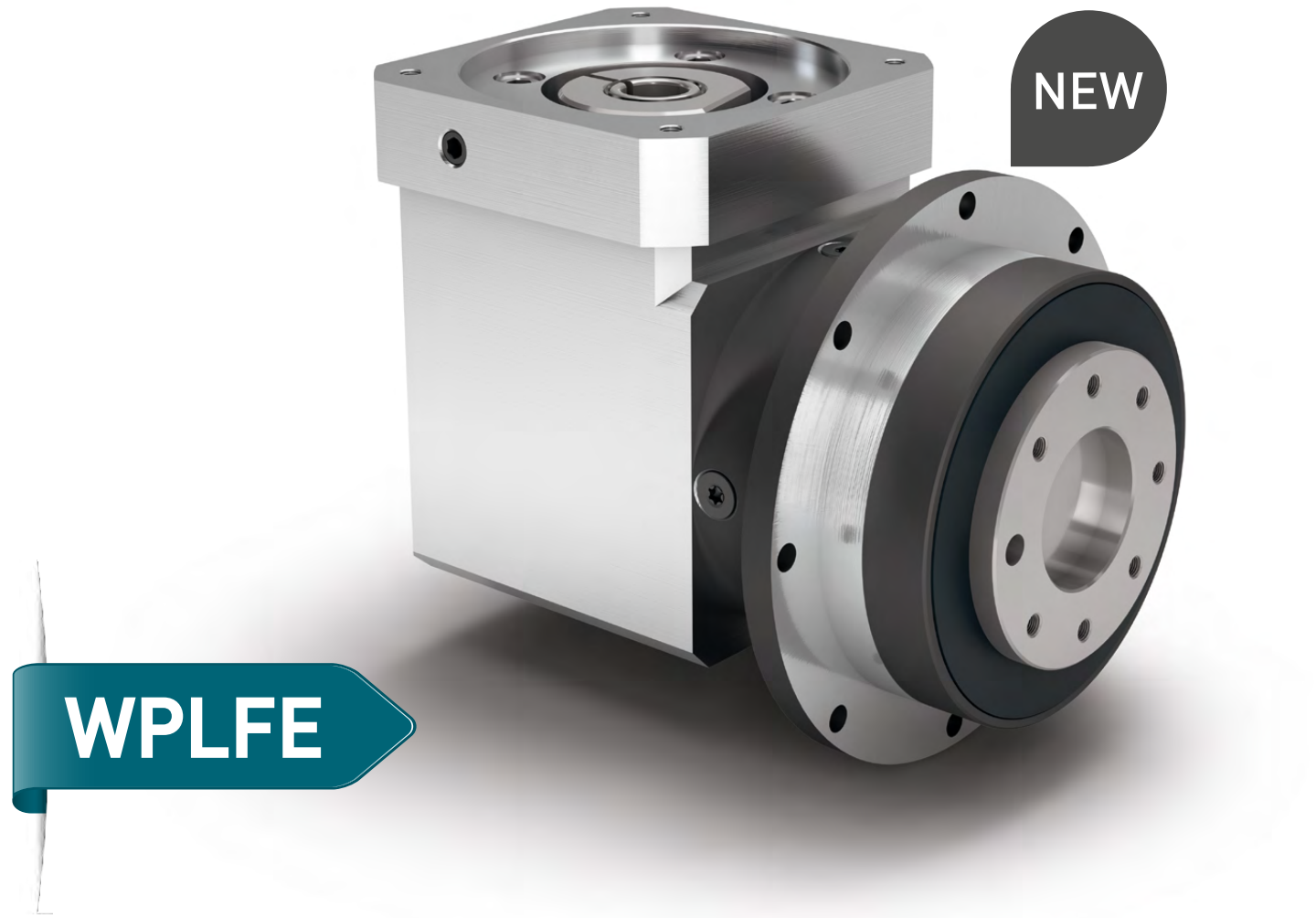


The shortest right angle planetary gearbox with flange output shaft and maximum torsional stiffness

Thinking around corners even in tight spaces. The **WPLFE** is our right angle planetary gearbox with compact flange output shaft. You save up to a third of the space and benefit from a torsional stiffness that is five times higher than conventional products. Thanks to its standardized flange interface, it is especially easy to install. The integrated dowel hole provides additional secureness during fitting.

