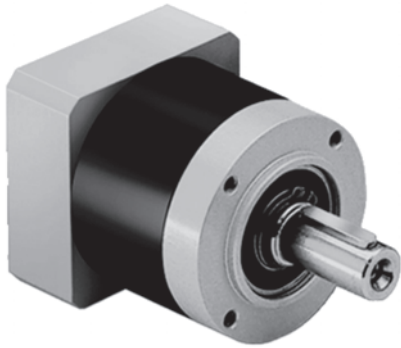
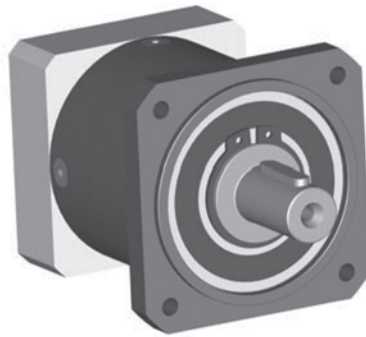


PLE

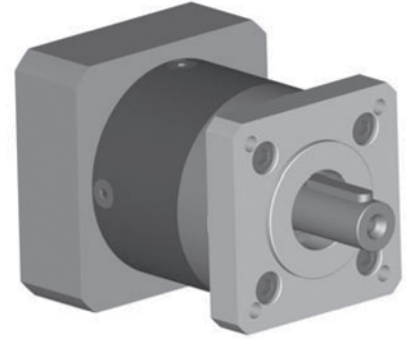
In-Line Planetary Servo Gearhead
Main Configurations, Torque Rating



PLE 40, 60, 80, 120, 160
round output flange with drilled and tapped holes (B14 C-face); keyed output shaft; motor mount via PCS clamping arrangement



PLE 60/70, 80/90, 120/115
Integrated “B5” square output flange; keyed output shaft; motor mount via PCS clamping arrangement



PLE 40, 60, 80, 120,
with bolt-on NEMA output flange; keyed output shaft; motor mount via PCS clamping arrangement

Nominal-Rated Torque ⁽¹⁾ ◇ Torque permissible 30000 output shaft rotations ⁽²⁾					Nm (lbin)	Ratio	⁽³⁾ Stages
PLE 40	PLE 60 PLE60/70	PLE 80 PLE 80/90	PLE 120 PLE 120/115	PLE 160			
11 (97) ◇ 17.6 (155)	28 (245) ◇ 45 (398)	85(752) ◇ 136 (1203)	115 (1018) ◇ 184 (1628)	400 (3540) ◇ 640 (5664)		3	1
15 (133) ◇ 24 (212)	38 (336) ◇ 61 (540)	115 (1018) ◇ 184 (1628)	155 (1372) ◇ 248 (2531)	450 (3982) ◇ 720 (6372)		4	1
14 (124) ◇ 22 (194)	40 (354) ◇ 64 (566)	110 (973) ◇ 176 (1558)	195 (1726) ◇ 312 (2761)	450 (3982) ◇ 720 (6372)		5	1
6 (53) ◇ 10 (88)	18 (160) ◇ 29 (256)	50 (442) ◇ 80 (708)	120 (1062) ◇ 192 (1699)	450 (3982) ◇ 720 (6372)		8	1
16.5 (146) ◇ 26 (230)	44 (389) ◇ 70 (619)	130 (1150) ◇ 208 (1840)	210 (1858) ◇ 336 (2973)	—		9	2
20 (177) ◇ 32 (283)	44 (389) ◇ 70 (619)	120 (1062) ◇ 192 (1699)	260 (2301) ◇ 416 (3681)	800 (7080) ◇ 1280 (11328)		12	2
18 (159) ◇ 29 (256)	44 (389) ◇ 70 (619)	110 (973) ◇ 176 (1558)	230 (2035) ◇ 368 (3257)	700 (6195) ◇ 1120 (9912)		15	2
20 (177) ◇ 32 (283)	44 (389) ◇ 70 (619)	120 (1062) ◇ 192 (1699)	260 (2301) ◇ 416 (3681)	800 (7080) ◇ 1280 (11328)		16	2
20 (177) ◇ 32 (283)	44 (389) ◇ 70 (619)	120 (1062) ◇ 192 (1699)	260 (2301) ◇ 416 (3681)	800 (7080) ◇ 1280 (11328)		20	2
18 (159) ◇ 29 (256)	40 (354) ◇ 64 (566)	110 (973) ◇ 176 (1558)	230 (2035) ◇ 368 (3257)	700 (6195) ◇ 1120 (9912)		25	2
20 (177) ◇ 32 (283)	44 (389) ◇ 70 (619)	120 (1062) ◇ 192 (1699)	260 (2301) ◇ 416 (3681)	800 (7080) ◇ 1280 (11328)		32	2
18 (159) ◇ 29 (256)	40 (354) ◇ 64 (566)	110 (973) ◇ 176 (1558)	230 (2035) ◇ 368 (3257)	700 (6195) ◇ 1120 (9912)		40	2
7.5 (66) ◇ 12 (106)	18 (159) ◇ 29 (256)	50 (442) ◇ 80 (708)	120 (1062) ◇ 192 (1699)	450 (3982) ◇ 720 (6372)		64	2
20 (177) ◇ 32 (283)	44 (389) ◇ 70 (619)	110 (973) ◇ 176 (1558)	260 (2301) ◇ 416 (3681)	—		60	3
20 (177) ◇ 32 (283)	44 (389) ◇ 70 (619)	120 (1062) ◇ 192 (1699)	260 (2301) ◇ 416 (3681)	—		80	3
20 (177) ◇ 32 (283)	44 (389) ◇ 70 (619)	120 (1062) ◇ 192 (1699)	260 (2301) ◇ 416 (3681)	—		100	3
18 (159) ◇ 29 (256)	44 (389) ◇ 70 (619)	110 (973) ◇ 176 (1558)	230 (2035) ◇ 368 (3257)	—		120	3
20 (177) ◇ 32 (283)	44 (389) ◇ 70 (619)	120 (1062) ◇ 192 (1699)	260 (2301) ◇ 416 (3681)	—		160	3
18 (159) ◇ 29 (256)	40 (354) ◇ 64 (566)	110 (973) ◇ 176 (1558)	230 (2035) ◇ 368 (3257)	—		200	3
20 (177) ◇ 32 (283)	44 (389) ◇ 70 (619)	120 (1062) ◇ 192 (1699)	260 (2301) ◇ 416 (3681)	—		256	3
18 (159) ◇ 29 (256)	40 (354) ◇ 64 (566)	110 (973) ◇ 176 (1558)	230 (1035) ◇ 368 (3257)	—		320	3
7.5 (66) ◇ 12 (106)	18 (159) ◇ 29 (256)	50 (442) ◇ 80 (708)	120 (1062) ◇ 192 (1699)	—		512	3

(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.



