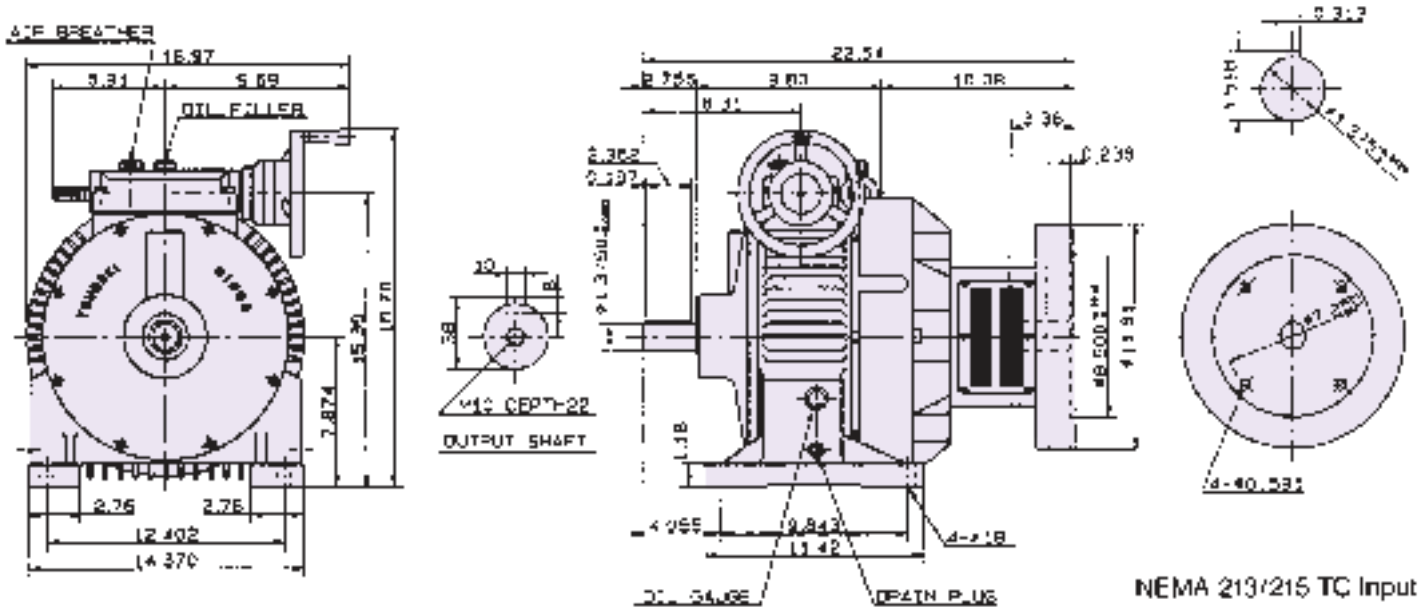
Weight: 146 lbs.

DK037AFN



Weight: 146 lbs.

DK055AFN
DK075AFN



Weight: 298 lbs.

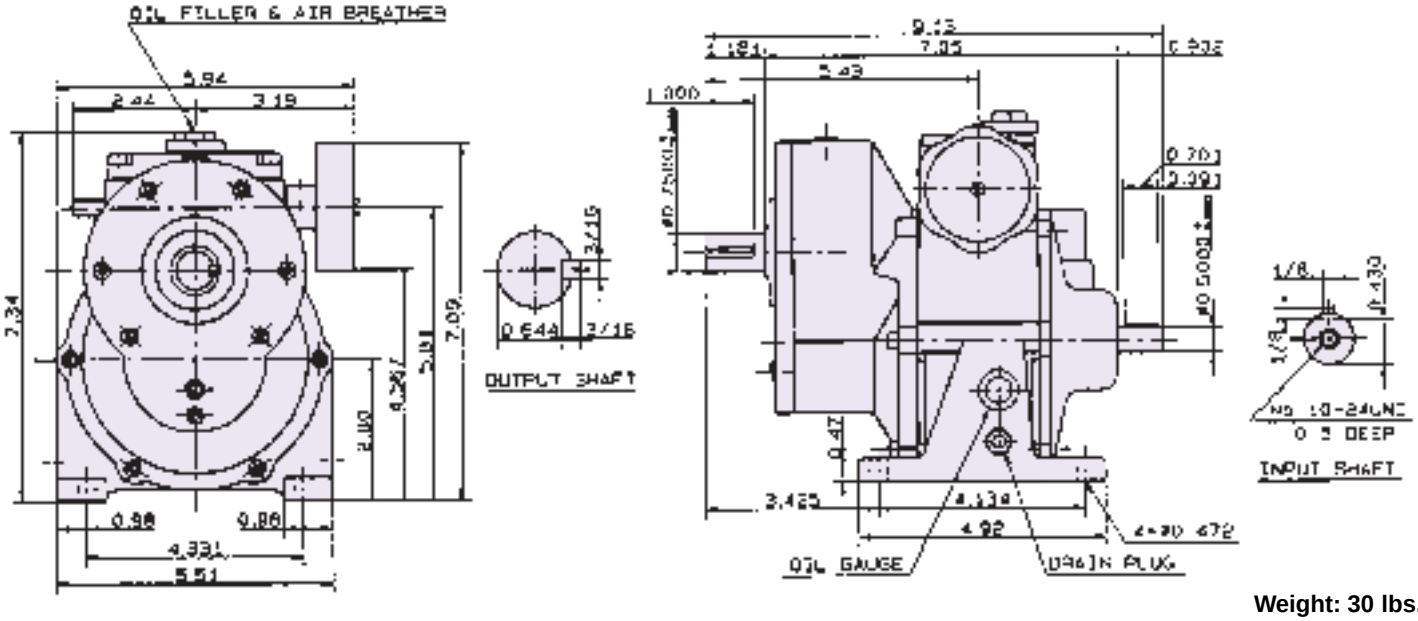
Free Input R-type Reducer (1/4 H.P. to 30 H.P.) (Speed Reduction Ratio 2.5:1 and 5:1)

Example of model number

DK 002 A R 2.5

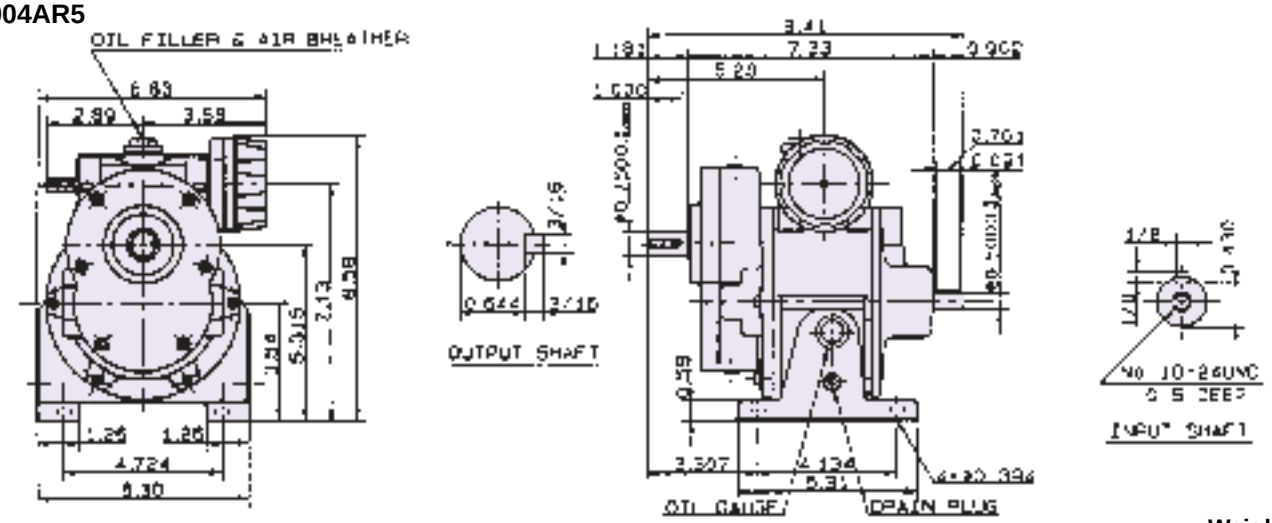
- 2.5 — Speed reduction ratio (2.5:1)
- R — R model - one stage speed reducer
- A — Foot mounted DISCO installation
- 002 — Capacity (DISCO capacity 002: 1/4 hp)
- DK — DISCO K Series

DK002AR2.5
DK002AR5



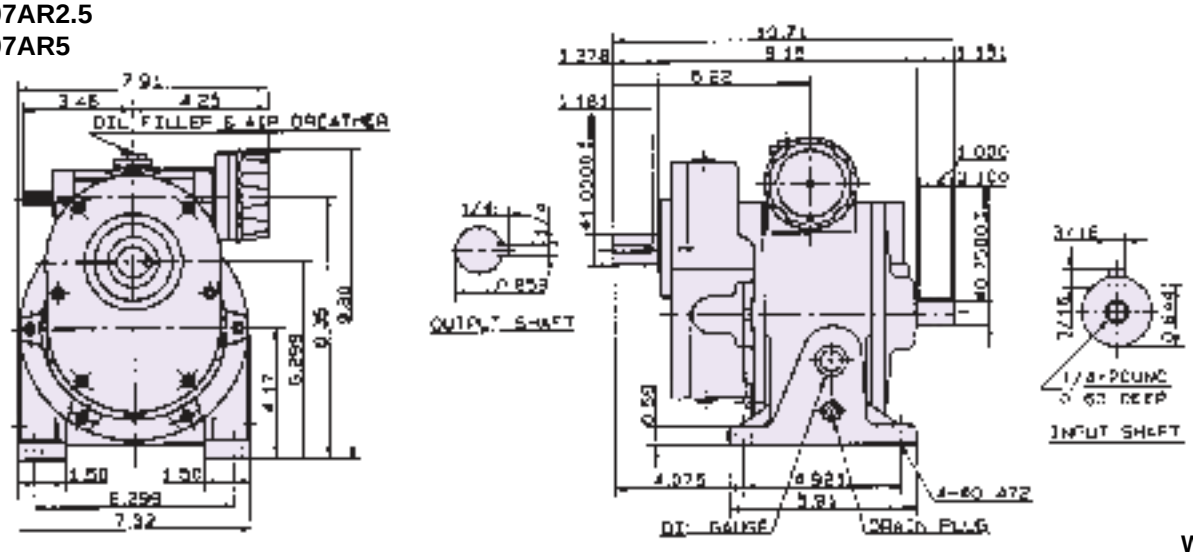
Weight: 30 lbs.

