pro NEW

PSFNpro

The precision gearbox with flange output shaft for complex and dynamic applications

The high-torque and extremely torsion-resistant **PSFNpro** combines maximum precision and power in the smallest of spaces. Its short overall length allows for space-saving integration, and the standardized flange output shaft guarantees secure installation in a wide variety of applications.

Cyclic torque	**14 - 1800 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			PSFNpro055	PSFNpro064	PSFNpro090	PSFNpro110	PSFNpro140	PSFNpro 200	p(1)
	Service life(2)	L_h	h	20,000						
	Efficiency(3)	η	%	97						1
				95						2
	Min. operating temperature	T_{min}	°C (°F)	-25 (-13)						
	Max. operating temperature	T_{max}		90 (194)						
	Protection class			IP65						
S	Standard lubrication			Oil (lifetime lubrication)						
F	Food grade lubrication			Oil (lifetime lubrication)						
	Installation position			Any						
S	Standard backlash	φ	arcmin	< 6	< 3	< 3	< 3	< 3	< 3	1
				< 8	< 5	< 5	< 5	< 5	< 5	2
R	Reduced backlash			< 4	< 2	< 1	< 1	< 1	< 1	1
				< 6	< 3	< 1	< 1	< 1	< 1	2
	Torsional stiffness(3)	C_{2t}	Nm / arcmin (lb_f.in/ arcmin)	2.4 - 4.8 (21 - 42)	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
				2.5 - 4.9 (22 - 43)	7.2 - 12.2 (64 - 108)	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(3)	m	kg (lb_m)	0.7 - 0.8 (1.6 - 1.7)	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 (2.4)	1.6 - 1.7 (3.5 - 3.6)	3.6 - 3.7 (8.0 - 8.2)	6.5 - 6.7 (14.3 - 14.7)	12.7 - 13.1 (28.0 - 28.9)	31.2 - 32.5 (68.9 - 71.7)	2
S	Standard surface			Housing: Steel – heat-treated and post-oxidized (black)						
B	Painted surface(4)			RAL 9005 Jet black						
	Running noise(3)	L_{pA}	dB(A)	56	57	58	63	66	68	

Output shaft loads			PSFNpro055	PSFNpro064	PSFNpro090	PSFNpro110	PSFNpro140	PSFNpro200	p(1)
Maximum radial force	$F_{r\,max}$	N (lb_f)	1450 (326)	2150 (483)	3950 (888)	4900 (1102)	12000 (2698)	23000 (5171)	
Maximum axial force	$F_{a\,max}$		2350 (528)	2850 (641)	5450 (1225)	6450 (1450)	7500 (1686)	12000 (2698)	
Maximum tilting moment	$M_{K\,max}$	Nm (lb_f.in)	75 (667)	132 (1170)	326 (2888)	475 (4207)	1030 (9113)	2445 (21639)	

