

PSIIR series

Overview

- Black coated steel housing, aluminum output and motor adapter flange
- Steel output shaft with or without key
- Spur gear design
- Nominal torques:
 - T_{2N} : 8 Nm – 459 Nm
- Ratios
 - 1-stage : 3 / 4 / 5 / 7 / 9 / 10
 - 2-stage : 15 / 16 / 20 / 25 / 30 / 35 / 40 / 50 / 70 / 81 / 100
- Low backlash
 - 1-stage : $\leq 10 \sim 12$ arcmin
 - 2-stage : $\leq 12 \sim 14$ arcmin
- High efficiency
 - 1-stage : $\geq 93\%$
 - 2-stage : $\geq 90\%$
- Easy mount
- Compact structure
- Sizes available: PSIIR A / PSIIR B / PSIIR C / PSIIR D / PSIIR E



Specifications

PSIIR		Stage	Ratio ⁽¹⁾	Type	PSIIR A	PSIIR B	PSIIR C	PSIIR D	PSIIR E
Nominal output torque T_{2N}	Nm	1	3	All	16	42	110	217	430
			4		16	42	113	223	440
			5		15	40	118	220	435
			7		12	35	96	198	366
			9		8	24	60	125	273
			10		10	27	68	155	295
			15		15	40	109	213	424
			16		16	42	116	228	452
			20		16	42	116	230	454
			25		15	40	123	228	450
		30	15	40	108	212	422		
		35	12	35	100	206	382		
		40	2	16	43	117	232	459	
		50	15	40	123	228	450		
		70	12	35	100	206	382		
81	8	24	59	131	285				
100	10	27	70	162	308				
Emergency stop torque T_{2NOT}	Nm	1,2	3~100	All	3 times nominal output torque T_{2N}				
Max. Acceleration torque T_{2B}	Nm	1,2	3~100	All	$T_{2B} = 60\%$ of T_{2NOT}				
No load running torque ⁽⁴⁾	Nm	1	3~10	All	0,05	0,1	0,4	0,8	2,5
		2	15~100	All	0,05	0,1	0,3	0,4	0,8
Backlash ⁽²⁾	arcmin	1	3~10	All	≤ 8	≤ 7	≤ 6	≤ 6	≤ 6
		2	15~100	All	≤ 10	≤ 9	≤ 8	≤ 8	≤ 8
Torsional rigidity ⁽⁴⁾	Nm/arcmin	1,2	3~100	All	0,6	1,5	6	10,5	18
Nominal input speed n_{1N}	rpm	1,2	3~100	All	4.500	4.000	3.600	3.600	2.500
Max. input speed n_{1B}	rpm	1,2	3~100	All	8.000	6.000	6.000	4.800	3.600
Max. radial load F_{2rB} ⁽³⁾	N	1,2	3~100	All	840	1.290	1.510	3.780	5.420
Max. axial load F_{2aB} ⁽³⁾	N	1,2	3~100	All	420	645	755	1.890	2.710
Service Life ⁽⁵⁾	hr	1,2	3~100	All	20.000				
Operating temperature	°C	1,2	3~100	All	0° C ~ +90°C				
Degree of Protection		1,2	3~100	All	IP65				
Lubrication		1,2	3~100	All	Synthetisch lubrication grease				
Mounting position		1,2	3~100	All	All directions				
Running noise ⁽⁴⁾	dB (A)	1,2	3~100	All	≤ 60	≤ 62	≤ 64	≤ 66	≤ 68
Efficiency η	%	1	3~10	All	$\geq 97\%$				
		2	15~100		$\geq 94\%$				

