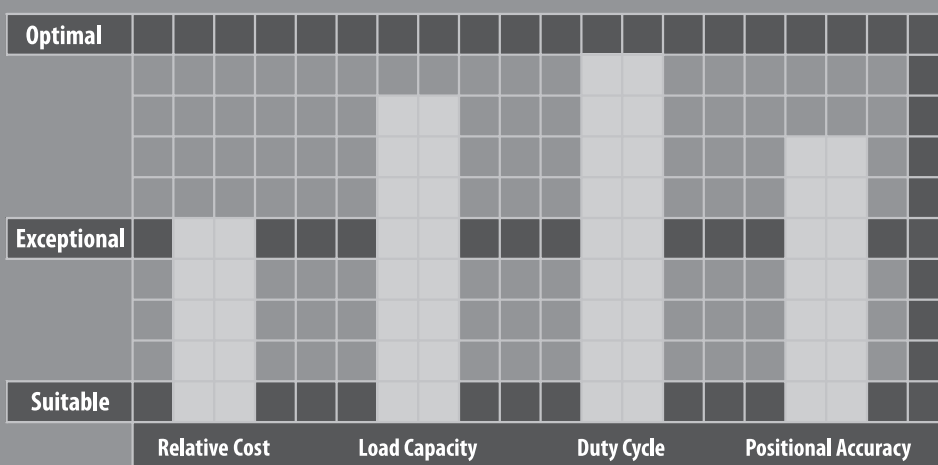


## VRS HIGH SPEED SERIES

We've taken our industry-changing VRS series and have optimized components, processes and specifications to create a product variant that is ideally suited for demanding continuous duty applications with high nominal speeds and longer service life requirements.

The VRS High Speed can reach nominal input speeds of 4,500 rpm, making it a perfect match for continuous duty servo motors. Our design minimizes heat build-up, no-load running torque and maximizes efficiency. When combined with our specially developed lubrication, we offer the printing, packaging and converting industries with a zero maintenance solution that assures high throughput while reducing energy and cost of ownership.