Input characteristics			PSFNpro055	PSFNpro064	PSFNpro090	PSFNpro110	PSFNpro140	PSFNpro200	p(1)
Clamping system diameter input (Code)	D26	mm (in)	11 (C)(5)	11 (C)	14 (D)	19 (E)	35 (G)(5)	48 (K)(5)	1
			14 (D)	14 (D)(5)	19 (E)(5)	24 (F)(5)	42 (H)	-	
			-	19 (E)	24 (F)	35 (G)	-	-	
			11 (C)(5)	11 (C)(5)	11 (C)	14 (D)	19 (E)	35 (G)(5)	2
			14 (D)	14 (D)	14 (D)(5)	19 (E)(5)	24 (F)(5)	42 (H)	
			-	-	19 (E)	24 (F)	35 (G)	-	
Mass moment of inertia input(3)(5)	J_1	$kgcm^2$ (lb_f. $in.s^2 10^{-4}$)	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)	0.096 - 0.151 (0.850 - 1.336)	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(3)(5)	T_0	Nm (lb_f.in)	0.20 - 0.45 (2 - 4)	0.25 - 0.55 (2 - 5)	0.60 - 1.35 (5 - 12)	1.05 - 2.70 (9 - 24)	3.15 - 8.90 (28 - 79)	7.95 - 24.20 (70 - 214)	1
			0.15 - 0.25 (1 - 2)	0.15 - 0.30 (1 - 3)	0.25 - 0.50 (2 - 4)	0.50 - 1.15 (4 - 10)	0.85 - 2.80 (8 - 25)	2.10 - 6.70 (19 - 59)	2
Max. bending moment based on the gearbox input flange	M_{b1}		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			PSFNpro055	PSFNpro064	PSFNpro090	PSFNpro110	PSFNpro140	PSFNpro200	i[1]	p[2]
Cyclic torque[3][4]	T_{2Z}	Nm (lb_f.in)	25 (221)	68 (602)	150 (1328)	330 (2921)	700 (6196)	1480 (13099)	4	1
			25 (221)	68 (602)	150 (1328)	330 (2921)	850 (7523)	1800 (15931)	5	
			18.5 (164)	45 (398)	108 (956)	300 (2655)	600 (5310)	1450 (12834)	7	
			18 (159)	40 (354)	84 (743)	190 (1682)	425 (3762)	-	8	
			13.5 (119)	32 (283)	72 (637)	190 (1682)	315 (2788)	850 (7523)	10	
			25 (221)	68 (602)	150 (1328)	330 (2921)	850 (7523)	1800 (15931)	16	2
			25 (221)	68 (602)	150 (1328)	330 (2921)	850 (7523)	1800 (15931)	20	
			25 (221)	68 (602)	150 (1328)	330 (2921)	850 (7523)	1800 (15931)	25	
			25 (221)	68 (602)	150 (1328)	330 (2921)	850 (7523)	1800 (15931)	35	
			25 (221)	68 (602)	150 (1328)	330 (2921)	850 (7523)	1800 (15931)	40	
			25 (221)	67 (593)	150 (1328)	330 (2921)	850 (7523)	1580 (13984)	50	
			18.5 (164)	44 (389)	108 (956)	300 (2655)	600 (5310)	1450 (12834)	70	
			13.5 (119)	32 (283)	72 (637)	190 (1682)	315 (2788)	850 (7523)	100	
Maximum torque[3][4]	T_{2max}	Nm (lb_f.in)	40 (354)	83 (735)	200 (1770)	400 (3540)	700 (6196)	1480 (13099)	4	1
			40 (354)	79 (699)	184 (1629)	440 (3894)	870 (7700)	1850 (16374)	5	
			29 (257)	59 (522)	167 (1478)	395 (3496)	800 (7081)	1680 (14869)	7	
			28 (248)	64 (566)	134 (1186)	295 (2611)	490 (4337)	-	8	
			21 (186)	52 (460)	116 (1027)	280 (2478)	500 (4425)	1050 (9293)	10	
			40 (354)	83 (735)	220 (1947)	520 (4602)	1030 (9116)	2210 (19560)	16	2
			40 (354)	83 (735)	220 (1947)	520 (4602)	1030 (9116)	2210 (19560)	20	
			40 (354)	79 (699)	184 (1629)	440 (3894)	1070 (9470)	1960 (17347)	25	
			40 (354)	79 (699)	184 (1629)	440 (3894)	1070 (9470)	1960 (17347)	35	
			40 (354)	79 (699)	184 (1629)	440 (3894)	1070 (9470)	1960 (17347)	40	
			40 (354)	79 (699)	184 (1629)	440 (3894)	1070 (9470)	1960 (17347)	50	
			29 (257)	51 (451)	167 (1478)	395 (3496)	800 (7081)	1680 (14869)	70	
			21 (186)	52 (460)	116 (1027)	280 (2478)	500 (4425)	1050 (9293)	100	

(1) Ratios ($i=n_1/n_2$)
(2) Number of stages
(3) Application specific configuration with NCP – www.neugart.com
(4) Based on reference clamping system diameter

Output torques			PSFNpro055	PSFNpro064	PSFNpro090	PSFNpro110	PSFNpro140	PSFNpro200	i[1]	p[2]
Continuous torque[3]	T_{2D}	Nm (lb_f.in)	19.5 (173)	36 (319)	85 (752)	184 (1629)	620 (5487)	1350 (11949)	4	1
			18.5 (164)	35 (310)	76 (673)	161 (1425)	580 (5133)	1200 (10621)	5	
			15.5 (137)	37 (327)	77 (682)	152 (1345)	510 (4514)	1060 (9382)	7	
			15 (133)	34 (301)	71 (628)	150 (1328)	425 (3762)	-	8	
			11 (97)	27 (239)	61 (540)	159 (1407)	315 (2788)	720 (6373)	10	
			25 (221)	53 (469)	79 (699)	186 (1646)	540 (4779)	1670 (14781)	16	2
			25 (221)	57 (504)	87 (770)	190 (1682)	540 (4779)	1660 (14692)	20	
			25 (221)	57 (504)	76 (673)	164 (1452)	445 (3939)	1500 (13276)	25	
			25 (221)	61 (540)	89 (788)	190 (1682)	475 (4204)	1520 (13453)	35	
			25 (221)	61 (540)	94 (832)	200 (1770)	500 (4425)	0 (0)	40	
			25 (221)	57 (504)	103 (912)	220 (1947)	550 (4868)	1580 (13984)	50	
			15.5 (137)	40 (354)	92 (814)	220 (1947)	510 (4514)	1230 (10886)	70	
			11 (97)	27 (239)	61 (540)	162 (1434)	315 (2788)	720 (6373)	100	