DK004AR2.5
DK004AR5



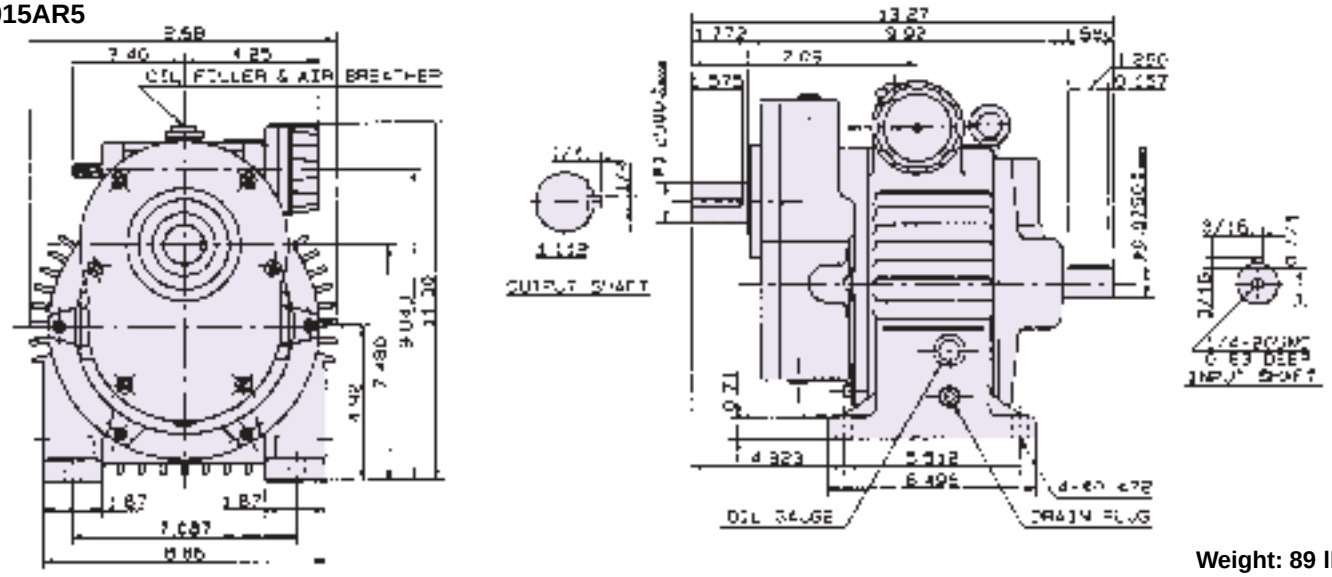
Weight: 37 lbs.

DK007AR2.5
DK007AR5



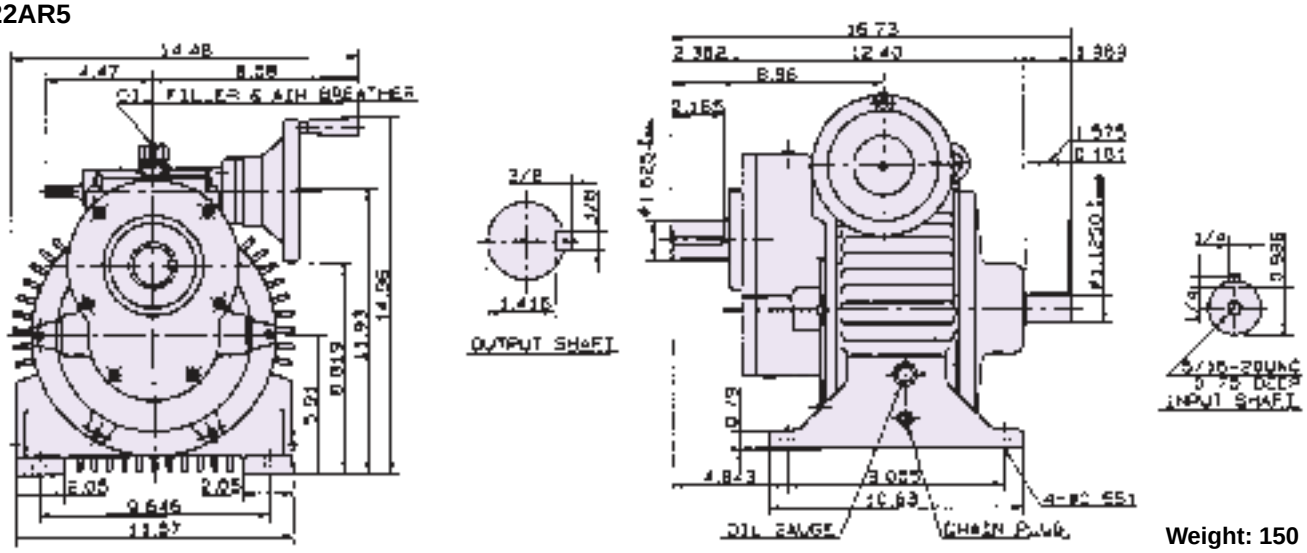
Weight: 53 lbs.

DK015AR2.5
DK015AR5



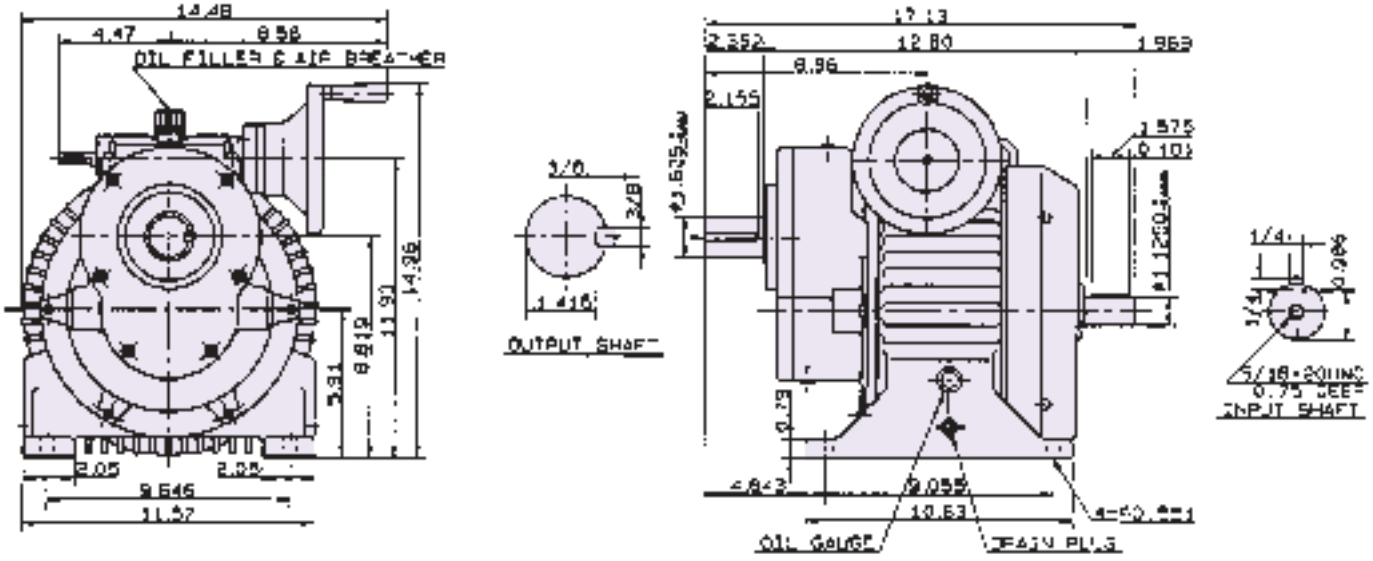
Weight: 89 lbs.

DK022AR2.5
DK022AR5



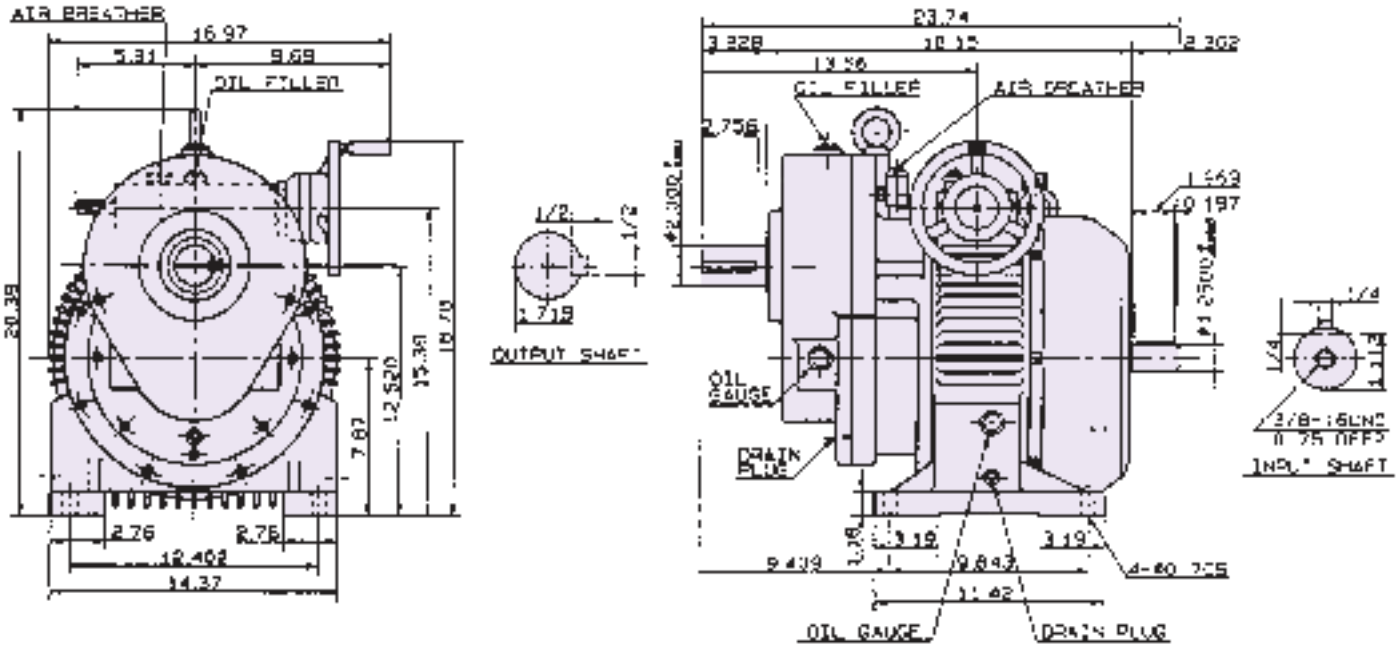
Weight: 150 lbs.

DK037AR2.5
DK037AR5



Weight: 160 lbs.

DK055AR2.5
DK055AR5
DK075AR2.5
DK075AR5



Weight: 418 lbs.