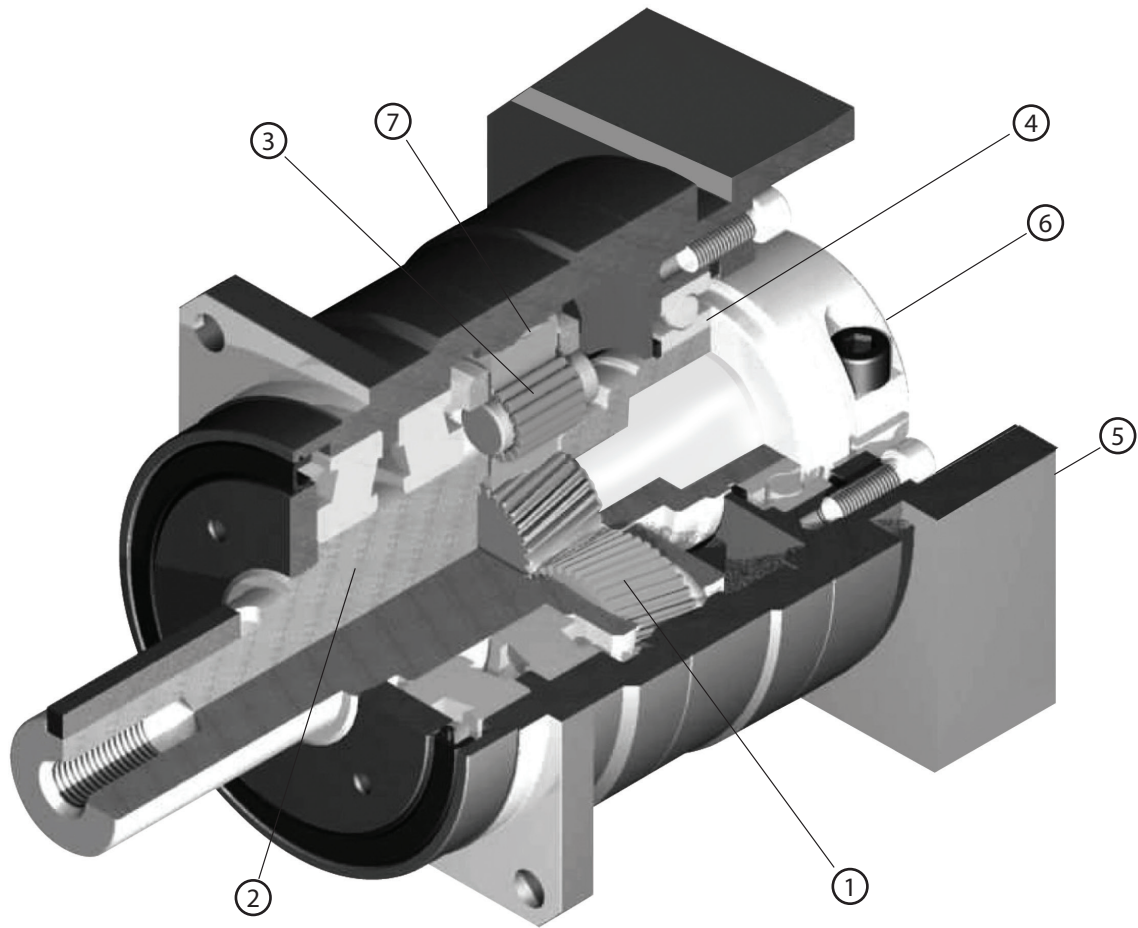


### VRS HIGH SPEED SERIES

- Proven performer in high speed, continuous duty applications
- 30,000 hour service life
- Bearings and seals designed for maximum heat reduction
- Maintenance-free solution that is lubricated for life
- Industry standard mounting dimensions; precise attachment to any motor
- Assembled in the USA

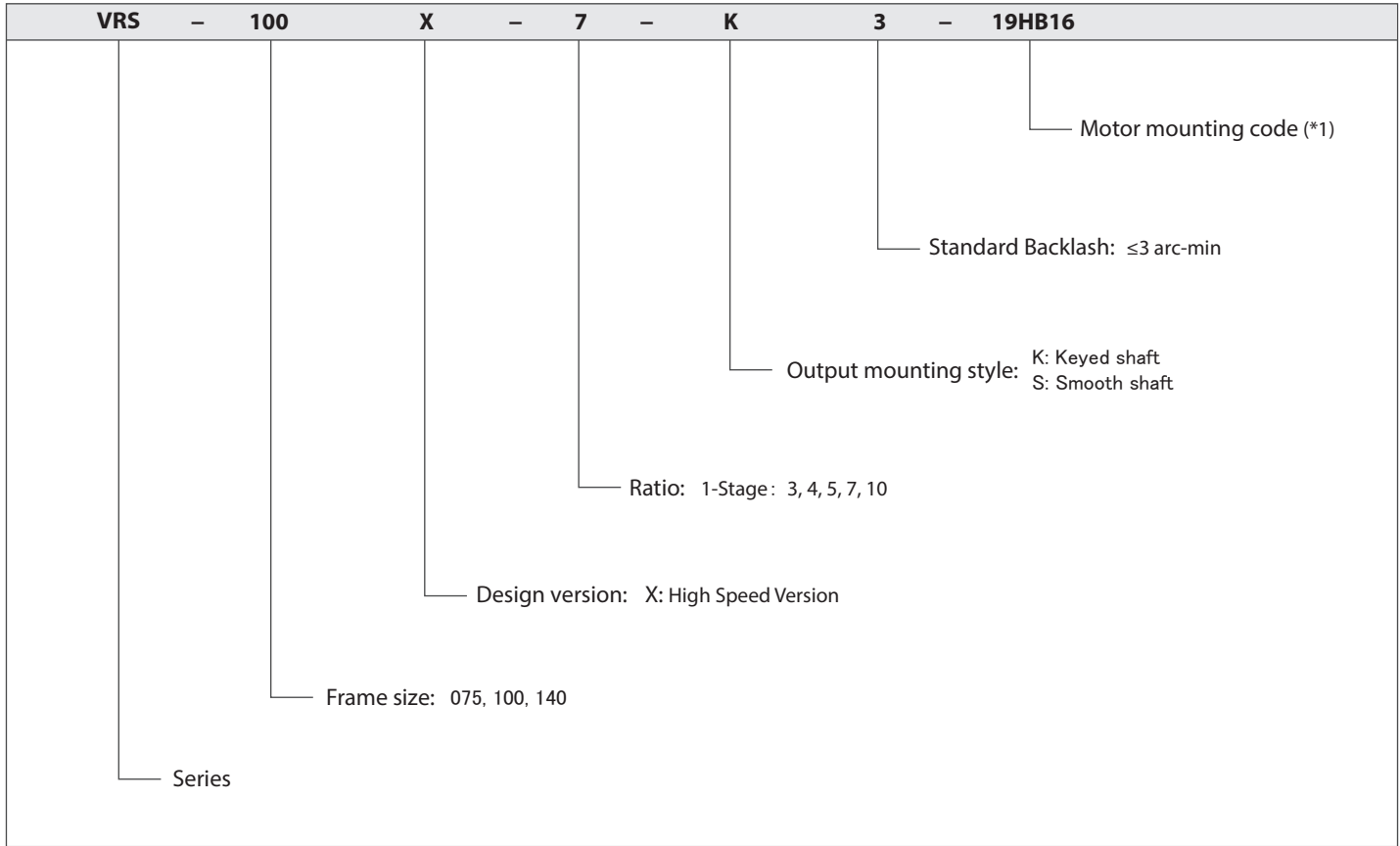
# VRS HIGH SPEED SERIES Inline Planetary

