



▶ HIGH PERFORMANCE: DYNA-LITE SERIES

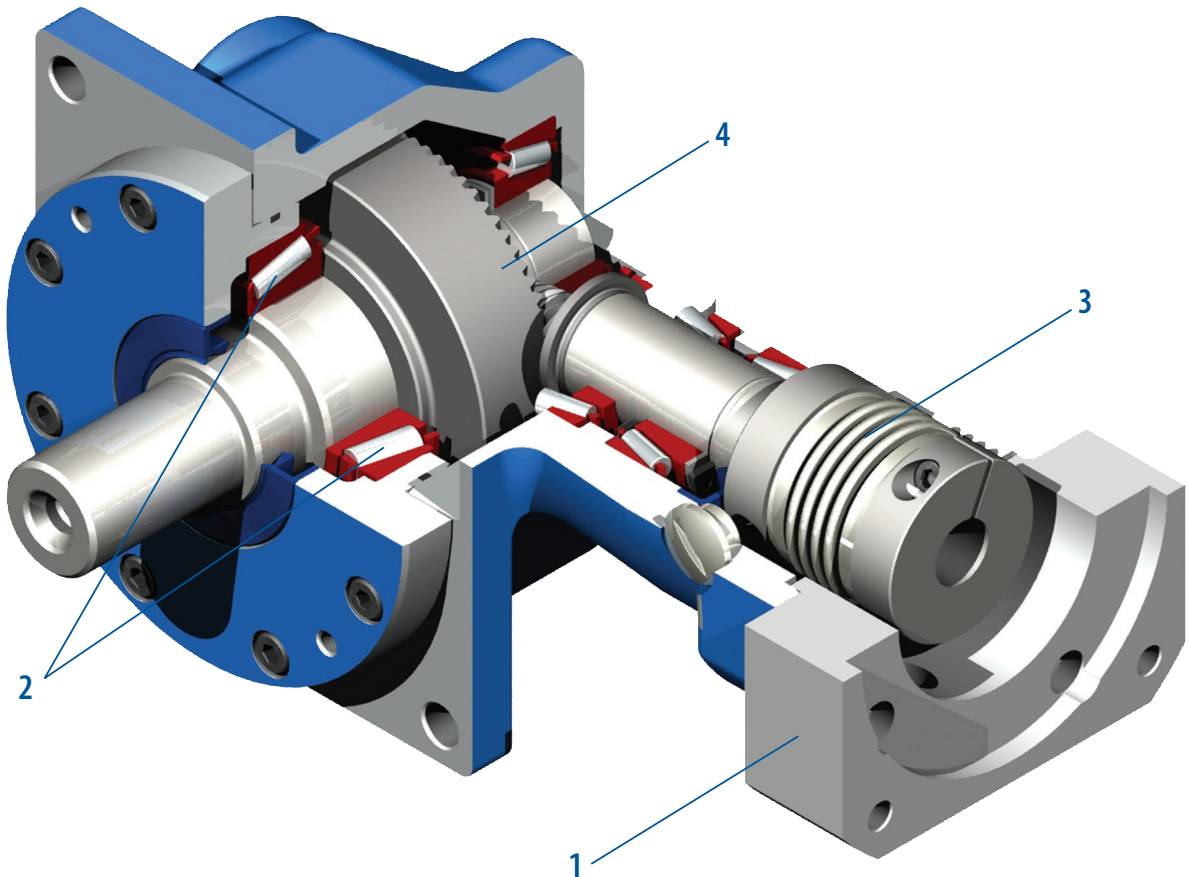
GAM can.

If you don't see exactly what you need, let us know. We can modify the Dyna-Lite Series gearboxes to meet your needs. Page 4 provides a list of commonly requested modifications to give you a feel for our capabilities.

Now there's a right-angle gearbox that has the performance and price point of a precision in-line gearbox. Our redesigned Dyna-Lite Series use hypoid gearing that combines the space and configuration advantages of worm gearing with the high efficiency of bevel gearing. It is drop-in replacement for many right-angle and in-line planetary gear reducers.