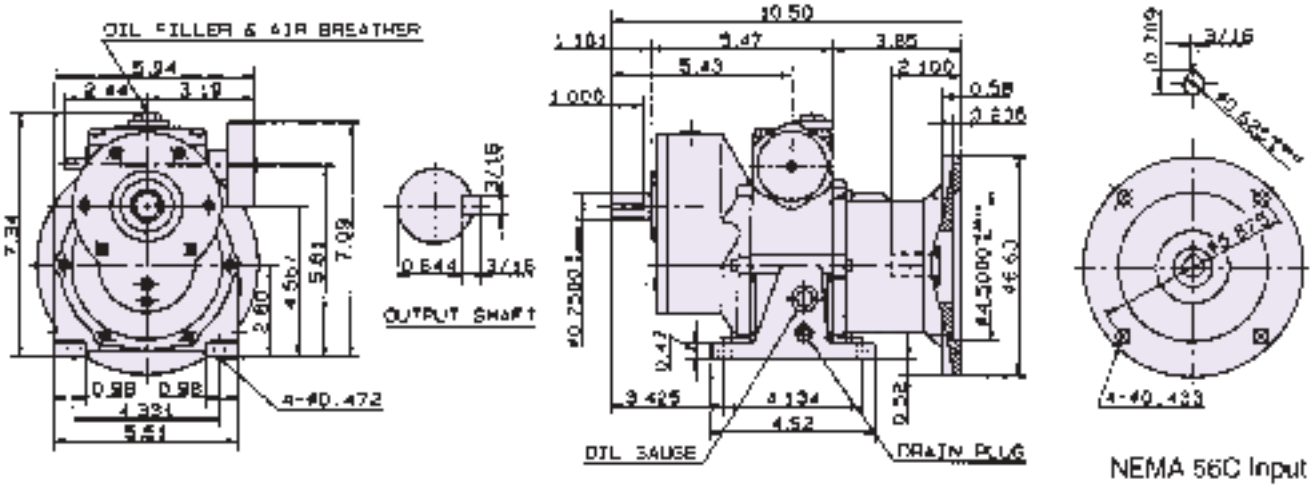
NEMA-C Flange Input with R-type Reducer (1/4 H.P. to 10 H.P.) (Speed Reduction Ratio 2.5:1 and 5:1)

Example of model number

DK 002 A R 2.5 FN

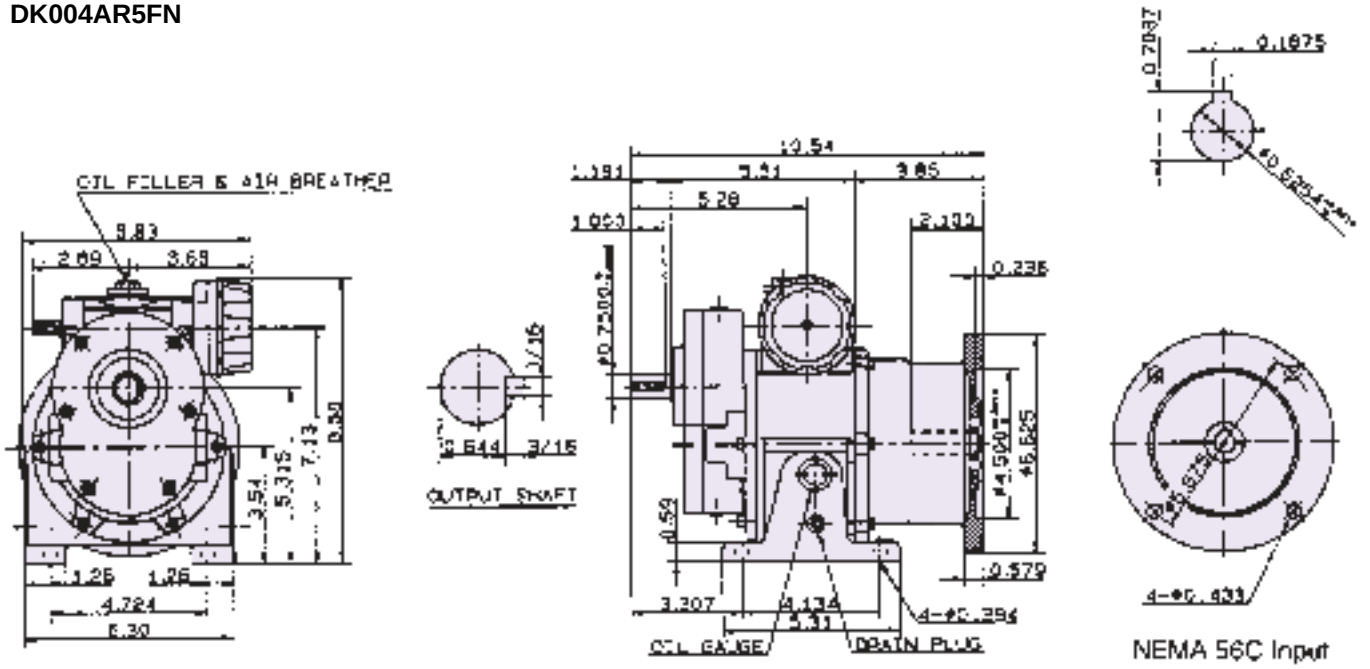
- DK — DISCO K Series
- 002 — Capacity (DISCO capacity 002: 1/4 hp)
- A — Foot-mounted DISCO installation
- R — R model - one-stage speed reducer
- 2.5 — Speed reduction ratio (2.5:1)
- FN — NEMA-C flange DISCO input installation

DK002AR2.5FN
DK002AR5FN



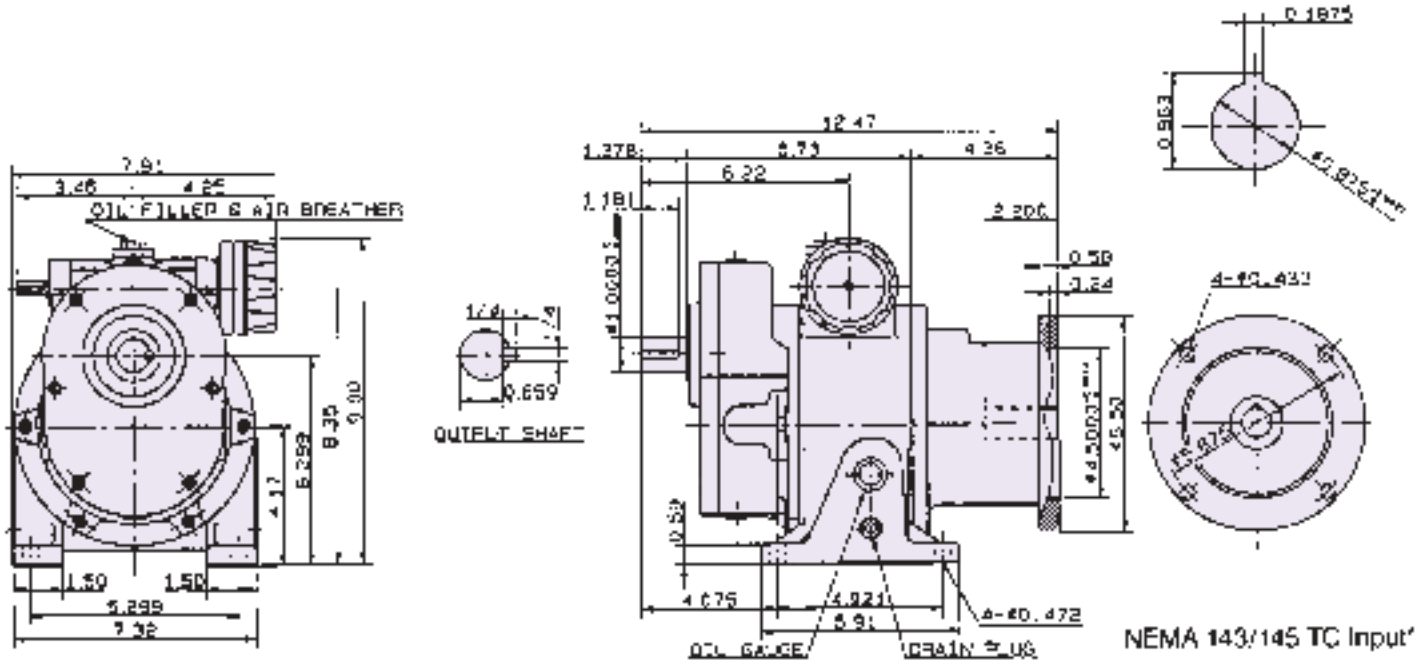
Weight: 31 lbs.

DK004AR2.5FN
DK004AR5FN



Weight: 46 lbs.

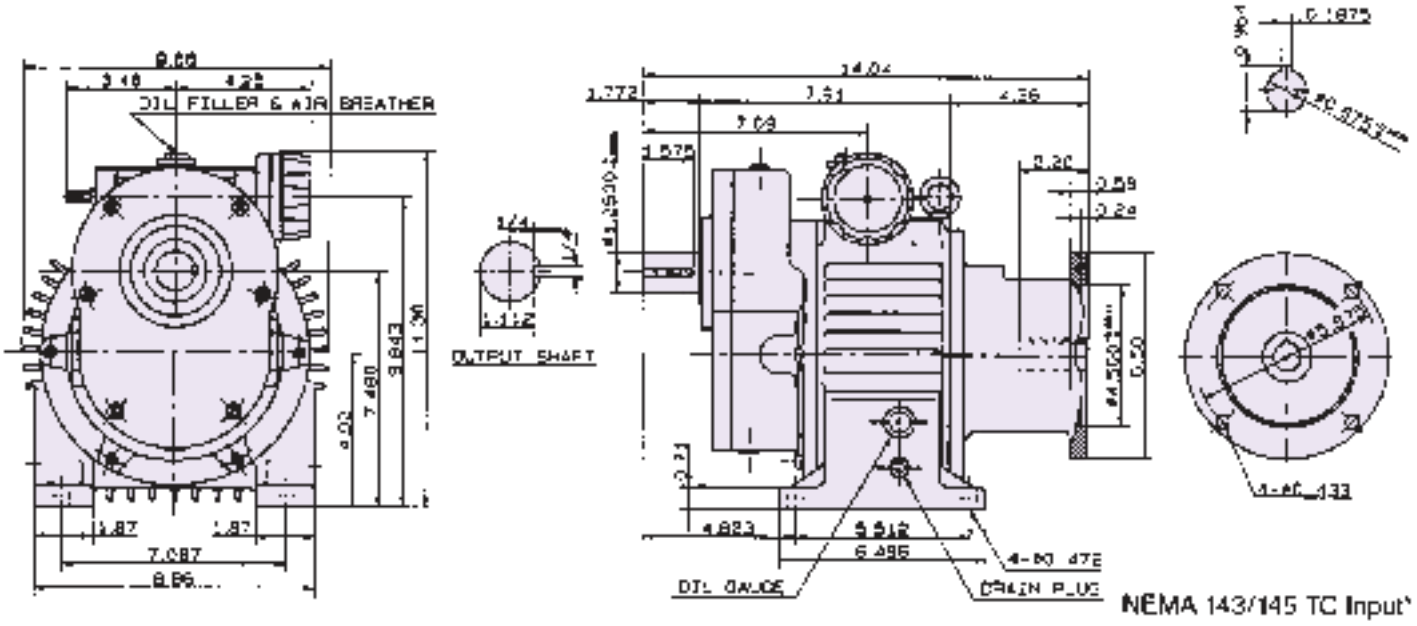
DK007AR2.5FN
DK007AR5FN



*56C adapter available

Weight: 68 lbs.

