PLQE

The easy to install planetary gearbox absorbs high forces with low heat generation

Our **PLQE** is uncomplicated and powerful. It can be connected directly to your installation without the need for an intermediate flange. The larger deep groove ball bearings on the output allow higher axial and radial forces to be absorbed. Thanks to its favorable efficiency, this means that it always operates reliably even when production cycles are demanding.

Cyclic torque	**5 - 260 Nm**
Radial force	**520 - 4000 N**
Axial force	**620 - 3800 N**
Torsional backlash	**7 - 22 arcmin**
Protection class	**IP54**

Frame sizes

40 **60** **80** **120**

Economy Line

Coaxial gearbox

Spur gear

Reinforced deep groove ball bearings

Planet carrier in disc design

Equidirectional rotation

Square type output flange

High ratio variety i=3 up to i=512

Option: Painted surface
– RAL 9005 Jet black

Detailed explanations of the technical features starting on page 201.

Code	Gearbox characteristics			PLQE040	PLQE060	PLQE080	PLQE120	p[1]
	Service life[2]	L_h	h	20,000				
	Efficiency[3]	η	%	98				1
				97				2
				92				3
	Min. operating temperature	T_{min}	°C (°F)	-25 (-13)				
	Max. operating temperature	T_{max}		90 (194)				
	Protection class			IP54				
S	Standard lubrication			Grease (lifetime lubrication)				
F	Food grade lubrication			Grease (lifetime lubrication)				
	Installation position			Any				
S	Standard backlash	φ	arcmin	< 15	< 10	< 7	< 7	1
				< 19	< 12	< 9	< 9	2
				< 22	< 15	< 11	< 11	3
	Torsional stiffness[3]	C_{2t}	Nm / arcmin (lb_f.in/ arcmin)	1.2 - 2.2 (10 - 19)	2.8 - 3.9 (25 - 35)	8.5 - 12.6 (75 - 112)	14.0 - 18.5 (124 - 164)	1
				1.4 - 2.5 (12 - 22)	3.3 - 4.1 (29 - 36)	9.4 - 13.3 (83 - 118)	15.6 - 19.0 (138 - 168)	2
				1.5 - 2.6 (13 - 23)	3.3 - 4.1 (29 - 36)	9.4 - 13.4 (83 - 119)	15.6 - 19.0 (138 - 168)	3
	Gearbox weight[3]	m	kg (lb_m)	0.4 (0.8 - 0.9)	1.1 (2.4)	2.6 - 3.0 (5.8 - 6.6)	6.4 - 6.7 (14.0 - 14.7)	1
				0.5 (1.0 - 1.1)	1.3 (2.8 - 2.9)	3.4 - 3.5 (7.4 - 7.7)	8.1 - 8.5 (17.9 - 18.7)	2
				0.6 (1.2 - 1.3)	1.5 (3.2 - 3.3)	3.9 - 4.0 (8.5 - 8.8)	9.9 - 10.3 (21.8 - 22.7)	3
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)	58	58	60	65	

Output shaft loads			PLQE040	PLQE060	PLQE080	PLQE120	p[1]
Maximum radial force	$F_{r\,max}$	N (lb_f)	520 (117)	1500 (337)	2500 (562)	4000 (899)	
Maximum axial force	$F_{a\,max}$		620 (139)	1950 (438)	3800 (854)	3800 (854)	
Maximum tilting moment	$M_{K\,max}$	Nm (lb_f.in)	14 (120)	62 (544)	124 (1096)	314 (2779)	

