

VRL SERIES Inline Planetary

VRL 070 1-Stage Specifications

| Frame Size | 070 | | | | | | | | | |
|---|----------------------|------|-------------|-------|-------|-------|-------|-------|-------|-------|
| Ratio | Unit | Note | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |
| Nominal Output Torque | [Nm] | *1 | 19 | 27 | 28 | 28 | 28 | 28 | 28 | 28 |
| Maximum Acceleration Torque | [Nm] | *2 | 46 | 66 | 66 | 66 | 66 | 66 | 46 | 46 |
| Maximum Torque | [Nm] | *3 | 55 | 79 | 79 | 79 | 79 | 76 | 55 | 55 |
| Emergency Stop Torque | [Nm] | *4 | 80 | 100 | 100 | 100 | 100 | 100 | 80 | 80 |
| Nominal Input Speed | [rpm] | *5 | 3300 | 3300 | 4000 | 4000 | 4000 | 4000 | 4000 | 4000 |
| Maximum Input Speed | [rpm] | *6 | 7500 | 7500 | 7500 | 7500 | 7500 | 7500 | 7500 | 7500 |
| No Load Running Torque | [Nm] | *7 | 0.08 | | | | | | | |
| Maximum Radial Load | [N] | *8 | 1200 | | | | | | | |
| Maximum Axial Load | [N] | *9 | 1100 | | | | | | | |
| Moment of Inertia ($\leq \emptyset 8$) | [kgcm ²] | -- | 0.14 | 0.095 | 0.077 | 0.068 | 0.062 | 0.059 | 0.057 | 0.056 |
| Moment of Inertia ($\leq \emptyset 14$) | [kgcm ²] | -- | 0.25 | 0.21 | 0.19 | 0.18 | 0.17 | 0.17 | 0.17 | 0.17 |
| Moment of Inertia ($\leq \emptyset 19$) | [kgcm ²] | -- | 0.53 | 0.48 | 0.46 | 0.46 | 0.45 | 0.45 | 0.44 | 0.44 |
| Efficiency | [%] | *10 | 95 | | | | | | | |
| Torsional Rigidity | [Nm/arcmin] | *11 | 3 | | | | | | | |
| Maximum Torsional Backlash | [Arc-min] | -- | ≤ 5 | | | | | | | |
| Noise Level | dB [A] | *12 | ≤ 66 | | | | | | | |
| Protection Class | -- | *13 | IP54 (IP65) | | | | | | | |
| Ambient Temperature | [°C] | -- | 0-40 | | | | | | | |
| Permitted Housing Temperature | [°C] | -- | 90 | | | | | | | |
| Weight | [kg] | *14 | 1.5 | | | | | | | |

VRL 070 2-Stage Specifications

| Frame Size | 070 | | | | | | | | | |
|---|----------------------|------|-------------|-------|-------|-------|-------|-------|-------|-------|
| Ratio | Unit | Note | 15 | 16 | 20 | 25 | 28 | 30 | 35 | 40 |
| Nominal Output Torque | [Nm] | *1 | 25 | 32 | 32 | 43 | 45 | 32 | 45 | 45 |
| Maximum Acceleration Torque | [Nm] | *2 | 46 | 66 | 66 | 66 | 66 | 46 | 66 | 66 |
| Maximum Torque | [Nm] | *3 | 46 | 66 | 66 | 66 | 66 | 46 | 66 | 66 |
| Emergency Stop Torque | [Nm] | *4 | 80 | 100 | 100 | 100 | 100 | 80 | 100 | 100 |
| Nominal Input Speed | [rpm] | *5 | 4000 | 4000 | 4000 | 4000 | 4000 | 4000 | 4000 | 4000 |
| Maximum Input Speed | [rpm] | *6 | 8500 | 8500 | 8500 | 8500 | 8500 | 8500 | 8500 | 8500 |
| No Load Running Torque | [Nm] | *7 | 0.04 | | | | | | | |
| Maximum Radial Load | [N] | *8 | 1200 | | | | | | | |
| Maximum Axial Load | [N] | *9 | 1100 | | | | | | | |
| Moment of Inertia ($\leq \emptyset 8$) | [kgcm ²] | -- | 0.064 | 0.070 | 0.062 | 0.061 | 0.068 | 0.051 | 0.061 | 0.051 |
| Moment of Inertia ($\leq \emptyset 14$) | [kgcm ²] | -- | 0.18 | 0.18 | 0.17 | 0.17 | 0.18 | 0.16 | 0.17 | 0.16 |
| Moment of Inertia ($\leq \emptyset 19$) | [kgcm ²] | -- | 0.45 | 0.46 | 0.45 | 0.45 | 0.46 | 0.44 | 0.45 | 0.44 |
| Efficiency | [%] | *10 | 90 | | | | | | | |
| Torsional Rigidity | [Nm/arcmin] | *11 | 3 | | | | | | | |
| Maximum Torsional Backlash | [Arc-min] | -- | ≤ 5 | | | | | | | |
| Noise Level | dB [A] | *12 | ≤ 66 | | | | | | | |
| Protection Class | -- | *13 | IP54 (IP65) | | | | | | | |
| Ambient Temperature | [°C] | -- | 0-40 | | | | | | | |
| Permitted Housing Temperature | [°C] | -- | 90 | | | | | | | |
| Weight | [kg] | *14 | 1.7 | | | | | | | |

