



# PSFN

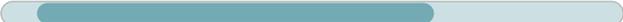
The precision planetary gearbox for maximum loads with particularly quiet drive and flange output shaft

Thanks to its standardized flange interface and a planet carrier in a cage design, our **PSFN** is extremely torsionally rigid. The specially developed helical gearing reduces vibrations to a minimum. With its high tilting moment, you can demand a lot from this precision planetary gearbox.

Cyclic torque **14 - 950 Nm**



Radial force **1450 - 23000 N**



Axial force **2350 - 12000 N**



Torsional backlash **1 - 8 arcmin**



Protection class **IP65**

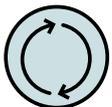


Frame sizes

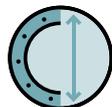
- 55
- 64
- 90
- 110
- 140
- 200



Precision Line



Equidirectional rotation



Extra large round type output flange



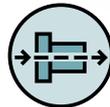
Rotary shaft seal



Planet carrier in cage design



Option: Rack and pinion  
Planetary gearbox (Details on page 158)



Coaxial gearbox



Helical gear



Preloaded angular contact roller bearings



Flange output shaft (ISO 9409-1)



Option: Reduced backlash



Option: Painted surface  
– RAL 9005 Jet black

Detailed explanations of the technical features starting on page 201.

Code	Gearbox characteristics			PSFN055	PSFN064	PSFN090	PSFN110	PSFN140	PSFN200	p <sup>(1)</sup>
	Service life <sup>(2)</sup>	L <sub>h</sub>	h	20,000						
	Efficiency <sup>(3)</sup>	η	%	97						1
				96						2
	Min. operating temperature	T <sub>min</sub>	°C	-25 (-13)						
	Max. operating temperature	T <sub>max</sub>	(°F)	90 (194)						
	Protection class			IP65						
<b>S</b>	Standard lubrication			Oil (lifetime lubrication)						
<b>F</b>	Food grade lubrication			Oil (lifetime lubrication)						
	Installation position			Any						
<b>S</b>	Standard backlash	φ	arcmin	< 6	< 3	< 3	< 3	< 3	< 3	1
				< 8	< 5	< 5	< 5	< 5	< 5	2
<b>R</b>	Reduced backlash	φ	arcmin	< 4	< 2	< 1	< 1	< 1	< 1	1
				< 6	< 2	< 1	< 1	< 1	< 1	2
	Torsional stiffness <sup>(3)</sup>	C <sub>2t</sub>	Nm / arcmin (lb <sub>f</sub> .in / arcmin)	2.8 - 6.2 (25 - 55)	8.3 - 12.8 (73 - 113)	21.5 - 32.0 (190 - 283)	64.0 - 81.0 (566 - 717)	129.0 - 218.0 (1142 - 1929)	374.0 - 602.0 (3310 - 5328)	1
				2.8 - 6.5 (25 - 58)	8.2 - 13.3 (73 - 118)	21.0 - 31.5 (186 - 279)	64.0 - 83.0 (566 - 735)	127.0 - 206.0 (1124 - 1823)	365.0 - 668.0 (3231 - 5912)	2
	Gearbox weight <sup>(3)</sup>	m	kg (lb <sub>m</sub> )	0.7 (1.6)	1.6 (3.5)	3.5 - 3.6 (7.7 - 7.9)	5.2 - 5.3 (11.4 - 11.8)	11.5 - 11.7 (25.3 - 25.9)	28.1 - 29.1 (62.0 - 64.2)	1
				1.1 (2.3 - 2.4)	2.2 - 2.3 (4.9 - 5.0)	3.7 - 3.8 (8.2 - 8.4)	6.7 - 6.9 (14.8 - 15.2)	13.1 - 13.5 (28.9 - 29.8)	32.4 - 33.6 (71.4 - 74.2)	2
<b>S</b>	Standard surface			Housing: Steel – heat-treated and post-oxidized (black)						
<b>B</b>	Painted surface <sup>(4)</sup>			RAL 9005 Jet black						
	Running noise <sup>(5)</sup>	L <sub>pA</sub>	dB(A)	56	57	58	63	66	68	