Input characteristics			PLQE040	PLQE060	PLQE080	PLQE120	p[1]
Clamping system diameter input (Code)	D26	mm	8 (A)	11 (C)	19 (E)[5]	24 (F)[5]	
			9 (B)[5]	14 (D)[5]	24 (F)	35 (G)	
			11 (C)	19 (E)	-	-	
Mass moment of inertia input[3][5]	J_1	$kgcm^2$ (lb_f. $in.s^2 10^{-4}$)	0.022 - 0.035 (0.195 - 0.310)	0.086 - 0.162 (0.761 - 1.434)	0.371 - 0.783 (3.284 - 6.930)	1.381 - 2.393 (12.223 - 21.180)	1
			0.022 - 0.032 (0.195 - 0.283)	0.086 - 0.143 (0.761 - 1.266)	0.366 - 0.625 (3.239 - 5.532)	1.414 - 2.292 (12.515 - 20.286)	2
			0.022 - 0.031 (0.195 - 0.274)	0.086 - 0.096 (0.761 - 0.850)	0.365 - 0.590 (3.231 - 5.222)	1.413 - 2.196 (12.506 - 19.436)	3
Average idle torque[3][5]	T_0	Nm (lb_f.in)	0.05 - 0.15 (0 - 1)	0.10 - 0.20 (1 - 2)	0.25 - 0.55 (2 - 5)	0.50 - 1.05 (4 - 9)	1
			0.05 - 0.15 (0 - 1)	0.10 - 0.15 (1)	0.20 - 0.30 (2 - 3)	0.45 - 0.80 (4 - 7)	2
			0.05 - 0.10 (0 - 1)	0.10 (1)	0.15 - 0.20 (1 - 2)	0.45 - 0.75 (4 - 7)	3
Maximum bending moment input	M_{b1}		4.5 (40)	12 (106)	16 (142)	40 (354)	

(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			PLQE040	PLQE060	PLQE080	PLQE120	i[1]	p[2]
Cyclic torque[3][4]	T_{2Z}	Nm (lb_f.in)	11 (97)	28 (248)	85 (752)	115 (1018)	3	1
			15 (133)	38 (336)	115 (1018)	155 (1372)	4	
			14 (124)	40 (354)	110 (974)	195 (1726)	5	
			8.5 (75)	25 (221)	65 (575)	135 (1195)	7	
			6 (53)	18 (159)	50 (443)	120 (1062)	8	
			5 (44)	15 (133)	38 (336)	95 (841)	10	
			16.5 (146)	44 (389)	130 (1151)	210 (1859)	9	2
			20 (177)	44 (389)	120 (1062)	260 (2301)	12	
			18 (159)	44 (389)	110 (974)	230 (2036)	15	
			20 (177)	44 (389)	120 (1062)	260 (2301)	16	
			20 (177)	44 (389)	120 (1062)	260 (2301)	20	
			18 (159)	40 (354)	110 (974)	230 (2036)	25	
			20 (177)	44 (389)	120 (1062)	260 (2301)	32	
			18 (159)	40 (354)	110 (974)	230 (2036)	40	
			7.5 (66)	18 (159)	50 (443)	120 (1062)	64	
			20 (177)	44 (389)	120 (1062)	260 (2301)	60	3
			20 (177)	44 (389)	120 (1062)	260 (2301)	80	
			20 (177)	44 (389)	120 (1062)	260 (2301)	100	
			18 (159)	44 (389)	110 (974)	230 (2036)	120	
			20 (177)	44 (389)	120 (1062)	260 (2301)	160	
			18 (159)	40 (354)	110 (974)	230 (2036)	200	
			20 (177)	44 (389)	120 (1062)	260 (2301)	256	
			18 (159)	40 (354)	110 (974)	230 (2036)	320	
			7.5 (66)	18 (159)	50 (443)	120 (1062)	512	
Maximum torque[3][4]	T_{2max}	Nm (lb_f.in)	11 (97)	44 (389)	105 (929)	184 (1629)	3	1
			24 (212)	60 (531)	140 (1239)	245 (2168)	4	
			22 (195)	61 (540)	175 (1549)	310 (2744)	5	
			13.5 (119)	40 (354)	104 (920)	215 (1903)	7	
			9.5 (84)	28 (248)	80 (708)	192 (1699)	8	
			8 (71)	24 (212)	60 (531)	152 (1345)	10	
			16.5 (146)	70 (620)	182 (1611)	335 (2965)	9	2
			32 (283)	65 (575)	192 (1699)	415 (3673)	12	
			28 (248)	70 (620)	176 (1558)	365 (3231)	15	
			32 (283)	65 (575)	192 (1699)	415 (3673)	16	
			32 (283)	65 (575)	192 (1699)	415 (3673)	20	
			28 (248)	61 (540)	176 (1558)	365 (3231)	25	
			32 (283)	65 (575)	192 (1699)	415 (3673)	32	
			28 (248)	61 (540)	176 (1558)	365 (3231)	40	
			12 (106)	28 (248)	80 (708)	192 (1699)	64	
			32 (283)	65 (575)	192 (1699)	415 (3673)	60	3
			32 (283)	65 (575)	192 (1699)	415 (3673)	80	
			32 (283)	65 (575)	192 (1699)	415 (3673)	100	
			28 (248)	70 (620)	176 (1558)	365 (3231)	120	
			32 (283)	65 (575)	192 (1699)	415 (3673)	160	
			28 (248)	61 (540)	176 (1558)	365 (3231)	200	
			32 (283)	65 (575)	192 (1699)	415 (3673)	256	
			28 (248)	61 (540)	176 (1558)	365 (3231)	320	
			12 (106)	28 (248)	80 (708)	192 (1699)	512	

