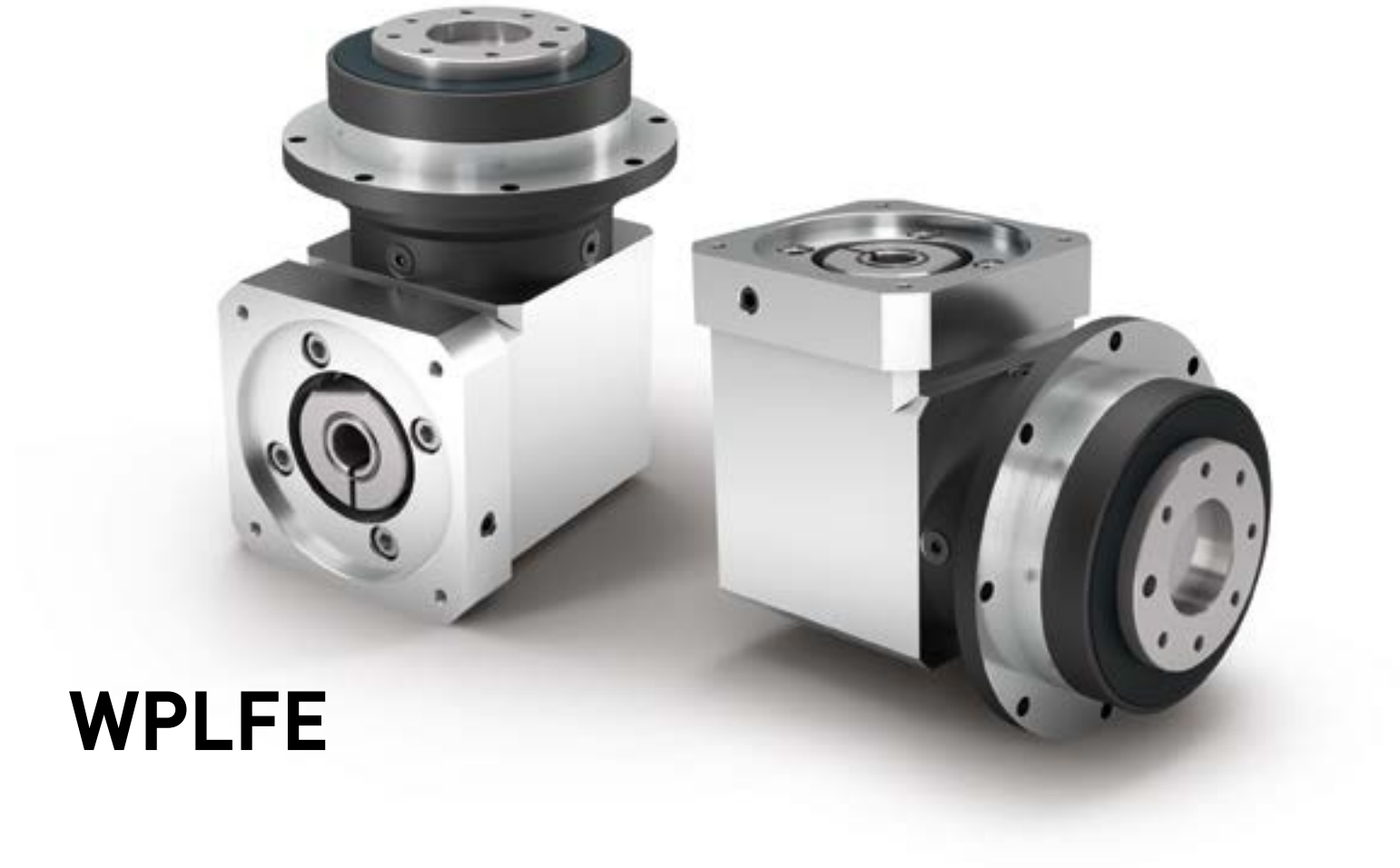


WPLFE

The shortest right-angle gearbox with flange output shaft and high torsional stiffness

The **WPLFE** is our right-angle planetary gearbox with a compact flange output shaft. You save up to a third of the space. Its standardized flange interface makes it particularly easy to install. The integrated dowel pin drill hole provides additional stability during installation.