Output shaft loads			PSFN055	PSFN064	PSFN090	PSFN110	PSFN140	PSFN200	p <sup>(1)</sup>
Maximum radial force	F <sub>r max</sub>	N	1450 (326)	2150 (483)	3950 (888)	4900 (1102)	12000 (2698)	23000 (5171)	
Maximum axial force	F <sub>a max</sub>	(lb <sub>f</sub> )	2350 (528)	2850 (641)	5450 (1225)	6450 (1450)	7500 (1686)	12000 (2698)	
Maximum tilting moment	M <sub>K max</sub>	Nm (lb <sub>f</sub> .in)	75 (667)	132 (1170)	326 (2888)	475 (4207)	1030 (9113)	2445 (21639)	

Input characteristics			PSFN055	PSFN064	PSFN090	PSFN110	PSFN140	PSFN200	p <sup>(1)</sup>		
Clamping system diameter input (Code)	D26	mm	11 (C) <sup>(5)</sup>	11 (C)	14 (D)	19 (E)	35 (G) <sup>(5)</sup>	48 (K) <sup>(5)</sup>	1		
			14 (D)	14 (D) <sup>(5)</sup>	19 (E) <sup>(5)</sup>	24 (F) <sup>(5)</sup>	42 (H)	-			
			-	19 (E)	24 (F)	35 (G)	-	-			
			J <sub>1</sub>	kgcm <sup>2</sup> (lb <sub>f</sub> .in.s <sup>2</sup> ·10 <sup>-4</sup> )	11 (C) <sup>(5)</sup>	11 (C)	11 (C)	14 (D)	19 (E)	35 (G) <sup>(5)</sup>	2
					14 (D)	14 (D) <sup>(5)</sup>	14 (D) <sup>(5)</sup>	19 (E) <sup>(5)</sup>	24 (F) <sup>(5)</sup>	42 (H)	
					-	19 (E)	19 (E)	24 (F)	35 (G)	-	
Mass moment of inertia input <sup>(3)(5)</sup>	J <sub>1</sub>	kgcm <sup>2</sup> (lb <sub>f</sub> .in.s <sup>2</sup> ·10 <sup>-4</sup> )	0.097 - 0.117 (0.859 - 1.036)	0.149 - 0.210 (1.319 - 1.859)	0.450 - 0.719 (3.983 - 6.364)	1.180 - 2.029 (10.444 - 17.958)	6.526 - 9.670 (57.760 - 85.587)	22.520 - 40.642 (199.319 - 359.712)	1		
			0.095 - 0.109 (0.841 - 0.965)	0.146 - 0.203 (1.292 - 1.797)	0.147 - 0.219 (1.301 - 1.938)	0.435 - 0.697 (3.850 - 6.169)	1.144 - 2.127 (10.125 - 18.826)	6.434 - 10.410 (56.946 - 92.136)	2		
Average idle torque <sup>(3)(5)</sup>	T <sub>0</sub>	Nm (lb <sub>f</sub> .in)	0.20 - 0.35 (2 - 3)	0.25 - 0.65 (2 - 6)	0.50 - 1.65 (4 - 15)	1.00 - 3.80 (9 - 34)	2.60 - 9.10 (23 - 81)	6.70 - 26.90 (59 - 238)	1		
			0.15 - 0.25 (1 - 2)	0.15 - 0.45 (1 - 4)	0.25 - 0.60 (2 - 5)	0.45 - 1.45 (4 - 13)	0.75 - 3.40 (7 - 30)	1.80 - 8.00 (16 - 71)	2		
Max. bending moment based on the gearbox input flange	M <sub>b1</sub>		10 (89)	18 (159)	38 (336)	80 (708)	180 (1593)	300 (2655)	1		
			10 (89)	18 (159)	18 (159)	38 (336)	80 (708)	180 (1593)	2		

(1) Number of stages

(2) Application specific configuration with NCP – www.neugart.com

(3) The ratio-dependent values can be retrieved in Tec Data Finder – www.neugart.com