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

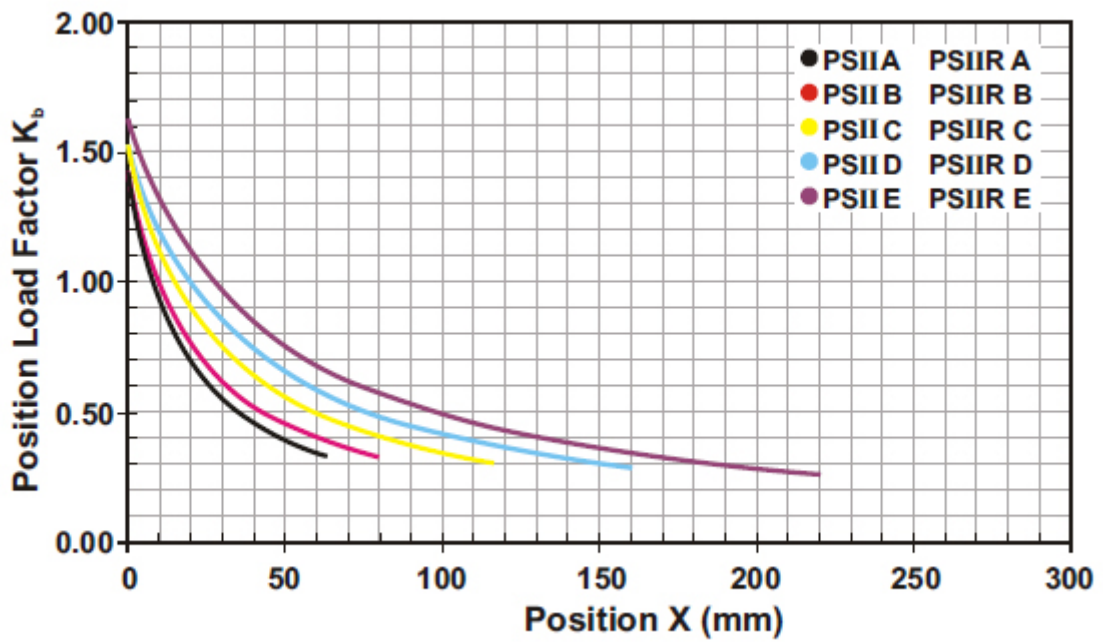
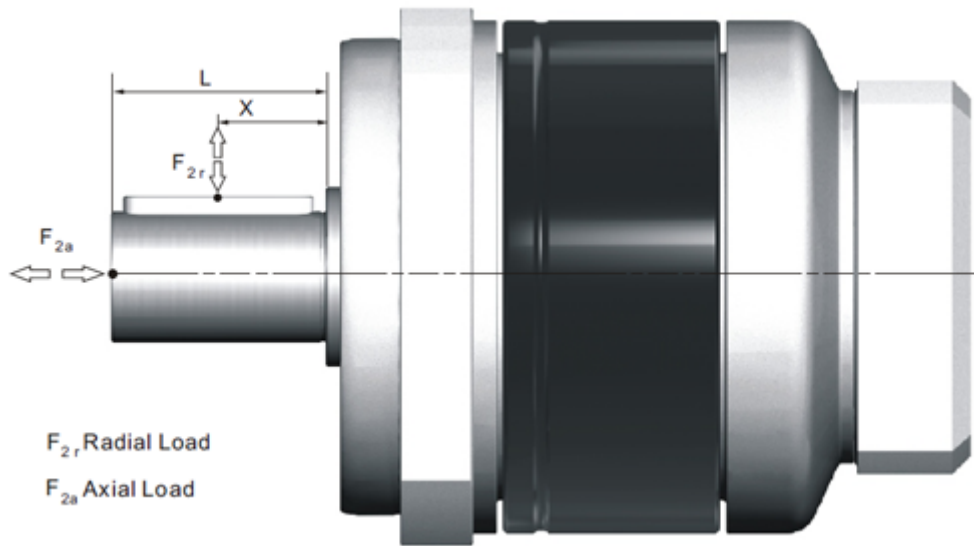
(2) Backlash is measured at 2% of Nominal output torque T_{2N} .

(3) Applied to the output shaft center @ 100 rpm .