PLE

In-Line Planetary Servo Gearhead

Design life, Emergency Stop (Peak) Torque, IP class
Efficiency, Backlash, Stiffness, Gearhead Weight, Max Unsupported
Motor Weight, OP-temperature, Lubricant, Mounting Positions



Design life • Emergency peak torque • IP class • Efficiency • Backlash •						
		PLE 40	PLE 60 PLE 60/70	PLE 80 PLE 80/90	PLE 120 PLE 120/115	PLE 160
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	%					
	1-stage	96 %				
	2-stage	94 %				
	3-stage	90%				
Rotational Backlash ⁽¹⁾ (arc.min)	1-stage	<24	<16	<9	<8	<6
	2-stage	<28	<20	<14	<12	<10
	3-stage	<30	<22	<16	<14	—
(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.						

Torsional (Rotational) Stiffness • Gearhead Weight • Recommended Maximum Unsupported Motor Weight • Operating Temperatures • Lubrication • Mounting Positions •						
		PLE 40	PLE 60 PLE 60/70	PLE 80 PLE 80/90	PLE 120 PLE 120/115	PLE 160
Torsional (Rotational) Stiffness ⁽¹⁾ Nm/arc.min (lbin /arc.min)	1-stage	1 (8.85)	2.3 (20)	6 (53)	12 (106)	38 (336)
	2-stage	1.1 (9.7)	2.5 (22)	6.5 (57)	13 (115)	41 (362)
	3-stage	1.0 (8.85)	2.5 (22)	6.3 (55)	12 (106)	—
Gearhead Weight	kg (lb)					
	1-stage	0.35 (0.77)	0.9 (1.9) 1.1 (2.4)	2.1 (4.6) 3.2 (7.2)	6.0 (13.2) 6.6 (14.8)	18 (39.6)
	2-stage	0.45 (0.99)	1.1 (2.4) 1.3 (2.8)	2.6 (5.7) 3.7 (8.1)	8.0 (17.6) 8.6 (18.9)	22 (48.5)
	3-stage	0.55 (1.2)	1.3 (2.8) 1.5 (3.3)	3.1 (6.8) 4.2 (9.2)	10.0 (22) 10.6 (23.3)	—
Max. Unsupported Motor Weight ⁽²⁾	kg (lb)	2 (4.4)	3.5 (7.7)	9 (19.8)	16 (35.2)	50 (110)
Operating Temperature ⁽³⁾	°C (°F)					
	Minimum	-25 (-13)				
	Maximum	+90 (194)				
Lubrication	Lubricated for life with semi-fluid synthetic grease <i>Klüberplex BEM 34-132</i> (<i>Klüber Lubrication LP, - www.kluber.com</i>)					
Mounting Positions	Any mounting position permissible without change of lubrication					
(1) Measured at the output shaft						
(2) For horizontal mounting position (support recommended if motor weight exceeds the given value)						
(3) Measured at the middle of the gearbox main body						



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In-Line Planetary Servo Gearhead

Radial / Axial Loads, Input Speeds, Noise Level, Inertias



Output Shaft Radial and Axial Loads • Input Speeds • Noise Level •						
		PLE 40	PLE 60 PLE 60/70	PLE 80 PLE 80/90	PLE 120 PLE 120/115	PLE 160
Output shaft radial load ⁽¹⁾ (at 10000 hrs L10 and 100 output shaft rpm)	<i>N (lb)</i>	200 (44)	500 (112) 1000 (224)	950 (213) 2500 (562)	2000 (449) 3500 (786)	6000 (1349)
Output shaft axial load (at 10000 hrs L10 and 100 output shaft rpm)	<i>N (lb)</i>	200 (44)	600 (134) 1200 (269)	1200 (269) 2800 (629)	2800 (629) 2800 (629)	8000 (1798)
Output shaft radial load ⁽¹⁾ (at 30000 hrs L10 and 100 output shaft rpm)	<i>N (lb)</i>	160 (36)	340 (77) 700 (158)	650 (146) 1700 (383)	1500 (338) 2400 (540)	4200 (945)
Output shaft axial load (at 30000 hrs L10 and 100 output shaft rpm)	<i>N (lb)</i>	160 (36)	450 (101) 800 (180)	900 (203) 2000 (450)	2100 (473) 2100 (473)	6000 (1350)
Max input speed	<i>rpm</i>	18000	13000	7000	6500	6500
Continuous / average input speed	<i>rpm</i>	any rpm as long as the gearbox temperature does not exceed +90 °C (194 °F)				
Noise level ⁽²⁾	<i>dBA</i>	58	58	60	65	70
<p>(1) Radial load at shaft midpoint. <i>(Detailed bearing life calculation utility is available at www.neugartusa.com or contact Neugart USA with the application data.)</i></p> <p>(2) Sound pressure level measured at 3000 rpm, no load, 1m distance from the gearbox.</p>						

