



► HIGH PERFORMANCE: EPR SERIES

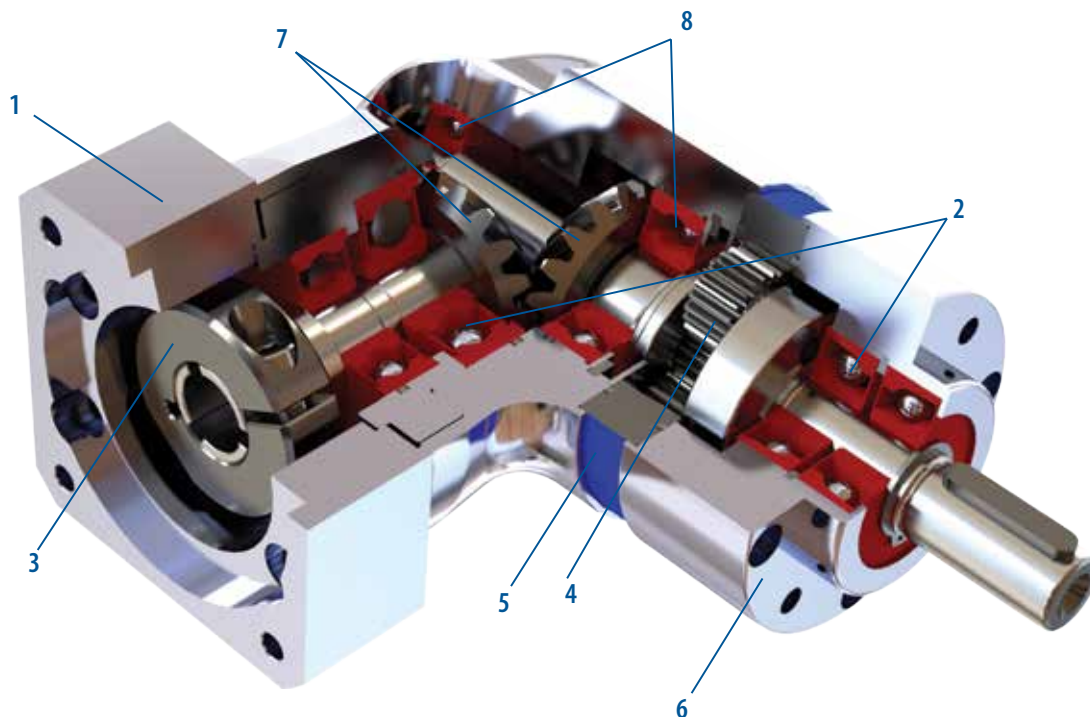
GAM can.

If you don't see exactly what you need, let us know. We can modify the EPR Series gearboxes to meet your needs. Page 5 provides examples of GAM capabilities.

The EPR Series Right Angle Bevel Planetary Gearboxes provide all the advantages of our popular EPL inline gearboxes in a right angle configuration. Offering the best quality available for the price point, the EPR is ideal for most servo, stepper and other motion control applications. With the same selection of outputs as the EPL, there is an EPR to fit your application.

EPR Features

- Easy to configure with 5 outputs matching the EPL
- 30,000 hours of service life for most models
- Ratios from 3:1 to 1000:1
- Ready to mount to your motor



1. Adapter Plate

Customized adapter plates for quick and easy motor mounting

2. Angular Contact Bearings

For high radial and axial loading

3. Input Clamping Element

4. Planet Gears
Precision ground gears

5. Ring Gear

Ring gear incorporated into housing

6. Output face

7. Precision ground spiral bevel gears

8. Bevel gear supported at both ends

Input to planetary

► HIGH PERFORMANCE: EPR SERIES



EPR-W

- GAM metric output face with heavy-duty output bearings
- Frame sizes from 50 mm to 150 mm



EPR-X

- NEMA output face with oversized English shaft
- Frame sizes from NEMA 17 to 56



EPR-A

- Metric output dimensions match popular gearboxes
- Frame sizes from 50 mm to 155 mm
- EPR-AP available with pre-mounted GAM pinion (see [page 178](#))



EPR-F

- Flange output
- Sizes from 110 mm to 140 mm
- EPR-FP available with pre-mounted GAM pinion (see [page 178](#))



