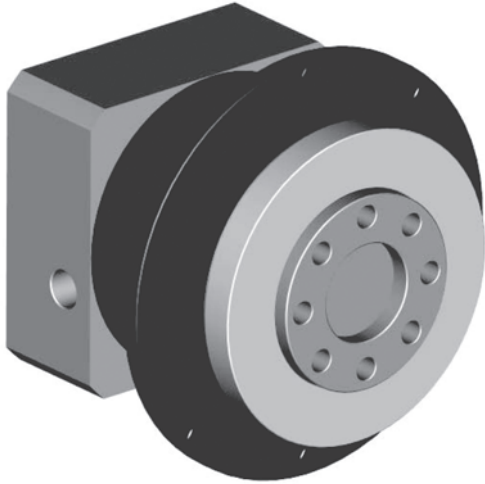


PLFE

In-Line Planetary Servo Gearhead
With EN ISO 9409 Rotating Output Flange



PLFE 64, 90,110

**Compact, planetary servo gearhead with rotating disc output according to the EN ISO 9409
“Standard for Mechanical Interfaces for Manipulating Industrial Robots in Automation”**

Compact, high stiffness, high torque density solution for automation tasks. Flexible motor mounting via PCS clamping arrangement.

Nominal-Rated Torque ⁽¹⁾ ◇ Torque permissible 30000 output shaft rotations ⁽²⁾			Ratio	Stages ⁽³⁾
<i>PLFE 64</i>	<i>PLFE 90</i>	<i>PLFE 110</i>		
28 (245) ◇ 45 (398)	85(752) ◇ 136 (1203)	115 (1018) ◇ 184 (1628)	3	1
38 (336) ◇ 61 (540)	115 (1018) ◇ 184 (1628)	155 (1372) ◇ 248 (2531)	4	1
40 (354) ◇ 64 (566)	110 (973) ◇ 176 (1558)	195 (1726) ◇ 312 (2761)	5	1
18 (160) ◇ 29 (256)	50 (442) ◇ 80 (708)	120 (1062) ◇ 192 (1699)	8	1
44 (389) ◇ 70 (619)	130 (1150) ◇ 208 (1840)	240 (2124) ◇ 384 (3398)	9	2
44 (389) ◇ 70 (619)	120 (1062) ◇ 192 (1699)	260 (2301) ◇ 416 (3681)	12	2
44 (389) ◇ 70 (619)	110 (973) ◇ 176 (1558)	230 (2035) ◇ 368 (3257)	15	2
44 (389) ◇ 70 (619)	120 (1062) ◇ 192 (1699)	260 (2301) ◇ 416 (3681)	16	2
44 (389) ◇ 70 (619)	120 (1062) ◇ 192 (1699)	260 (2301) ◇ 416 (3681)	20	2
40 (354) ◇ 64 (566)	110 (973) ◇ 176 (1558)	230 (2035) ◇ 368 (3257)	25	2
44 (389) ◇ 70 (619)	120 (1062) ◇ 192 (1699)	260 (2301) ◇ 416 (3681)	32	2
40 (354) ◇ 64 (566)	110 (973) ◇ 176 (1558)	230 (2035) ◇ 368 (3257)	40	2
18 (159) ◇ 29 (256)	50 (442) ◇ 80 (708)	120 (1062) ◇ 192 (1699)	64	2

(1) Continuous duty-rated torque, at uniform load, 30000 hrs L10 design life, at 100 rpm output shaft speed
 (2) Maximum torque allowable for 30000 output shaft rotations
 (3) Number of planetary reduction stages

Emergency Stop / Short-Term Peak Torque

200% of the continuous duty-rated torque. The gearbox will withstand this torque only for a few thousand load cycles.
-Torques at this magnitude should not be part of the normal operating cycle!