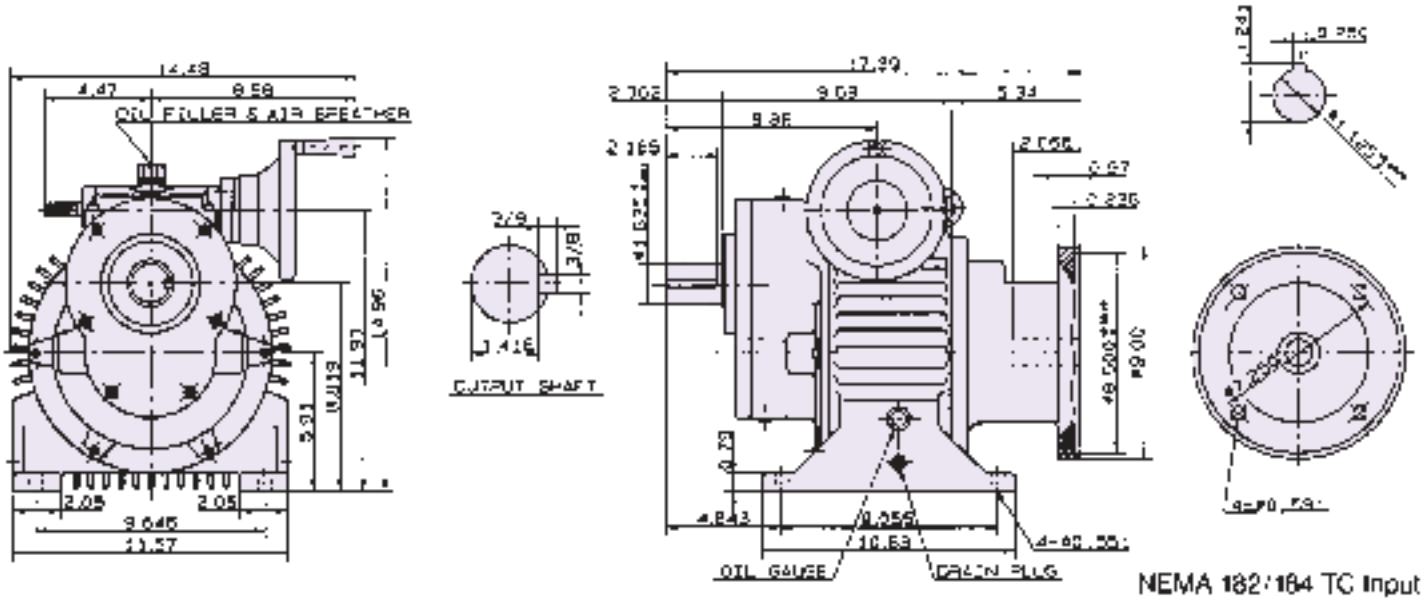
DK015AR2.5FN
DK015AR5FN



*56C adapter available

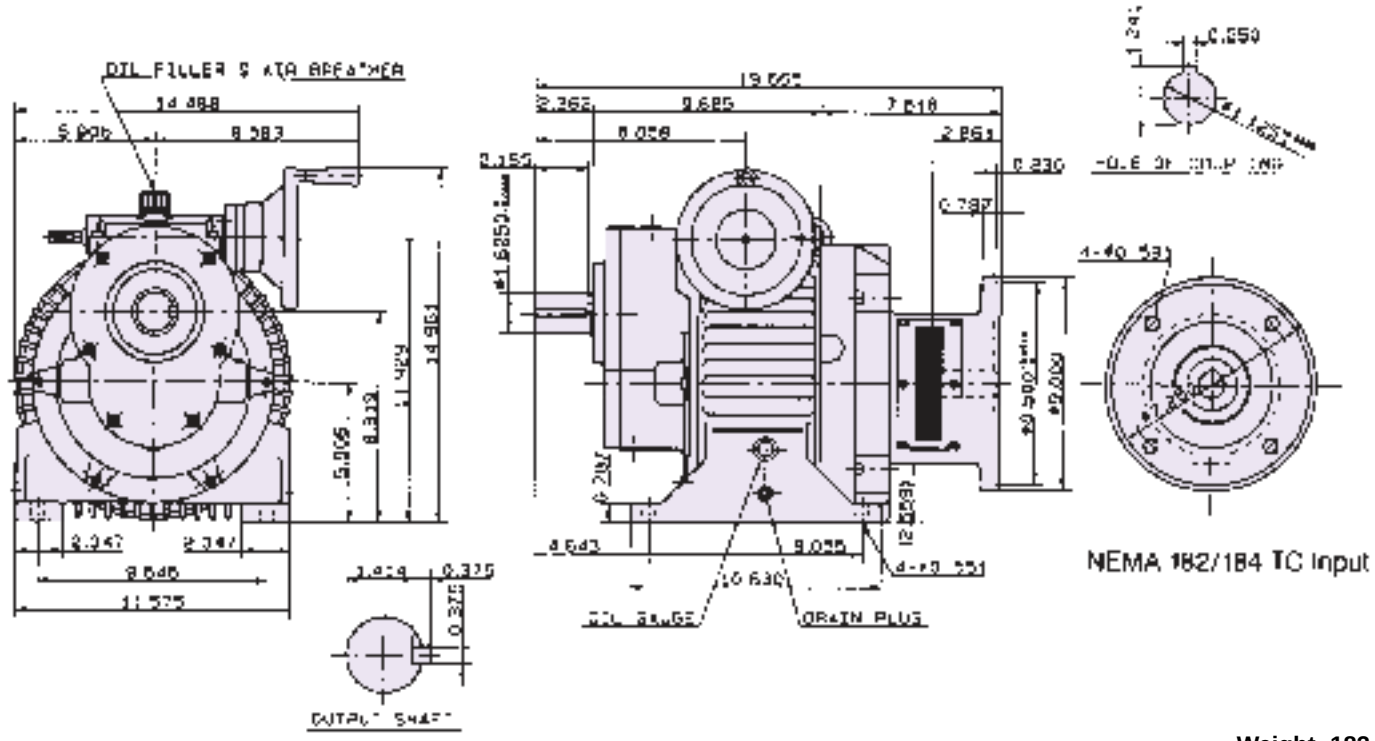
Weight: 104 lbs.

DK022AR2.5FN
DK022AR5FN



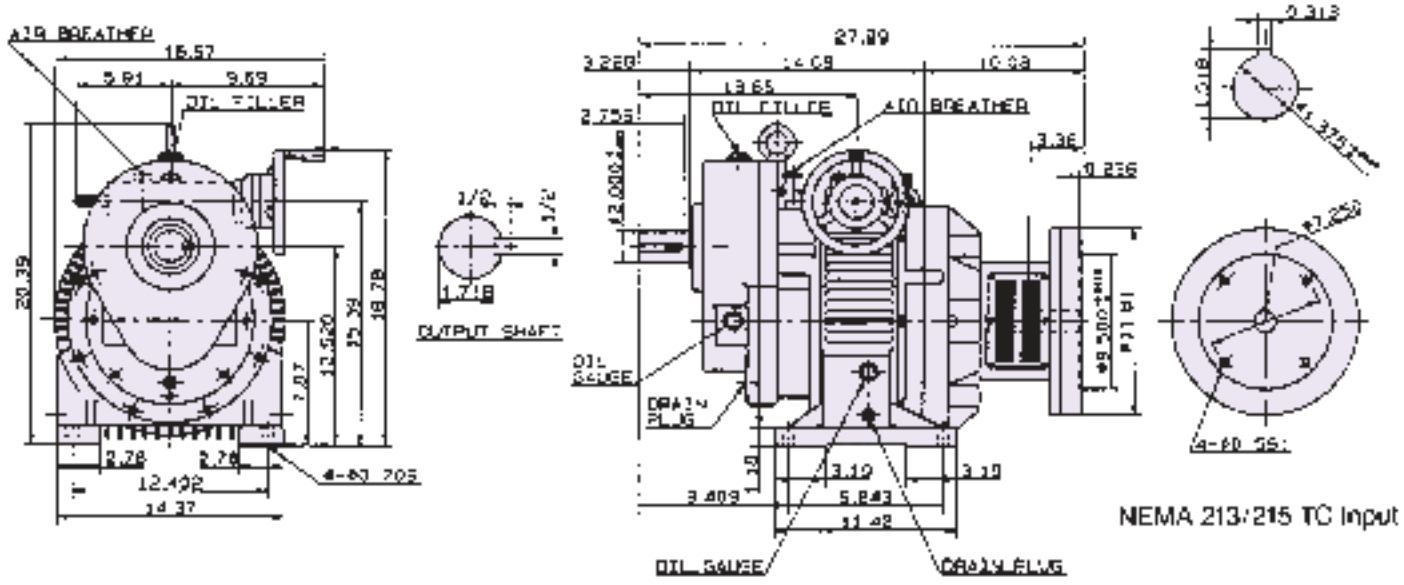
Weight: 168 lbs.

DK037AR2.5FN
DK037AR5FN



Weight: 183 lbs.

DK055AR2.5FN
DK055AR5FN
DK075AR2.5FN
DK075AR5FN



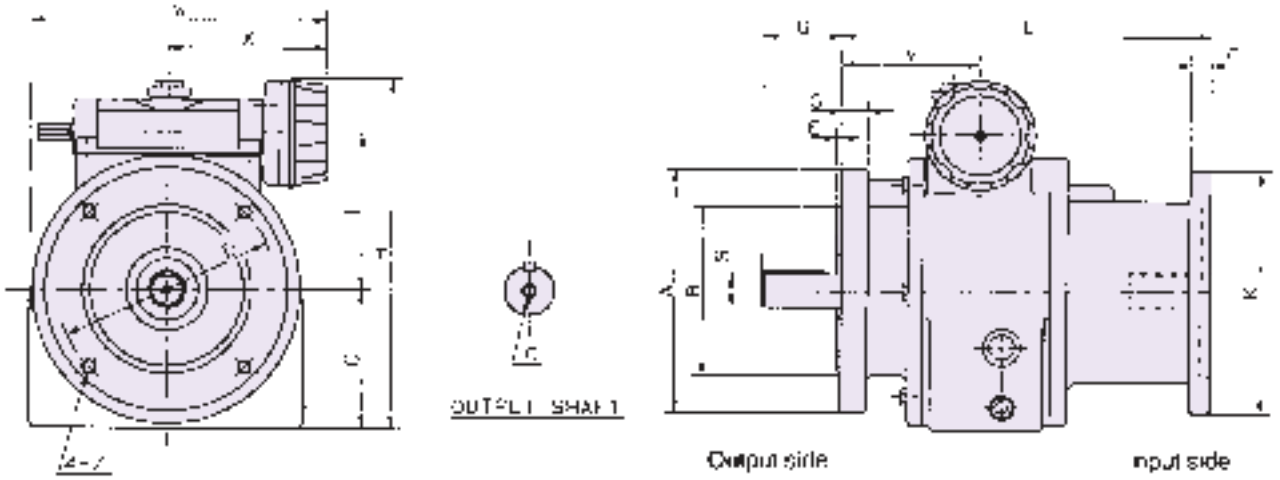
Weight: 468 lbs.