(4) More information on page 183

(5) Reference clamping system diameter

Output torques			PSFN055	PSFN064	PSFN090	PSFN110	PSFN140	PSFN200	i <sup>(1)</sup>	p <sup>(2)</sup>
Cyclic torque <sup>(3)/(4)</sup>	T <sub>zz</sub>	Nm (lb <sub>r</sub> .in)	18 (159)	39 (345)	80 (708)	180 (1593)	470 (4160)	950 (8408)	4	1
			18 (159)	40 (354)	80 (708)	175 (1549)	405 (3585)	950 (8408)	5	
			18 (159)	37 (327)	78 (690)	170 (1505)	355 (3142)	900 (7966)	7	
			18 (159)	39 (345)	75 (664)	155 (1372)	350 (3098)	-	8	
			13.5 (119)	28 (248)	59 (522)	140 (1239)	270 (2390)	730 (6461)	10	2
			18 (159)	39 (345)	80 (708)	180 (1593)	470 (4160)	950 (8408)	16	
			18 (159)	39 (345)	80 (708)	180 (1593)	470 (4160)	950 (8408)	20	
			18 (159)	40 (354)	80 (708)	175 (1549)	405 (3585)	950 (8408)	25	
			18 (159)	40 (354)	80 (708)	175 (1549)	405 (3585)	950 (8408)	35	
			18 (159)	39 (345)	80 (708)	180 (1593)	470 (4160)	950 (8408)	40	
			18 (159)	40 (354)	80 (708)	175 (1549)	405 (3585)	950 (8408)	50	
			18 (159)	37 (327)	78 (690)	170 (1505)	355 (3142)	900 (7966)	70	
			13.5 (119)	28 (248)	59 (522)	140 (1239)	270 (2390)	730 (6461)	100	
			Maximum torque <sup>(3)/(4)</sup>	T <sub>2max</sub>	Nm (lb <sub>r</sub> .in)	28 (248)	62 (549)	128 (1133)	285 (2522)	
28 (248)	64 (566)	128 (1133)				280 (2478)	640 (5664)	1520 (13453)	5	
28 (248)	59 (522)	124 (1097)				270 (2390)	560 (4956)	1440 (12745)	7	
28 (248)	62 (549)	120 (1062)				245 (2168)	490 (4337)	-	8	
21 (186)	44 (389)	94 (832)				220 (1947)	435 (3850)	1050 (9293)	10	2
28 (248)	62 (549)	128 (1133)				285 (2522)	750 (6638)	1520 (13453)	16	
28 (248)	62 (549)	128 (1133)				285 (2522)	750 (6638)	1520 (13453)	20	
28 (248)	64 (566)	128 (1133)				280 (2478)	640 (5664)	1520 (13453)	25	
28 (248)	64 (566)	128 (1133)				280 (2478)	640 (5664)	1520 (13453)	35	
28 (248)	62 (549)	128 (1133)				285 (2522)	750 (6638)	1520 (13453)	40	
28 (248)	64 (566)	128 (1133)				280 (2478)	640 (5664)	1520 (13453)	50	
28 (248)	51 (451)	124 (1097)				270 (2390)	560 (4956)	1440 (12745)	70	
21 (186)	44 (389)	94 (832)				220 (1947)	435 (3850)	1050 (9293)	100	

<sup>(1)</sup> Ratios (i=n<sub>1</sub>/n<sub>2</sub>)  
<sup>(2)</sup> Number of stages  
<sup>(3)</sup> Application specific configuration with NCP – www.neugart.com  
<sup>(4)</sup> Based on reference clamping system diameter

Output torques			PSFN055	PSFN064	PSFN090	PSFN110	PSFN140	PSFN200	i <sup>(1)</sup>	p <sup>(2)</sup>
Continuous torque <sup>(3)</sup>	T <sub>2D</sub>	Nm (lb <sub>f</sub> .in)	15 (133)	33 (292)	68 (602)	153 (1354)	395 (3496)	800 (7081)	4	1
			15 (133)	34 (301)	68 (602)	148 (1310)	340 (3009)	800 (7081)	5	
			15 (133)	31 (274)	66 (584)	148 (1310)	300 (2655)	760 (6727)	7	
			15 (133)	33 (292)	63 (558)	131 (1159)	295 (2611)	-	8	
			11 (97)	23 (204)	50 (443)	119 (1053)	255 (2257)	630 (5576)	10	
			15 (133)	33 (292)	68 (602)	153 (1354)	395 (3496)	800 (7081)	16	
		2	15 (133)	33 (292)	68 (602)	153 (1354)	395 (3496)	800 (7081)	20	
			15 (133)	34 (301)	68 (602)	148 (1310)	340 (3009)	800 (7081)	25	
			15 (133)	34 (301)	68 (602)	148 (1310)	340 (3009)	800 (7081)	35	
			15 (133)	33 (292)	68 (602)	153 (1354)	395 (3496)	800 (7081)	40	
			15 (133)	34 (301)	68 (602)	148 (1310)	340 (3009)	800 (7081)	50	
			15 (133)	31 (274)	66 (584)	148 (1310)	300 (2655)	760 (6727)	70	
			11 (97)	23 (204)	50 (443)	119 (1053)	255 (2257)	630 (5576)	100	