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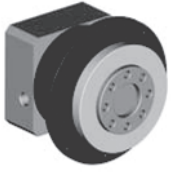
Efficiency, Stiffness, Backlash, Radial / Axial Loads, Speeds



Design life • Emergency peak torque • IP class • Efficiency • Backlash • Stiffness •				
		PLFE 64	PLFE 90	PLFE 110
Design Life (L10 Life)	hrs	30000 hrs		
Emergency Stop Peak torque		200% of the continuous duty-rated torque. The gearbox will withstand this torque only a very limited time (about 500 to 1000 times during the life of the gearbox). -Torques at this magnitude should not be part of the standard operating cycle!		
IP protection class		IP 54 / 55		
Full load efficiency	%	96 %		
	1-stage	94 %		
Rotational Backlash ⁽¹⁾	1-stage	<16	<9	<8
	(arc.min)	<20	<14	<12
Torsional Stiffness	1-stage	18 (159)	34 (301)	93 (823)
	Nm/arc.min (lbin /arc.min)	12 (106)	25 (221)	68 (602)
(1) Maximum value of the rotational backlash measured at the output in arc minutes (1 arc min = 1 angular min). Average backlash is approximately 25% smaller than the listed worst-case value.				

Gearhead Weight • Recommended Maximum Unsupported Motor Weight • Operating Temperatures • Lubrication • Mounting Positions •				
Gearhead Weight	kg (lb)	1.1 (2.4)	2.9 (6.4)	7.0 (15.4)
	1-stage	1.5 (3.1)	3.3 (7.3)	9.0 (19.8)
Max. Unsupported Motor Weight ⁽²⁾	kg (lb)	3.5 (7.7)	9 (19.8)	16 (35.2)
Operating Temperature ⁽³⁾	°C (°F)	-25 (-13)		
	Minimum	+90 (194)		
Maximum				
Lubrication		Lubricated for life with semi-fluid synthetic grease <i>Kluberplex BEM 34-132</i> (Kluber Lubrication LP, - www.kluber.com)		
Mounting Positions		Any mounting position permissible without change of lubrication.		
(2) For horizontal mounting position (support recommended if motor weight exceeds the given value)				
(3) Measured at the middle of the gearbox main body				