VRL 070 2-Stage Specifications

| Frame Size | 070 | | | | | | | | | | |
|---|----------------------|------|-------------|-------|-------|-------|-------|-------|-------|--|--|
| Ratio | Unit | Note | 45 | 50 | 60 | 70 | 80 | 90 | 100 | | |
| Nominal Output Torque | [Nm] | *1 | 32 | 45 | 45 | 45 | 45 | 32 | 32 | | |
| Maximum Acceleration Torque | [Nm] | *2 | 46 | 66 | 66 | 66 | 66 | 46 | 46 | | |
| Maximum Torque | [Nm] | *3 | 46 | 66 | 66 | 66 | 66 | 46 | 46 | | |
| Emergency Stop Torque | [Nm] | *4 | 80 | 100 | 100 | 100 | 100 | 80 | 80 | | |
| Nominal Input Speed | [rpm] | *5 | 4000 | 4800 | 4800 | 5500 | 5500 | 5500 | 5500 | | |
| Maximum Input Speed | [rpm] | *6 | 8500 | 8500 | 8500 | 8500 | 8500 | 8500 | 8500 | | |
| No Load Running Torque | [Nm] | *7 | 0.04 | | | | | | | | |
| Maximum Radial Load | [N] | *8 | 1200 | | | | | | | | |
| Maximum Axial Load | [N] | *9 | 1100 | | | | | | | | |
| Moment of Inertia ($\leq \varnothing 8$) | [kgcm ²] | -- | 0.061 | 0.051 | 0.051 | 0.051 | 0.051 | 0.051 | 0.051 | | |
| Moment of Inertia ($\leq \varnothing 14$) | [kgcm ²] | -- | 0.17 | 0.16 | 0.16 | 0.16 | 0.16 | 0.16 | 0.16 | | |
| Moment of Inertia ($\leq \varnothing 19$) | [kgcm ²] | -- | 0.45 | 0.44 | 0.44 | 0.44 | 0.44 | 0.44 | 0.44 | | |
| Efficiency | [%] | *10 | 90 | | | | | | | | |
| Torsional Rigidity | [Nm/arcmin] | *11 | 3 | | | | | | | | |
| Maximum Torsional Backlash | [Arc-min] | -- | ≤ 5 | | | | | | | | |
| Noise Level | dB [A] | *12 | ≤ 66 | | | | | | | | |
| Protection Class | -- | *13 | IP54 (IP65) | | | | | | | | |
| Ambient Temperature | [°C] | -- | 0-40 | | | | | | | | |
| Permitted Housing Temperature | [°C] | -- | 90 | | | | | | | | |
| Weight | [kg] | *14 | 1.7 | | | | | | | | |

- *1) At nominal input speed, service life is 20,000 hours
- *2) The maximum torque when starting or stopping operation. Apply Cycle Factor f_0 , found on page 468, for higher duty cycle applications
- *3) Permitted 10,000 times during service life. Based on 10% of maximum radial load and smooth output shaft
- *4) The maximum torque allowed under a stress situation. Permitted 1,000 times during service life
- *5) The average input speed at nominal input torque. Maintain housing temperature below permitted value
- *6) The maximum intermittent input speed
- *7) Torque at no load applied to the input shaft at nominal input speed
- *8) The maximum radial load that the gearbox can accept
- *9) The maximum axial load that the gearbox can accept
- *10) The efficiency at the nominal output torque rating
- *11) This does not include lost motion
- *12) Contact NIDEC-SHIMPO for the testing conditions and environment
- *13) IP65 (wash-down) is available as an option. Contact NIDEC-SHIMPO for more details
- *14) Weight may vary slightly between models