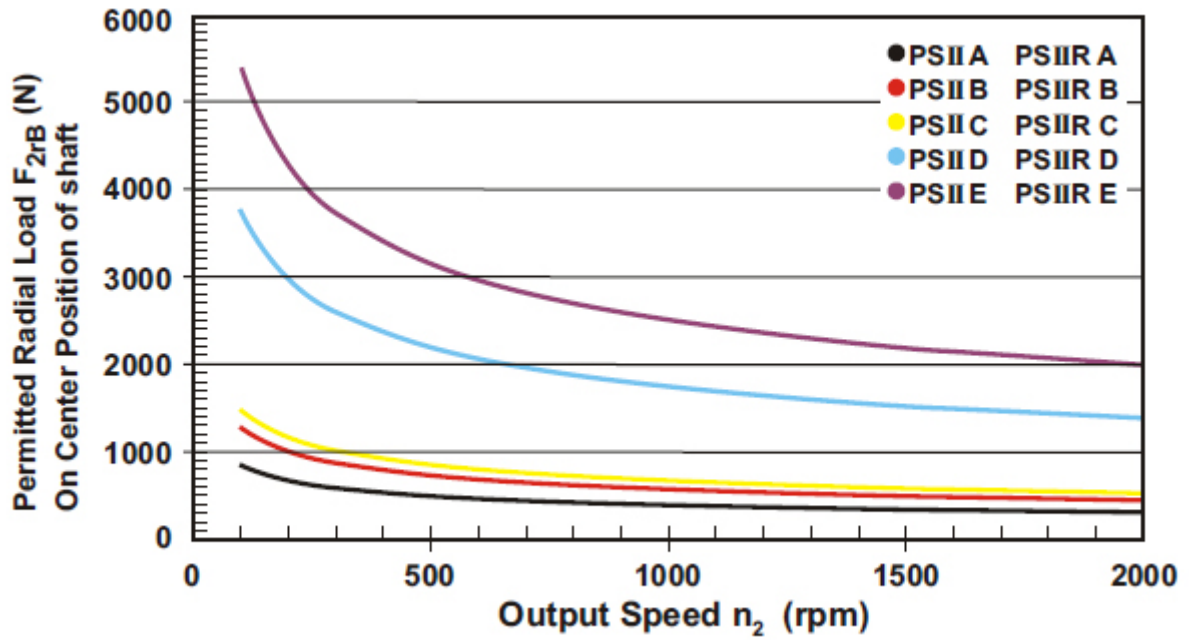
(4) These values are measured by gearbox with ratio = 10 (1-stage) or ratio = 100 (2-stage) at 3.000 rpm without load.

(5) For continuous operation, the service life is less than 10.000 hrs.

Permitted Radial And Axial Loads



If radial force F_{2r} is not exerted on the center of the output shaft $X < \frac{1}{2} \times L$ or $X > \frac{1}{2} \times L$, the permitted radial and axial loads can be calculated by the position load factor K_b on the above diagram.



Permitted radial load F_{2r} on center of output shaft $X = \frac{1}{2} \times L$ for various output speeds. Values provided are for 20.000 hours life.

(A) \emptyset Input shaft diameter

(B) Permitted loading values on the output shaft. Please contact Apex Dynamics for more details.

(C) For continue mode (S1), the service life is reduced to 50%.