## VRS Series Features



- ① Carburized helical gears with proprietary secondary finishing process for higher accuracy and smooth, quiet operation
- ② One piece output shaft and planet carrier with two robust tapered bearings. Higher radial/axial load capacity, stiffness, torque density and safety factor, with guaranteed alignment of gearing
- ③ Uncaged needle roller bearings designed to reduce heat, while providing excellent torque density and torsional rigidity
- ④ Unique labyrinth input design and specially developed lubrication greatly reduces heat and increases system efficiency. IP65 protection is available for wash down applications
- ⑤ Optimized mounting system with active centering on motor pilot diameter guarantees alignment of motor. Motor can be installed in any orientation
- ⑥ True concentric motor shaft clamping connection, optimized for your specific motor. Reduced inertia for dynamic performance and balanced for high speed operation
- ⑦ Ring gear machined directly into the housing, not welded or pressed in. Provides greater concentricity and elimination of speed fluctuation

## VRS High Speed Series Model Code



VRS

\*1) Motor mounting code varies depending on the motor. Use the selection tool link below to configure the code.

Contact us for additional information or refer to our online gearhead selection tool.  
 Selection tool <https://www.nidec-drivetechnology.co.jp/selection/all/>



# VRS HIGH SPEED SERIES Inline Planetary

## VRS 075 1-Stage Specifications

Frame Size	075							
Ratio	Unit	Note	3	4	5	7	10	
Nominal Output Torque	[Nm]	*1	41	52	52	52	53	
Maximum Acceleration Torque	[Nm]	*2	68	90	90	90	70	
Emergency Stop Torque	[Nm]	*3	200	250	250	250	200	
Nominal Input Speed	[rpm]	*4	4500	4500	4500	4500	4500	
Maximum Input Speed	[rpm]	*5	6000	6000	6000	6000	6000	
No Load Running Torque	[Nm]	*6	0.35					
Maximum Radial Load	[N]	*7	4300					
Maximum Axial Load	[N]	*8	3900					
Moment of Inertia ( $\leq \varnothing 8$ )	[kgcm <sup>2</sup> ]	--	--	--	--	--	--	
Moment of Inertia ( $\leq \varnothing 14$ )	[kgcm <sup>2</sup> ]	--	0.68	0.48	0.39	0.32	0.29	
Moment of Inertia ( $\leq \varnothing 19$ )	[kgcm <sup>2</sup> ]	--	1.1	0.87	0.79	0.72	0.69	
Moment of Inertia ( $\leq \varnothing 28$ )	[kgcm <sup>2</sup> ]	--	2.9	2.6	2.6	2.5	2.4	
Efficiency	[%]	*9	98					
Torsional Rigidity	[Nm/arc-min]	*10	10					
Maximum Torsional Backlash	[arc-min]	--	$\leq 3$					
Noise Level	dB [A]	*11	$\leq 67$					
Protection Class	--	*12	IP54 (IP65)					
Ambient Temperature	[°C]	--	0-40					
Permitted Housing Temperature	[°C]	--	90					
Weight	[kg]	*13	3.4					

