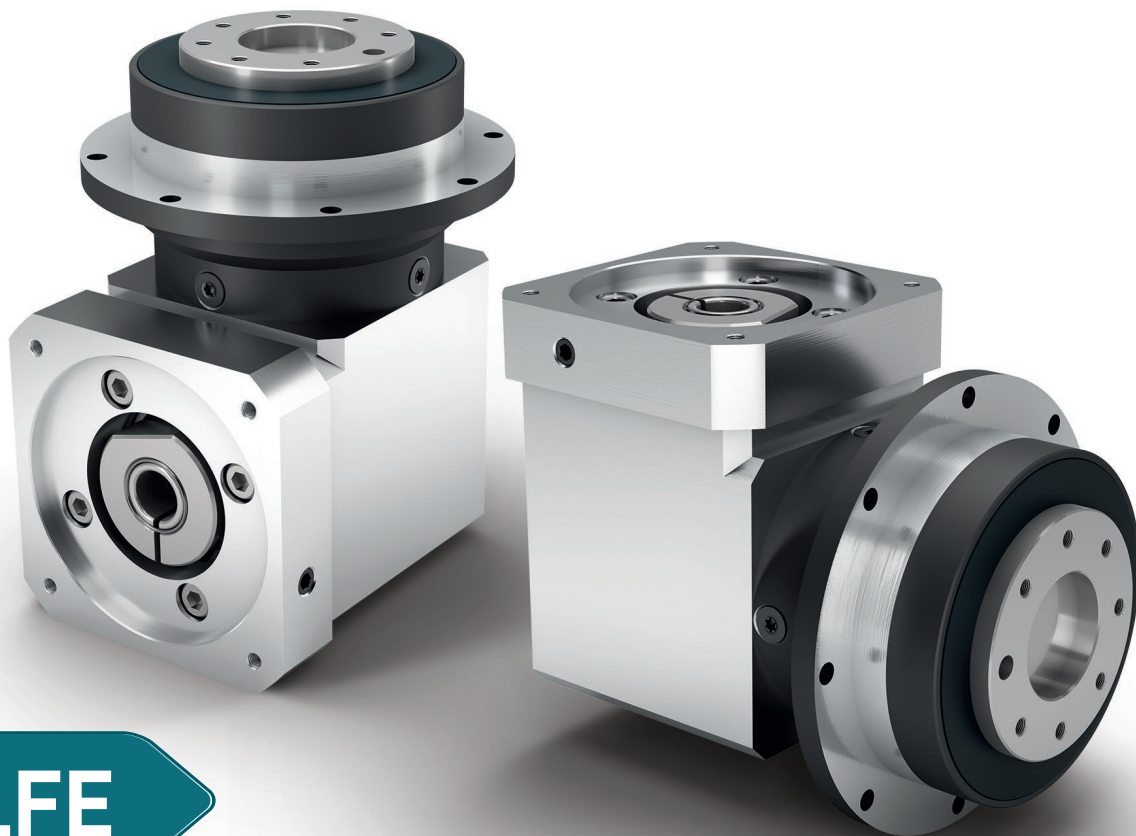




WPLFE

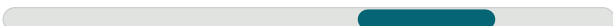
The shortest right angle planetary gearbox with flange output shaft and maximum torsional stiffness