Standard Motor Mount Gearhead Moment of Inertia (at the input)					<i>kgcm²</i>	<i>(lbin.sec² 10⁻⁴)</i>
PLE 40	PLE 60 & 60/70	PLE 80 & 80/90	PLE 120 & 120/115	PLE 160	Ratio	Stages
0.031 (0.27)	0.135 (1.19)	0.77 (6.8)	2.63 (23.2)	12.14 (107.4)	3	1
0.022 (0.19)	0.093 (0.82)	0.52 (4.6)	1.79 (15.8)	7.78 (68.8)	4	1
0.019 (0.16)	0.078 (0.69)	0.45 (3.9)	1.53 (13.5)	6.07 (53.7)	5	1
0.017 (0.15)	0.065 (0.57)	0.39 (3.4)	1.32 (11.6)	4.63 (40.9)	8	1
0.03 (0.26)	0.131 (1.15)	0.74 (6.54)	2.62 (23.1)	—	9	2
0.029 (0.25)	0.127 (1.12)	0.72 (6.3)	2.56 (22.6)	12.37 (109)	12	2
0.023 (0.2)	0.077 (0.68)	0.71 (6.28)	2.53 (22.3)	12.35 (109)	15	2
0.022 (0.19)	0.088 (0.77)	0.5 (4.4)	1.75 (15.4)	7.47 (66)	16	2
0.019 (0.16)	0.075 (0.66)	0.44 (3.8)	1.5 (13.2)	6.65 (58.8)	20	2
0.019 (0.16)	0.075 (0.66)	0.44 (3.8)	1.49 (13.1)	5.81 (51.4)	25	2
0.017 (0.15)	0.064 (0.56)	0.39 (3.4)	1.3 (11.5)	6.36 (56.2)	32	2
0.016 (0.14)	0.064 (0.56)	0.39 (3.4)	1.3 (11.5)	5.28 (46.7)	40	2
0.016 (0.14)	0.064 (0.56)	0.39 (3.4)	1.3 (11.5)	4.5 (39.8)	64	2
0.029 (0.25)	0.076 (0.67)	0.51 (4.5)	2.57 (22.7)	—	60	3
0.019 (0.16)	0.075 (0.66)	0.5 (4.4)	1.5 (13.2)	—	80	3
0.019 (0.16)	0.075 (0.66)	0.44 (3.8)	1.49 (13.1)	—	100	3
0.029 (0.25)	0.064 (0.56)	0.7 (6.1)	2.5 (22.1)	—	120	3
0.016 (0.14)	0.064 (0.56)	0.39 (3.45)	1.3 (11.5)	—	160	3
0.016 (0.14)	0.064 (0.56)	0.39 (3.45)	1.3 (11.5)	—	200	3
0.016 (0.14)	0.064 (0.56)	0.39 (3.45)	1.3 (11.5)	—	256	3
0.016 (0.14)	0.064 (0.56)	0.39 (3.45)	1.3 (11.5)	—	320	3
0.016 (0.14)	0.064 (0.56)	0.39 (3.45)	1.3 (11.5)	—	512	3



PLE

In-Line Planetary Servo Gearhead

OP1 Inertias, Ordering (Type) Code



PLE Gearhead with solid input shaft (OP1) Moment of Inertia (at the input)					$kgcm^2$ ($lbin.sec^2 10^{-4}$)	
PLE 40	PLE 60 & 60/70	PLE 80 & 80/90	PLE 120 & 120/115	PLE 160	Ratio	Stages
0.018 (0.159)	0.080 (0.708)	0.73 (6.46)	2.30 (20.3)	17.00 (150.4)	3	1
0.010 (0.088)	0.048 (0.425)	0.35 (3.09)	1.85 (16.3)	12.50 (110.6)	4	1
0.006 (0.053)	0.037 (0.327)	0.24 (2.12)	1.42 (12.5)	11.00 (97.3)	5	1
0.005 (0.044)	0.027 (0.239)	0.18 (1.59)	1.40 (12.4)	9.50 (84.0)	8	1
0.017 (0.150)	0.087 (0.769)	0.73 (6.46)	2.50 (22.1)	—	9	2
0.016 (0.141)	0.085 (0.752)	0.36 (3.18)	2.40 (21.2)	17.00 (150.4)	12	2
0.015 (0.132)	0.039 (0.345)	0.72 (6.37)	2.40 (21.2)	17.00 (150.4)	15	2
0.009 (0.079)	0.049 (0.433)	0.35 (3.09)	1.65 (14.6)	12.30 (108.8)	16	2
0.007 (0.062)	0.039 (0.345)	0.25 (2.21)	1.60 (14.1)	11.70 (103.5)	20	2
0.007 (0.062)	0.038 (0.336)	0.25 (2.21)	1.40 (12.4)	10.80 (95.6)	25	2
0.005 (0.044)	0.027 (0.239)	0.18 (1.59)	1.40 (12.4)	11.40 (100.9)	32	2
0.005 (0.044)	0.027 (0.239)	0.18 (1.59)	1.30 (11.5)	10.30 (91.1)	40	2
0.005 (0.044)	0.025 (0.221)	0.16 (1.41)	1.30 (11.5)	9.50 (84.0)	64	2
0.015 (0.132)	0.039 (0.345)	0.35 (3.09)	2.20 (19.4)	—	60	3
0.007 (0.062)	0.039 (0.345)	0.28 (2.47)	1.60 (14.1)	—	80	3
0.007 (0.062)	0.039 (0.345)	0.25 (2.21)	1.40 (12.4)	—	100	3
0.013 (0.115)	0.016 (0.141)	0.7 (6.2)	2.20 (19.4)	—	120	3
0.005 (0.044)	0.016 (0.141)	0.18 (1.59)	1.50 (13.2)	—	160	3
0.005 (0.044)	0.016 (0.141)	0.18 (1.59)	1.30 (11.5)	—	200	3
0.005 (0.044)	0.016 (0.141)	0.18 (1.59)	1.30 (11.5)	—	256	3
0.005 (0.044)	0.016 (0.141)	0.16 (1.41)	1.20 (10.6)	—	320	3
0.005 (0.044)	0.016 (0.141)	0.16 (1.41)	1.20 (10.6)	—	512	3

- Ordering (Type) Code -

PLE 120 - 08 / MOTOR - OP8

Gearbox Type - **PLE**
Size:
40
60
60/70
80
80/90
120
120/115
160

Reduction Ratio
3, 4, 5, 8, 9, 12,
15, 16, 20, 25, 32,
40, 64, 60, 80,
100, 120, 160, 200,
256, 320, 512,

MOTOR description
Manufacturer, Type and
Size
or
Motor shaft diameter/
Motor shaft length/
Pilot diameter/
Bolt circle diameter/
Bolt hole diameter

Requested Options
OP1 -Free solid input shaft
OP8 -Custom shaft
OP12 -ATEX explosion
proof certificate
LS -Food-grade grease
EP -Epoxy paint