Input speeds			PSFN055	PSFN064	PSFN090	PSFN110	PSFN140	PSFN200	i <sup>(1)</sup>	p <sup>(2)</sup>
Continuous input speed <sup>(3)(4)</sup>	n <sub>1D</sub>	rpm	3550	4200	2800	2000	680	560	4	1
			4000	4500	3450	2600	940	730	5	
			4550	4500	4000	3500	1350	1000	7	
			5000	4500	4000	3500	1550	-	8	
			5000	4500	4000	3500	1950	1450	10	
			5000	4500	4500	3350	1650	1300	16	
		2	5000	4500	4500	4000	2050	1650	20	
			5000	4500	4500	4000	2550	1950	25	
			5000	4500	4500	4000	3500	2750	35	
			5000	4500	4500	4000	3500	3000	40	
			5000	4500	4500	4000	3500	3000	50	
			5000	4500	4500	4000	3500	3000	70	
			5000	4500	4500	4000	3500	3000	100	
Max. mechanical input speed <sup>(3)</sup>	n <sub>1max</sub>	rpm	10000	10000	10000	8500	6500	6000		1
			10000	10000	10000	10000	8500	6500		2

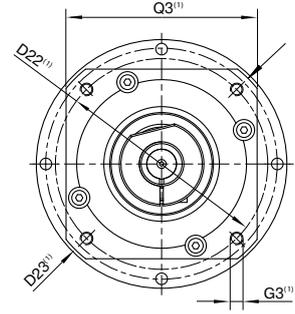
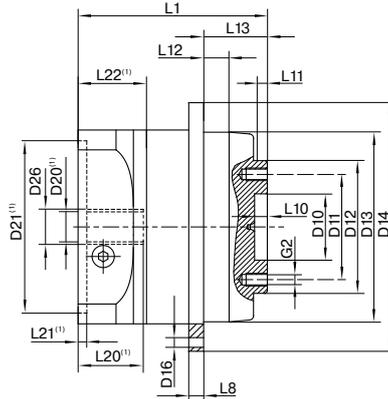
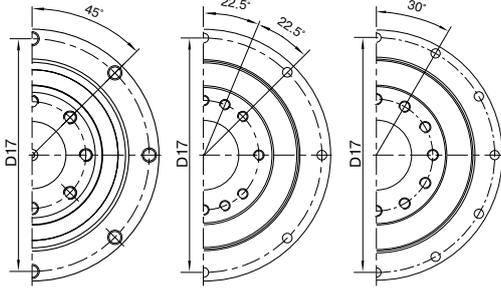
Output torques			PSFN055	PSFN064	PSFN090	PSFN110	PSFN140	PSFN200	i <sup>(1)</sup>	p <sup>(2)</sup>
Emergency stop torque <sup>(4)(5)</sup>	T <sub>2Stop</sub>	Nm (lb <sub>f</sub> .in)	55 (487)	120 (1062)	280 (2478)	650 (5753)	1400 (12391)	2960 (26198)	4	1
			55 (487)	130 (1151)	280 (2478)	650 (5753)	1650 (14604)	3200 (28322)	5	
			55 (487)	80 (708)	175 (1549)	340 (3009)	1300 (11506)	3200 (28322)	7	
			50 (443)	90 (797)	200 (1770)	380 (3363)	850 (7523)	-	8	
			24 (212)	52 (460)	121 (1071)	295 (2611)	600 (5310)	1700 (15046)	10	
			55 (487)	150 (1328)	300 (2655)	650 (5753)	1650 (14604)	3200 (28322)	16	
		2	55 (487)	150 (1328)	300 (2655)	650 (5753)	1650 (14604)	3200 (28322)	20	
			55 (487)	150 (1328)	300 (2655)	650 (5753)	1650 (14604)	3200 (28322)	25	
			55 (487)	150 (1328)	300 (2655)	650 (5753)	1650 (14604)	3200 (28322)	35	
			55 (487)	150 (1328)	210 (1859)	485 (4293)	1180 (10444)	2680 (23720)	40	
			55 (487)	150 (1328)	260 (2301)	600 (5310)	1480 (13099)	3200 (28322)	50	
			55 (487)	80 (708)	175 (1549)	340 (3009)	1300 (11506)	3200 (28322)	70	
			24 (212)	52 (460)	121 (1071)	295 (2611)	600 (5310)	1700 (15046)	100	