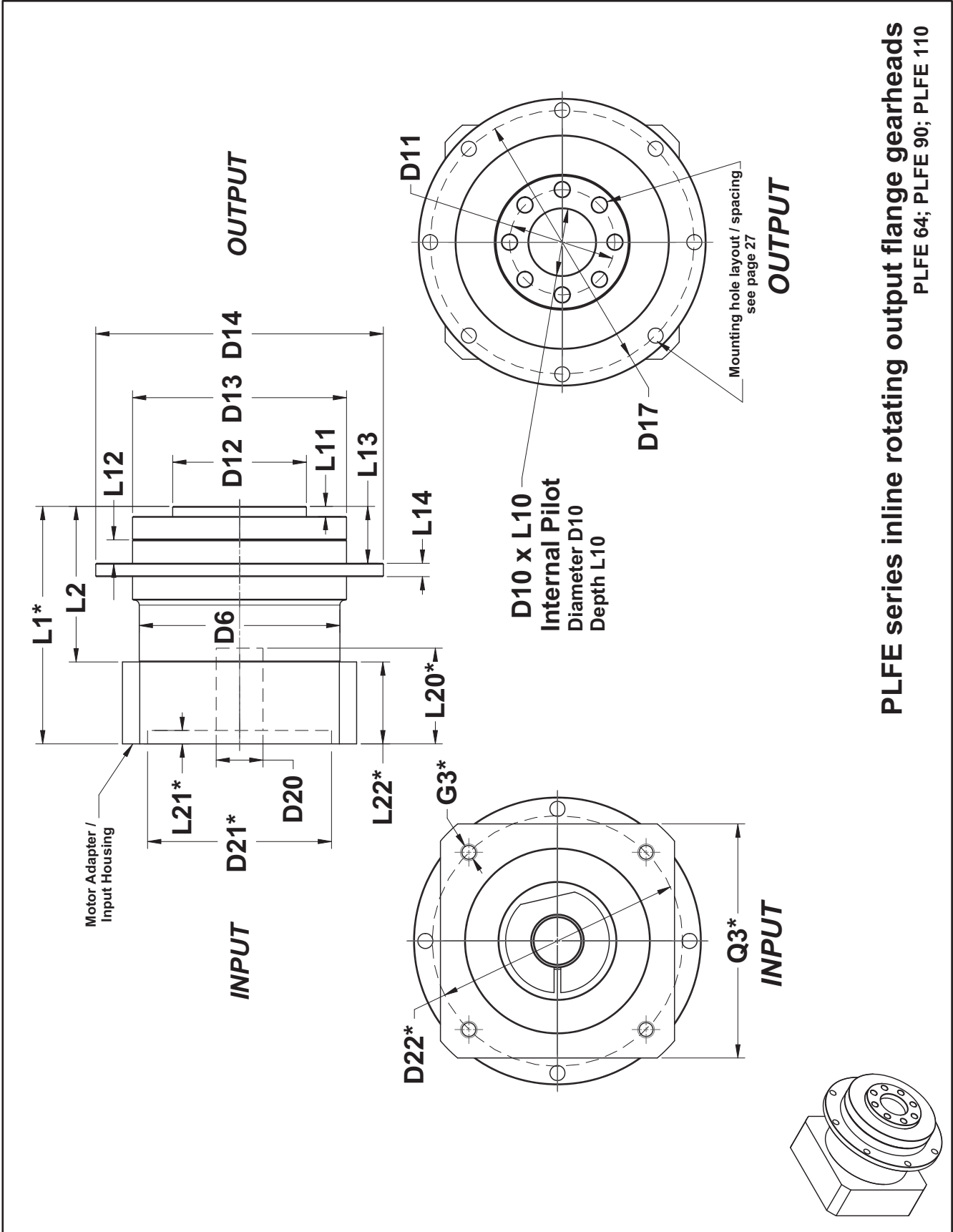
Permissible Output Shaft Radial and Axial loads • Input Speeds • Noise Level •				
Radial Load ⁽¹⁾	N (lb)	550 (124)	1400 (315)	2400 (540)
Axial Load ⁽¹⁾	N (lb)	1200 (270)	3000 (675)	3300 (742)
Max. Peak Input Speed	rpm	13000	7000	6500
Continuous Input Speed	rpm	any rpm as long as the gearbox temperature does not exceed +90 °C (194 °F)		
Noise Level ⁽²⁾	dBA	58	60	65
(1) Based on 20000 hrs. L10 life, 100 rpm mean output speed, radial load at shaft midpoint. (Detailed bearing life calculation utility is available at www.neugartusa.com or contact Neugart USA with the application data.)				
(2) Sound pressure level measured at 3 000 rpm, no load, at 1m distance from the gearbox.				



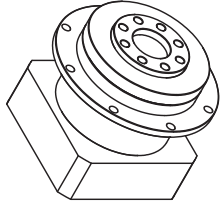
PLFE

In-Line Planetary Servo Gearhead

With EN ISO 9409 Rotating Output Flange



PLFE series inline rotating output flange gearheads
 PLFE 64; PLFE 90; PLFE 110





PLFE

In-Line Planetary Servo Gearhead

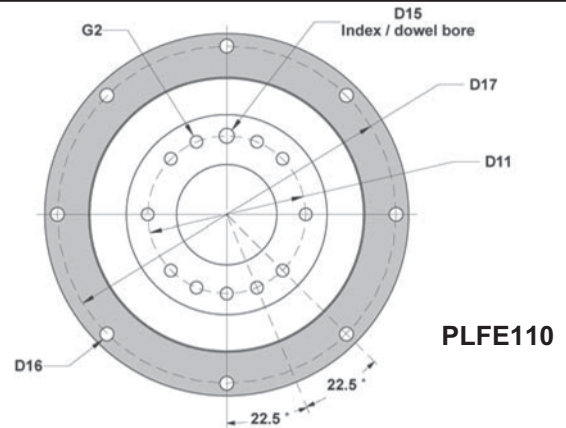
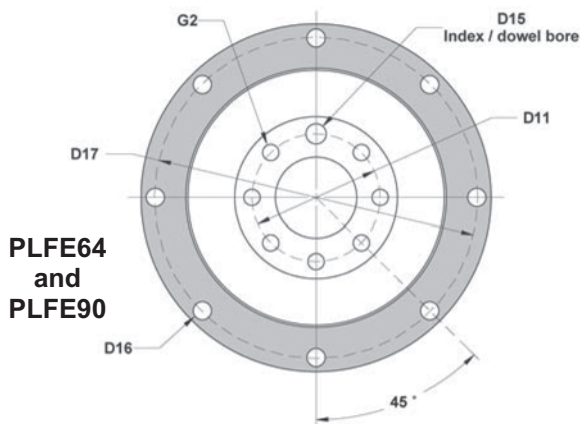
With EN ISO 9409 Rotating OUTPUT Flange Dimensions



