

# PD / PDR Gearbox Performance

Model No.	Stages	Ratio <sup>(1)</sup>	Type	PD 053	FD 064	PD 090	PD 110	
				PDR 053	PDR064	PDR 090	PDR 110	
Nominal Output Torque T <sub>2N</sub>	1	3	All	16	42	110	217	
		4		16	42	113	223	
		5		15	40	118	220	
		7		12	35	96	198	
		10		10	27	68	155	
	2	12		16	42	110	217	
		15		15	40	109	213	
		16		16	42	116	228	
		20		16	42	116	230	
		25		15	40	123	228	
		30		15	40	108	212	
		35		12	35	100	206	
		40		16	43	117	232	
		50		15	40	123	228	
		70		12	35	100	206	
		100		10	27	70	162	
Emergency Stop Torque T <sub>2NOT</sub>	Nm	1,2	3~100	All				3 times T <sub>2N</sub>
Max. Acceleration Torque T <sub>2B</sub>	Nm	1,2	3~100	All				T <sub>2B</sub> = 60% of T <sub>2NOT</sub>
No Load Running Torque <sup>(4)</sup>	Nm	1	3~10	PD	0.05	0.10	0.40	0.80
				PDR	0.15	0.6	1.6	3
	2	12~100	PD	0.05	0.10	0.30	0.40	
			PDR	0.15	0.58	1.58	2.5	
Backlash <sup>(2)</sup>	arcmin	1	3~10	PD	≤ 8	≤ 7	≤ 6	≤ 6
				PDR	≤ 12	≤ 11	≤ 10	≤ 10
	2	12~100	PD	≤ 10	≤ 9	≤ 8	≤ 8	
			PDR	≤ 14	≤ 13	≤ 12	≤ 12	
Torsional Rigidity	Nm/arcmin	1,2	3~100	All	1.2	3	10.8	16.2
Nominal Input Speed n <sub>1N</sub>	rpm	1,2	3~100	All	4,500	4,000	3,600	3,600
Max. Input Speed n <sub>1B</sub>	rpm	1,2	3~100	All	8,000	6,000	6,000	4,800
Max. Radial Load F <sub>2rB</sub> <sup>(3)</sup>	N	1,2	3~100	All	1,045	880	1,615	3,675
Max. Axial Load F <sub>2aB</sub> <sup>(3)</sup>	N	1,2	3~100	All	523	440	808	1,838
Max. Tilting Moment M <sub>2K</sub>	Nm	1,2	3~100	All	22	17	44	140
Operating Temp	° C	1,2	3~100	All	0° C ~ +90° C			
Degree of Gearbox Protection		1,2	3~100	All	IP65			
Lubrication		1,2	3~100	All	Synthetic lubrication grease			
Mounting Position		1,2	3~100	All	All directions			
Running Noise <sup>(4)</sup>	dB(A)	1,2	3~100	PD	≤ 60	≤ 62	≤ 64	≤ 66
				PDR	≤ 70	≤ 72	≤ 74	≤ 75
Max. bending moment based on the gearbox input flange Mb <sup>(5)</sup>	Nm	1,2	3~100	PD	7	16	31	56
				PDR	4	9	16	25
Efficiency η	%	1	3~10	PD	≥ 97%			
				PDR	≥ 93%			
	2	12~100	PD	≥ 94%				
			PDR	≥ 90%				

(1) Ratio (i= N<sub>in</sub> / N<sub>out</sub>) .

(2) Backlash is measured at 2% of Nominal Output Torque T<sub>2N</sub> .

(3) Applied to the output flange center at 100 rpm.

(4) The dB values are measured by gearbox with ratio 10 (1-stage) or ratio 100 (2-stage), no loading at 3,000 RPM

or at the respective Nominal Input Speed by bigger model size.

By lower ratio and/or higher RPM, the noise level could be 3 to 5 dB higher.

(5) Max. motor weight\* (kg) =  $\frac{0.1 \times Mb}{\text{motor length (m)}}$

\*with symmetrically distributed motor weight

\*with horizontal and stationary mounting