\*1) At nominal input speed, service life is 30,000 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) The maximum torque allowed under a stress situation. Permitted 1,000 times during service life

\*4) The average input speed at nominal input torque. Maintain housing temperature below permitted value

\*5) The maximum intermittent input speed

\*6) Torque at no load applied to the input shaft at nominal input speed

\*7) The maximum radial load that the gearbox can accept

\*8) The maximum axial load that the gearbox can accept

\*9) The efficiency at the nominal output torque rating

\*10) This does not include lost motion

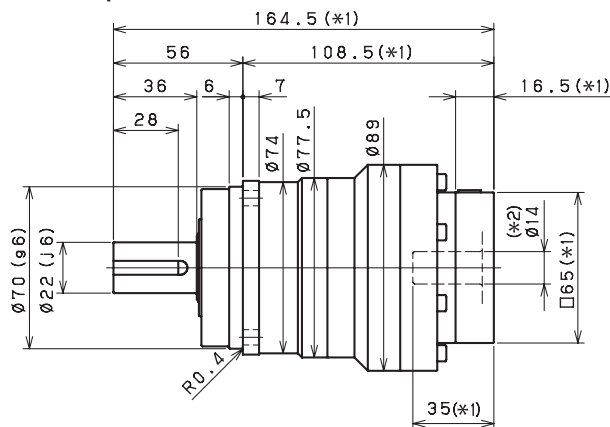
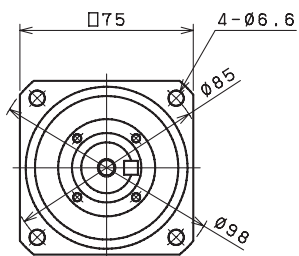
\*11) Contact Nidec Drive Technology for the testing conditions and environment

\*12) IP65 (wash-down) is available as an option. Contact Drive Nidec Technology for more details

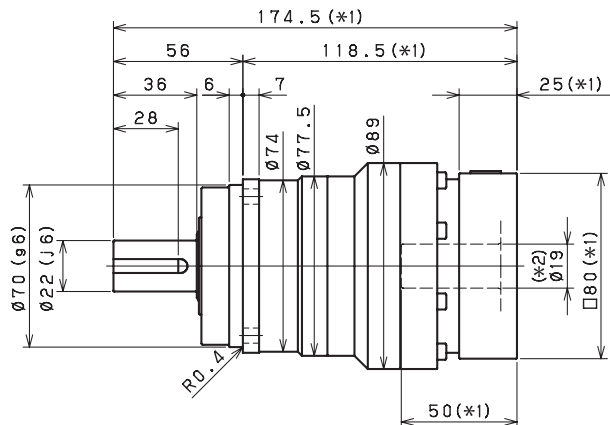
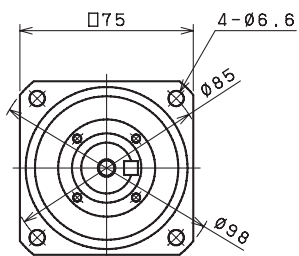
\*13) Weight may vary slightly between models