Cyclic torque	**14 - 260 Nm**
Radial force	**900 - 3800 N**
Axial force	**1200 - 5200 N**
Torsional backlash	**11 - 18 arcmin**
Protection class	**IP54**

Frame sizes

64 **90** **110**

- Economy Line
- Equidirectional rotation
- Bevel gear right angle stage
- Low-friction deep groove ball bearings
- Planet carrier in disc design
- Right angle gearbox
- Spur gear
- Extra large round type output flange
- Flange output shaft (ISO 9409-1)
- Option: Painted surface – RAL 9005 Jet black

Detailed explanations of the technical features starting on page 201.

Code	Gearbox characteristics			WPLFE064	WPLFE090	WPLFE110	p(1)
	Service life(2)	L_h	h	20,000			
	Efficiency(3)	η	%	94			1
				93			2
	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
	Torsional stiffness(3)	C_{2t}	Nm / arcmin (lb_f.in/ arcmin)	2.9 - 6.2 (26 - 55)	5.8 - 17.5 (51 - 155)	15.9 - 40.5 (141 - 358)	1
				5.1 - 11.6 (45 - 103)	15.9 - 37.5 (141 - 332)	29.5 - 83.0 (261 - 735)	2
	Gearbox weight(3)	m	kg (lb_m)	1.8 (4.0)	4.5 - 4.6 (9.9 - 10.0)	10.4 - 10.5 (23.0 - 23.2)	1
				2.0 - 2.1 (4.4 - 4.7)	5.0 - 5.2 (11.0 - 11.5)	12.1 - 12.5 (26.7 - 27.5)	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)	70	73	75	

Output shaft loads			WPLFE064	WPLFE090	WPLFE110	p(1)
Maximum radial force	$F_{r\,max}$	N (lb_f)	900 (202)	2200 (495)	3800 (854)	
Maximum axial force	$F_{a\,max}$		1200 (270)	3300 (742)	5200 (1169)	
Maximum tilting moment	$M_{K\,max}$	Nm (lb_f.in)	20 (175)	73 (643)	173 (1530)	

Input characteristics			WPLFE064	WPLFE090	WPLFE110	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)	0.234 - 0.445 (2.071 - 3.939)	0.909 - 1.735 (8.045 - 15.356)	2.751 - 4.739 (24.348 - 41.944)	1
			0.226 - 0.365 (2.000 - 3.231)	0.861 - 1.238 (7.620 - 10.957)	2.644 - 3.716 (23.401 - 32.889)	2
Average idle torque(3)(5)	T_0	Nm (lb_f.in)	0.15 - 0.30 (1 - 3)	0.35 - 0.95 (3 - 8)	1.10 - 2.30 (10 - 20)	1
			0.15 - 0.20 (1 - 2)	0.25 - 0.70 (2 - 6)	0.85 - 1.80 (8 - 16)	2
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			WPLFE064	WPLFE090	WPLFE110	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	
			15 (133)	38 (336)	95 (841)	100	
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	
			24 (212)	60 (531)	152 (1345)	100	

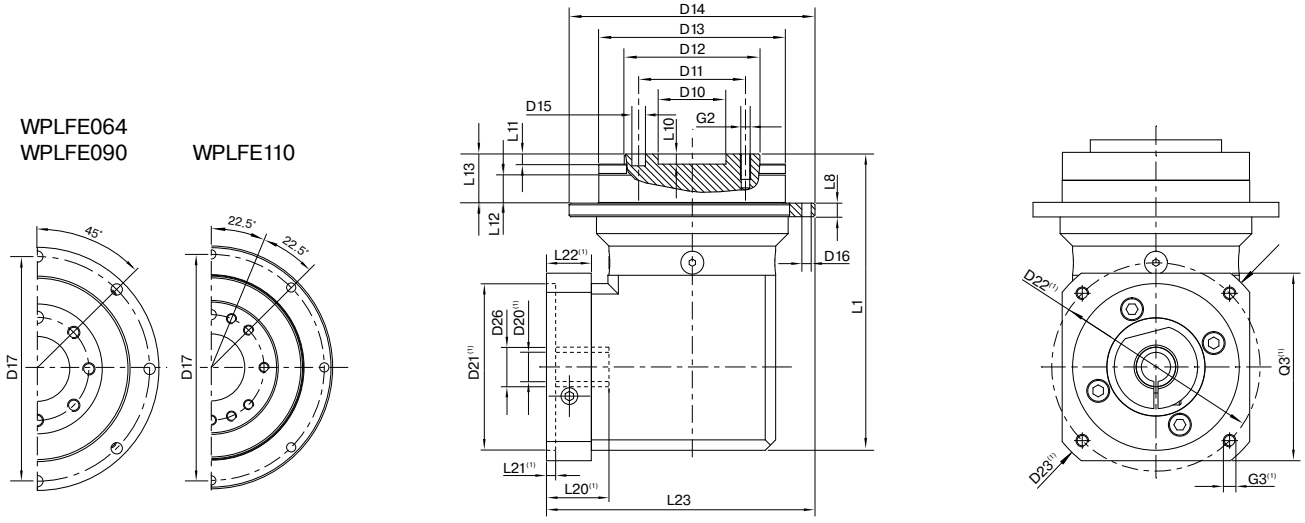
(1) Ratios ($i=n_1/n_2$)
(2) Number of stages
(3) Application specific configuration with NCP – www.neugart.com