Example: **PLE 120-08 / AC Servo Motor XYZ-OP1**

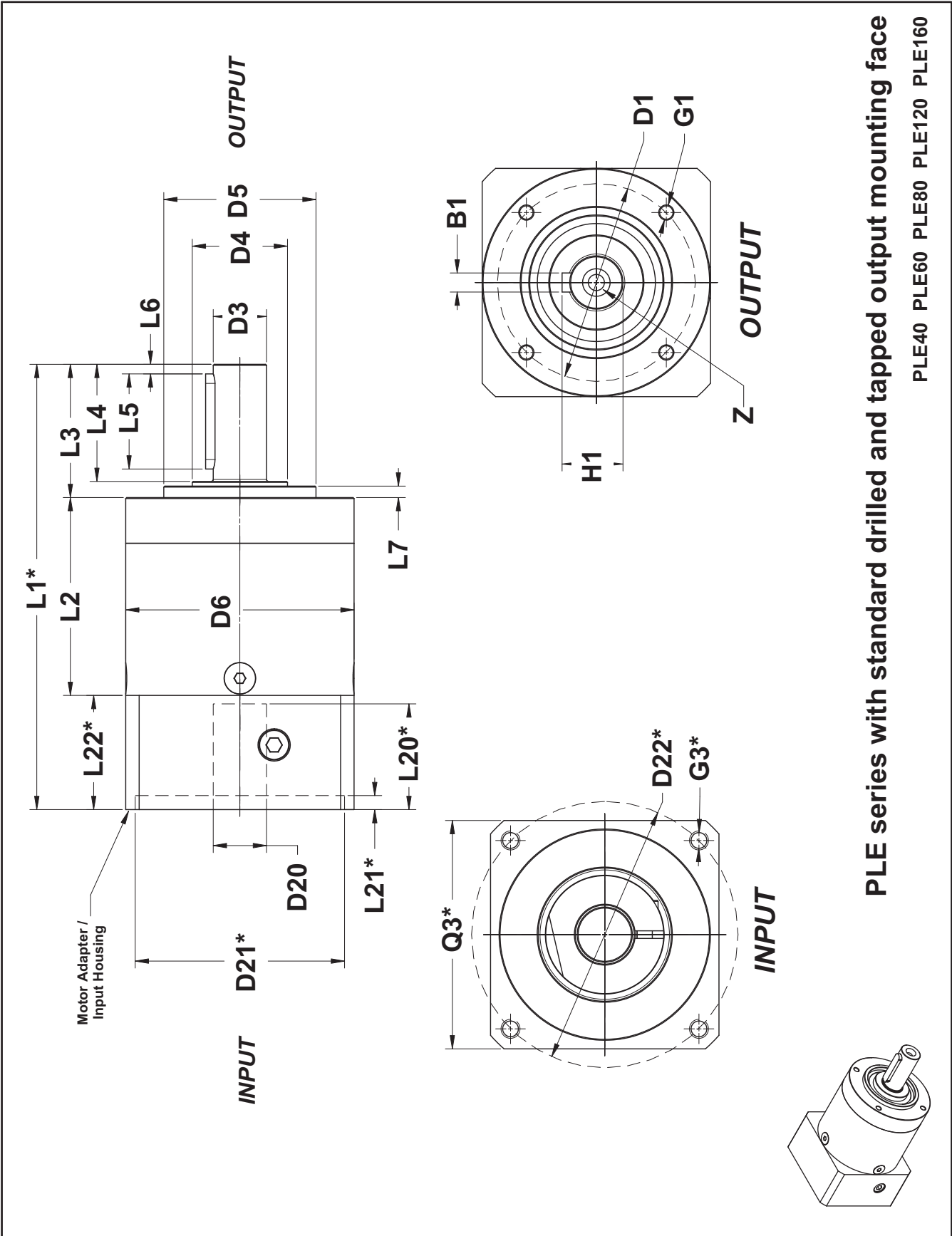
NOTE : In case motor description (Manufacturer, Type, Size) is not available submit following motor dimensions:
Motor Shaft Diameter / Motor Shaft Length / Motor Flange Pilot (Centering) Diameter /
Motor Flange Pilot Length / Motor Flange Bolt Circle Diameter / Motor Flange Bolt Hole Diameter