1 Easy, reliable, and fast installation

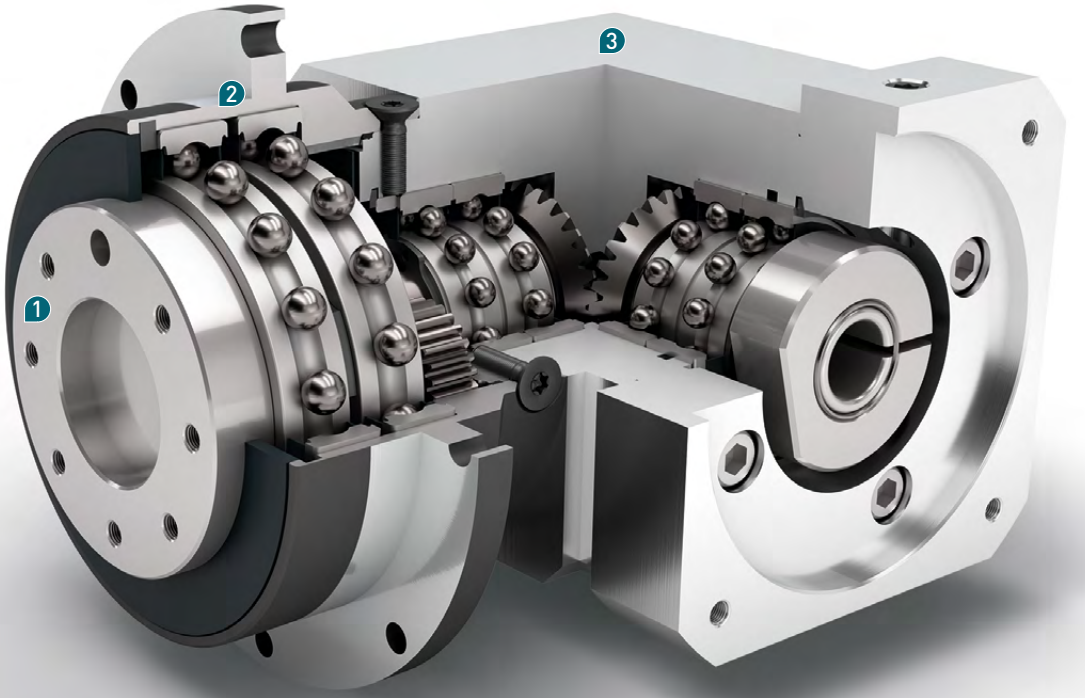
The standardized flange interface of the **WPLFE** (EN ISO 9409-1) guarantees quick and easy mounting of the drive components, such as pulley, linear unit, or turntable. The integrated dowel hole provides additional secureness during fitting.

2 Maximum torsional stiffness for precise drive solutions

The large diameter of the flange output shaft gives the **WPLFE** a torsional stiffness that is five times higher than an output shaft with feather key. You can therefore make the most of your drive solution for intermittent and continuous operation.

3 Space-saving thanks to minimal installation height

The **WPLFE** is the shortest right angle planetary gearbox on the Economy Line. Depending on the frame size, the installation space is up to 30% smaller than comparable right angle gearboxes.



- For any mounting position
- Individual adaptation of the input flange to the motor
- Lifetime lubrication for maintenance-free operation
- Equidirectional rotation
- Optimized bearing concept for high performance
- Precise gearing

Code	Gearbox characteristics			WPLFE064	WPLFE090	WPLFE110	z[1]
	Service life	t_L	h	20,000			
	Service life at T_{2N} x 0.88			30,000			
	Efficiency at full load[2]	η	%	94			1
				93			2
	Min. operating temperature	T_{min}	°C (°F)	-25 (-13)			
	Max. operating temperature	T_{max}		90 (194)			
	Protection class			IP 54			
S	Standard lubrication			Grease			
F	Food grade lubrication			Grease			
L	Low temperature lubrication[3]			Grease			
	Installation position			Any			
S	Standard backlash	j_t	arcmin	< 16	< 13	< 11	1
				< 18	< 15	< 13	2
	Torsional stiffness[2]	c_g	Nm/arcmin (lb$_f$.in/arcmin)	8.9 - 11.9 (79 - 105)	21.0 - 27.8 (186 - 246)	52.8 - 71.4 (467 - 632)	1
				9.1 - 11.9 (81 - 105)	21.5 - 27.8 (190 - 246)	53.8 - 70.4 (476 - 623)	2
	Gearbox weight	m_G	kg (lb$_m$)	1.9 (4.2)	5.2 (11.5)	13 (28.7)	1
				2.3 (5.1)	5.7 (12.6)	15 (33.1)	2
S	Standard surface			Housing: Steel – nitrocarburized and post-oxidized (black)			
	Running noise[4]	Q_g	dB(A)	70	73	75	
	Max. bending moment based on the gearbox input flange[5]	M_b	Nm (lb$_f$.in)	5 (44)	10.5 (93)	26 (230)	
	Motor flange precision			DIN 42955-N			