NEMA-C Flange Input/Output Type (1/4 H.P. to 5 H.P.)

Example of model number

DK 002 FN FN - 1

- 56C output and 56C input
  -1, -2, -3 or -4 added to the end of the model number denotes various combinations of output to input flange sizes (-1 is a stock item, other numbers require a short lead time). See chart below for these combinations.
- NEMA-C flange DISCO output installation
- NEMA-C flange DISCO input installation
- Capacity (DISCO capacity 002: 1/4 hp)
- DISCO K Series



Model Number	Output Side NEMA Frame No.	Input Side NEMA Frame No.	Length	Height		Width		Knob		Flange			Weight lbs.
			L	H	C	W	X	I	V	G	F	K	
DK002FNFN-1	56C	56C	7.98	6.89	2.60	5.94	3.15	3.01	2.91	0.59	0.58	6.63	30
DK004FNFN-1	56C	56C	8.49	7.99	2.95	6.83	3.68	3.59	3.27	0.59	0.58	6.63	38
DK007FNFN-1	143/145TC	143/145TC	9.91	9.33	3.70	7.91	4.25	4.18	3.66	0.71	0.58	6.50	61
DK007FNFN-2	143/145TC	56C											
DK007FNFN-3	56C	143/145TC											
DK007FNFN-4	56C	56C											
DK015FNFN-1	182/184TC	143/145TC	11.71	10.71	4.33	9.09	4.25	4.92	4.21	0.63	0.58	6.50	93
DK015FNFN-2	182/184TC	56C											
DK022FNFN-1	213/215TC	182/184TC	13.53	14.53	5.80	14.48	8.58	6.02	5.00	0.63	0.97	9.00	178
DK037FNFN-1	213/215TC	182/184TC	16.00	14.86	5.80	14.48	8.58	6.02	5.00	0.63	0.79	9.00	187

Output Side NEMA-C Flange and Shaft Dimensions

NEMA Frame No.	Flange					Shaft			
	A	B	D	E	Z	O	Q	S	Key
56C	6.50	4.500	5.875	0.125	3/8-16	10-24UNC 0.50DP	2.063	5/8	3/16
143/145TC	6.50	4.500	5.875	0.125	3/8-16	1/4-20UNC 0.63DP	2.125	7/8	3/16
182/184TC	9.00	8.500	7.250	0.250	1/2-13	1/4-20UNC 0.63DP	2.875	1⅛	1/4
213/215TC	9.00	8.500	7.250	0.250	1/2-13	5/16-18UNC 0.75DP	3.375	1⅜	5/16

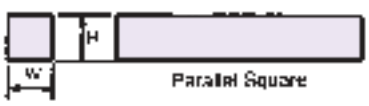
Shaft, Key and Flange Dimensions (in.)

Shaft Tolerance

Nominal Shaft Dia.	Tolerance
¼ ~ 1½	+0 ~ -.0005″
+1½ ~ 6½	+0 ~ -.001″

Parallel Key and Keyseats (ANSI B 17.1-1967, R1973)

Shaft diameter and accompanying key size



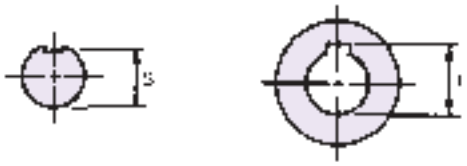
Nominal Shaft Diameter		Nominal Key Size		Nominal Keyseat Depth
Over	To (incl.)	Width W	Height H	H/2
5/16	7/16	3/32	3/32	3/64
7/16	9/16	1/8	1/8	1/16
9/16	7/8	3/16	3/16	3/32
7/8	1¼	¼	¼	1/8
1¼	1⅜	5/16	5/16	5/32
1⅜	1¾	⅜	⅜	3/16
1¾	2¼	½	½	¼
2¼	2¾	⅝	⅝	5/16
2¾	3	¾	¾	⅜

ANSI Standard Fits for Parallel Keys

Type of Key	Key Width		Side Fit		
	Over	To (incl.)	Width Tolerance		Fit Range
			Key	Keyseat	
Parallel Square	—	3/4	+0.001 -0.000	+0.002 -0.000	0.002 CL 0.001 INT

CL = Clearance INT = Interference

Depth Control Values S and T for Shaft and Hub

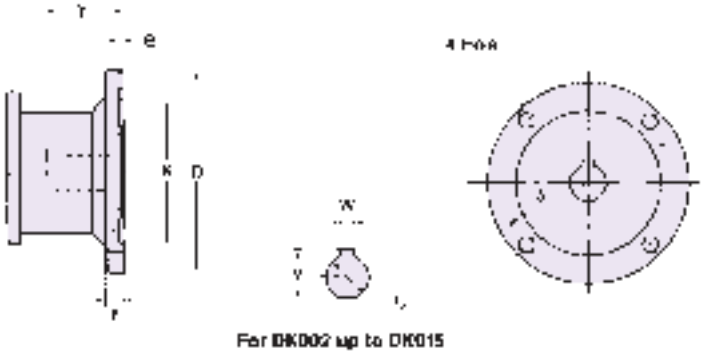


Nominal Shaft Diameter	Parallel Square		Nominal Shaft Diameter	Parallel Square	
	S	T		S	T
½	.430	.560	1 13/16	1.527	2.032
9/16	.493	.623	1 7/8	1.591	2.096
⅝	.517	.709	1 15/16	1.655	2.160
11/16	.581	.773	2	1.718	2.223
¾	.644	.837	2 1/16	1.782	2.287
13/16	.708	.900	2 1/8	1.845	2.350
7/8	.771	.964	2 3/16	1.909	2.414
15/16	.796	1.051	2 1/4	1.972	2.477
1	.859	1.114	2 5/16	1.957	2.587
1 1/16	.923	1.178	2 3/8	2.021	2.651
1 1/8	.986	1.241	2 7/16	2.084	2.714
1 3/16	1.049	1.304	2 1/2	2.148	2.778
1 1/4	1.112	1.367	2 9/16	2.211	2.841
1 5/16	1.137	1.455	2 5/8	2.275	2.905
1 3/8	1.201	1.518	2 11/16	2.338	2.968
1 7/16	1.255	1.605	2 3/4	2.402	3.032
1 1/2	1.289	1.669	2 13/16	2.387	3.142
1 9/16	1.352	1.732	2 7/8	2.450	3.205
1 5/8	1.416	1.796	2 15/16	2.514	3.269
1 11/16	1.479	1.859	3	2.577	3.332
1 3/4	1.542	1.922			

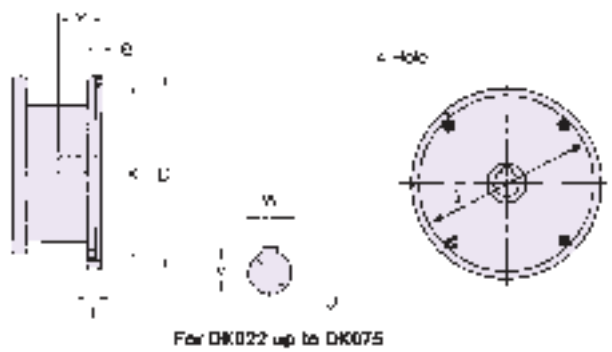
Details of NEMA-C Flange Input Type

NEMA Frame No.	B	D	J	K	T	U	V	W	Y	Hole dia.
56C	.236	6.63	5.875	4.500 +.0014 -.0	.55	5/8 +.0015 -.0	.709	.1875	2.100	.433
143/145 TC	.236	6.50	5.875	4.500 +.0014 -.0	.55	7/8 +.0020 -.0	.964	.1875	2.200	.433
182/184 TC	.236	9.00	7.250	8.500 +.0018 -.0	.944	1⅛ +.0020 -.0	1.241	.25	2.866	1.591
213/215 TC	.236	9.00	7.250	8.500 +.0018 -.0	.78	1⅜ +.0020 -.0	1.518	.3125	3.361	1.591

Dimension Y is for quill shaft depth of DISCO.



For DK002 up to DK015



For DK022 up to DK075

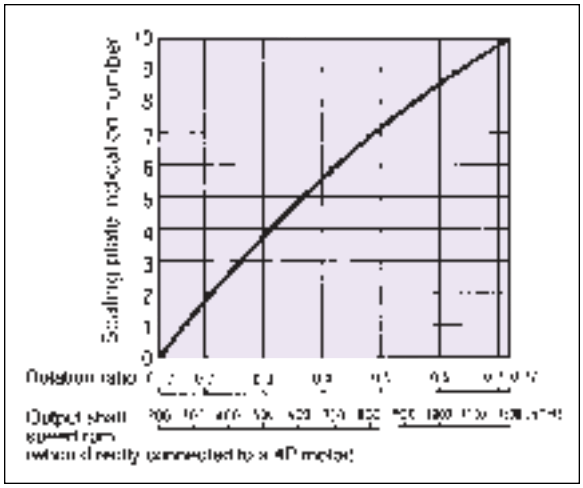
Variable Speed Operation

DISCO comes standard with knob speed control. It is also possible to control the speed via remote speed control systems. These systems include both mechanical and electrical options.

Standard Knob Control Operation

Relationship between the knob scale position and rotation ratio

K Series DK002 to DK075



Knob torque and knob rotation

The torque necessary for rotating the speed adjustment knob and the number of rotations necessary to cover the entire range aregiven below.

Series number	Knob torque in./lbs.	No. of knob rotations
DK002	1.7 ~ 3.5	18.5
DK004	6.9 ~ 10.4	16.5
DK007	8.7 ~ 13.0	20
DK015	15.6 ~ 20.8	23
DK022	26.0 ~ 36.5	20.5
DK037	34.7 ~ 52.0	20.5
DK055	43.4 ~ 60.8	25
DK075	56.4 ~ 78.1	25

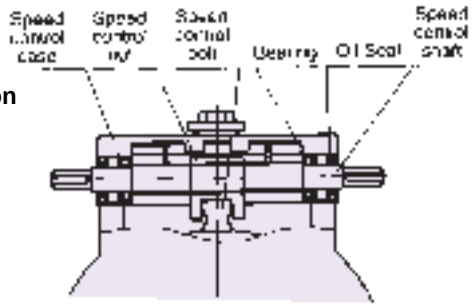
Mechanical Remote Control Operation

Mechanical remote control operation

Speed change operation can be performed by connecting a flexible shaft or chain between the DISCO infinitely variable speed-drive speed control shaft and the knob.