Dyna-Lite Series benefits include:

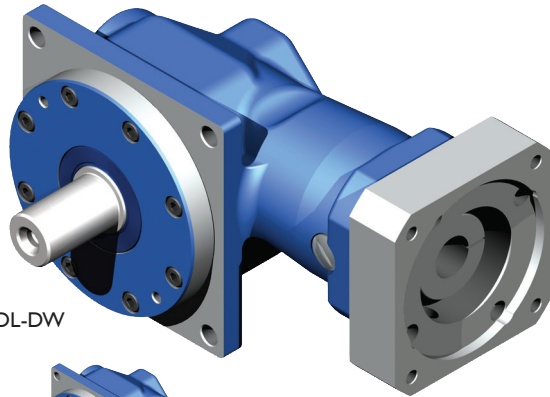
- High efficiency – 96%
- Standard backlash < 6 arcmin
- Back drivable
- High radial loading
- Available in shaft output and hollow output



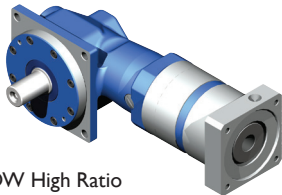
1. Adapter Plate
(Allows for quick and easy motor mounting)
2. Bearings
(Taper roller bearings allows high radial loading of output shaft)

3. Bellows Coupling
(Bellows coupling for quick motor mounting)
4. Hypoid Gearing
(Optimized gearing allows ratios up to 15:1 in a single stage; 150:1 in two stages)

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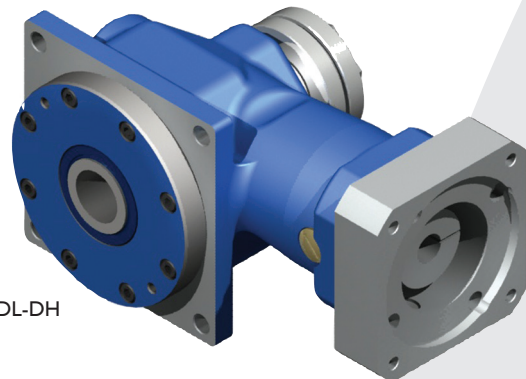
DL-DW



DL-DW High Ratio
(High Ratio available on all versions)

DL-DW

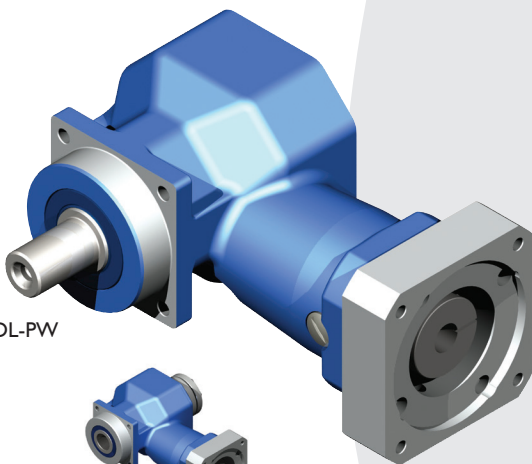
- Single output shaft configuration with our high performance bellow coupling
- Input and housing to mount to any servo motor
- Ratios up to 15:1 in a single stage and 150:1 in two stages
- Frame sizes: 55, 75 and 90 mm
- Drop-in for our highest precision Dyna Series



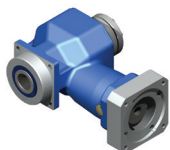
DL-DH

DL-DH

- Smooth hollow output shaft configuration (includes shrink disc)
- Input and housing to mount to any servo motor
- Ratios up to 15:1 in a single stage and 150:1 in two stages
- Frame sizes: 55, 75 and 90 mm
- Drop-in for our highest precision Dyna Series



DL-PW



DL-PH
(Available upon request)

DL-PW

- Single output shaft configuration with our high performance bellow coupling
- Input and housing to mount to any servo motor
- Ratios up to 15:1 in a single stage and 150:1 in two stages
- Frame sizes: 55, 75 and 90 mm
- Drop-in for many right-angle and in-line planetary gear reducers
- Rotation direction is opposite for DW and PW models.

DL-PH (Contact GAM for availability)

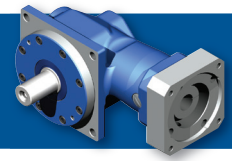
- Smooth hollow output shaft configuration (includes shrink disc)