Dimensions mm (inch)	Tol.	PLFE 64	PLFE 90	PLFE 110
D6 Gearhead body diameter		60 (2.362) / 64 (2.520)	80 (3.150) / 92 (3.622)	115 (4.528)
D10 Rotating flange pilot BORE diameter	h7	20 (0.787)	31.5 (1.240)	40 (1.575)
D12 Rotating flange OUTSIDE diameter	h7	40 (1.575)	63 (2.480)	80 (3.150)
D13 Stationary flange pilot diameter	h7	64 (2.519)	90 (3.543)	110 (4.331)
D14 Stationary (outer) flange OD		86 (3.386)	118 (4.646)	145 (5.709)
D20 Maximum input pinion bore ⁽¹⁾		14 (0.551)	19 (0.748)	24 (0.945)
L2 Gearhead body length	1-Stage	45 (1.772)	65.5 (2.579)	77.5 (3.051)
	2-Stage	57.5 (2.264)	83 (3.268)	104.5 (4.114)
L10 Rotating flange pilot BORE depth		4 (0.157)	6 (0.236)	6 (0.236)
L11 Rotating flange (OD) pilot length		3 (0.118)	6 (0.236)	6 (0.236)
L12 Stationary flange pilot length		7 (0.276)	10 (0.394)	10 (0.394)
L13 Length from mounting face		19.5 (0.768)	30 (1.181)	29 (1.142)
L14 Stationary flange thickness		4 (0.157)	7 (0.276)	8 (0.315)
Available standard bushings ⁽¹⁾	mm	6; 6.35; 7; 8; 9; 9.525; 10; 11; 12; 12.7	9.525; 10; 11; 12; 12.7; 14; 15.87; 16	11; 12.7; 14; 15.87; 16; 19; 19.05; 22; 22.22
	Inch	.236; .250; .276; .315; .354; .375; .394; .433; .472; .500	.375; .394; .433; .472; .500; .551; .625; .630	.433; .500; .551; .625; .630; .748; .750; .866; .875

Motor-dependent dimensions:
D21*, D22*, L1*, L20*, L21*, L22*,
G3*, Q3* (L22* length calculation see page 7)

Adapter / Input Housing dimensions and unit overall length depend on motor output geometry.
 A motor-specific adapter / input housing is supplied with every gearhead.



Stationary (Mounting) & Rotating (Output) Flange Bolt Hole Detail	mm (inch)	PLFE 64	PLFE 90	PLFE 110
D11 Rotating flange bolt circle diameter		31.5 (1.240)	50 (1.969)	63 (2.480)
D15 Index / dowel bore diameter x depth		5 x 6 (0.197 x 0.236)	6 x 7 (0.236 x 0.276)	6 x 7 (0.236 x 0.276)
D16 Stationary flange bolt thru hole # / diameter		8 / 4.5 (0.177)	8 / 5.5 (0.217)	8 / 5.5 (0.217)
D17 Stationary flange bolt circle diameter		79 (3.110)	109 (4.291)	135 (5.315)
G2 Rotating flange bolt hole # / M size x depth		7 / M5 x 7	7 / M6 x 10	11 / M6 x 12