

## VRL 090 1 Stage Specifications

Frame Size	090									
Ratio	Unit	Note	3	4	5	6	7	8	9	10
Nominal Output Torque	[Nm]	*1	53	77	84	84	84	84	84	84
Maximum Acceleration Torque	[Nm]	*2	108	165	165	165	165	165	112	112
Maximum Torque	[Nm]	*3	135	200	200	195	195	190	145	145
Emergency Stop Torque	[Nm]	*4	200	250	250	250	250	250	200	200
Nominal Input Speed	[rpm]	*5	2900	2900	2900	2900	3100	3100	3100	3100
Maximum Input Speed	[rpm]	*6	7500	7500	7500	7500	7500	7500	7500	7500
No Load Running Torque	[Nm]	*7	0.35							
Maximum Radial Load	[N]	*8	2400							
Maximum Axial Load	[N]	*9	2200							
Moment of Inertia ( $\leq \varnothing 8$ )	[kgcm <sup>2</sup> ]	--	--	--	--	--	--	--	--	--
Moment of Inertia ( $\leq \varnothing 14$ )	[kgcm <sup>2</sup> ]	--	0.72	0.50	0.41	0.36	0.33	0.31	0.30	0.30
Moment of Inertia ( $\leq \varnothing 19$ )	[kgcm <sup>2</sup> ]	--	1.1	0.90	0.80	0.75	0.73	0.71	0.70	0.70
Moment of Inertia ( $\leq \varnothing 28$ )	[kgcm <sup>2</sup> ]	--	2.9	2.7	2.6	2.5	2.5	2.5	2.5	2.5
Efficiency	[%]	*10	95							
Torsional Rigidity	[Nm/arc-min]	*11	10							
Maximum Torsional Backlash	[arc-min]	--	$\leq 5$							
Noise Level	dB [A]	*12	$\leq 67$							
Protection Class	--	*13	IP54 (IP65)							
Ambient Temperature	[°C]	--	0-40							
Permitted Housing Temperature	[°C]	--	90							
Weight	[kg]	*14	3.5							

## VRL 090 2 Stage Specifications

Frame Size	090									
Ratio	Unit	Note	15	16	20	25	28	30	35	40
Nominal Output Torque	[Nm]	*1	65	80	86	106	118	88	118	118
Maximum Acceleration Torque	[Nm]	*2	108	165	165	165	165	108	165	165
Maximum Torque	[Nm]	*3	108	165	165	165	165	108	165	165
Emergency Stop Torque	[Nm]	*4	200	250	250	250	250	200	250	250
Nominal Input Speed	[rpm]	*5	3500	3500	3500	3500	3500	3500	3500	3500
Maximum Input Speed	[rpm]	*6	8500	8500	8500	8500	8500	8500	8500	8500
No Load Running Torque	[Nm]	*7	0.06							
Maximum Radial Load	[N]	*8	2400							
Maximum Axial Load	[N]	*9	2200							
Moment of Inertia ( $\leq \varnothing 8$ )	[kgcm <sup>2</sup> ]	--	0.20	0.25	0.19	0.19	0.24	0.12	0.18	0.11
Moment of Inertia ( $\leq \varnothing 14$ )	[kgcm <sup>2</sup> ]	--	0.36	0.41	0.35	0.35	0.40	0.28	0.35	0.28
Moment of Inertia ( $\leq \varnothing 19$ )	[kgcm <sup>2</sup> ]	--	0.75	0.79	0.74	0.74	0.78	0.67	0.73	0.67
Moment of Inertia ( $\leq \varnothing 28$ )	[kgcm <sup>2</sup> ]	--	2.5	2.5	2.5	2.5	2.5	2.4	2.5	2.4
Efficiency	[%]	*10	90							
Torsional Rigidity	[Nm/arc-min]	*11	10							
Maximum Torsional Backlash	[arc-min]	--	$\leq 5$							
Noise Level	dB [A]	*12	$\leq 67$							
Protection Class	--	*13	IP54 (IP65)							
Ambient Temperature	[°C]	--	0-40							
Permitted Housing Temperature	[°C]	--	90							
Weight	[kg]	*14	4							