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sales@electromate.com



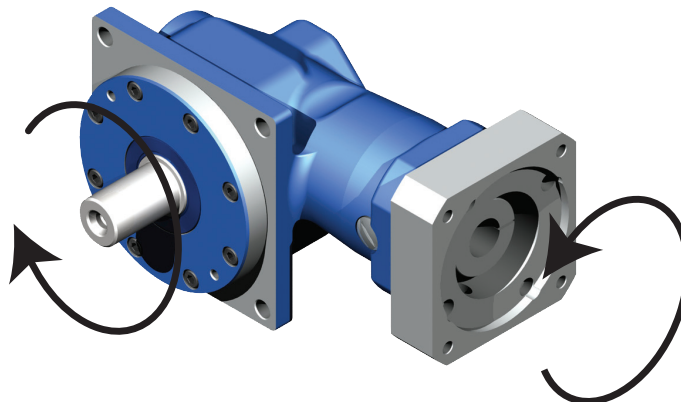
▶ DYNA-LITE SERIES - DL-D

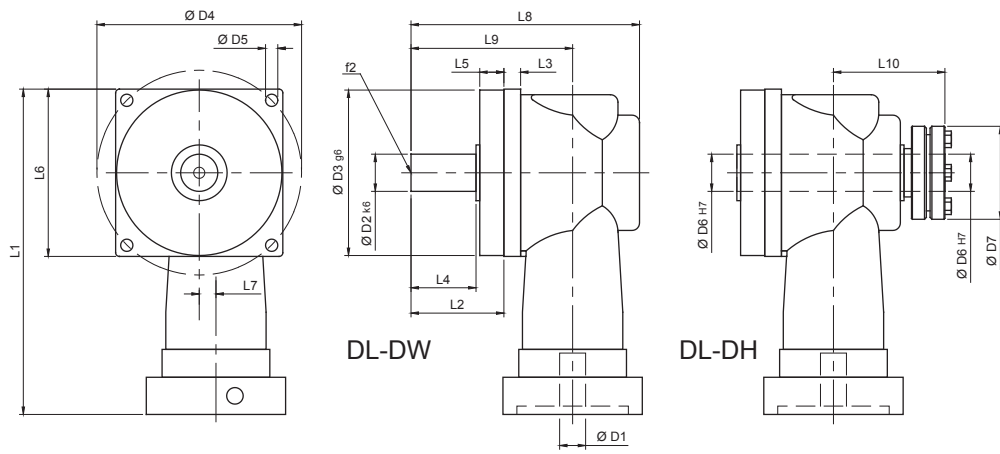


Dyna-Lite Series			55	75	90
Stock Ratios			5, 10, 25, 50, 100, 150		
All Ratios Available*			1-stage: 5, 10, 15 2-stage: 25, 50, 100, 150* For other ratios, consult GAM.		
Nominal Output Torque (T_{2n})	Nm (lb-in)	5:1, 10:1, 25:1, 50:1, 100:1	35 (310)	70 (620)	140 (1239)
		15:1, 150:1	25 (221)	50 (443)	90 (797)
Max Acceleration Output Torque (T_{2a})	Nm (lb-in)	5:1, 10:1, 25:1, 50:1, 100:1	53 (469)	105 (929)	210 (1859)
		15:1, 150:1	38 (336)	75 (664)	143 (1266)
Emergency Output Torque (T_{2not})	Nm (lb-in)	5:1, 10:1, 25:1, 50:1, 100:1	70 (620)	140 (1239)	280 (2478)
		15:1, 150:1	50 (443)	100 (885)	190 (1682)
Nominal Input Speed (n_{1n})	RPM	5:1	3700	3100	2700
		10:1, 15:1	4200	3500	3000
		2-stage	3500	3000	3000
Max Input Speed (n_{1max})	RPM		6000	6000	5000
Standard Output Backlash (j)	arcmin	1-stage	< 7	< 7	< 6
		2-stage	< 9	< 9	< 8
Allowable Radial Load (F_{rad}) ¹⁾	N (lbs)		3300 (743)	4900 (1103)	7200 (1620)
Allowable Axial Load (F_{axial})	N (lbs)		1650 (371)	2450 (551)	3600 (810)
Torsional Stiffness (C_{t21})	Nm/arcmin		1.5	4.0	10.0
	(lb-in/arcmin)		(13.28)	(35.40)	(88.51)
Weight (m)	kg (lbs)	1-stage	2.6 (5.7)	4.5 (9.9)	9 (19.8)
		2-stage	3.6 (7.9)	6.8 (15)	14.8 (32.6)
Noise Level (L_{pA})	dB(A)	1-stage	< 66	< 66	< 68
		2-stage	< 69	< 70	< 72
Mass Moment of Inertia (J_1)	kg cm ² (lb-in ²)	5:1	0.44 (0.15)	1.06 (0.36)	3.6 (1.224)
		10:1, 15:1	0.35 (0.119)	0.84 (0.286)	2.9 (0.986)
		25:1	0.17 (0.058)	0.45 (0.153)	1.65 (0.561)
		50:1, 100:1	0.14 (0.048)	0.34 (0.116)	1.1 (0.374)
Efficiency at Load		5,10: 96%	15: 93%	25,50,100,150: 87%	
Service Life		>15000 hours			
Lubrication		Life Time Lubrication			
Protection Rating		IP 64			
Operating Temperature Range		-10°C to 100°C (14°F to 212°F)			

