

# PL / PLR Gearbox Performance

Model No.	Stages	Ratio <sup>(1)</sup>	Type	PL 070	PL 090	PL 120	
				PLR 070	PLR 090	PLR 120	
Nominal Output Torque $T_{2N}$	1	3	All	30	67	107	
		4		39	86	137	
		5		40	89	140	
		7		37	80	128	
		10		27	59	93	
	2	12		31	69	109	
		15		31	70	110	
		16		39	86	137	
		20		39	88	141	
		25		40	89	140	
		30		32	72	111	
		35		36	80	130	
		40		41	92	143	
		50		42	90	143	
		70		37	81	131	
		100		27	59	93	
Emergency Stop Torque $T_{2NOT}$	Nm	1,2	3~10	All 3 times $T_{2N}$			
Max. Acceleration Torque $T_{2B}$	Nm	1,2	3~10	All $T_{2B} = 60\%$ of $T_{2NOT}$			
No Load Running Torque <sup>(4)</sup>	1	3~10	PL	0.10	0.40	0.80	
			PLR	0.6	1.6	3	
	2	12~100	PL	0.10	0.30	0.40	
			PLR	0.58	1.58	2.5	
Backlash <sup>(2)</sup>	1	3~10	PL	$\leq 7$	$\leq 6$	$\leq 6$	
			PLR	$\leq 11$	$\leq 10$	$\leq 10$	
	2	12~100	PL	$\leq 9$	$\leq 8$	$\leq 8$	
			PLR	$\leq 13$	$\leq 12$	$\leq 12$	
Torsional Rigidity	Nm/arcmin	1,2	3~100	All	2.2	8	12
Nominal Input Speed $n_{1N}$	rpm	1,2	3~100	All	4,000	3,600	3,600
Max. Input Speed $n_{1B}$	rpm	1,2	3~100	All	6,000	6,000	4,800
Max. Radial Load $F_{2rB}$ <sup>(3)</sup>	N	1,2	3~100	All	2,600	3,100	6,550
Max. Axial Load $F_{2aB}$ <sup>(3)</sup>	N	1,2	3~100	All	1,300	1,550	3,275
Max. Tilting Moment $M_{2K}$	Nm	1,2	3~100	All	50	65	180
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	PL	$\leq 62$	$\leq 64$	$\leq 66$
				PLR	$\leq 72$	$\leq 74$	$\leq 75$
Max. belt tension	N	1,2	3~100	All	560	950	1200
Max. bending moment based on the gearbox input flange $M_b$ <sup>(5)</sup>	Nm	2	12~100	PL	19	38	45
		2		PLR	10	17	14
Efficiency $\eta$	%	1	3~10	PL	$\geq 97\%$		
				PLR	$\geq 93\%$		
		2	12~100	PL	$\geq 94\%$		
				PLR	$\geq 90\%$		

(1) Ratio ( $i = N_{in} / N_{out}$ ).

(2) Backlash is measured at 2% of Nominal Output Torque  $T_{2N}$ .

(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) =  $\frac{0.1 \times M_b}{\text{motor length (m)}}$

\*with symmetrically distributed motor weight

\*with horizontal and stationary mounting