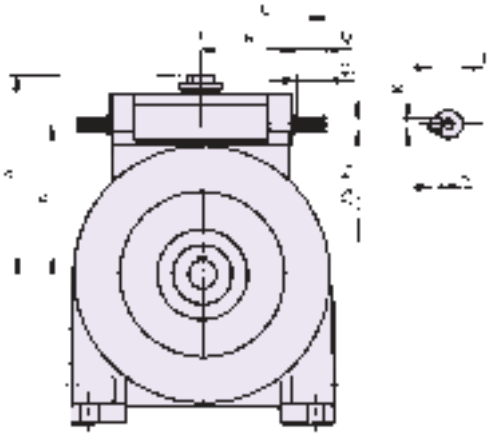
Mechanical remote control with miter gear box is available.

Construction



Dimensions (in.)

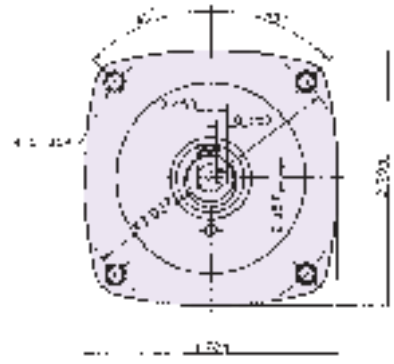
K Series	With straight shaft									
	A	C	H	N	Q	Q_1	S	J	K	Key dimensions
DK002	4.6	2.56	1.77	3.03	0.79	—	8mm	—	—	Set Bolt
DK004 DK007 DK015	5.0 5.6 6.3	2.91 3.46 3.46	2.09 2.64 2.64	3.58 4.17 4.92	0.83 0.83 0.83	0.79 0.79 0.79	10mm 10mm 10mm	0.453 0.453 0.453	4mm 4mm 4mm	4 • 4 • 20mm
DK022 DK037	8.0	4.49	3.11	6.02	1.38	1.18	12mm 12mm	0.532	4mm 4mm	4 • 4 • 30mm
DK055 DK075	9.8	5.91	4.13	7.52	1.77	1.50	15mm	0.670	5mm	5 • 5 • 38mm

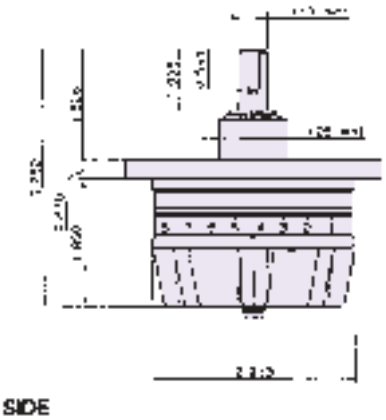


Remote speed control knob

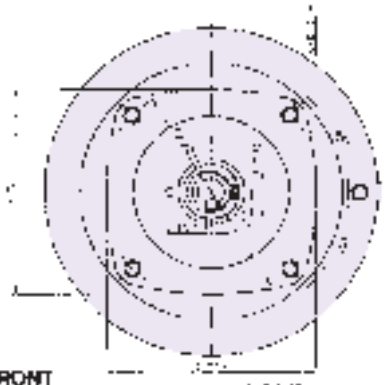
There are 3 types of speed control knobs that meet the capacity of each DISCO. Choose the speed control knob appropriate for the DISCO.

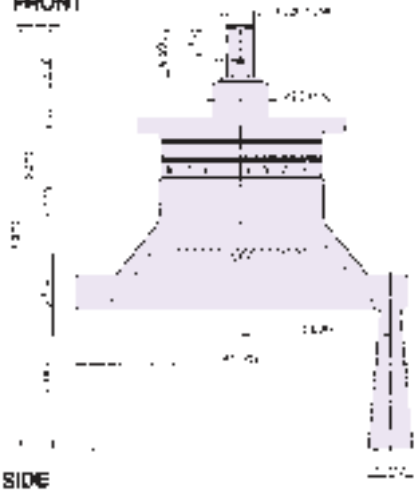
H75
(For DK002 to DK015)



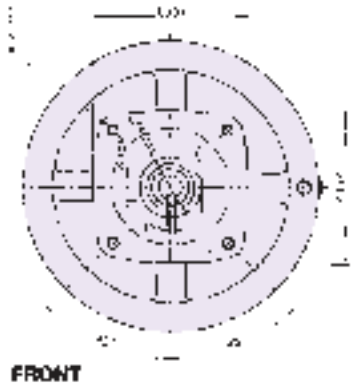


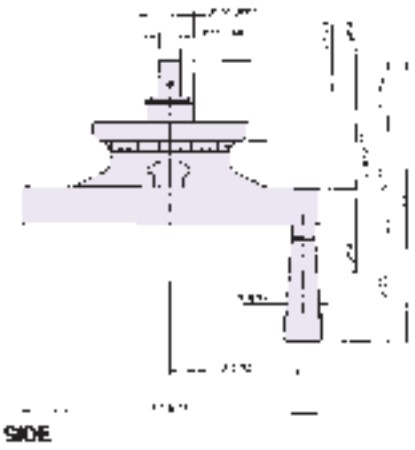
H150
(For DK022 and DK037)





H200
(For DK055 and DK075)





Electrical Remote Control Operation (Basic Type)

Speed change in the DISCO infinitely variable speed drive can be performed by electrical remote control through use of a pilot motor.

■ Basic type

This specification is for electrical remote control operation only in which detection of speed or the variable speed position of the DISCO is not required.

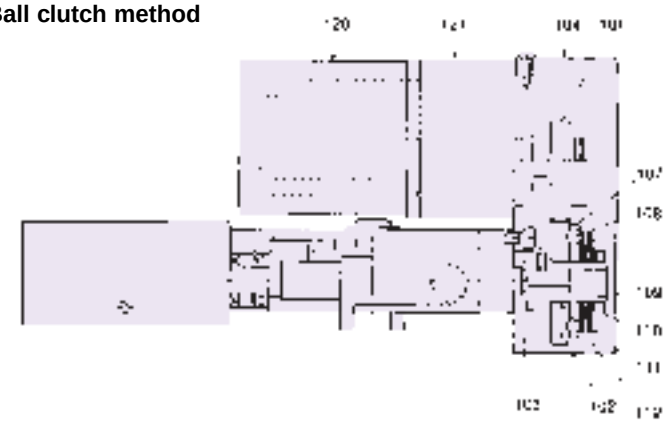
Characteristics

Model (K-Series)	Variable speed ratio	Variable speed parameter	Direct motor output shaft speed (rpm) 60Hz	Full range variation time sec.
DK002	6 to 1	1/8.4 ~ 1/1.4	200 ~ 1200	20
DK004				21
DK007				25
DK015				30
DK022				27
DK037				36
DK055 DK075	5 to 1	1/8 ~ 1/1.16	210 ~ 1050	70

Drive method and safety equipment

Speed is changed by turning the DISCO speed control shaft with the pilot motor. A ball clutch is used on DK037 or smaller units. Limit switches are used on D055 and larger capacity units. A ball clutch or limit switch is installed in the speed control shaft for safety.

Ball clutch method

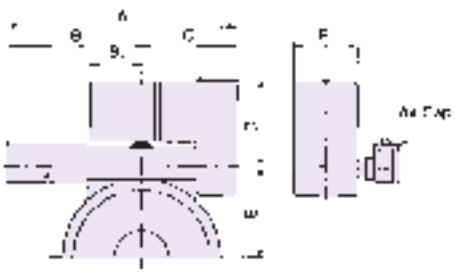


101	Pinion
102	Remote control gear
103	PM mounting plate
104	Gear cover
107	Ball retainer
108	Steel ball bearing
109	Clutch bushing
110	Spring retainer nut
111	Dish spring
112	Gear bushing
120	Pilot motor
121	Gear head

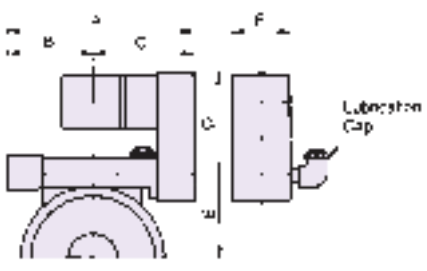
Dimensions (in.)

Model (K-Series)	A	B	B_1	C	D	E	F
DK002	6.50	5.43	3.19	3.31	3.90	3.03	2.68
DK004	6.70	5.59	—	3.78	3.94	3.58	2.87
DK007	7.76	6.14	—	4.29	3.94	4.17	2.87
DK015	7.83	6.14	—	4.37	4.17	4.92	3.27
DK022 DK037	9.17	6.46	—	4.69	4.33	6.02	3.27
DK055 DK075	14.53	7.20	—	7.32	6.38	7.44	3.66

DK002 ~ DK037



DK055 ~ DK075



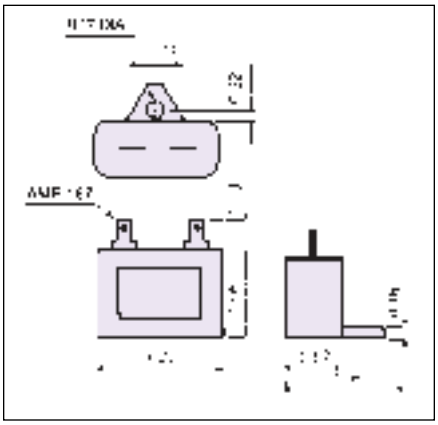
Specifications

Model (K Series)	Pilot Motor			Auxiliary condenser capacity	Pilot motor protective equipment	Gear or chain sprocket
	Voltage — frequency	Output	Rated current			
DK002	Single phase 115 V 60 Hz	6W	0.22A	2.5 µF	Ball clutch	57T • 58T
DK004 DK007		15W	0.36A	4.5 µF		43T • 54T
DK015		30W	0.7A	8.0 µF		46T • 54T
DK022 DK037		40W	0.85A	10 µF		54T • 54T
						46T • 62T
DK055 DK075		40W	0.87A	12 µF	Limit switch S-5GL13	RS-35-40 link 16T • 24T

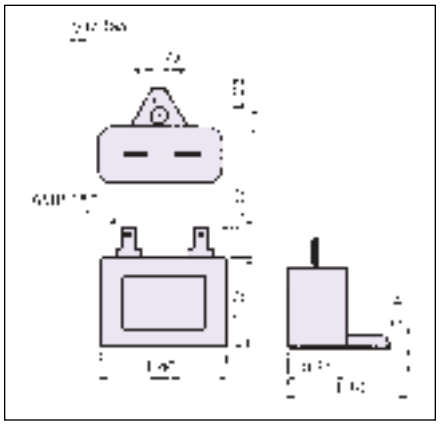
The pilot motors for DK002-DK075 are recognized by UL.

Pilot motor capacitor

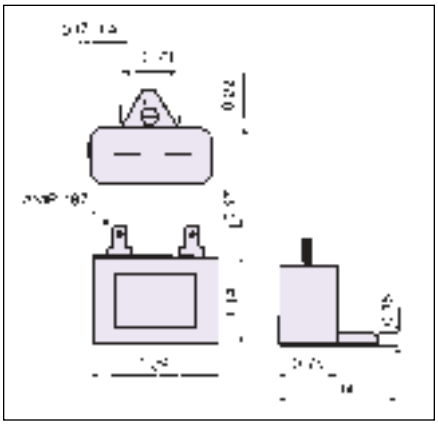
for DK002 (2.5 µF) (in.)