1) Load applied at center of output shaft @100 RPM

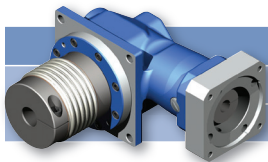
* other ratios available





DL - DW and DL - DH		55		75		90	
		mm	(in)	mm	(in)	mm	(in)
D1 _{max (1 stage)*}	motor shaft diameter	16	(0.63)	20	(0.787)	35	(1.378)
D1 _{max (2 stage standard)*}	motor shaft diameter	14	(0.551)	19	(0.748)	19	(0.748)
D1 _{max (2 stage available)*}	motor shaft diameter	16	(0.63)	24	(0.945)	24	(0.945)
D2 k6	output shaft diameter	20	(0.787)	24	(0.945)	32	(1.26)
D3 g6	pilot diameter	89	(3.504)	105	(4.134)	125	(4.921)
D4	bolt circle	110.3	(4.343)	138.6	(5.457)	166.8	(6.567)
D5	mounting holes	6.6	(0.26)	9	(0.354)	11	(0.433)
D6 H7**	hollow bore diameter	20	(0.787)	25	(0.984)	30	(1.181)
D7	shrink disc OD (included)	50	(1.97)	60	(2.36)	72	(2.83)
L1 1-stage***	gearbox length	175	(6.89)	213.5	(8.406)	257	(10.118)
L1 2-stage***		236	(9.291)	304.5	(11.99)	336	(13.23)
L2	shaft length	50.0	(1.969)	55	(2.165)	68	(2.677)
L3	flange thickness	9	(0.354)	11	(0.433)	14	(0.551)
L4	usable shaft length	35	(1.378)	40	(1.575)	50	(1.969)
L5	pilot height	13	(0.512)	13	(0.512)	16	(0.63)
L6	flange size	90	(3.543)	115	(4.528)	140	(5.512)
L7	gear offset	9	(0.354)	14	(0.551)	18	(0.709)
L8	gearbox width	123	(4.843)	142	(5.591)	175	(6.89)
L9	shaft to centerline	87	(3.425)	100	(3.937)	126	(4.961)
L10	shrink disc to centerline	64.5	(2.539)	73.5	(2.894)	87	(3.425)
f2	shaft thread per DIN332/1	M6 x 16		M8 x 19		M12 x 28	

* for larger motor shaft diameters, please contact GAM **mating shaft should have h6 tolerance ***depending on motor, length may vary

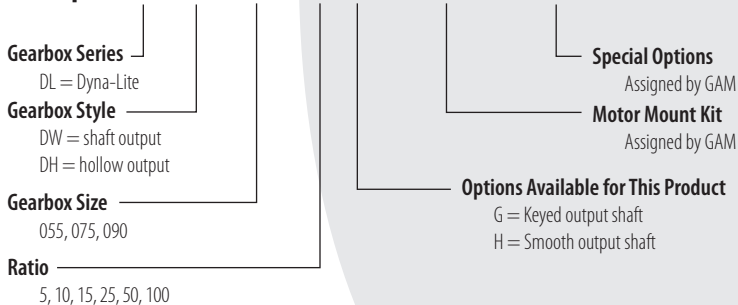


Recommended Output Coupling (if necessary)

metal bellows	KLC-50	KLC-125	KM-270
elastomer	EKC-80	EKC-110	EKM-300

TYPE CODES FOR DYNA-LITE SERIES (DL-D)

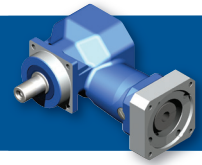
Example: DL - DW - 075 - 005 H - [090 - 15A] - S111



Size	Tolerances (mm)		
	k6	g6	H7
Over 18	+0.015	-0.007	+0.021
Thru 30	+0.002	-0.020	0
Over 30	+0.018	-0.009	+0.025
Thru 50	+0.002	-0.025	0
Over 50	+0.021	-0.010	+0.030
Thru 80	+0.002	-0.029	0
Over 80	+0.025	-0.012	+0.035
Thru 120	+0.003	-0.034	0
Over 120	+0.028	-0.014	+0.040
Thru 180	+0.003	-0.039	0