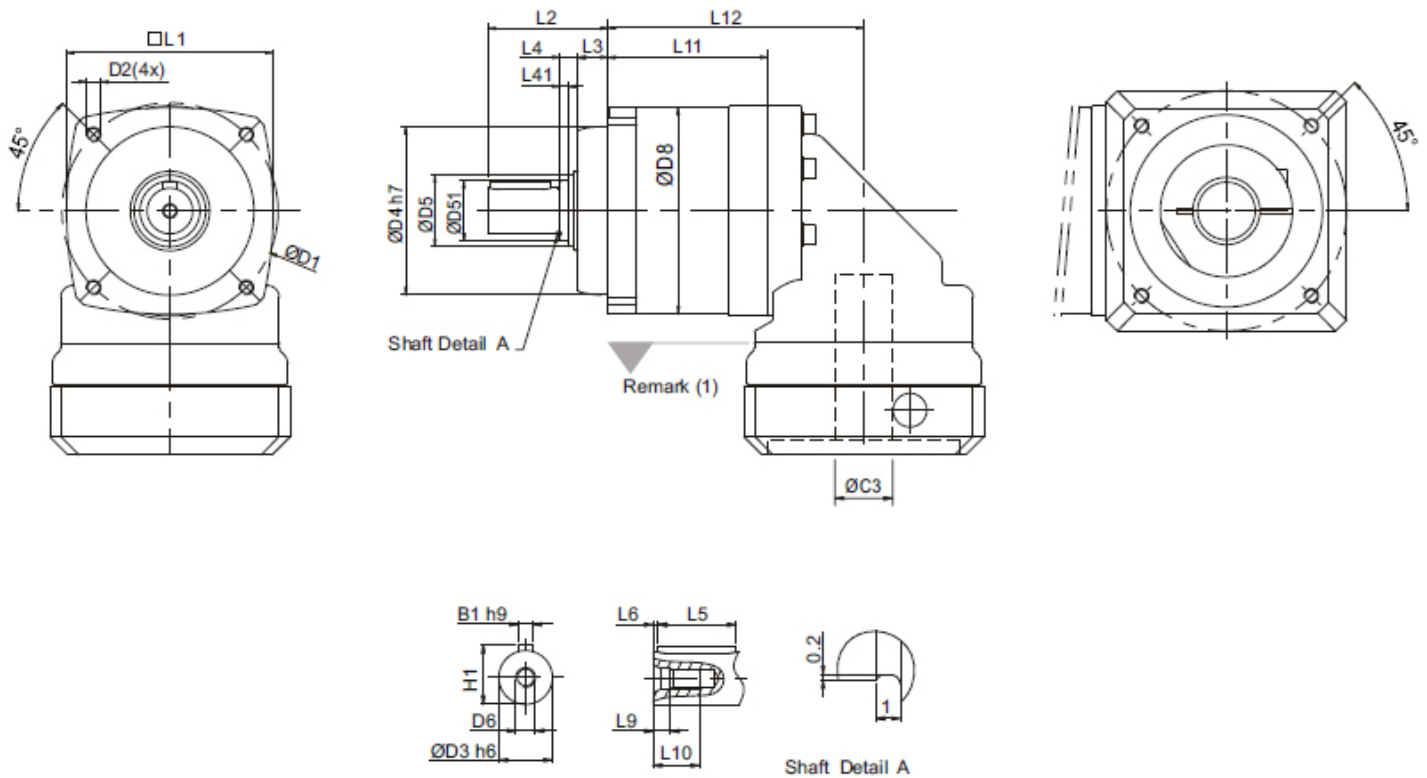
Inertia

Model No.	PSIIR A		PSIIR B		PSIIR C		PSIIR D		PSIIR E	
	1-traps	2-traps	1-traps	2-traps	1-traps	2-traps	1-traps	2-traps	1-traps	2-traps
8	0,18	0,18	0,36	0,36	-	-	-	-	-	-
11	0,20	0,20	0,39	0,39	-	-	-	-	-	-
14	-	-	0,43	0,43	1,87	1,87	-	-	-	-
19	-	-	1,24	1,24	2,67	2,67	6,80	6,80	-	13,57
24	-	-	-	-	2,97	2,97	7,10	7,10	13,87	13,87
28	kg*cm ²	-	-	-	3,47	3,47	7,59	7,59	14,36	14,36
32	-	-	-	-	-	-	10,56	10,56	17,33	17,33
35	-	-	-	-	-	-	11,97	11,97	18,74	18,74
38	-	-	-	-	-	-	13,95	13,95	20,79	20,79
42	-	-	-	-	-	-	-	-	26,54	-

(A) \varnothing = Input shaft diameter

Sizes

PSIIR series



Dimension	PSIIR A		PSIIR B		PSIIR C		PSIIR D		PSIIR E	
	1-stage	2-stage	1-stage	2-stage	1-stage	2-stage	1-stage	2-stage	1-stage	2-stage
D1	47		60		90		115		135	
D2	M4 x 9		M5 x 10		M6 x 12		M8 x 18,5		M10 x 18	
D3 h6	10		12		19		24		32	
D4 g6	38		50		70		90		110	
D5	17		22		30		40		55	
D51	-		-		25		-		-	
D6	M3 x 0,8P		M4 x 0,7P		M6 x 1P		M8 x 1,25P		M12 x 1,75P	
D8	44		60		86		114		140	
L1	44		60		86		114		140	
L2	25		32		50		61		75	
L3	6,5		8,5		12,5		16		14,5	
L4	2,5		3,5		7,5		5		5,5	
L41	-		-		3,5		-		-	
L6	3		2		1		3		2	
L9	2,6		4,5		5		7,2		10	
L10	9		10		16,5		19		28	
L11	47	62	56	76	66,5	93	92	128	16	163,5
L12	72	87	85,5	105,5	106,5	133	143	179	173	220,5
B1 h9	3		4		6		8		10	
H1	11,2		13,5		21,5		27		35	

(1) Dimensions are related to motor interface. Please contact APEX for details.