WPLQE

The right angle planetary gearbox with universal output flange – flexible installation options and for high forces

Our **WPLQE** is the right-angle gearbox with a square output flange. This makes it particularly easy to mount, versatile and, thanks to its larger deep groove ball bearings, also suitable for higher radial and axial forces.

Cyclic torque	**14 - 260 Nm**
Radial force	**1500 - 4000 N**
Axial force	**1950 - 3800 N**
Torsional backlash	**11 - 21 arcmin**
Protection class	**IP54**

Frame sizes

60 **80** **120**

- Economy Line
- Equidirectional rotation
- Bevel gear right angle stage
- Reinforced deep groove ball bearings
- Planet carrier in disc design
- Right angle gearbox
- Spur gear
- 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			WPLQE060	WPLQE080	WPLQE120	p[1]
	Service life[2]	L_h	h	20,000			
	Efficiency[3]	η	%	95			1
				94			2
				88			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	< 16	< 13	< 11	1
				< 18	< 15	< 13	2
				< 21	< 17	< 15	3
	Torsional stiffness[3]	C_{2t}	Nm / arcmin (lb_f.in/ arcmin)	1.9 - 3.1 (17 - 27)	4.4 - 9.4 (39 - 83)	9.3 - 15.3 (82 - 135)	1
				3.3 - 4.0 (29 - 35)	8.5 - 13.0 (75 - 115)	15.3 - 19.0 (135 - 168)	2
				3.3 - 4.1 (29 - 36)	9.4 - 13.3 (83 - 118)	15.6 - 19.0 (138 - 168)	3
	Gearbox weight[3]	m	kg (lb_m)	1.8 (4.0)	4.2 - 4.5 (9.3 - 9.9)	10.4 - 10.5 (22.9 - 23.1)	1
				1.9 - 2.0 (4.3 - 4.5)	4.9 - 5.0 (10.9 - 11.0)	12.1 - 12.3 (26.7 - 27.1)	2
				2.2 (4.8 - 4.9)	5.4 - 5.5 (11.9 - 12.1)	13.9 - 14.1 (30.7 - 31.1)	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)	70	73	75	

Output shaft loads			WPLQE060	WPLQE080	WPLQE120	p[1]
Maximum radial force	$F_{r\,max}$	N (lb_f)	1500 (337)	2500 (562)	4000 (899)	
Maximum axial force	$F_{a\,max}$		1950 (438)	3800 (854)	3800 (854)	
Maximum tilting moment	$M_{k\,max}$	Nm (lb_f.in)	62 (544)	124 (1096)	314 (2779)	

Input characteristics			WPLQE060	WPLQE080	WPLQE120	p[1]
Clamping system diameter input (Code)	D26	mm	11 (C)	19 (E)[5]	24 (F)[5]	
			14 (D)[5]	-	-	
Mass moment of inertia input[3][5]	J_1	kgcm² (lb_f. in.s²10⁻⁴)	0.228 - 0.377 (2.018 - 3.337)	0.874 - 1.355 (7.736 - 11.993)	2.648 - 3.702 (23.437 - 32.765)	1
			0.228 - 0.357 (2.018 - 3.160)	0.869 - 1.196 (7.691 - 10.585)	2.679 - 3.601 (23.711 - 31.872)	2
			0.228 - 0.238 (2.018 - 2.106)	0.868 - 1.162 (7.682 - 10.285)	2.679 - 3.506 (23.711 - 31.031)	3
Average idle torque[3][5]	T_0	Nm (lb_f.in)	0.15 - 0.20 (1 - 2)	0.25 - 0.65 (2 - 6)	0.80 - 1.35 (7 - 12)	1
			0.15 - 0,20 (1 - 2)	0.25 - 0.60 (2 - 5)	0.85 - 1.45 (8 - 13)	2
			0.15 (1)	0.25 - 0.35 (2 - 3)	0.85 - 1.00 (8 - 9)	3
Maximum bending moment input	M_{b1}		5 (44)	10,5 (93)	26 (230)	