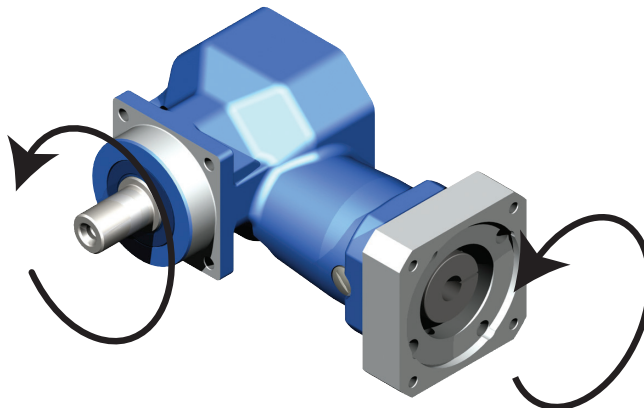
▶ DYNA-LITE SERIES - DL-P



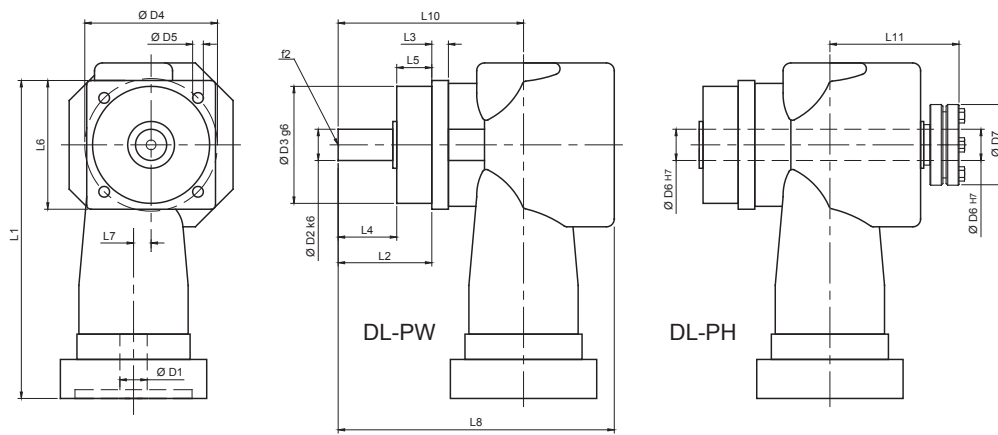
Dyna-Lite Series			55	75	90
Stock Ratios			5, 10, 25, 50, 100, 150		
All Ratios Available*			1-stage: 5, 10, 15 2-stage: 25, 50, 100, 150* For other ratios, consult GAM.		
Nominal Output Torque (T_{2n})	Nm (lb-in)	5:1, 10:1, 25:1, 50:1, 100:1	35 (310)	70 (620)	140 (1239)
		15:1, 150:1	25 (221)	50 (443)	90 (797)
Max Acceleration Output Torque (T_{2B})	Nm (lb-in)	5:1, 10:1, 25:1, 50:1, 100:1	53 (469)	105 (929)	210 (1859)
		15:1, 150:1	38 (336)	75 (664)	143 (1266)
Emergency Output Torque (T_{2not})	Nm (lb-in)	5:1, 10:1, 25:1, 50:1, 100:1	70 (620)	140 (1239)	280 (2478)
		15:1, 150:1	50 (443)	100 (885)	190 (1682)
Nominal Input Speed (n_{1n})	RPM	5:1	3700	3100	2700
		10:1, 15:1	4200	3500	3000
		2-stage	3500	3000	3000
Max Input Speed (n_{1max})	RPM		6000	6000	5000
Standard Output Backlash (j)	arcmin	1-stage	< 7	< 7	< 6
		2-stage	< 9	< 9	< 8
Allowable Radial Load (F_{rad}) ¹⁾	N (lbs)		2200 (495)	4050 (911)	6200 (1395)
Allowable Axial Load (F_{axial})	N (lbs)		1100 (248)	2025 (456)	3100 (698)
Torsional Stiffness (C_{21})	Nm/arcmin		1.5	4.0	10.0
	(lb-in/arcmin)		(13.28)	(35.40)	(88.51)
Weight (m)	kg (lbs)	1-stage	2.6 (5.7)	4.5 (9.9)	9 (19.8)
		2-stage	3.6 (7.9)	6.8 (15)	14.8 (32.6)
Noise Level (L_{pA})	dB(A)	1-stage	< 66	< 66	< 68
		2-stage	< 69	< 70	< 72
Mass Moment of Inertia (J_1)	kg cm ² (lb-in ²)	5:1	0.44 (0.15)	1.08 (0.37)	3.7 (1.258)
		10:1, 15:1	0.35 (0.119)	0.84 (0.286)	2.9 (0.986)
		25:1	0.17 (0.058)	0.45 (0.153)	1.65 (0.561)
		50:1, 100:1	0.14 (0.048)	0.34 (0.116)	1.1 (0.374)
Efficiency at Load		5,10: 96%	15: 93%	25,50,100,150: 87%	
Service Life		>15000 hours			
Lubrication		Life Time Lubrication			
Protection Rating		IP 64			
Operating Temperature Range		-10°C to 100°C (14°F to 212°F)			