Input speeds			PSFNpro055	PSFNpro064	PSFNpro090	PSFNpro110	PSFNpro140	PSFNpro200	i[1]	p[2]
Continuous input speed[3][4]	n_{1D}	rpm	3450	4150	2700	1950	910	490	4	1
			3950	4500	3450	2550	1200	700	5	
			4500	4500	4000	3500	1750	1000	7	
			5000	4500	4000	3500	2000	-	8	
			5000	4500	4000	3500	2400	1400	10	
			4250	4500	4500	3350	1800	980	16	2
			4800	4500	4500	4000	2250	1250	20	
			5000	4500	4500	4000	2950	1650	25	
			5000	4500	4500	4000	3500	2250	35	
			5000	4500	4500	4000	3500	2900	40	
			5000	4500	4500	4000	3500	2750	50	
			5000	4500	4500	4000	3500	3000	70	
			5000	4500	4500	4000	3500	3000	100	
Max. mechanical input speed[3]	n_{1max}	rpm	10000	10000	10000	8500	6500	6000		1
			10000	10000	10000	10000	8500	6500		2

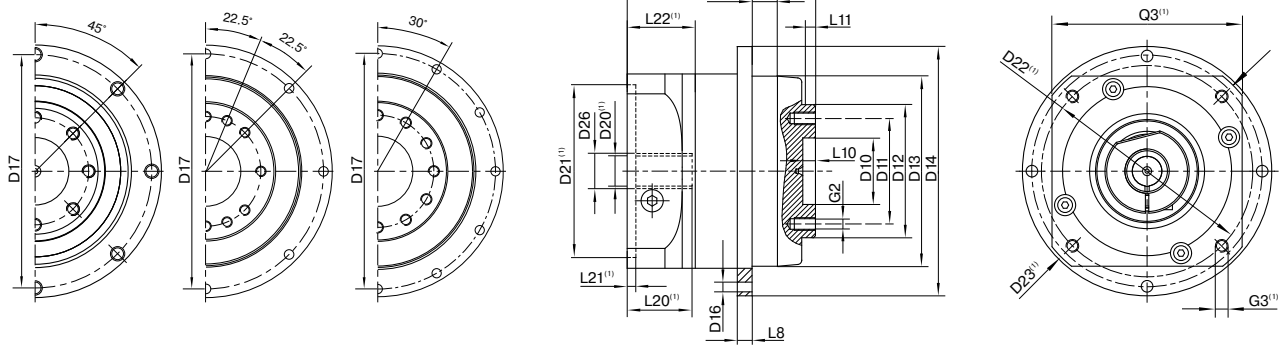
Output torques			PSFNpro055	PSFNpro064	PSFNpro090	PSFNpro110	PSFNpro140	PSFNpro200	i[1]	p[2]
Emergency stop torque[4][5]	T_{2Stop}	Nm (lb_f.in)	55 (487)	150 (1328)	280 (2478)	650 (5753)	1400 (12391)	2960 (26198)	4	1
			55 (487)	150 (1328)	300 (2655)	650 (5753)	1750 (15489)	3600 (31863)	5	
			55 (487)	102 (903)	255 (2257)	650 (5753)	1390 (12303)	3240 (28676)	7	
			50 (443)	117 (1036)	295 (2611)	500 (4425)	850 (7523)	-	8	
			24 (212)	61 (540)	141 (1248)	345 (3054)	740 (6550)	1830 (16197)	10	
			55 (487)	150 (1328)	300 (2655)	650 (5753)	1780 (15754)	3600 (31863)	16	2
			55 (487)	150 (1328)	300 (2655)	650 (5753)	1780 (15754)	3600 (31863)	20	
			55 (487)	150 (1328)	300 (2655)	650 (5753)	2000 (17701)	3600 (31863)	25	
			55 (487)	150 (1328)	300 (2655)	650 (5753)	2000 (17701)	3600 (31863)	35	
			55 (487)	150 (1328)	300 (2655)	650 (5753)	2000 (17701)	2970 (26287)	40	
			55 (487)	150 (1328)	300 (2655)	650 (5753)	1650 (14604)	3600 (31863)	50	
			55 (487)	89 (788)	255 (2257)	600 (5310)	1390 (12303)	3230 (28588)	70	
			24 (212)	61 (540)	141 (1248)	345 (3054)	740 (6550)	1830 (16197)	100	

[1] Ratios ($i=n_1/n_2$)
[2] Number of stages
[3] Application specific configuration with NCP – www.neugart.com
[4] Based on reference clamping system diameter
[5] Permitted 1000 times

PSFNpro055
PSFNpro064
PSFNpro090

PSFNpro110

PSFNpro140
PSFNpro200



Drawing corresponds to a PSFNpro090 / 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

Geometry(2)			**PSFNpro 055**	**PSFNpro 064**	**PSFNpro 090**	**PSFNpro 110**	**PSFNpro 140**	**PSFNpro 200**	**p**(3)	**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 100							
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