[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			WPLQE060	WPLQE080	WPLQE120	i[1]	p[2]
Cyclic torque[3]	T_{2Z}	Nm (lb_f.in)	14 (124)	40 (354)	78 (690)	3	1
			19 (168)	53 (469)	104 (920)	4	
			24 (212)	67 (593)	130 (1151)	5	
			25 (221)	65 (575)	135 (1195)	7	
			18 (159)	50 (443)	120 (1062)	8	
			15 (133)	38 (336)	95 (841)	10	
			43 (381)	120 (1062)	210 (1859)	9	2
			44 (389)	120 (1062)	260 (2301)	12	
			44 (389)	110 (974)	230 (2036)	15	
			44 (389)	120 (1062)	260 (2301)	16	
			44 (389)	120 (1062)	260 (2301)	20	
			40 (354)	110 (974)	230 (2036)	25	
			44 (389)	120 (1062)	260 (2301)	32	
			40 (354)	110 (974)	230 (2036)	40	
			18 (159)	50 (443)	120 (1062)	64	
			44 (389)	120 (1062)	260 (2301)	60	3
			44 (389)	120 (1062)	260 (2301)	80	
			44 (389)	120 (1062)	260 (2301)	100	
			44 (389)	110 (974)	230 (2036)	120	
			44 (389)	120 (1062)	260 (2301)	160	
			40 (354)	110 (974)	230 (2036)	200	
			44 (389)	120 (1062)	260 (2301)	256	
			40 (354)	110 (974)	230 (2036)	320	
			18 (159)	50 (443)	120 (1062)	512	
Maximum torque[3]	T_{2max}	Nm (lb_f.in)	23 (204)	64 (566)	124 (1097)	3	1
			30 (266)	85 (752)	166 (1469)	4	
			38 (336)	107 (947)	205 (1814)	5	
			40 (354)	104 (920)	215 (1903)	7	
			28 (248)	80 (708)	192 (1699)	8	
			24 (212)	60 (531)	152 (1345)	10	
			69 (611)	182 (1611)	335 (2965)	9	2
			65 (575)	192 (1699)	415 (3673)	12	
			70 (620)	176 (1558)	365 (3231)	15	
			65 (575)	192 (1699)	415 (3673)	16	
			65 (575)	192 (1699)	415 (3673)	20	
			61 (540)	176 (1558)	365 (3231)	25	
			65 (575)	192 (1699)	415 (3673)	32	
			61 (540)	176 (1558)	365 (3231)	40	
			28 (248)	80 (708)	192 (1699)	64	
			65 (575)	192 (1699)	415 (3673)	60	3
			65 (575)	192 (1699)	415 (3673)	80	
			65 (575)	192 (1699)	415 (3673)	100	
			70 (620)	176 (1558)	365 (3231)	120	
			65 (575)	192 (1699)	415 (3673)	160	
			61 (540)	176 (1558)	365 (3231)	200	
			65 (575)	192 (1699)	415 (3673)	256	
			61 (540)	176 (1558)	365 (3231)	320	
			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