## VRS 075 1-Stage Dimensions

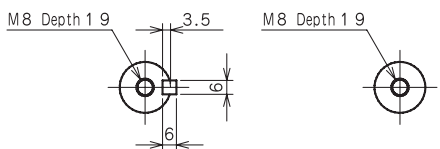
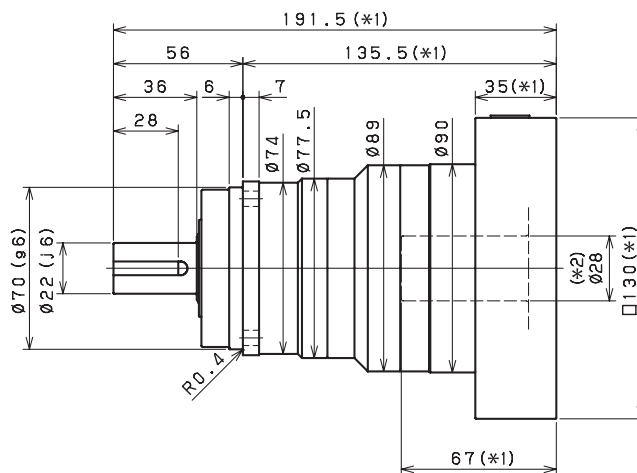
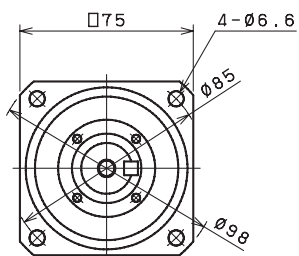
Input bore size  $\leq \varnothing 14$  mm



Input bore size  $\leq \varnothing 19$  mm



Input bore size  $\leq \varnothing 28$  mm



Keyed shaft

Smooth shaft

- \*1) Length will vary depending on motor
- \*2) Bushing will be inserted to adapt to motor shaft

# VRS HIGH SPEED SERIES Inline Planetary

## VRS 100 1-Stage Specifications

Frame Size	100							
Ratio	Unit	Note	3	4	5	7	10	
Nominal Output Torque	[Nm]	*1	76	95	95	95	97	
Maximum Acceleration Torque	[Nm]	*2	180	240	240	240	180	
Emergency Stop Torque	[Nm]	*3	500	625	625	625	500	
Nominal Input Speed	[rpm]	*4	3500	4000	4500	4500	4500	
Maximum Input Speed	[rpm]	*5	6000	6000	6000	6000	6000	
No Load Running Torque	[Nm]	*6	1.30					
Maximum Radial Load	[N]	*7	7000					
Maximum Axial Load	[N]	*8	6300					
Moment of Inertia ( $\leq \varnothing 8$ )	[kgcm <sup>2</sup> ]	--	--	--	--	--	--	
Moment of Inertia ( $\leq \varnothing 14$ )	[kgcm <sup>2</sup> ]	--	--	--	--	--	--	
Moment of Inertia ( $\leq \varnothing 19$ )	[kgcm <sup>2</sup> ]	--	3.1	1.9	1.4	1.0	0.82	
Moment of Inertia ( $\leq \varnothing 28$ )	[kgcm <sup>2</sup> ]	--	5.0	3.7	3.1	2.7	2.5	
Moment of Inertia ( $\leq \varnothing 38$ )	[kgcm <sup>2</sup> ]	--	12	10	9.5	9.1	8.8	
Efficiency	[%]	*9	98					
Torsional Rigidity	[Nm/arc-min]	*10	31					
Maximum Torsional Backlash	[arc-min]	--	$\leq 3$					
Noise Level	dB [A]	*11	$\leq 71$					
Protection Class	--	*12	IP54 (IP65)					
Ambient Temperature	[°C]	--	0-40					
Permitted Housing Temperature	[°C]	--	90					
Weight	[kg]	*13	8.1					

\*1) At nominal input speed, service life is 30,000 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) The maximum torque allowed under a stress situation. Permitted 1,000 times during service life

\*4) The average input speed at nominal input torque. Maintain housing temperature below permitted value