EPR-H

The EPR-H will be replaced by the EPR-U



*EPR-U with Hollow Output
(replaces the EPR-H)*



EPR-U with Shaft Output

EPR-U Modular for Driving Linear Actuators

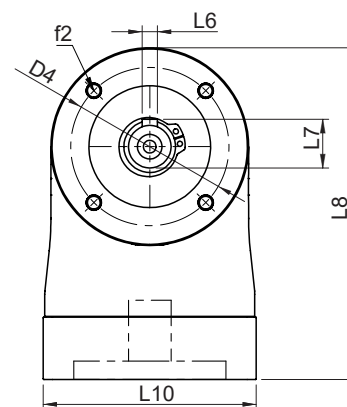
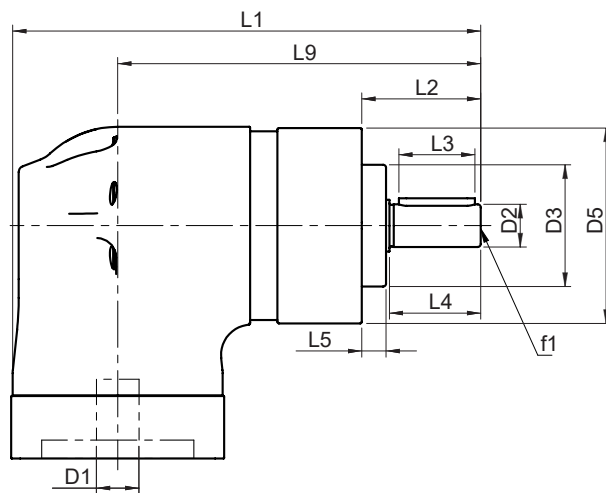
- A quick, simple solution used to mount onto any off-the-shelf linear belt or ball screw module
- Ready to mount to your module with a customized output
- Hollow output with zero backlash clamping ring and integral mounting plate for shaft input actuators
- Shaft output and integral mounting plate for hollow input actuators
- Ready to mount to your motor on the input with included motor adapter
- For more information on Linear Mounts, refer to [page 196](#).



EPR-W Series			64			84			118			
Stock Ratios			3, 5, 7, 10, 25, 50, 100 (Standard Input)									
All Ratios Available			1-Stage Planetary: 3, 4, 5, 7, 10 2-Stage Planetary: 12, 16, 20, 25, 35, 40, 50, 70, 100 3-Stage Planetary: 120, 160, 200, 250, 350, 490, 700, 1000 (Consult GAM for other ratios)									
			3:1		16 (142)		33 (292)		82 (726)			
			4, 5, 7:1		22 (195)		45 (398)		101 (894)			
Nominal Output Torque (T _{2n})	Nm (lb-in)	10, 100, 1000:1		14 (124)		34 (301)		90 (797)				
		all other ratios		30 (266)		71 (628)		149 (1319)				
		3:1		30 (266)		57 (504)		148 (1310)				
		4, 5, 7:1		37 (327)		84 (743)		168 (1487)				
Max Acceleration Output Torque (T _{2a})	Nm (lb-in)	10, 100, 1000:1		21 (186)		65 (575)		155 (1372)				
		all other ratios		37 (327)		89 (788)		181 (1602)				
		3:1		72 (637)		160 (1416)		200 (1770)				
		4, 5, 7:1		84 (743)		216 (1912)		480 (4248)				
Emergency Output Torque (T _{2not})	Nm (lb-in)	10, 100, 1000:1		62 (549)		160 (1416)		410 (3629)				
		all other ratios		84 (743)		216 (1912)		480 (4248)				
		Nominal Speed (n _{1n})		RPM	-		3500		3000		2500	
		Max Speed (n _{1max})			-		6000		6000		5000	
Standard Output Backlash* (j)	arcmin	1-stage		≤12		≤12		≤10				
		2-stage		≤14		≤14		≤12				
		3-stage		≤15		≤15		≤12				
Allowable Radial Load (F _{rad}) ¹⁾	N (lbs)	-		1900 (427)		2800 (629)		5000 (1124)				
Allowable Axial Load (F _{axial})	N (lbs)	-		1500 (337)		2500 (562)		4500 (1012)				
Torsional Stiffness* (C _{t21})	Nm/arcmin (lb-in/arcmin)	10,100,1000		2.8 (25)		5.4 (48)		10 (89)				
		7,70,700		3.2 (28)		6.8 (60)		16 (142)				
		all other ratios		3.9 (35)		9.1 (81)		19 (168)				
Weight (m)	kg (lbs)	1-stage		3.0 (6.6)		5.6 (12)		15 (33)				
		2-stage		3.3 (7.3)		6.4 (14)		17 (37)				
		3-stage		3.6 (7.9)		7.2 (16)		19 (42)				
Noise Level (L _{PA})	dB(A)	-		≤75		≤78		≤78				
Mass Moment of Inertia (J ₁)	kg cm ² (lb-in ²)	3:1		0.95 (0.32)		5.4 (1.8)		22 (7.5)				
		4:1, 12:1, 16:1		0.88 (0.30)		5.1 (1.7)		20 (6.8)				
		5:1, 20:1, 25:1		0.86 (0.29)		5.1 (1.7)		20 (6.8)				
		7:1, 35:1		0.85 (0.29)		5.0 (1.7)		19 (6.5)				
		10:1, 40:1 - 100:1		0.84 (0.29)		4.9 (1.7)		19 (6.5)				
		120:1 - 1000:1		0.84 (0.29)		4.9 (1.7)		19 (6.5)				
Efficiency at Load		1-stage: 92% 2-stage: 90% 3-stage: 88%										
Service Life		> 30,000 hours										
Lubrication		Mineral Grease EP0										
Protection Rating		IP 64										
Operating Temperature Range		-20°C to 90°C										