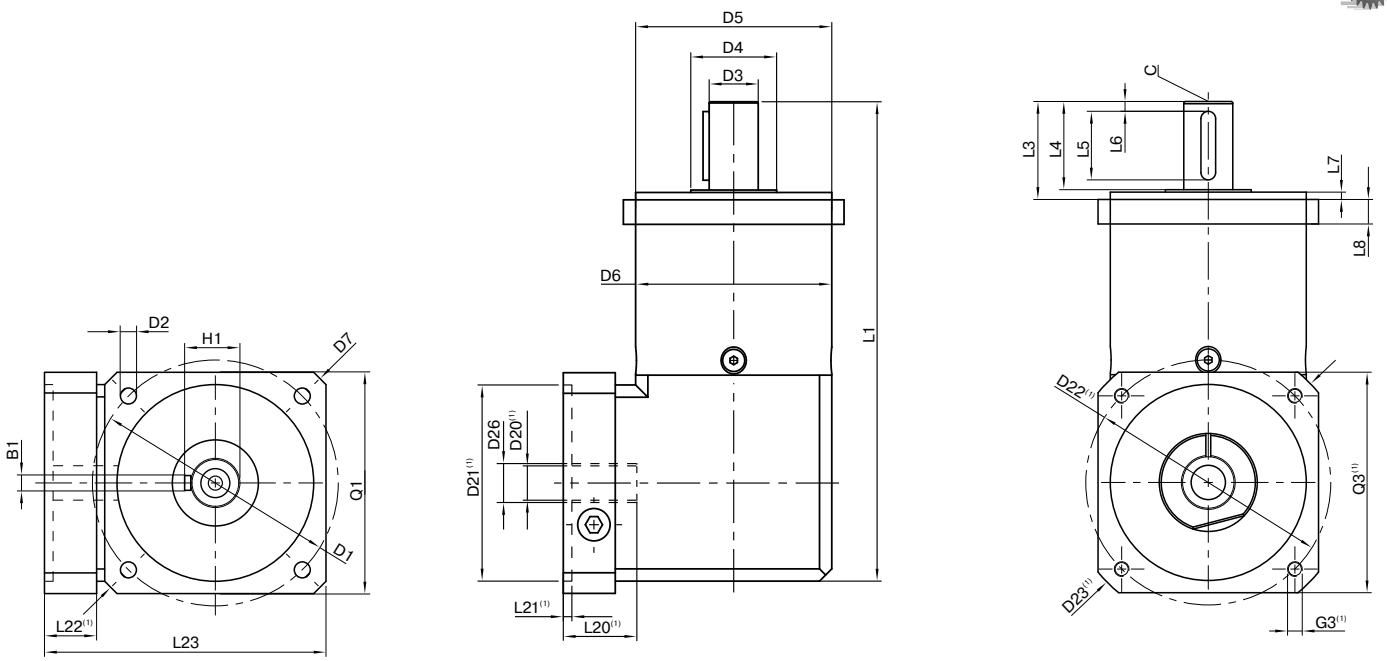
Output torques			WPLQE060	WPLQE080	WPLQE120	i[1]	p[2]
Continuous torque[3]	T_{2D}	Nm (lb_f.in)	6 (53)	13.5 (119)	32 (283)	3	1
			8.5 (75)	18 (159)	43 (381)	4	
			10.5 (93)	22 (195)	53 (469)	5	
			15 (133)	32 (283)	75 (664)	7	
			15 (133)	36 (319)	86 (761)	8	
			12.5 (111)	32 (283)	80 (708)	10	
			19 (168)	41 (363)	96 (850)	9	2
			25 (221)	55 (487)	129 (1142)	12	
			32 (283)	68 (602)	161 (1425)	15	
			34 (301)	73 (646)	172 (1522)	16	
			37 (327)	91 (805)	215 (1903)	20	
			34 (301)	93 (823)	195 (1726)	25	
			37 (327)	102 (903)	220 (1947)	32	
			34 (301)	93 (823)	195 (1726)	40	
			15 (133)	42 (372)	102 (903)	64	
			37 (327)	102 (903)	220 (1947)	60	3
			37 (327)	102 (903)	220 (1947)	80	
			37 (327)	102 (903)	220 (1947)	100	
			37 (327)	93 (823)	195 (1726)	120	
			37 (327)	102 (903)	220 (1947)	160	
			34 (301)	93 (823)	195 (1726)	200	
			37 (327)	102 (903)	220 (1947)	256	
			34 (301)	93 (823)	195 (1726)	320	
			15 (133)	42 (372)	102 (903)	512	