PLE

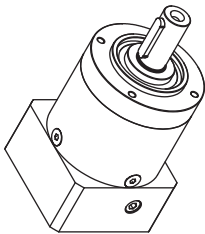
In-Line Planetary Servo Gearhead

Standard Configuration with Tapped Mounting Holes



PLE series with standard drilled and tapped output mounting face

PLE40 PLE60 PLE80 PLE120 PLE160





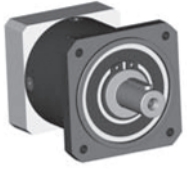
PLE

In-Line Planetary Servo Gearhead



Standard Configuration with Tapped Mounting Holes

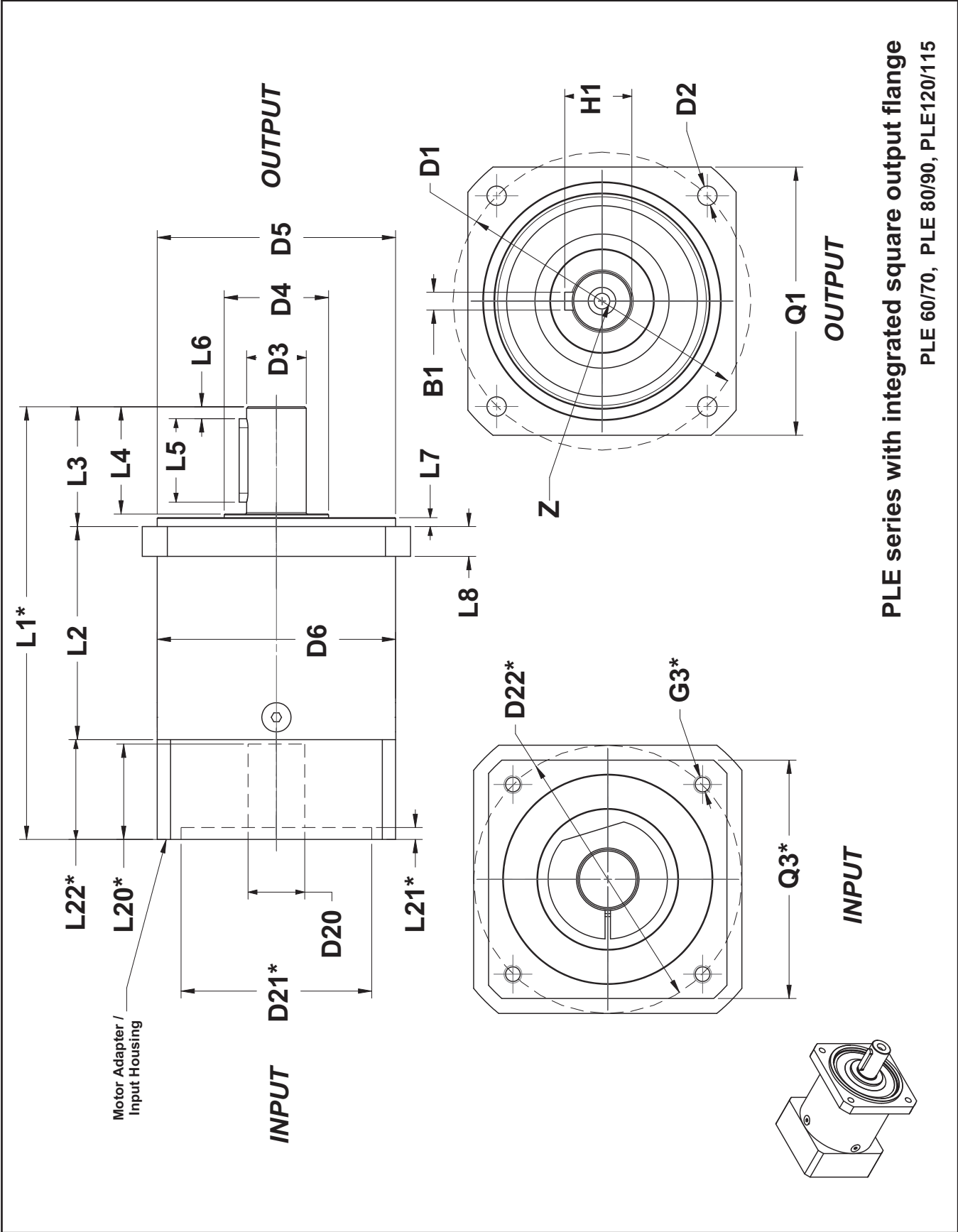
DIMENSIONS mm (in.)	Tol./#	PLE 40	PLE 60	PLE 80	PLE 120	PLE 160
D1 Output flange bolt circle		34 (1.338)	52 (2.047)	70 (2.755)	100 (3.937)	145 (5.708)
D3 Output shaft diameter	h7	10 (0.393)	14 (0.551)	20 (0.787)	25 (0.984)	40 (1.574)
D4 Shaft collar diameter		12 (0.472)	17 (0.669)	25 (0.984)	35 (1.377)	55 (2.165)
D5 Output flange pilot diameter	h7	26 (1.023)	40 (1.574)	60 (2.362)	80 (3.149)	130 (5.118)
D6 Housing diameter		40 (1.574)	60 (2.362)	80 (3.149)	115 (4.527)	160 (6.299)
G1 Output flange M thread x depth	4	M4 x 6	M5 x 8	M6 x 10	M10 x 16	M12 x 20
L2 Main housing length	1-Stage	39 (1.535)	47 (1.850)	60 (2.362)	74 (2.913)	104 (4.094)
	2-Stage	52 (2.04)	59 (2.322)	77.5 (3.051)	101 (3.976)	153.5 (6.043)
	3-Stage	64.5 (2.539)	72 (2.834)	95 (3.740)	128 (5.039)	—
L3 Shaft length (from mounting face)		26 (1.023)	35 (1.377)	40 (1.574)	55 (2.165)	87 (3.425)
L4 Shaft length (from collar)		23 (0.905)	30 (1.181)	36 (1.417)	50 (1.968)	80 (3.149)
L5 Key length		18 (0.708)	25 (0.984)	28 (1.102)	40 (1.574)	65 (2.559)
L6 Key location from shaft end		2.5 (0.098)	2.5 (0.098)	4 (0.157)	5 (0.196)	8 (0.314)
L7 Pilot length		2 (0.078)	3 (0.118)	3 (0.118)	4 (0.157)	5 (0.196)
B1 Key width		3 (0.118)	5 (0.196)	6 (0.236)	8 (0.314)	12 (0.472)
H1 Key + shaft height		11.2 (0.440)	16 (0.629)	22.5 (0.885)	28 (1.102)	43 (1.692)
Z Output shaft M thread x depth		M3 x 9	M5 x 12	M6 x 16	M10 x 22	M16 x 36
D20 Max. input bore ⁽¹⁾ standard / custom		8 (0.315) / 11 (0.433)	14 (0.551) / 19 (0.748)	19 (0.748) / 24 (0.945)	24 (0.945) / 35 (1.378)	35 (1.378) / --
Available standard bushings ⁽¹⁾	mm	4; 5; 6; 6.35	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; 15.875; 16; 19; 19.05; 22; 22.22	19; 22; 24; 28; 28.575; 32
	inch	.157; .196; .236; .250	.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	.748; .866; .944; 1.102; 1.125; 1.378
Motor-dependent dimensions: D21*, D22*, L1*, L20*, L21*, L22*, G3*, Q3*	Adapter / Input Housing dimensions and unit overall length depend on motor shaft geometry, motor flange style, and motor flange dimensions. A motor-specific adapter / input housing is supplied with every gearhead.					
L22* - dimension calculation L22* Tolerance: +5 / - 0.0 (+ 0.196 / - 0.0)	Determine L22* calc = motor shaft length + Δ L, if L22* calc ≤ L22* minimum → L22* = L22* minimum + Tolerance if L22* calc > L22* minimum → L22* = L22* calc + Tolerance					
Δ L		3.5 (0.138)	1.5 (0.59)	3.5 (0.138)	7.5 (0.295)	14.5 (0.570)
L22* minimum		28.5 (1.122)	24.5 (0.965)	33.5 (1.319)	47.5 (1.870)	64.5 (2.539)



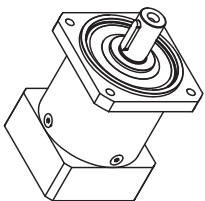
PLE

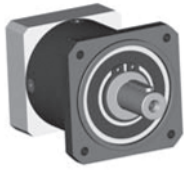
In-Line Planetary Servo Gearhead

With Integrated Square Output Flange



PLE series with integrated square output flange
 PLE 60/70, PLE 80/90, PLE120/115