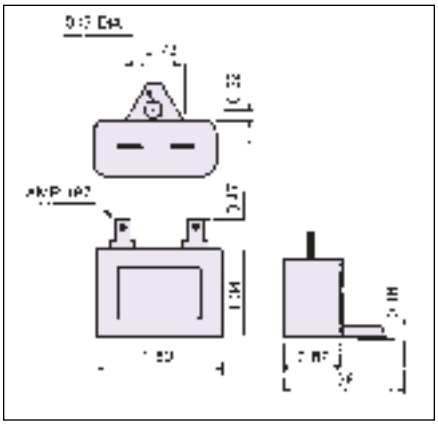
for DK004 and DK007 (4.5 µF) (in.)



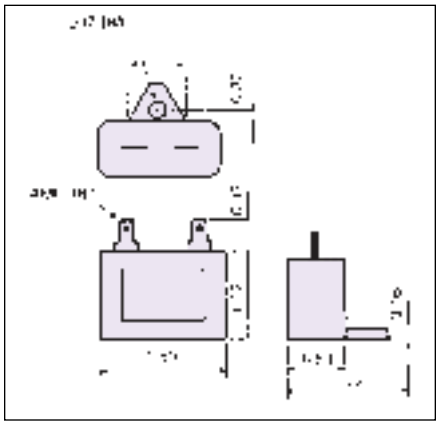
for DK015 (8.0 µF) (in.)



for DK022 and DK037 (10 µF) (in.)



for DK055 and DK075 (12 µF) (in.)



Electrical Remote Control Operation (Potentiometer System)

■ Potentiometer system

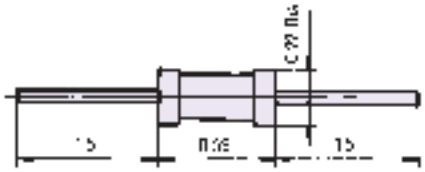
The potentiometer senses the approximate output rpm and sends a signal to the analog meter.

Note: Outer dimensions of potentiometer style ERC are same as shown on page D-75.

Standard Attachments (included)
In addition to the basic system, the potentiometer system includes the following items, which should be mounted in the control panel.

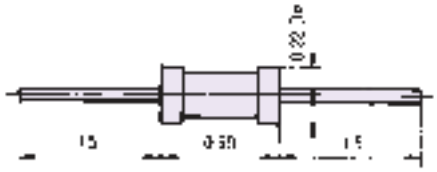
Fixed resistance ERG-3ANJ682 (in.)

For DK002 to DK037

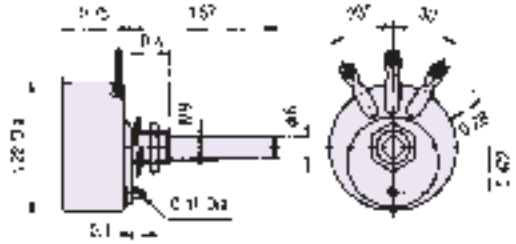


Fixed resistance ERG-2ANJ273 (in.)

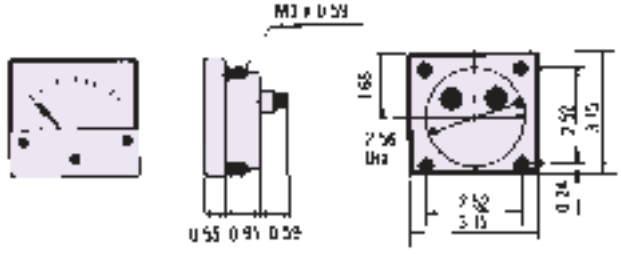
For DK055 to DK220



Variable resistance RV 30YN 40R (in.)

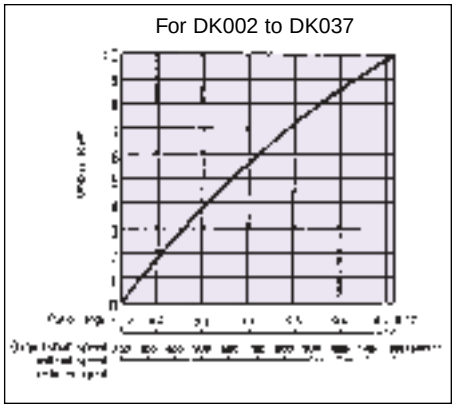


Analog display gauge SC-80 (in.)

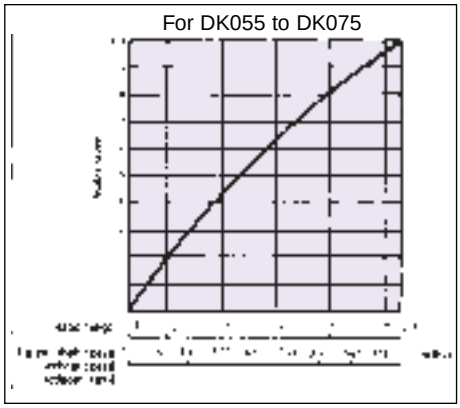


Display gauge scale — rotation ratio graph (with potentiometer)

For DK002 to DK037

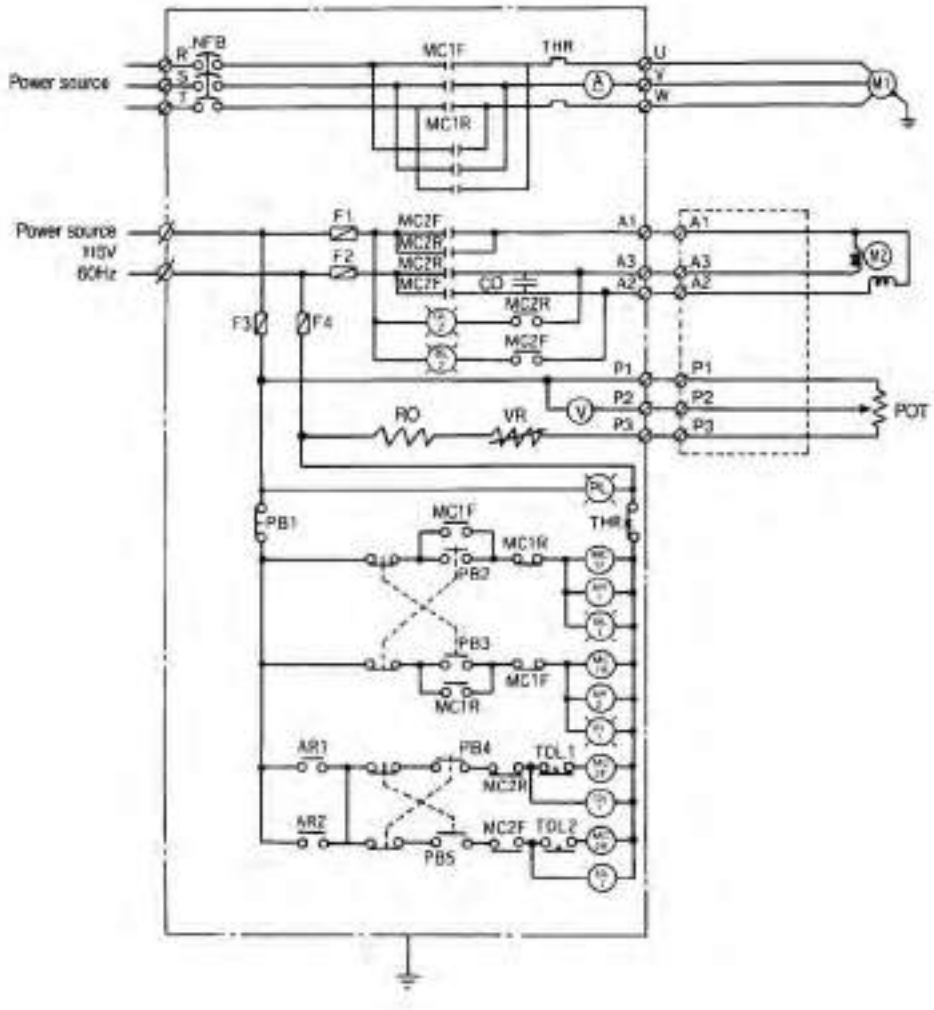


For DK055 to DK075



Electrical remote control operation reference circuit drawing

DK002 to DK037



NFB	Wiring isolator
MC1F	Main motor normal operation electromagnetic contactor
MC1R	Main motor reverse operation electromagnetic contactor
THR	Thermal relay
A	Main motor ammeter
M1	Main motor
F1 ~ F4	Fuse
MC2F	PM(M2) electromagnetic accelerator contactor
MC2R	PM(M2) electromagnetic decelerator contactor
TDL1	PM(M2) accelerator timer[1]
TDL2	PM(M2) decelerator timer[1]
M2	Pilot motor (PM)[2]
GL2	Decelerator indicator light
BL2	Accelerator indicator light
CO	PM(M2) operation capacitor
V	Analog display gauge
PL	Power source indicator light
PB1	All stop push button
PB2	Main motor normal operation push button
PB3	Main motor reverse operation push button
AR1 ~ 2	Support relay
BL1	Main motor normal operation indicator light
GL1	Main motor reverse operation indicator light
PB4	PM(M2) Accelerator push button
PB5	PM(M2) Decelerator push button
POT	Potentiometer
RO	Fixed resistance
VR	Variable resistance

1 TDL1 - 2 settings differ according to the type of DISCO.

2 PM(M2) power voltage and frequency is 115V 60 Hz.

Selecting a Drive

For long, trouble free DISCO operation, make sure to check every item carefully.

Calculation of required torque (T)

Determine the application torque requirement at the output shaft of the DISCO. If the horsepower requirement at the output shaft is known, the torque can be calculated using the following formula. Check the torque requirement at both the highest and lowest rpm of your application.

$$T = \frac{63{,}025 \cdot P}{N}$$

Where: T = Transmission Torque (in./lbs.)
P = Transmission Power (hp)
N = Maximum use speed for constant torque transmission (rpm)

Determine the service factor (Sf) of the application

The type and frequency of load applied to the output shaft of DISCO combine to provide a required service factor (Sf). Determine the service factor (Sf) from the following table.

Service Factor (Sf) Selection

Load Properties	Daily Operating Time		
	Up to 8 hours	8 to 16 hours	16 to 24 hours
Uniform load Continuous operation No reversals Low inertia	1.0	1.1	1.2
Light impact Intermittent operation Reversals[1] Medium inertia	1.3	1.4	1.5
Heavy impact[2] Frequent starts Reversals[1] High inertia	1.7	1.8	2.0

[1] If application requires instant reversals, contact U.S. Tsubaki, PTUC Division.
[2] A mechanical protection device that slips at rated torque may be required.