(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			PLQE040	PLQE060	PLQE080	PLQE120	i[1]	p[2]
Continuous torque[3]	T_{2D}	Nm (lb_f.in)	3.5 (31)	22 (195)	37 (327)	97 (859)	3	1
			12.5 (111)	23 (204)	86 (761)	131 (1159)	4	
			11.5 (102)	24 (212)	85 (752)	165 (1460)	5	
			7 (62)	19.5 (173)	55 (487)	114 (1009)	7	
			5 (44)	15 (133)	42 (372)	102 (903)	8	
			4 (35)	12.5 (111)	32 (283)	80 (708)	10	
			10.5 (93)	30 (266)	87 (770)	178 (1575)	9	2
			14.5 (128)	32 (283)	102 (903)	220 (1947)	12	
			15 (133)	35 (310)	93 (823)	195 (1726)	15	
			17 (150)	35 (310)	102 (903)	220 (1947)	16	
			17 (150)	37 (327)	102 (903)	220 (1947)	20	
			15 (133)	34 (301)	93 (823)	195 (1726)	25	
			17 (150)	37 (327)	102 (903)	220 (1947)	32	
			15 (133)	34 (301)	93 (823)	195 (1726)	40	
			6 (53)	15 (133)	42 (372)	102 (903)	64	
			17 (150)	37 (327)	102 (903)	220 (1947)	60	3
			17 (150)	37 (327)	102 (903)	220 (1947)	80	
			17 (150)	37 (327)	102 (903)	220 (1947)	100	
			15 (133)	37 (327)	93 (823)	195 (1726)	120	
			17 (150)	37 (327)	102 (903)	220 (1947)	160	
			15 (133)	34 (301)	93 (823)	195 (1726)	200	
			17 (150)	37 (327)	102 (903)	220 (1947)	256	
			15 (133)	34 (301)	93 (823)	195 (1726)	320	
			6 (53)	15 (133)	42 (372)	102 (903)	512	