## VRL 090 2 Stage Specifications

Frame Size	090										
Ratio	Unit	Note	45	50	60	70	80	90	100		
Nominal Output Torque	[Nm]	*1	88	118	118	118	118	88	88		
Maximum Acceleration Torque	[Nm]	*2	112	165	165	165	165	112	112		
Maximum Torque	[Nm]	*3	112	165	165	165	165	112	112		
Emergency Stop Torque	[Nm]	*4	200	250	250	250	250	200	200		
Nominal Input Speed	[rpm]	*5	3500	3800	3800	4500	4500	4500	4500		
Maximum Input Speed	[rpm]	*6	8500	8500	8500	8500	8500	8500	8500		
No Load Running Torque	[Nm]	*7	0.06								
Maximum Radial Load	[N]	*8	2400								
Maximum Axial Load	[N]	*9	2200								
Moment of Inertia ( $\leq \varnothing 8$ )	[kgcm <sup>2</sup> ]	--	0.18	0.11	0.11	0.11	0.11	0.11	0.11		
Moment of Inertia ( $\leq \varnothing 14$ )	[kgcm <sup>2</sup> ]	--	0.34	0.27	0.27	0.27	0.27	0.27	0.27		
Moment of Inertia ( $\leq \varnothing 19$ )	[kgcm <sup>2</sup> ]	--	0.73	0.67	0.67	0.67	0.67	0.67	0.67		
Moment of Inertia ( $\leq \varnothing 28$ )	[kgcm <sup>2</sup> ]	--	2.5	2.4	2.4	2.4	2.4	2.4	2.4		
Efficiency	[%]	*10	90								
Torsional Rigidity	[Nm/arc-min]	*11	10								
Maximum Torsional Backlash	[arc-min]	--	$\leq 5$								
Noise Level	dB [A]	*12	$\leq 67$								
Protection Class	--	*13	IP54 (IP65)								
Ambient Temperature	[°C]	--	0-40								
Permitted Housing Temperature	[°C]	--	90								
Weight	[kg]	*14	4								

\*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 Drive Technology for the testing conditions and environment

\*13 IP65 (wash-down) is available as an option. Contact Nidec Drive Technology for more details

\*14 Weight may vary slightly between models

VRSF

PRE

PRF

VRL

VRB

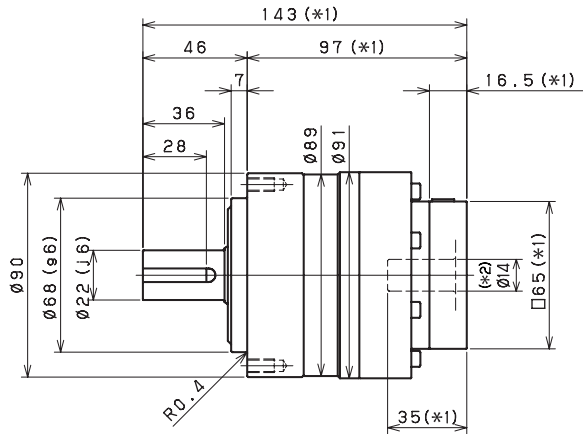
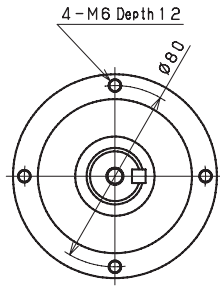
VRS

VRT

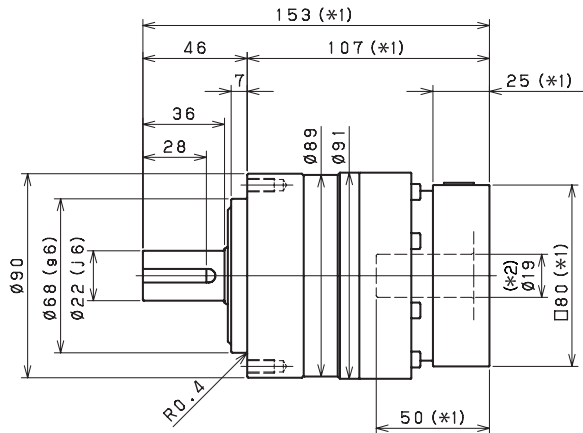
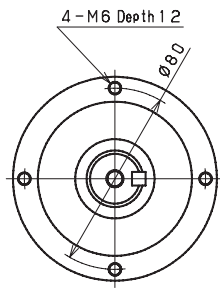
# PLANETARY Inline Gear Reducers

## VRL 090 1 Stage Dimensions

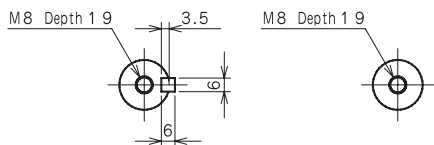
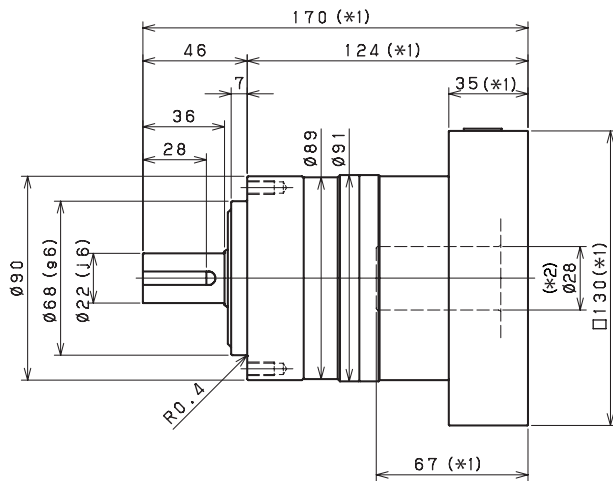
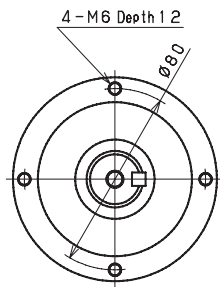
Input bore size  $\cong \varnothing 14$  mm