Output shaft loads			WPLFE064	WPLFE090	WPLFE110	z[1]
Radial force for 20,000 h[6][7]	$F_{r\,20.000\,h}$	N (lb$_f$)	550 (124)	1400 (315)	2400 (540)	
Axial force for 20,000 h[6][7]	$F_{a\,20.000\,h}$		1200 (270)	3000 (675)	3300 (743)	
Radial force for 30,000 h[6][7]	$F_{r\,30.000\,h}$		500 (113)	1200 (270)	2100 (473)	
Axial force for 30,000 h[6][7]	$F_{a\,30.000\,h}$		1200 (270)	3000 (675)	3300 (743)	
Static radial force[7][8]	$F_{r\,Stat}$		900 (203)	2200 (495)	3800 (855)	
Static axial force[7][8]	$F_{a\,Stat}$		1200 (270)	3300 (743)	5200 (1170)	
Tilting moment for 20,000 h[6][8]	$M_{K\,20.000\,h}$	Nm (lb$_f$.in)	12 (106)	46 (407)	109 (965)	
Tilting moment for 30,000 h[6][8]	$M_{K\,30.000\,h}$		11 (97)	40 (354)	96 (850)	

Moment of inertia			WPLFE064	WPLFE090	WPLFE110	z[1]
Mass moment of inertia[2]	J	kgcm^2 (lb$_f$.in.s^{2}10^{-4})	0.229 - 0.458 (2.024 - 4.055)	0.964 - 1.913 (8.528 - 16.934)	1.955 - 4.272 (17.306 - 37.806)	1
			0.221 - 0.387 (1.953 - 3.425)	0.917 - 1.477 (8.120 - 13.076)	1.850 - 3.515 (16.376 - 31.111)	2

[1] Number of stages
[2] The ratio-dependent values can be retrieved in Tec Data Finder – www.neugart.com
[3] T_{min} = -40°C (-40°F). Optimal operating temperature max. 50°C (122°F)
[4] Sound pressure level from 1 m, measured on input running at n_1=3000 rpm no load; i=5
[5] Max. motor weight* in kg = 0.2 x M_b / motor length in m
* with symmetrically distributed motor weight
* with horizontal and stationary mounting
[6] These values are based on an output shaft speed of n_2=100 rpm
[7] Based on the end of the output shaft
[8] Other (sometimes higher) values following changes to T_{2N}, F_r, F_a, cycle, and service life of bearing. Application specific configuration with NCP – www.neugart.com

Output torques			WPLFE064	WPLFE090	WPLFE110	i[1]	z[2]
Nominal output torque[3]	T_{2N}	Nm (lb_f.in)	14 (124)	40 (354)[4]	80 (708)[4]	3	1
			19 (168)	53 (469)[4]	105 (929)[4]	4	
			24 (212)	67 (593)[4]	130 (1151)[4]	5	
			25 (221)	65 (575)	135 (1195)	7	
			18 (159)	50 (443)	120 (1062)	8	
			15 (133)	38 (336)	95 (841)	10	
			44 (389)[4]	130 (1151)[4]	210 (1859)[4]	9	2
			44 (389)	120 (1062)[4]	260 (2301)[4]	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	
Max. output torque[5]	T_{2max}	Nm (lb_f.in)	22 (195)	64 (566)	128 (1133)	3	1
			30 (266)	85 (752)	168 (1487)	4	
			38 (336)	107 (947)	208 (1841)	5	
			40 (354)	104 (920)	216 (1912)	7	
			29 (257)	80 (708)	192 (1699)	8	
			24 (212)	61 (540)	152 (1345)	10	
			70 (620)	208 (1841)	336 (2974)	9	2
			70 (620)	192 (1699)	416 (3682)	12	
			70 (620)	176 (1558)	368 (3257)	15	
			70 (620)	192 (1699)	416 (3682)	16	
			70 (620)	192 (1699)	416 (3682)	20	
			64 (566)	176 (1558)	368 (3257)	25	
			70 (620)	192 (1699)	416 (3682)	32	
			64 (566)	176 (1558)	368 (3257)	40	
			29 (257)	80 (708)	192 (1699)	64	
			24 (212)	61 (540)	152 (1345)	100	

(1) Ratios ($i=n_1/n_2$)
(2) Number of stages
(3) Application specific configuration with NCP – www.neugart.com
(4) Different service life: 10,000 h at T_{2N}
(5) 30,000 rotations of the output shaft permitted; see page 128