Output torques			WPLFE064	WPLFE090	WPLFE110	i[1]	p[2]
Continuous torque[3]	T_{2D}	Nm (lb_f.in)	6 (53)	14 (124)	33 (292)	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)	99 (876)	9	2
			25 (221)	55 (487)	131 (1159)	12	
			32 (283)	68 (602)	162 (1434)	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	
			12.5 (111)	32 (283)	80 (708)	100	

Input speeds			WPLFE064	WPLFE090	WPLFE110	i[1]	p[2]
Continuous input speed[3][4]	n_{1D}	rpm	4500	3550	3050	3	1
			4500	4000	3500	4	
			4500	4000	3500	5	
			4500	4000	3500	7	
			4500	4000	3500	8	
			4500	4000	3500	10	
			4500	4000	3200	9	2
			4500	4000	3300	12	
			4500	4000	3450	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	100	
Max. mechanical input speed[3]	n_{1max}	rpm	13000	7000	6500		

Output torques			WPLFE064	WPLFE090	WPLFE110	i[1]	p[2]
Emergency stop torque[4][5]	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)	205 (1814)	520 (4602)	32	
			80 (708)	205 (1814)	500 (4425)	40	
			80 (708)	190 (1682)	380 (3363)	64	
			75 (664)	200 (1770)	430 (3806)	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



Drawing corresponds to a WPLFE090 / 1-stage / flange output shaft with dowel hole / 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)			**WPLFE064**	**WPLFE090**	**WPLFE110**	**p**(3)	**Code**
Centering diameter output shaft	D10	H7	20 (0.787)	31.5 (1.240)	40 (1.575)		
Pitch circle diameter output shaft	D11		31.5 (1.240)	50 (1.969)	63 (2.480)		
Centering diameter output shaft	D12	h7	40 (1.575)	63 (2.480)	80 (3.150)		
Centering diameter output flange	D13		64 (2.520)	90 (3.543)	110 (4.331)		
Flange diameter output	D14		86 (3.386)	118 (4.646)	145 (5.709)		
Mounting bore output	D16		4.5 8x45°	5.5 8x45°	5,.5 8x45°		
Pitch circle diameter output flange	D17		79 (3.110)	109 (4.291)	135 (5.315)		
Total length	L1		110.5 (4.350)	149 (5.866)	198.5 (7.815)	1	
			123 (4.843)	166.5 (6.555)	225.5 (8.878)	2	
Flange thickness output	L8		4 (0.157)	7 (0.276)	8 (0.315)		
Centering depth output shaft	L10		4 (0.157)	6 (0.236)	6 (0.236)		
	L11		3 (0.118)	6 (0.236)	6 (0.236)		
Centering depth output flange	L12		7.5 (0.295)	10.5 (0.413)	10.5 (0.413)		
Output flange length	L13		19.5 (0.768)	30.0 (1.181)	29.0 (1.142)		
Min. overall height	L23		98.5 (3.878)	128.5 (5.059)	160.5 (6.319)		
Motor shaft diameter j6/k6	D20		More information on page 191/192				
Clamping system diameter input	D26		More information on page 88				
Flange output shaft with dowel hole (ISO 9409-1)							**E**
Dowel hole x depth	D15	H7	5x6	6x7	6x7		
Number x thread x depth	G2		7 x M5x7	7 x M6x10	11 x M6x12		

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