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

* See page 224 for definitions



EPR-W Series		64		84		118	
		mm	(in)	mm	(in)	mm	(in)
D1 _{max standard}	motor shaft diameter	14	(0.551)	19	(0.748)	24	(0.945)
D2 _{k6}	output shaft diameter	14	(0.551)	20	(0.787)	25	(0.984)
D3 _{h7}	pilot diameter	40	(1.575)	55	(2.165)	80	(3.15)
D4	bolt circle	52	(2.047)	70	(2.756)	100	(3.937)
D5	housing diameter	64	(2.52)	84	(3.307)	118	(4.646)
f1	shaft thread	M5x12		M6x16		M10x22	
f2	mounting holes	M5x12		M6x14		M8x18	
L1 (1-stage)*	gearbox length	154	(6.063)	217.5	(8.563)	276.5	(10.886)
L1 (2-stage)*		176	(6.929)	250.5	(9.862)	316.5	(12.461)
L1 (3-stage)*		198	(7.795)	283.5	(11.161)	357.5	(14.075)
L2	shaft length	39	(1.535)	54	(2.126)	61	(2.402)
L3	key length	25	(0.984)	36	(1.417)	45	(1.772)
L4	usable shaft length	30	(1.181)	45	(1.772)	50	(1.969)
L5	pilot height	8	(0.315)	8	(0.315)	10	(0.394)
L6	key width	5	(0.197)	6	(0.236)	8	(0.315)
L7	key height	16	(0.63)	22.5	(0.886)	28	(1.102)
L8**	gearbox height	108.6	(4.276)	153	(6.024)	183.5	(7.224)
L9 (1-stage)	length to input centerline	119.3	(4.697)	171	(6.732)	216.5	(8.524)
L9 (2-stage)		141.3	(5.563)	204	(8.031)	256.5	(10.098)
L9 (3-stage)		163.3	(6.429)	237	(9.331)	297.5	(11.713)
L10**	adapter size	70	(2.756)	90	(3.543)	120	(4.724)

* depending on the motor, value can vary

TYPE CODES FOR EPR SERIES (EPR-W)

Example: EPR - W - 084 - 005 G - M0000 - H0000 - C0000

Gearbox Series EPR	Configuration Code Assigned by GAM
Gearbox Style W = Metric output shaft	Output Code Assigned by GAM
Gearbox Size 064, 084, 118	Motor Code Assigned by GAM
Ratio 3, 4, 5, 7, 10, 12, 16, 20, 25, 35, 40, 50, 70, 100, 120, 160, 200, 250, 350, 490, 700, 000=1000	Options Available for This Product G = Key on output shaft per DIN6885