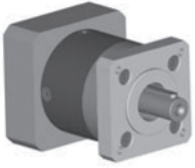
PLE

In-Line Planetary Servo Gearhead

With Integrated Square Output Flange



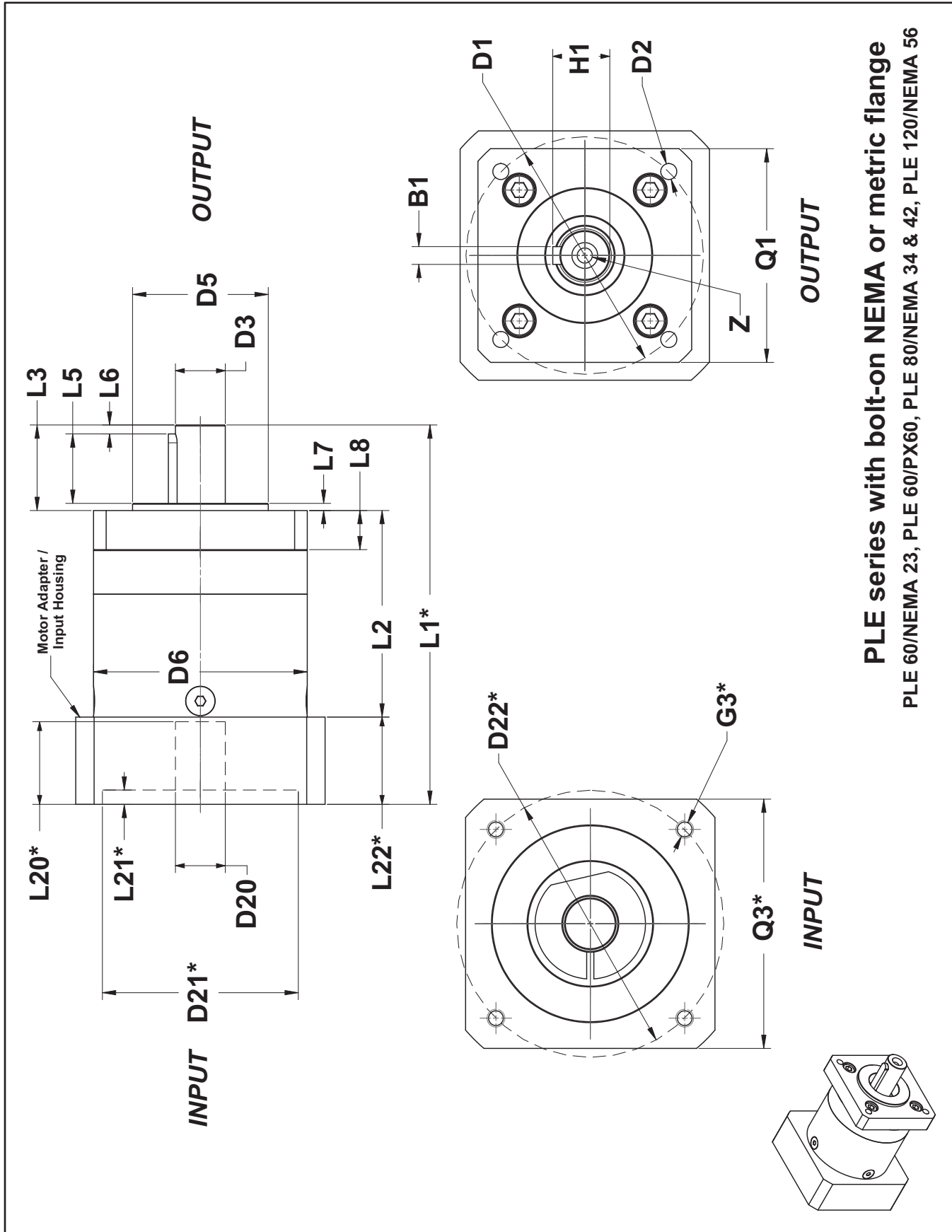
DIMENSIONS mm (in.)		Tol. / #	PLE 60/70	PLE 80/90	PLE 120/115
D1	Output flange bolt circle		75 (2.953)	100 (3.937)	130 (5.118)
D2	Output flange mounting hole diameter	4	5.5 (0.217)	6.5 (0.256)	8.5 (0.334)
D3	Output shaft diameter	h7	16 (0.630)	20 (0.787)	25 (0.984)
D4	Shaft collar diameter		20 (0.787)	35 (1.377)	35 (1.377)
D5	Output flange pilot diameter	h7	60 (2.362)	80 (3.149)	110 (4.330)
D6	Planetary housing diameter		60 (2.362)	80 (3.149)	115 (4.527)
Q1	Output flange - square		70 (2.756)	90 (3.543)	115 (4.527)
L2	Main housing length	1-Stage	55 (2.165)	71.5 (2.814)	99 (3.897)
		2-Stage	67.5 (2.657)	88.5 (3.484)	126 (4.960)
		3-Stage	80 (3.150)	106 (4.173)	153 (6.023)
L3	Output shaft length (from mounting face)		32 (1.260)	40 (1.574)	55 (2.165)
L4	Output shaft length (from collar)		28 (1.102)	36 (1.417)	50 (1.968)
L5	Key length		20 (0.787)	28 (1.102)	40 (1.574)
L6	Key location from shaft end		4 (0.157)	4 (0.157)	5 (0.196)
L7	Output pilot length		3 (0.118)	3 (0.118)	4 (0.157)
L8	Output flange thickness		10 (0.394)	10 (0.394)	15 (0.590)
B1	Key width		5 (0.197)	6 (0.236)	8 (0.314)
H1	Shaft + key height		18 (0.709)	22.5 (0.885)	28 (1.102)
D20	Max. input bore standard / custom		14 (0.551) / 19 (0.748)	19 (0.748) / 24 (0.945)	24 (0.945) / 35 (1.378)
Z	Output shaft M thread x depth		M5 x 12	M6 x 16	M10 x 22
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; 15.875; 16	11; 12.7; 14; 15.875; 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*			Adapter / Input Housing dimensions and unit overall length depend on motor output geometry. A motor-specific adapter / input housing is supplied with every gearhead.		
L22* - dimension calculation L22* Tolerance: +5 / - 0.0 (+ 0.196 / - 0.0)			Determine L22* calc = motor shaft length + Δ L , if L22* calc ≤ L22* minimum → L22* = L22* minimum + Tolerance if L22* calc > L22* minimum → L22* = L22* calc + Tolerance		
Δ L			1.5 (0.59)	3.5 (0.138)	7.5 (0.295)
L22* minimum			24.5 (0.965)	33.5 (1.319)	47.5 (1.870)