Calculate Design Torque (T_d)

Multiply the required torque (T) by the required service factor (Sf) to obtain the design torque (T_d).
$T_d = T \cdot Sf$

Preliminary Selection of DISCO

Refer to the “Table of Standard Characteristics,” pages D-55~D-56. The selected DISCO should:
1. Be appropriate for the required speed range
2. Have a torque capacity equal to or greater than the design torque (T_d).
   DISCO Shaft Torque $\geq T_d$

Calculation of inertia ratio (I_R)

Calculate the inertia ratio (I_R)

$I_R = I_L / I_M$

I_L = Inertia of the load at the DISCO output shaft

I_M = Inertia of the motor rotor or input inertia (see chart)

Refer to the “DISCO Input Inertia” chart for inertia guidelines for all DISCO units, including free input types.

DISCO Input Inertia (I_M)

DISCO	HP	I_M (in².lbs.)
DK002	1/4	2.68
DK004	1/2	4.05
DK007	1	9.24
DK015	2	15.62
DK022	3	23.18
DK037	5	51.15
DK055	7½	102.30
DK075	10	131.20

DISCO Inertia Guidelines

Classification	Inertia Ratio (I_R)	Caution for Selection
Low Inertia	Less than 1	None
Medium Inertia	1 - 4	Start a maximum of one time per hour, or select one size larger DISCO.*
High Inertia	4 - 15	Select one size larger DISCO, and choose a reducer combination that allows the DISCO to run in the higher rpm range.*
Very High Inertia	Above 15	Contact U.S. Tsubaki, PTUC Division

***Slow Starting:** Precautions may be necessary to avoid overloading the DISCO. One effective measure is to insert a powder coupling or fluid coupling between the variable speed drive and the load. In addition, start the DISCO at the lowest output rpm.

Input shaft speed check

Faster input shaft speed yields more efficient operation. The maximum input is 1800 rpm. If the input rpm is low, it may be difficult to change the speed of the DISCO. Please contact U.S. Tsubaki when the input is below 100 rpm.

Allowable overhung load/allowable thrust load

1. Overhung Load

When a sprocket, gear, or pulley is mounted on the high speed or low speed shaft of the DISCO, an overhung load is applied. Refer to the “Table of Standard Characteristics” (pages D55~D56) for the allowable overhung load. The value is given for mounting in the center of the shaft length.

$$\text{Allowable Overhung Load (lbs.)} \geq \frac{T \bullet C_f \bullet L_f}{R}$$

T = Required torque (in./lbs.)
C_f = Load connection factor
L_f = Load location factor
R = Pitch radius of the sprocket, gear, etc. (in.)

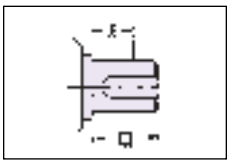
Confirm the overhung load.

Load Connection Factor (C_f)

Type of Connection	Factor
Sprocket/Chain	1.00
Gear/Pinion	1.25
Toothed Belt/Pulley	1.50
V-Belt/Pulley	2.00
Flat Belt/Pulley	2.50

Load Connection Factor (L_f)

I/Q	0.25	0.38	0.50	0.75	1.00
L_f	0.8	0.9	1.0	1.5	2.0



2. Thrust Load

Refer to the “Table of Standard Characteristics” (pages D-55~D56) of the selected DISCO to confirm that the thrust load is within the design limits. Thrust load is a force acting axially along the shaft.

Lubrication

Long-life synthetic oil is used in the DISCO variable speed drive, virtually eliminating the need for oil changing. The drive is oiled sufficiently before being shipped, thereby allowing it to be used as it is on delivery. As mixing oils and use of incorrect oil can have a considerable effect on the characteristics and life of the DISCO, great care should be taken with regard to lubrication.

■ Infinitely variable speed drive

Make sure to use the long-life oil specified by U.S. Tsubaki in the DISCO variable speed drive.

Specified synthetic lubrication oil: Dubney Alpha Drive P32 (Manufactured by Idemitsu Kosan)[1]

This oil can be purchased from U.S. Tsubaki.

1. Oil change

Model	Oil change cycle
DK002 ~ DK037	20,000 hours or every 4 years[2]
DK055 ~ DK075	5,000 hours or every year

[1] If you choose to use an oil different from the specified standard, use one with a viscosity which meets ISO VG32 and change the oil after the first 500 hours and every 2,000 hours thereafter (includes: MOBIL: DTE OIL 32, SHELL: TELLUS OIL 32, ESSO: TERESSO 32).

[2] The oil change cycle is based on less than 12 hours of operation per day. Change oil every 10,000 hours for operation conditions longer than this.

2. Amount of lubrication

Amount of oil (ℓ) in the K Series infinitely variable speed drive

Model	Amount of oil horizontally mounted	
DK002	0.15	(5.1 oz.)
DK004	0.30	(10.1 oz.)
DK007	0.40	(13.5 oz.)
DK015	0.50	(16.9 oz.)
DK022	1.0	(33.8 oz.)
DK037	1.0	(33.8 oz.)
DK055	2.2	(74.3 oz.)
DK075	2.2	(74.3 oz.)

■ Speed reducer component

1. Oil and grease change

Oil and grease should be changed according to the table below.

Helical gear speed reducer	Oil	1st change: After 500 hours 2nd change onwards: every 2,000 hours
	Grease	Change every 20,000 hours

2. Suggested oil and grease

Part to lubricate		Ambient temperature	Viscosity	Oil Type	
				Mfg.	Brand
Helical Gear Speed Reducer	S type speed reducer	14°F ~ 104°F	Lithium type high grade grease No. 000	Nippon Grease	Nikdyte LYS No. 000
	R type speed reducer (DK037 and under)				
	R type speed reducer (DK055 and above)		ISO VG 150	Showa Shell Oil Idemitsu Kosan Nippon Oil Mobil Oil	Tellus Oil C150 Dubney Mechanic Oil 150 Bonnock SP150 Mobil Gear 629

3. Amount of oil and grease

Speed Reduction Ratio

Model	Type of lube	1/2.5 • 1/5
DK002	Grease	0.25 lbs.
DK004	Grease	0.29 lbs.
DK007	Grease	0.71 lbs.
DK015	Grease	1.10 lbs.
DK022	Grease	1.40 lbs.
DK037	Grease	1.40 lbs.
DK055	Oil	❊ 1.6 ℓ
DK075	Oil	❊ 1.6 ℓ

❊ denotes the amount of oil (ℓ) for oil lubrication.
1ℓ = 1.057 quarts

Standard Model Specifications and Handling

Standard type DISCO specifications

Location of use	Indoors away from rain, water and direct sunlight*
Atmosphere	Dust at general factory levels is acceptable. No corrosive or explosive gas.*
Ambient temperature	14°F - 104°F
Relative humidity	Below 95%
Variable speed operation	Knob on the right-hand side (seen from the output shaft side).

* If standard DISCO will be used in washdown and corrosive environments, please contact U.S. Tsubaki, PTUC Division.

Key

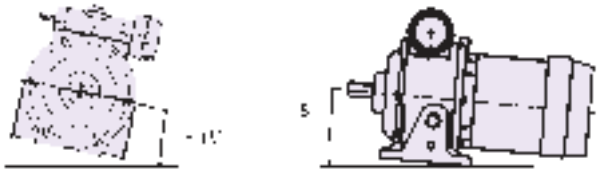
ANSI B17.1 - 1967.R1973	ISO R773
Output shaft of basic type and NEMA-C flange output Input shaft of free-input type Output shaft with R-type speed reducer and S-type speed reducer Input shaft hole with NEMA-C flange	The shaft keys of the speed control shaft and speed control knob meet ISO Key R773 (metric)

Installation and handling precautions

• Do not hang or carry the variable speed drive by its knob or speed control shaft.

Direction of installation

• Install as horizontally as possible (vertically for vertically mounted types). The allowable ranges are illustrated at right.
• If greater angles of installation are required, call U.S. Tsubaki.



Location of installation

• Install in a place with good ventilation and where maintenance and inspection can be carried out easily.

Coupling

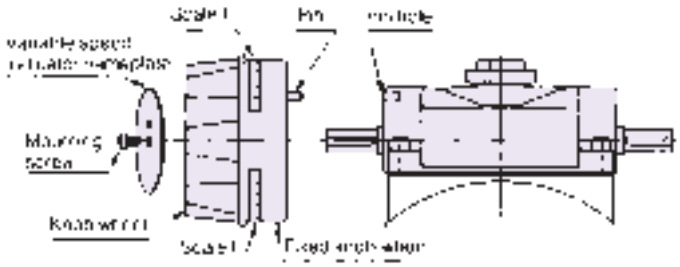
• When connecting to other machinery using a coupling, make sure to center correctly. Incorrect centering shortens the life of the couplings and can cause damage to the variable speed drive. (We suggest U.S. Tsubaki's flexible coupling for this purpose.)
• Try to minimize impact, vibration and thrust from connected equipment.
• When mounting couplings, sprockets and pulleys, etc., on the input and output shafts of the DISCO, insert a bolt into the tapped hole on the shaft and use a jack screw. Excessive hammering will damage the bearings or the inside of the variable speed drive.

Operation

• Do not turn the knob when the drive is stopped.
• When starting the drive with a full load or with large load inertia, start at as low a speed as possible.
• Make sure not to overload the drive.

Changing the right knob to left

• It is possible to change just the speed control knob without removing the speed control head housing.
• Remove the center screw with a Phillips screwdriver and remove the knob.
• Put the knob in the left-hand side of the speed control shaft and the pin into the pin hole. (See the drawing on the right.) Make sure not to hit the pin too hard.
• Turn the Scale II side on the variable speed indicator nameplate to the front and screw down the mounting screws to complete reassembly.



With DK002, it is possible to change the position of the knob wheel by removing the mounting screw only. Having removed the screw, turn the Scale II side on the variable speed indicator nameplate to the front and screw down.

⚠ WARNING

USE CARE TO PREVENT INJURY
COMPLY WITH THE FOLLOWING
TO AVOID SERIOUS PERSONAL INJURY

1. Guards must be provided on all chain and sprocket installations in accordance with provisions of ANSI/ASME B15.1 - 2000 “Safety Standards for Mechanical Power Transmission Apparatus,” and ANSI/ASME B20.1 - 2006 “Safety Standards for Conveyors and Related Equipment,” or other applicable safety standards. When revisions of these standards are published, the updated edition shall apply.

2. Always lock out power switch before installing, removing, lubricating or servicing a system which uses PTUC products.

3. When connecting or disconnecting PTUC products, eye protection is required. Wear safety glasses, protective clothing, gloves and safety shoes.

*PTUC is used by U.S. Tsubaki to designate “Power Transmission Unit Components.” PTUC products include DISCO, POWER-LOCK®, Shock Relay, Gearmotor, HF Driver, Shock Damper, Power Cylinder™, Couplings, SCR variable speed motor and other like products manufactured by/for U.S. Tsubaki.

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