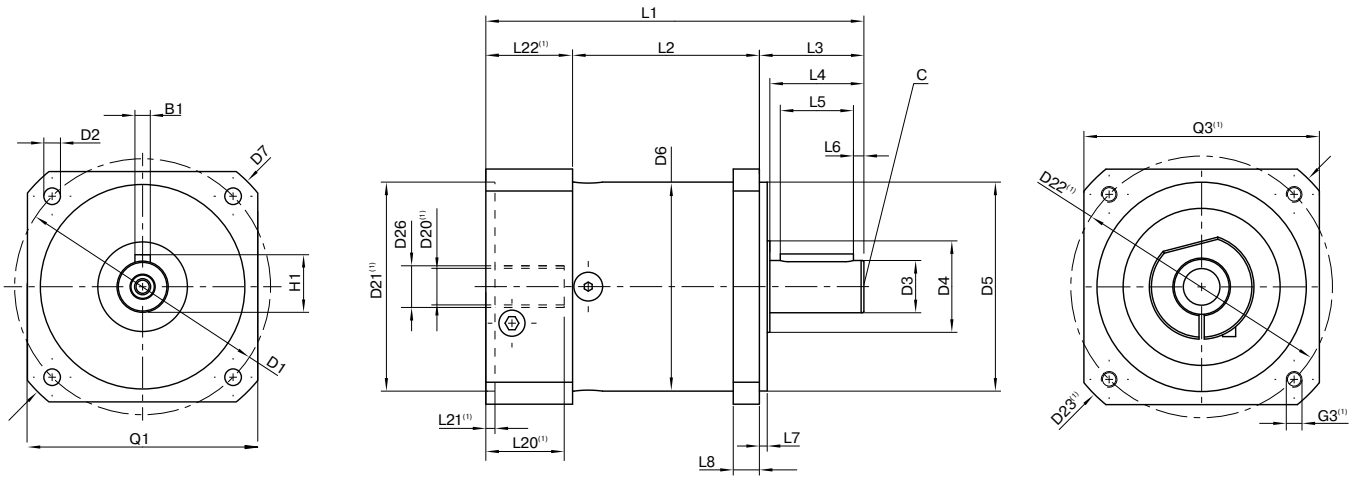
Input speeds			PLQE040	PLQE060	PLQE080	PLQE120	i[1]	p[2]
Continuous input speed[3][4]	n_{1D}	rpm	5000	4500	4000	2150	3	1
			5000	4500	3200	2300	4	
			5000	4500	3850	2500	5	
			5000	4500	4000	3500	7	
			5000	4500	4000	3500	8	
			5000	4500	4000	3500	10	
			5000	4500	4000	2100	9	2
			5000	4500	4000	2500	12	
			5000	4500	4000	3000	15	
			5000	4500	4000	2850	16	
			5000	4500	4000	3350	20	
			5000	4500	4000	3500	25	
			5000	4500	4000	3500	32	
			5000	4500	4000	3500	40	
			5000	4500	4000	3500	64	
			5000	4500	4000	3500	60	3
			5000	4500	4000	3500	80	
			5000	4500	4000	3500	100	
			5000	4500	4000	3500	120	
			5000	4500	4000	3500	160	
			5000	4500	4000	3500	200	
			5000	4500	4000	3500	256	
			5000	4500	4000	3500	320	
			5000	4500	4000	3500	512	
Max. mechanical input speed[3]	n_{1max}	rpm	18000	13000	7000	6500		

[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			PLQE040	PLQE060	PLQE080	PLQE120	i[1]	p[2]
Emergency stop torque[3][4]	T_{2Stop}	Nm (lb_f.in)	22 (195)	60 (531)	150 (1328)	375 (3319)	3	1
			30 (266)	80 (708)	200 (1770)	500 (4425)	4	
			36 (319)	80 (708)	220 (1947)	500 (4425)	5	
			26 (230)	80 (708)	178 (1575)	340 (3009)	7	
			27 (239)	80 (708)	190 (1682)	380 (3363)	8	
			27 (239)	75 (664)	200 (1770)	480 (4248)	10	
			33 (292)	88 (779)	260 (2301)	500 (4425)	9	2
			40 (354)	88 (779)	240 (2124)	520 (4602)	12	
			36 (319)	88 (779)	220 (1947)	500 (4425)	15	
			40 (354)	88 (779)	240 (2124)	520 (4602)	16	
			40 (354)	88 (779)	240 (2124)	520 (4602)	20	
			36 (319)	80 (708)	220 (1947)	500 (4425)	25	
			40 (354)	88 (779)	240 (2124)	520 (4602)	32	
			36 (319)	80 (708)	220 (1947)	500 (4425)	40	
			27 (239)	80 (708)	190 (1682)	380 (3363)	64	
			40 (354)	88 (779)	220 (1947)	520 (4602)	60	3
			40 (354)	88 (779)	240 (2124)	520 (4602)	80	
			40 (354)	88 (779)	240 (2124)	520 (4602)	100	
			36 (319)	88 (779)	220 (1947)	500 (4425)	120	
			40 (354)	88 (779)	240 (2124)	520 (4602)	160	
			36 (319)	80 (708)	220 (1947)	500 (4425)	200	
			40 (354)	88 (779)	240 (2124)	520 (4602)	256	
			36 (319)	80 (708)	220 (1947)	500 (4425)	320	
			27 (239)	80 (708)	190 (1682)	380 (3363)	512	