PLE

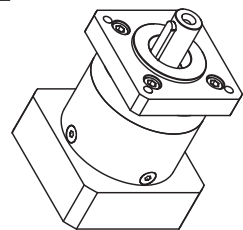
In-Line Planetary Servo Gearhead

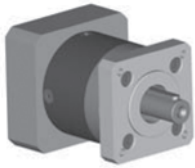
With Bolt-On NEMA or Metric Output Flange



PLE series with bolt-on NEMA or metric flange

PLE 60/NEMA 23, PLE 60/PX60, PLE 80/NEMA 34 & 42, PLE 120/NEMA 56





PLE

In-Line Planetary Servo Gearhead

With Bolt-On Square Output Flange



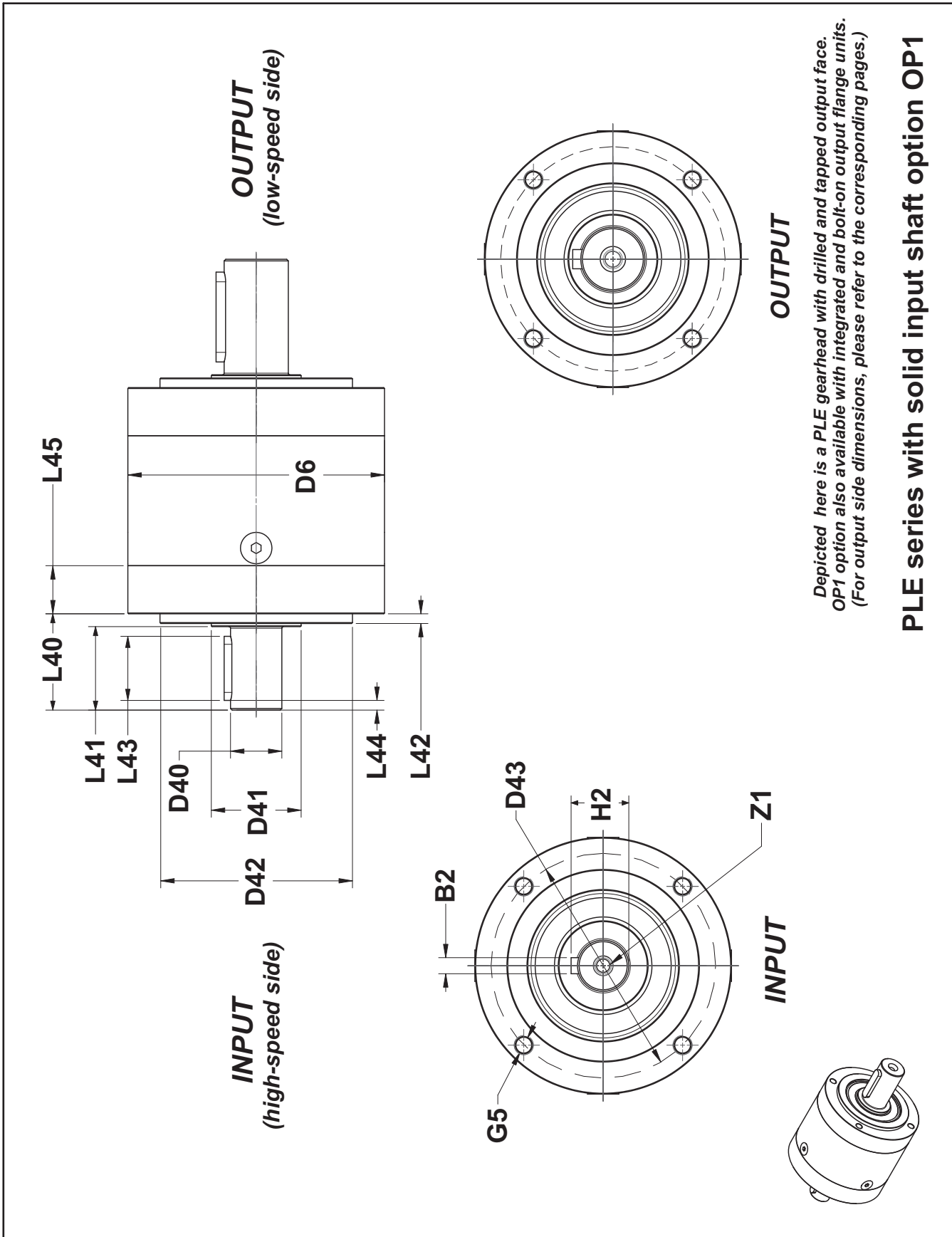
DIMENSIONS mm (in.)		Tol. / #	PLE 60 NEMA 23	PLE 60 PX 60	PLE 80 NEMA 34	PLE 80 NEMA 42	PLE 120 NEMA 56
D1	Output flange bolt circle		66.7 (2.625)	70 (2.756)	98.4 (3.874)	125.7 (4.950)	177.8 (7.0) ⁽¹⁾
D2	Flange mounting hole diameter	4	4.5 (0.177)	5.5 (0.217)	5.5 (0.216)	7.3 (0.287)	10 (0.394)
D3	Output shaft diameter	h7	14 (0.551)	14 (0.551)	20 (0.787)	20 (0.787)	25 (0.984)
D5	Output flange pilot diameter	h7	38.1 (1.5)	50 (1.969)	73 (2.874)	56 (2.204)	114.3 (4.500)
D6	Gearhead body diameter		60 (2.362)	60 (2.362)	80 (3.150)	80 (3.150)	115 (4.528)
Q1	Output Flange - square		60 (2.362)	60 (2.362)	83 (3.267)	110 (4.330)	145 (5.709)
L2	Main housing length	1-Stage	58 (2.283)	58 (2.283)	72.5 (2.854)	73.9 (2.909)	90 (3.543)
		2-Stage	70 (2.755)	70 (2.755)	89.5 (3.523)	90.9 (3.579)	117 (4.606)
		3-Stage	83 (3.267)	83 (3.267)	107 (4.212)	108.4 (4.268)	144 (5.669)
L3	Shaft length (to MOUNTING face) ⁽³⁾		24 (0.944)	25 (0.984)	28 (1.102)	26.6 (1.047)	39 (1.496)
L5	Key length (to PILOT face) ⁽⁴⁾		19.5 (0.768)	21 (0.827)	21 (0.827)	21 (0.827)	29 (1.142)
L6	Key location from shaft end		2.5 (0.098)	2.5 (0.098)	4 (0.157)	4 (0.157)	5 (0.197)
L7	Output pilot length		2 (0.078)	1.5 (0.059)	3 (0.118)	1.6 (0.062)	5 (0.197)
L8	Flange thickness		11 (0.433)	10 (0.394)	12 (0.472)	13.4 (0.527)	16 (0.630)
B1	Key width (DIN 6885)		5 (0.196)	5 (0.196)	6 (0.236)	6 (0.236)	8 (0.314)
H1	Shaft + key height		16 (0.629)	16 (0.629)	22.5 (0.885)	22.5 (0.885)	28 (1.102)
Z	Output shaft tapped hole (DIN 332)		M5 x 12	M5 x 12	M6 x 16	M6 x 16	M10 x 22
D20	Max. input bore ⁽¹⁾ standard / custom		14 (0.551) / 19 (0.748)	14 (0.551) / 19 (0.748)	19 (0.748) / 24 (0.945)	19 (0.748) / 24 (0.945)	24 (0.945) / 35 (1.378)
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*		Adapter / Input Housing dimensions and unit overall length depend on motor output geometry. A motor-specific adapter / input housing is supplied with every gearhead. ⁽¹⁾ NEMA 56 has more than one bolt circle diameter. ⁽³⁾ EFFECTIVE shaft length (ACTUAL shaft length reduced by bolt-on flange thickness). ⁽⁴⁾ EFFECTIVE key length (ACTUAL key length reduced by bolt-on flange thickness).					

