

# VRL SERIES Inline Planetary

## VRL 205 1-Stage Specifications

Frame Size	205									
Ratio	Unit	Note	3	4	5	6	7	8	9	10
Nominal Output Torque	[Nm]	*1	570	850	910	910	910	910	910	910
Maximum Acceleration Torque	[Nm]	*2	1300	1850	1850	1850	1850	1850	1350	1350
Maximum Torque	[Nm]	*3	1450	2250	2250	2150	2150	2150	1750	1750
Emergency Stop Torque	[Nm]	*4	2200	2750	2750	2750	2750	2750	2200	2200
Nominal Input Speed	[rpm]	*5	1500	1500	1500	1500	2300	2300	2300	2300
Maximum Input Speed	[rpm]	*6	4500	4500	4500	4500	4500	4500	4500	4500
No Load Running Torque	[Nm]	*7	2.68							
Maximum Radial Load	[N]	*8	15000							
Maximum Axial Load	[N]	*9	14000							
Moment of Inertia ( $\leq \varnothing 19$ )	[kgcm <sup>2</sup> ]	--	--	--	--	--	--	--	--	--
Moment of Inertia ( $\leq \varnothing 28$ )	[kgcm <sup>2</sup> ]	--	--	--	--	--	--	--	--	--
Moment of Inertia ( $\leq \varnothing 38$ )	[kgcm <sup>2</sup> ]	--	43	26	19	15	14	13	12	12
Moment of Inertia ( $\leq \varnothing 48$ )	[kgcm <sup>2</sup> ]	--	57	41	34	31	29	28	27	27
Moment of Inertia ( $\leq \varnothing 65$ )	[kgcm <sup>2</sup> ]	--	110	85	78	75	73	72	71	71
Efficiency	[%]	*10	95							
Torsional Rigidity	[Nm/arc-min]	*11	175							
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	39							

## VRL 205 2-Stage Specifications

Frame Size	205									
Ratio	Unit	Note	15	16	20	25	28	30	35	40
Nominal Output Torque	[Nm]	*1	660	850	910	1100	1300	930	1300	1200
Maximum Acceleration Torque	[Nm]	*2	1300	1850	1850	1850	1850	1300	1850	1850
Maximum Torque	[Nm]	*3	1300	1850	1850	1850	1850	1300	1850	1850
Emergency Stop Torque	[Nm]	*4	2200	2750	2750	2750	2750	2200	2750	2750
Nominal Input Speed	[rpm]	*5	2700	2700	2700	2700	2700	2700	2700	2700
Maximum Input Speed	[rpm]	*6	5000	5000	5000	5000	5000	5000	5000	5000
No Load Running Torque	[Nm]	*7	1.39							
Maximum Radial Load	[N]	*8	15000							
Maximum Axial Load	[N]	*9	14000							
Moment of Inertia ( $\leq \varnothing 19$ )	[kgcm <sup>2</sup> ]	--	--	--	--	--	--	--	--	--
Moment of Inertia ( $\leq \varnothing 28$ )	[kgcm <sup>2</sup> ]	--	8.8	11	8.1	7.9	11	4.0	7.6	3.9
Moment of Inertia ( $\leq \varnothing 38$ )	[kgcm <sup>2</sup> ]	--	15	18	14	14	17	10	14	10
Moment of Inertia ( $\leq \varnothing 48$ )	[kgcm <sup>2</sup> ]	--	30	33	29	29	32	25	29	25
Moment of Inertia ( $\leq \varnothing 65$ )	[kgcm <sup>2</sup> ]	--	--	--	--	--	--	--	--	--
Efficiency	[%]	*10	90							
Torsional Rigidity	[Nm/arc-min]	*11	175							
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	40							

## VRL 205 2-Stage Specifications

Frame Size	205										
Ratio	Unit	Note	45	50	60	70	80	90	100		
Nominal Output Torque	[Nm]	*1	930	1300	1300	1300	1300	930	930		
Maximum Acceleration Torque	[Nm]	*2	1350	1850	1850	1850	1850	1350	1350		
Maximum Torque	[Nm]	*3	1350	1850	1850	1850	1850	1350	1350		
Emergency Stop Torque	[Nm]	*4	2200	2750	2750	2750	2750	2200	2200		
Nominal Input Speed	[rpm]	*5	2700	2900	2900	3400	3400	3400	3400		
Maximum Input Speed	[rpm]	*6	5000	5000	5000	5000	5000	5000	5000		
No Load Running Torque	[Nm]	*7	1.39								
Maximum Radial Load	[N]	*8	15000								
Maximum Axial Load	[N]	*9	14000								
Moment of Inertia (≤ Ø 19)	[kgcm <sup>2</sup> ]	--	--	1.9	1.9	1.8	1.8	1.8	1.8		
Moment of Inertia (≤ Ø 28)	[kgcm <sup>2</sup> ]	--	7.6	3.8	3.8	3.8	3.7	3.7	3.7		
Moment of Inertia (≤ Ø 38)	[kgcm <sup>2</sup> ]	--	14	10	10	10	10	10	10		
Moment of Inertia (≤ Ø 48)	[kgcm <sup>2</sup> ]	--	29	25	25	25	25	25	25		
Moment of Inertia (≤ Ø 65)	[kgcm <sup>2</sup> ]	--	--	--	--	--	--	--	--		
Efficiency	[%]	*10	90								
Torsional Rigidity	[Nm/arc-min]	*11	175								
Maximum Torsional Backlash	[arc-min]	--	≤ 5								
Noise Level	dB [A]	*12	≤ 67								
Protection Class	--	*13	IP54 (IP65)								
Ambient Temperature	[°C]	--	0-40								
Permitted Housing Temperature	[°C]	--	90								
Weight	[kg]	*14	40								

- \*1) At nominal input speed, service life is 20,000 hours
- \*2) The maximum torque when starting or stopping operation. Apply Cycle Factor **f<sub>0</sub>**, 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