1) Load applied at center of output shaft @100 RPM

* other ratios available

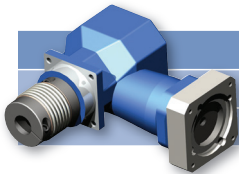


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DL - PW and DL - PH		55		75		90	
		mm	(in)	mm	(in)	mm	(in)
D1 _{max} (1 stage)*	motor shaft diameter	16	(0.63)	20	(0.787)	35	(1.378)
D1 _{max} (2 stage standard)*	motor shaft diameter	14	(0.551)	19	(0.748)	19	(0.748)
D1 _{max} (2 stage available)*	motor shaft diameter	16	(0.63)	24	(0.945)	24	(0.945)
D2 k6	output shaft diameter	16	(0.63)	22	(0.866)	32	(1.26)
D3 g6	pilot diameter	60	(2.362)	70	(2.756)	90	(3.543)
D4	bolt circle	68	(2.677)	85	(3.346)	120	(4.724)
D5	mounting holes	5.5	(0.217)	6.6	(0.26)	9	(0.354)
D6 H7**	hollow bore diameter	15	(0.591)	20	(0.787)	30	(1.181)
D7	shrink disc OD (included)	44	(1.732)	50	(1.969)	72	(2.835)
L1 1-stage***	gearbox length	172	(6.772)	206	(8.11)	249.5	(9.823)
L1 2-stage***		236	(9.291)	304.5	(11.99)	336	(13.23)
L2	shaft length	48.0	(1.89)	56	(2.205)	80	(3.15)
L3	flange thickness	8.5	(0.335)	10	(0.394)	13	(0.512)
L4	usable shaft length	28	(1.102)	36	(1.417)	58	(2.283)
L5	pilot height	18	(0.709)	18	(0.709)	20	(0.787)
L6	flange size	66	(2.598)	76	(2.992)	101	(3.976)
L7	gear offset	9	(0.354)	14	(0.551)	18	(0.709)
L8	gearbox width	141.5	(5.571)	166	(6.535)	216	(8.504)
L10	shaft to centerline	95	(3.740)	110	(4.331)	148	(5.827)
L11	shrink disc to centerline	estimated 70	(2.756)	estimated 86	(3.386)	estimated 108	(4.252)
F2	shaft thread per DIN332/1	M6 x 16		M8 x 19		M12x28	

* for larger motor shaft diameters, please contact GAM **mating shaft should have h6 tolerance ***depending on motor, length may vary

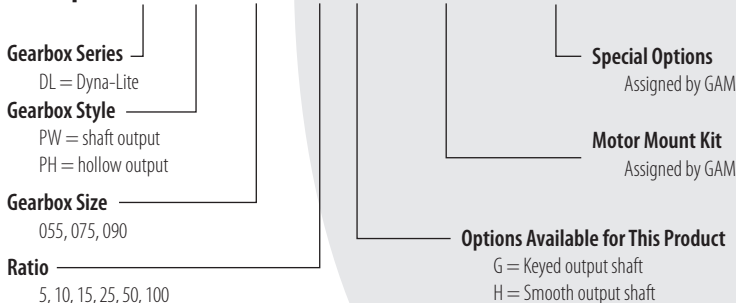


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Thru 30	+0.002	-0.020	0
Over 30	+0.018	-0.009	+0.025
Thru 50	+0.002	-0.025	0
Over 50	+0.021	-0.010	+0.030
Thru 80	+0.002	-0.029	0
Over 80	+0.025	-0.012	+0.035
Thru 120	+0.003	-0.034	0
Over 120	+0.028	-0.014	+0.040
Thru 180	+0.003	-0.039	0