L22* - dimension calculation L22* Tolerance: +5 / - 0.0 (+ 0.196 / - 0.0)	Determine L22* calc = motor shaft length + Δ L , if L22* calc ≤ L22* minimum → L22* = L22* minimum + Tolerance if L22* calc > L22* minimum → L22 = L22* calc + Tolerance					
Δ L	1.5 (0.59)	1.5 (0.59)	3.5 (0.138)	3.5 (0.138)	7.5 (0.295)	
L22* minimum	24.5 (0.965)	24.5 (0.965)	33.5 (1.319)	33.5 (1.319)	47.5 (1.870)	



PLE

With Solid Input Shaft Option OP1





PLE

In-Line Planetary Servo Gearhead

With Solid Input Shaft Option OP1



DIMENSIONS mm (in.)		Tol. / #	PLE 40	PLE 60 PLE 60/70 PLE 60 / NEMA	PLE 80 PLE 80/90 PLE 80 / NEMA	PLE 120 PLE120/115 PLE120/NEMA	PLE 160
D6	Housing Diameter		40 (1.574)	60 (2.362)	80 (3.149)	115 (4.527)	160 (6.299)
D40	Input Shaft diameter	j6	8 (0.314)	10 (0.393)	16 (0.629)	20 (0.787)	35 (1.377)
D41	Shaft collar diameter		12 (0.472)	17 (0.669)	25 (0.984)	35 (1.377)	55 (2.165)
D42	Pilot diameter	h7	26 (1.023)	40 (1.574)	60 (2.362)	80 (3.149)	110 (4.330)
D43	Input face bolt circle		34 (1.338)	52 (2.047)	70 (2.755)	100 (3.937)	130 (5.118)
L40	Shaft length from mounting face		20 (0.787)	28 (1.102)	30 (1.181)	45 (1.771)	65 (2.559)
L41	Shaft length from collar		17 (0.669)	23 (0.905)	26 (1.023)	40 (1.574)	58 (2.283)
L42	Pilot length		2 (0.078)	3 (0.118)	3 (0.118)	4 (0.157)	5 (0.196)
L43	Shaft key length		12 (0.472)	18 (0.708)	20 (0.787)	32 (1.259)	45 (1.771)
L44	Key location from shaft end		2.5 (0.098)	2.5 (0.098)	3 (0.118)	4 (0.157)	7 (0.275)
L45	Input housing length		10.2 (0.041)	12.7 (0.5)	15 (0.590)	31 (1.220)	58 (2.283)
G5	Mounting hole M thread x depth	4	M4 X 6	M5 x 8	M6 x 10	M10 x 16	M10 x 25
B2	Key width (DIN 6885 T1)		2 (0.078)	3 (0.118)	5 (0.196)	6 (0.236)	10 (0.393)
H2	Shaft + key height		8.8 (0.346)	11.2 (0.440)	18 (0.708)	22.5 (0.885)	38 (1.496)
Z1	Input shaft M thread x depth		M3 x 9	M3 x 9	M5 x 12	M6 x16	M12 x 38
	Recommended peak input speed rpm		18000	13000	7000	6500	4500
	Recommended mean input speed rpm		Any rpm as long as the gearbox temp. does not exceed +90°C (194°F)				
	Permissible <u>input</u> shaft loading ⁽¹⁾		Based on 10000 hr L10 life at 1000 rpm shaft speed				
Radial	N (lb)		100 (22.5)	250 (56.2)	450 (101)	1000 (224.8)	1400 (314.7)
Axial	N (lb)		120 (27)	300 (67.4)	500 (112.4)	1300 (292)	1600 (359)
⁽¹⁾ Listed values are at 1000 rpm input speed; load at shaft midpoint; 10000 hrs L10 bearing life.							

For Output (Low-Speed Side) Dimensions Please See Previous Pages.

Depend upon gearhead type i.e. : 1 - Standard PLE with tapped mounting holes: Pages 6-7
 2 - PLE with integrated Output flange: Pages 8-9
 3 - PLE with bolt-on Output flange: Pages 10-11