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

Nominal output torque **14 - 260 Nm**



Torsional backlash **11 - 18 arcmin**



Tilting moment **12 - 109 Nm**



Protection class **IP54**

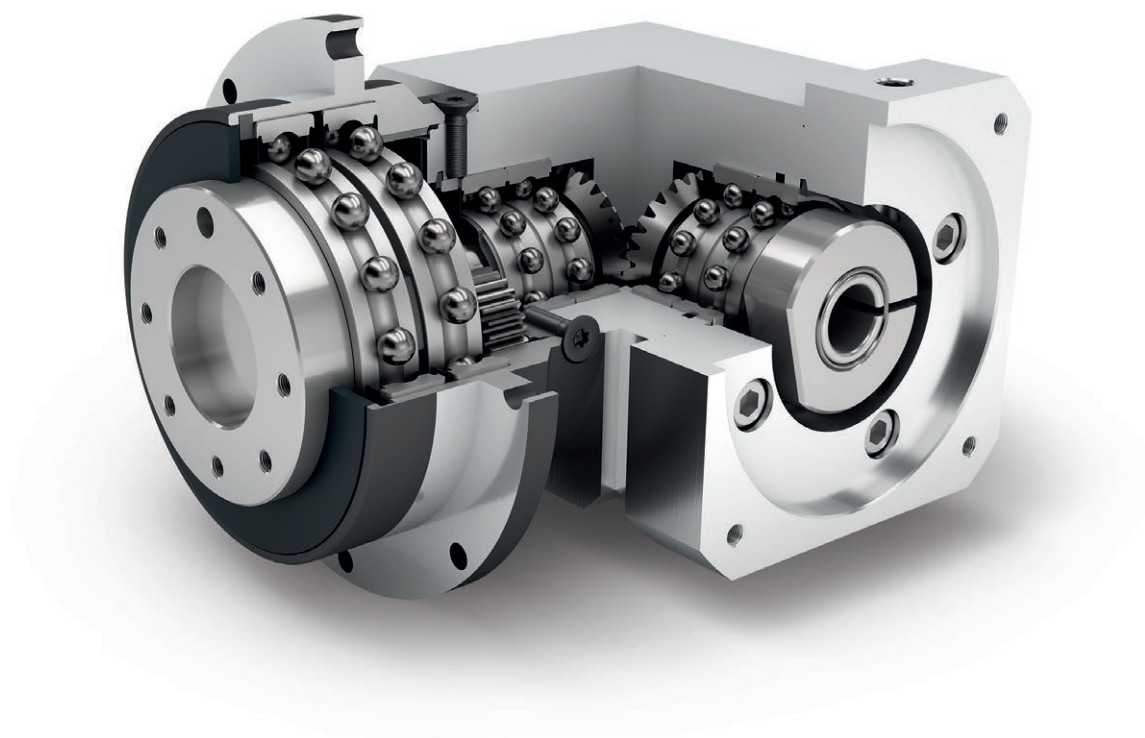


Frame sizes

64

90

110



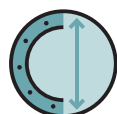
Economy Line



Right angle gearbox



Spur gear



Extra large round type output flange



Flange output shaft (ISO 9409)



Equidirectional rotation



Bevel gear right angle stage



Low-friction deep groove ball bearings



Planet carrier in disc design

Code	Gearbox characteristics			WPLFE064	WPLFE090	WPLFE110	p ⁽¹⁾
	Service life (L _{10h})	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		IP54				
S	Standard lubrication		Grease (lifetime lubrication)				
F	Food grade lubrication		Grease (lifetime lubrication)				
L	Low temperature lubrication ⁽³⁾		Grease (lifetime lubrication)				
	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 _t .in/ arcmin)	2.9 - 6.2 (26 - 55)	5.8 - 17.5 (51 - 155)	15.9 - 40.5 (141 - 358)	1
					4.9 - 9.9 (43 - 88)	14.3 - 29.5 (127 - 261)	26.0 - 69.0 (230 - 611)
	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)
S	Standard surface			Housing: Steel – heat-treated 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 _t .in)	5 (44)	10.5 (93)	26 (230)	

Output shaft loads			WPLFE064	WPLFE090	WPLFE110	p ⁽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 (674)	3300 (742)	
Radial force for 30,000 h ⁽⁶⁾⁽⁷⁾	F _{r 30,000 h}		500 (112)	1200 (270)	2100 (472)	
Axial force for 30,000 h ⁽⁶⁾⁽⁷⁾	F _{a 30,000 h}		1200 (270)	3000 (674)	3300 (742)	
Maximum radial force ⁽⁷⁾⁽⁸⁾	F _{r Stat}		900 (202)	2200 (495)	3800 (854)	
Maximum axial force ⁽⁷⁾⁽⁸⁾	F _{a Stat}		1200 (270)	3300 (742)	5200 (1169)	
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	p ⁽¹⁾
Mass moment of inertia ⁽²⁾	J	kgcm ² (lb _f .in.s ² 10 ⁻⁴)	0.228 - 0.439 (2.018 - 3.885)	0.957 - 1.783 (8.470 - 15.781)	1.926 - 3.914 (17.047 - 34.642)	1
			0.220 - 0.359 (1.947 - 3.177)	0.909 - 1.286 (8.045 - 11.382)	1.819 - 2.892 (16.100 - 25.596)	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. Optimal operating temperature max. 50°C

⁽⁴⁾ Sound pressure level from 1 m, measured on input running at n_i=3000 rpm no load; i=5

⁽⁵⁾ Max. motor weight* in kg = 0.2 × 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 n₂=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⁾	p ⁽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=n₁/n₂)

⁽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 142

Output torques			WPLFE064	WPLFE090	WPLFE110	i ⁽¹⁾	p ⁽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⁾	p ⁽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=n₁/n₂)

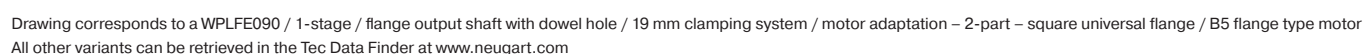
⁽²⁾ Number of stages

⁽³⁾ Permitted 1000 times

⁽⁴⁾ Application-specific speed configurations with NCP – www.neugart.com

⁽⁵⁾ See page 142 for the definition

⁽⁶⁾ Average thermal input speed at 50% T_{2N} and S1

WPLFE

(2) Number of stages