\*5) The maximum intermittent input speed

\*6) Torque at no load applied to the input shaft at nominal input speed

\*7) The maximum radial load that the gearbox can accept

\*8) The maximum axial load that the gearbox can accept

\*9) The efficiency at the nominal output torque rating

\*10) This does not include lost motion

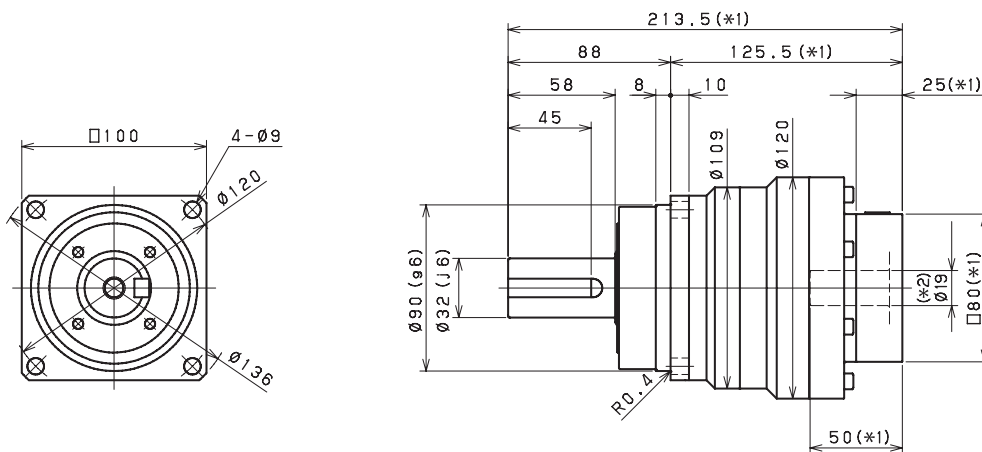
\*11) Contact Nidec Drive Technology for the testing conditions and environment

\*12) IP65 (wash-down) is available as an option. Contact Nidec Drive Technology for more details

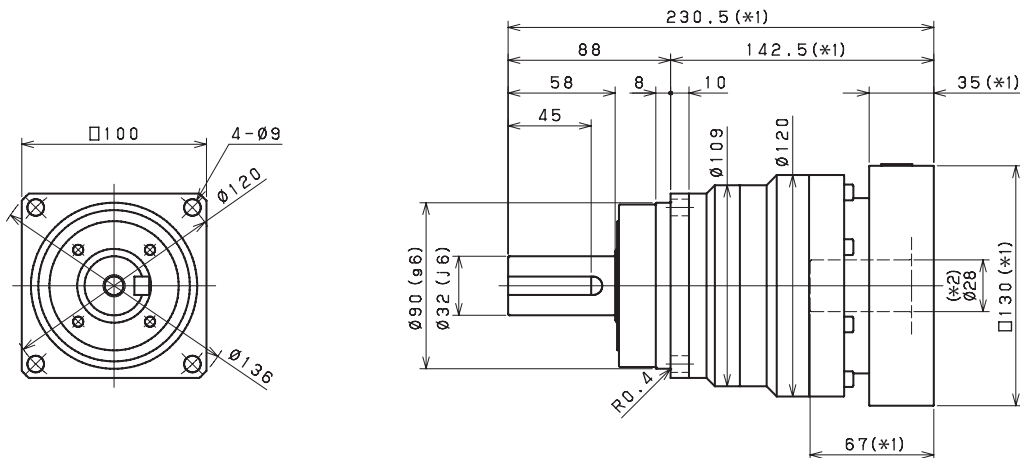
\*13) Weight may vary slightly between models

## VRS 100 1-Stage Dimensions

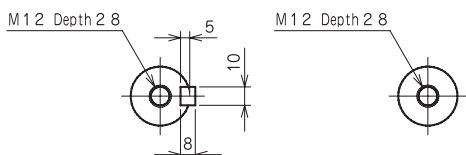
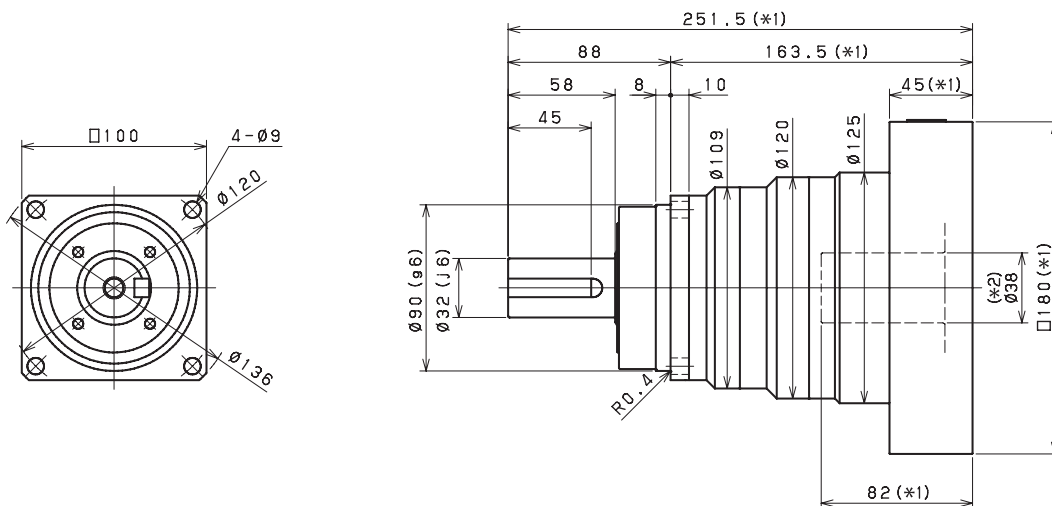
Input bore size  $\leq \varnothing 19$  mm