[1] Ratios ($i=n_1/n_2$)
[2] Number of stages
[3] Permitted 1000 times
[4] Based on reference clamping system diameter

PLQE Dimensions



Drawing corresponds to a PLQE080 / 1-stage / output shaft with feather key / 19 mm clamping system / motor adaptation – one part / 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)			PLQE040	PLQE060	PLQE080	PLQE120	p(3)	Code
Pitch circle diameter output	D1		50 (1.969)	75 (2.953)	100 (3.937)	130 (5.118)		
Mounting bore output	D2	4x	3.4 (0.134)	5.5 (0.217)	6.5 (0.256)	8.5 (0.335)		
Shaft diameter output	D3	h7	13 (0.512)	16 (0.630)	20 (0.787)	25 (0.984)		
Shaft collar output	D4		17 (0.669)	20 (0.787)	35 (1.378)	35 (1.378)		
Centering diameter output	D5	h7	35 (1.378)	60 (2.362)	80 (3.150)	110 (4.331)		
Housing diameter	D6		40 (1.575)	60 (2.362)	80 (3.150)	115 (4.528)		
Diagonal dimension output	D7		57 (2.244)	92 (3.622)	116 (4.567)	145 (5.709)		
Flange cross section output	Q1	■	42 (1.654)	70 (2.756)	90 (3.543)	115 (4.528)		
Min. total length	L1		90 (3.543)	111 (4.370)	145 (5.709)	201.5 (7.933)	1	
			103 (4.055)	123.5 (4.862)	162.5 (6.398)	229.5 (9.035)	2	
			115.5 (4.547)	136 (5.354)	180 (7.087)	257 (10.118)	3	
Housing length	L2		35.5 (1.398)	55 (2.165)	71 (2.795)	99 (3.898)	1	
			48.5 (1.909)	67.5 (2.657)	89 (3.504)	127 (5.000)	2	
			61 (2.402)	80.5 (3.169)	106.5 (4.193)	154.5 (6.083)	3	
Shaft length output	L3		26 (1.024)	32 (1.260)	40 (1.575)	55 (2.165)		
Centering depth output	L7		5.5 (0.217)	3 (0.118)	3 (0.118)	4 (0.157)		
Flange thickness output	L8		7 (0.256)	10 (0.394)	10 (0.394)	15 (0.591)		
Motor shaft diameter j6/k6	D20		More information on page 191/192					
Clamping system diameter input	D26		More information on page 28					
Output shaft with feather key (DIN 6885-1)			A 5x5x14	A 5x5x20	A 6x6x28	A 8x7x40		
Feather key width (DIN 6885-1)	B1		5 (0.197)	5 (0.197)	6 (0.236)	8 (0.315)		
Shaft height including feather key (DIN 6885-1)	H1		15 (0.591)	18 (0.709)	22.5 (0.886)	28 (1.102)		
Shaft length from shoulder	L4		18 (0.709)	28 (1.102)	36 (1.417)	50 (1.969)		A
Feather key length	L5		14 (0.551)	20 (0.787)	28 (1.102)	40 (1.575)		
Distance from shaft end	L6		2 (0.079)	4 (0.157)	4 (0.157)	5 (0.197)		
Center hole (DIN 332. type DR)	C		M4x10	M5x12.5	M6x16	M10x22		
Smooth output shaft								
Shaft length from shoulder	L4		18 (0.709)	28 (1.102)	36 (1.417)	50 (1.969)		B

(2) Dimensions in mm
(3) Number of stages