Input bore size  $\cong \varnothing 19$  mm



Input bore size  $\cong \varnothing 28$  mm



Keyed shaft

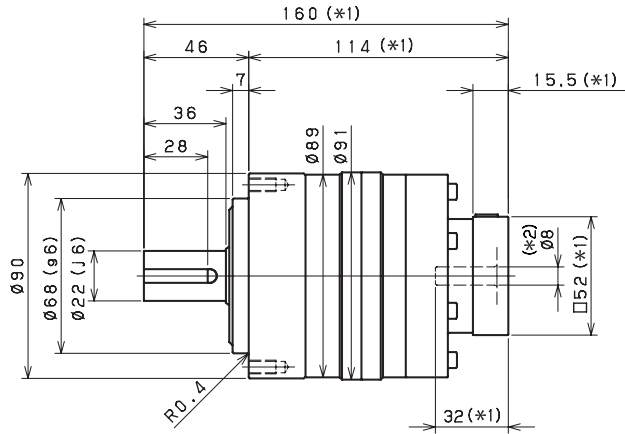
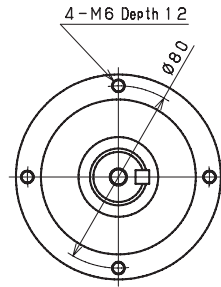
Smooth shaft

\*1 Length will vary depending on motor

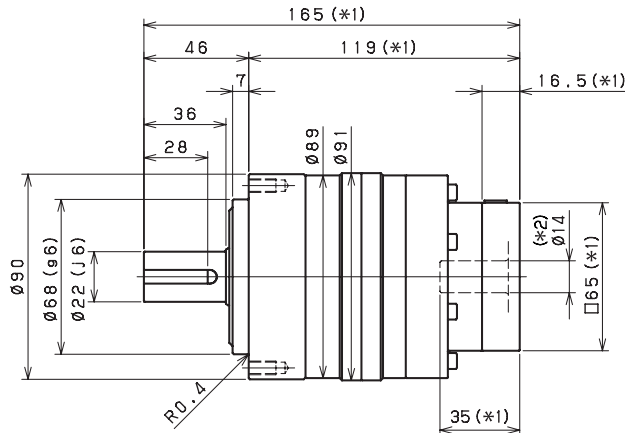
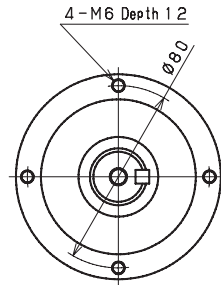
\*2 Bushing will be inserted to adapt to motor shaft

## VRL 090 2 Stage Dimensions

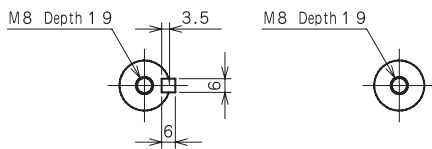
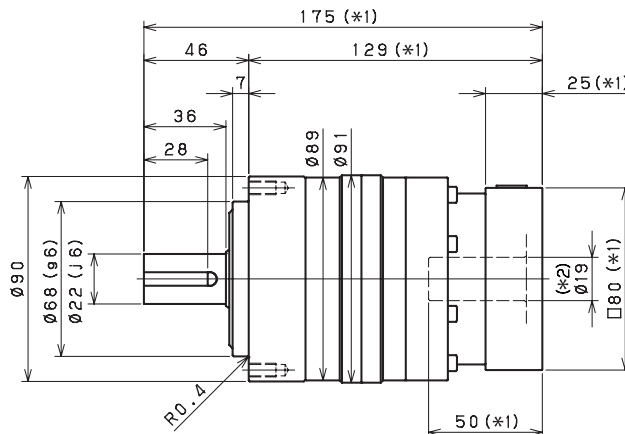
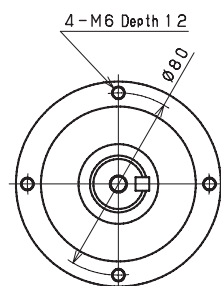
Input bore size  $\leq \varnothing 8 \text{ mm}$



Input bore size  $\leq \varnothing 14 \text{ mm}$



Input bore size  $\leq \varnothing 19 \text{ mm}$



Keyed shaft

Smooth shaft

\*1 Length will vary depending on motor

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

\*3 28mm input bore is available for this frame size. Use our online configurator to make your selection or contact us for assistance

VRSF

PRE

PRF

VRL

VRB

VR5

VRT