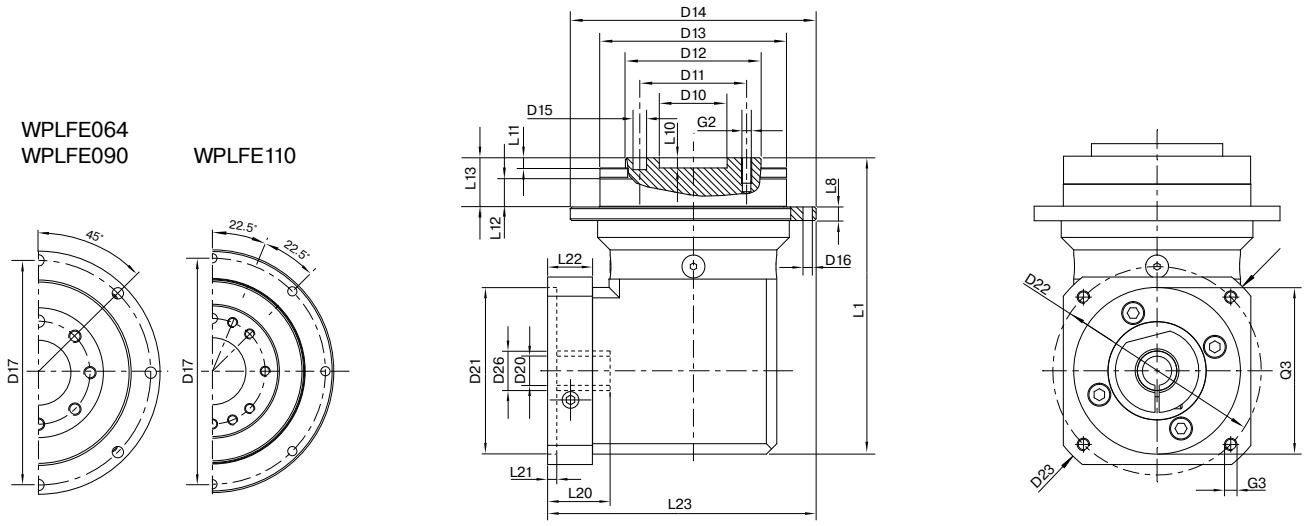
Output torques			WPLFE064	WPLFE090	WPLFE110	i[1]	z[2]
Emergency stop torque[3]	T_{2Stop}	Nm (lb_f.in)	66 (584)	180 (1593)	360 (3186)	3	1
			86 (761)	240 (2124)	474 (4195)	4	
			80 (708)	220 (1947)	500 (4425)	5	
			80 (708)	178 (1575)	340 (3009)	7	
			80 (708)	190 (1682)	380 (3363)	8	
			70 (620)	170 (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	
			80 (708)	200 (1770)	430 (3806)	100	

Input speeds			WPLFE064	WPLFE090	WPLFE110	i[1]	z[2]
Average thermal input speed at T_{2N} and S1[4][5]	n_{1N}	rpm	4000[6]	2800[6]	2200[6]	3	1
			4400[6]	3000[6]	2400[6]	4	
			4500[6]	3200[6]	2600[6]	5	
			4500[6]	4000[6]	3000[6]	7	
			4500	4000[6]	3300[6]	8	
			4500	4000	3500[6]	10	
			4300[6]	2900[6]	2400[6]	9	2
			4500[6]	3400[6]	2600[6]	12	
			4500[6]	3800[6]	3100[6]	15	
			4500[6]	3800[6]	3000[6]	16	
			4500	4000[6]	3400[6]	20	
			4500	4000[6]	3500[6]	25	
			4500	4000	3500[6]	32	
			4500	4000	3500	40	
			4500	4000	3500	64	
			4500	4000	3500	100	
Max. mechanical input speed[4]	n_{1Limit}	rpm	13000	7000	6500		

[1] Ratios ($i=n_1/n_2$)
[2] Number of stages
[3] Permitted 1000 times
[4] Application-specific speed configurations with NCP – www.neugart.com
[5] See page 128 for the definition
[6] Average thermal input speed at 50% T_{2N} and S1

WPLFE064
WPLFE090

WPLFE110



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
All other variants can be retrieved in the Tec Data Finder at www.neugart.com

Geometry[1]			**WPLFE064**	**WPLFE090**	**WPLFE110**	**z**[1]	**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 (4.331)	149 (5.866)	198.5 (7.815)	1	
			122.5 (4.823)	165.5 (6.516)	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)		
Centering depth output shaft	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		99 (3.878)	129 (5.079)	161 (6.319)		
Clamping system diameter input	D26		More information on page 117				
Motor shaft diameter j6/k6	D20		The dimensions vary with the motor/gearbox flange. The input flange geometries can be retrieved for each specific motor in Tec Data Finder at www.neugart.com				
Max. permis. motor shaft length	L20						
Min. permis. motor shaft length							
Centering diameter input	D21						
Centering depth input	L21						
Pitch circle diameter input	D22						
Motor flange length	L22						
Diagonal dimension input	D23						
Mounting thread x depth	G3	4x					
Flange cross section input	Q3	■					
Flange output shaft with dowel hole (EN 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		

[1] Dimensions in mm (in)
[2] Number of stages