Input bore size  $\leq \varnothing 28$  mm



Input bore size  $\leq \varnothing 38$  mm



Keyed shaft

Smooth shaft

- \*1) Length will vary depending on motor
- \*2) Bushing will be inserted to adapt to motor shaft



# VRS HIGH SPEED SERIES Inline Planetary

## VRS 140 1-Stage Specifications

Frame Size	140							
Ratio	Unit	Note	3	4	5	7	10	
Nominal Output Torque	[Nm]	*1	127	195	187	187	195	
Maximum Acceleration Torque	[Nm]	*2	310	480	480	480	380	
Emergency Stop Torque	[Nm]	*3	1000	1250	1250	1250	1000	
Nominal Input Speed	[rpm]	*4	3000	3500	4500	4500	4500	
Maximum Input Speed	[rpm]	*5	6000	6000	6000	6000	6000	
No Load Running Torque	[Nm]	*6	1.63					
Maximum Radial Load	[N]	*7	10000					
Maximum Axial Load	[N]	*8	9000					
Moment of Inertia ( $\leq \varnothing 14$ )	[kgcm <sup>2</sup> ]	--	--	--	--	--	--	
Moment of Inertia ( $\leq \varnothing 19$ )	[kgcm <sup>2</sup> ]	--	--	--	--	--	--	
Moment of Inertia ( $\leq \varnothing 28$ )	[kgcm <sup>2</sup> ]	--	12	7.2	5.2	3.8	3.2	
Moment of Inertia ( $\leq \varnothing 38$ )	[kgcm <sup>2</sup> ]	--	18	14	12	10	9.6	
Moment of Inertia ( $\leq \varnothing 48$ )	[kgcm <sup>2</sup> ]	--	35	29	27	25	25	
Efficiency	[%]	*9	98					
Torsional Rigidity	[Nm/arc-min]	*10	60					
Maximum Torsional Backlash	[arc-min]	--	$\leq 3$					
Noise Level	dB [A]	*11	$\leq 67$					
Protection Class	--	*12	IP54 (IP65)					
Ambient Temperature	[°C]	--	0-40					
Permitted Housing Temperature	[°C]	--	90					
Weight	[kg]	*13	17					

\*1) At nominal input speed, service life is 30,000 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) The maximum torque allowed under a stress situation. Permitted 1,000 times during service life

\*4) The average input speed at nominal input torque. Maintain housing temperature below permitted value