(1) Ratios (i=n<sub>1</sub>/n<sub>2</sub>)  
 (2) Number of stages  
 (3) Application specific configuration with NCP – www.neugart.com  
 (4) Based on reference clamping system diameter  
 (5) Permitted 1000 times

PSFN055  
PSFN064  
PSFN090

PSFN110

PSFN140  
PSFN200



Drawing corresponds to a PSFN090 / 1-stage / flange output shaft / 14 mm clamping system / motor adaptation – 2-part – round universal flange / B5 flange type motor

(1) The dimensions vary with the motor/gearbox flange. The input flange dimensions can be retrieved for each specific motor in Tec Data Finder at [www.neugart.com](http://www.neugart.com)

Geometry <sup>(2)</sup>			PSFN055	PSFN064	PSFN090	PSFN110	PSFN140	PSFN200	p <sup>(3)</sup>	Code
Centering diameter output shaft	D10	H7	16 (0.630)	20 (0.787)	31.5 (1.240)	40 (1.575)	50 (1.969)	80 (3.150)		
Pitch circle diameter output shaft	D11		25 (0.984)	31.5 (1.240)	50 (1.969)	63 (2.480)	80 (3.150)	125 (4.921)		
Centering diameter output shaft	D12	h7	34 (1.339)	40 (1.575)	63 (2.480)	80 (3.150)	100 (3.937)	160 (6.299)		
Centering diameter output flange	D13		55 (2.165)	64 (2.520)	90 (3.543)	110 (4.331)	140 (5.512)	200 (7.874)		
Flange diameter output	D14		72 (2.835)	86 (3.386)	118 (4.646)	145 (5.709)	179 (7.047)	247 (9.724)		
Mounting bore output	D16		3.4 8x45°	4.5 8x45°	5.5 8x45°	5.5 8x45°	6.6 12x30°	9 12x30°		
Pitch circle diameter output flange	D17		67 (2.638)	79 (3.110)	109 (4.291)	135 (5.315)	168 (6.614)	233 (9.173)		
Min. total length	L1		66 (2.598)	71 (2.795)	89.5 (3.524)	108 (4.252)	142 (5.591)	172 (6.772)	1	
			89.5 (3.524)	99.5 (3.917)	111.5 (4.390)	130 (5.118)	173 (6.811)	217 (8.543)	2	
Flange thickness output	L8		4 (0.157)	4 (0.157)	7 (0.276)	8 (0.315)	10 (0.394)	12 (0.472)		
Centering depth output shaft	L10		4.1 (0.161)	4.5 (0.177)	6.5 (0.256)	6.5 (0.256)	6.5 (0.256)	10 (0.394)		
	L11		3 (0.118)	3 (0.118)	6 (0.236)	6 (0.236)	6 (0.236)	7 (0.276)		
Centering depth output flange	L12		8 (0.315)	10 (0.394)	12 (0.472)	12 (0.472)	14 (0.551)	17.5 (0.689)		
Output flange length	L13		19.0	19.5	30.0	29.0	38.0	50.0		
Motor shaft diameter j6/k6	D20		More information on page 191/192							
Clamping system diameter input	D26		More information on page 118							
Flange output shaft (similar ISO 9409-1)										D
Number x thread x depth	G2		8 x M4x6	8 x M5x7	8 x M6x10	12 x M6x12	12 x M8x15	12 x M10x20		
Flange output shaft with dowel hole (ISO 9409-1)										E
Dowel hole x depth	D15	H7	4x5	5x5	6x6	6x6	8x8	10x10		
Number x thread x depth	G2		7 x M4x6	7 x M5x7	7 x M6x10	11 x M6x12	11 x M8x15	11 x M10x20		

(2) Dimensions in mm

(3) Number of stages