Input speeds			WPLQE060	WPLQE080	WPLQE120	i[1]	p[2]
Continuous input speed[3][4]	n_{1D}	rpm	4500	4000	3500	3	1
			4500	4000	3500	4	
			4500	4000	3500	5	
			4500	4000	3500	7	
			4500	4000	3500	8	
			4500	4000	3500	10	
			4500	4000	3500	9	2
			4500	4000	3500	12	
			4500	4000	3500	15	
			4500	4000	3500	16	
			4500	4000	3500	20	
			4500	4000	3500	25	
			4500	4000	3500	32	
			4500	4000	3500	40	
			4500	4000	3500	64	
			4500	4000	3500	60	3
			4500	4000	3500	80	
			4500	4000	3500	100	
			4500	4000	3500	120	
			4500	4000	3500	160	
			4500	4000	3500	200	
			4500	4000	3500	256	
			4500	4000	3500	320	
			4500	4000	3500	512	
Max. mechanical input speed[3]	n_{1max}	rpm	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			WPLQE060	WPLQE080	WPLQE120	i[1]	p[2]
Emergency stop torque[3][4]	T_{2Stop}	Nm (lb_f.in)	60 (531)	135 (1195)	300 (2655)	3	1
			80 (708)	180 (1593)	400 (3540)	4	
			80 (708)	220 (1947)	500 (4425)	5	
			80 (708)	178 (1575)	340 (3009)	7	
			80 (708)	190 (1682)	380 (3363)	8	
			70 (620)	170 (1505)	430 (3806)	10	
			88 (779)	260 (2301)	500 (4425)	9	2
			88 (779)	240 (2124)	520 (4602)	12	
			88 (779)	220 (1947)	500 (4425)	15	
			88 (779)	240 (2124)	520 (4602)	16	
			88 (779)	240 (2124)	520 (4602)	20	
			80 (708)	220 (1947)	500 (4425)	25	
			88 (779)	240 (2124)	520 (4602)	32	
			80 (708)	220 (1947)	500 (4425)	40	
			80 (708)	190 (1682)	380 (3363)	64	
			88 (779)	220 (1947)	520 (4602)	60	3
			88 (779)	240 (2124)	520 (4602)	80	
			88 (779)	240 (2124)	520 (4602)	100	
			88 (779)	220 (1947)	500 (4425)	120	
			88 (779)	240 (2124)	520 (4602)	160	
			80 (708)	220 (1947)	500 (4425)	200	
			88 (779)	240 (2124)	520 (4602)	256	
			80 (708)	220 (1947)	500 (4425)	320	
			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



Drawing corresponds to a WPLQE080 / 1-stage / output shaft with feather key / 19 mm clamping system / motor adaptation – 2-part – square 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)			WPLQE060	WPLQE080	WPLQE120	p(3)	Code
Pitch circle diameter output	D1		75 (2.953)	100 (3.937)	130 (5.118)		
Mounting bore output	D2	4x	5.5 (0.217)	6.5 (0.256)	8.5 (0.335)		
Shaft diameter output	D3	h7	16 (0.630)	20 (0.787)	25 (0.984)		
Shaft collar output	D4		20 (0.787)	35 (1.378)	35 (1.378)		
Centering diameter output	D5	h7	60 (2.362)	80 (3.150)	110 (4.331)		
Housing diameter	D6		60 (2.362)	80 (3.150)	115 (4.528)		
Diagonal dimension output	D7		92 (3.622)	116 (4.567)	145 (5.709)		
Flange cross section output	Q1	■	70 (2.756)	90 (3.543)	115 (4.528)		
Total length	L1		152 (5.984)	195,5 (7.697)	274,5 (10.807)	1	
			164.5 (6.476)	213 (8.386)	302.5 (11.909)	2	
			177 (6.969)	230.5 (9.075)	330 (12.992)	3	
Shaft length output	L3		32 (1.260)	40 (1.575)	55 (2.165)		
Centering depth output	L7		3 (0.118)	3 (0.118)	4 (0.157)		
Flange thickness output	L8		10 (0.394)	10 (0.394)	15 (0.591)		
Min. overall height	L23		90.5 (3.563)	114.5 (4.508)	145.5 (5.728)		
Motor shaft diameter j6/k6	D20		More information on page 191/192				
Clamping system diameter input	D26		More information on page 68				
Output shaft with feather key (DIN 6885-1)			A 5x5x20	A 6x6x28	A 8x7x40		A
Feather key width (DIN 6885-1)	B1		5 (0.197)	6 (0.236)	8 (0.315)		
Shaft height including feather key (DIN 6885-1)	H1		18 (0.709)	22.5 (0.886)	28 (1.102)		
Shaft length from shoulder	L4		28 (1.102)	36 (1.417)	50 (1.969)		
Feather key length	L5		20 (0.787)	28 (1.102)	40 (1.575)		
Distance from shaft end	L6		4 (0.157)	4 (0.157)	5 (0.197)		
Center hole (DIN 332, type DR)	C		M5x12,5	M6x16	M10x22		
Smooth output shaft							B
Shaft length from shoulder	L4		28 (1.102)	36 (1.417)	50 (1.969)		

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