\*5) The maximum intermittent input speed

\*6) Torque at no load applied to the input shaft at nominal input speed

\*7) The maximum radial load that the gearbox can accept

\*8) The maximum axial load that the gearbox can accept

\*9) The efficiency at the nominal output torque rating

\*10) This does not include lost motion

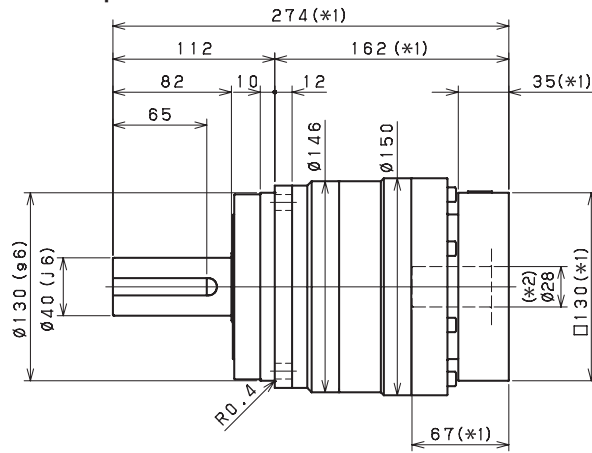
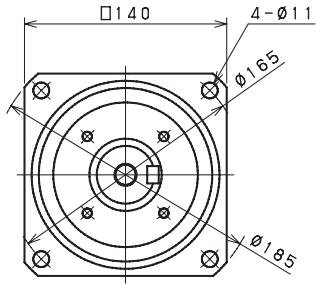
\*11) Contact Nidec Drive Technology for the testing conditions and environment

\*12) IP65 (wash-down) is available as an option. Contact Nidec Drive Technology for more details

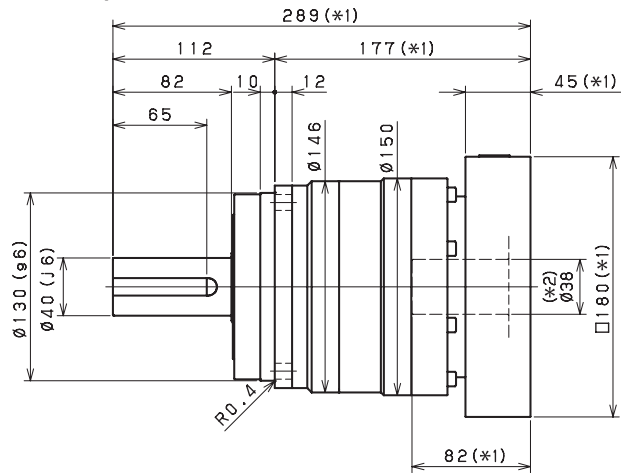
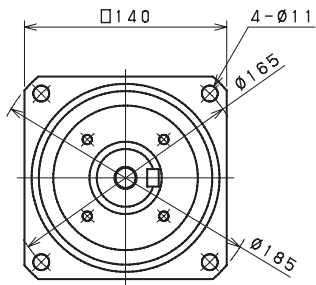
\*13) Weight may vary slightly between models

## VRS 140 1-Stage Dimensions

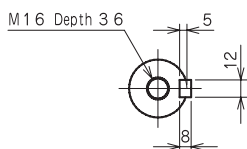
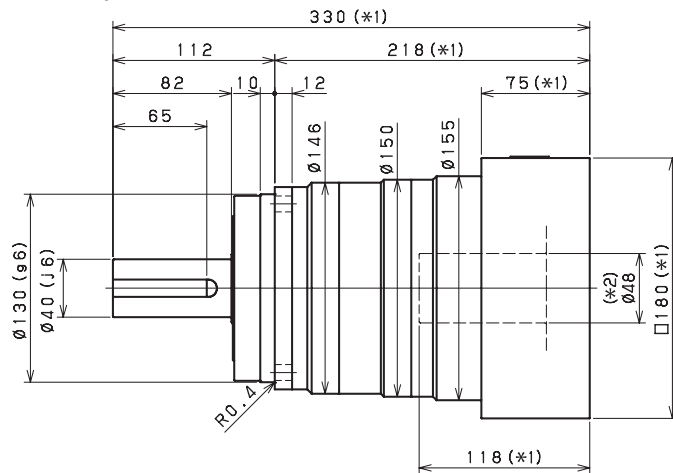
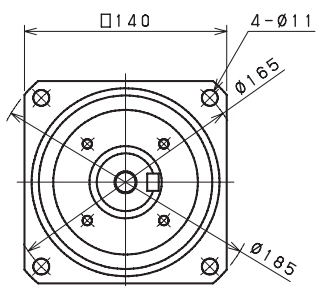
Input bore size  $\leq \varnothing 28$  mm



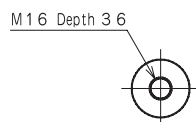
Input bore size  $\leq \varnothing 38$  mm



Input bore size  $\leq \varnothing 48$  mm



Keyed shaft



Smooth shaft

\*1) Length will vary depending on motor

\*2) Bushing will be inserted to adapt to motor shaft