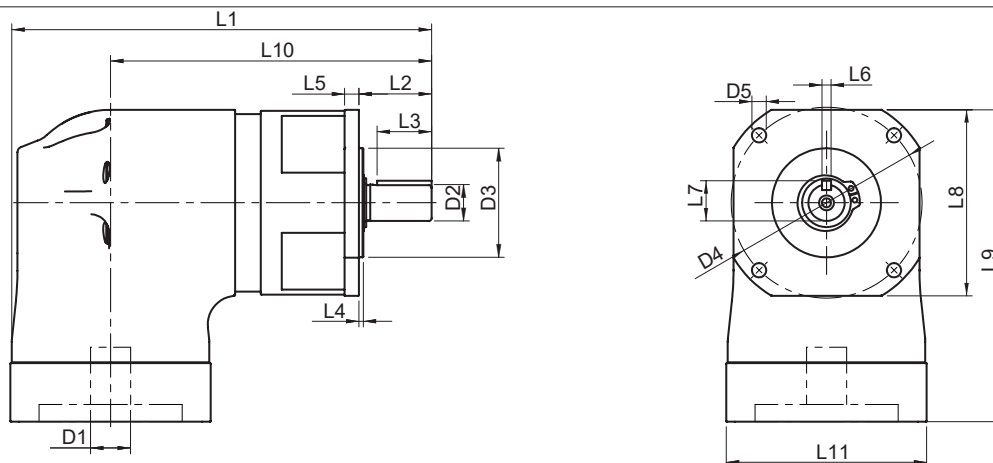
Shaft (Outer Diameter) Tolerances (mm)			
Over	To (incl.)	h7	k6
6	10	0 -0.015	+0.010 +0.001
10	18	0 -0.018	+0.012 +0.001
18	30	0 -0.021	+0.015 +0.002
30	50	0 -0.025	+0.018 +0.002
50	80	0 -0.030	+0.021 +0.002
80	120	0 -0.035	+0.025 +0.003
120	180	0 -0.040	+0.028 +0.003



EPR-X (NEMA) Series			23		34		42		56		
Stock Ratios			3, 5, 7, 10, 25, 50, 100				N/A		N/A		
All Ratios Available			1-Stage Planetary: 3, 4, 5, 7, 10 2-Stage Planetary: 12, 16, 20, 25, 35, 40, 50, 70, 100 3-Stage Planetary: 120, 160, 200, 250, 350, 490, 700, 1000								
Nominal Output Torque (T _{2n})	Nm (lb-in)	3:1	16	(142)	33	(292)	82	(726)	82	(726)	
		4, 5, 7:1	22	(195)	45	(398)	101	(894)	101	(894)	
		10, 100, 1000:1	14	(124)	34	(301)	90	(797)	90	(797)	
		all other ratios	30	(266)	71	(628)	149	(1319)	149	(1319)	
Max Accel. Torque (T _{2B})	Nm (lb-in)	3:1	30	(266)	57	(504)	148	(1310)	148	(1310)	
		4, 5, 7:1	37	(327)	84	(743)	168	(1487)	168	(1487)	
		10, 100, 1000:1	21	(186)	65	(575)	155	(1372)	155	(1372)	
		all other ratios	37	(327)	89	(788)	181	(1602)	181	(1602)	
Emergency Output Torque (T _{2not})	Nm (lb-in)	3:1	72	(637)	160	(1416)	200	(1770)	200	(1770)	
		4, 5, 7:1	84	(743)	216	(1912)	480	(4248)	480	(4248)	
		10, 100, 1000:1	62	(549)	160	(1416)	410	(3629)	410	(3629)	
		all other ratios	84	(743)	216	(1912)	480	(4248)	480	(4248)	
Nominal Speed (n _{1n})		RPM	-	3300	2900	2400	2400				
Max Input Speed (n _{1max})			6000	6000	5000	5000					
Standard Output Backlash* (j)	arcmin	1-stage	< 12	< 12	< 10	< 10					
		2-stage	< 14	< 14	< 12	< 12					
		3-stage	< 15	< 15	< 12	< 12					
Allowable Radial Load (F _{rad}) ¹⁾		N (lbs)	-	450 (101)	900 (203)	2175 (489)	2175 (489)				
Allowable Axial Load (F _{axial})		N (lbs)	-	420 (95)	650 (146)	1375 (309)	1375 (309)				
Torsional Stiffness* (C _{t21})	Nm/arcmin (lb-in/arcmin)	10,100,1000	2.8 (25)	5.4 (48)	10 (89)	10 (89)					
		7,70,700	3.2 (28)	6.8 (60)	16 (142)	16 (142)					
		all other ratios	3.9 (35)	9.1 (81)	19 (168)	19 (168)					
Weight (m)	kg (lbs)	1-stage	3.0 (6.6)	5.6 (12)	15 (33)	15 (33)					
		2-stage	3.3 (7.3)	6.4 (14)	17 (37)	17 (37)					
		3-stage	3.6 (7.9)	7.2 (16)	19 (42)	19 (42)					
Noise Level (L _{PA})		dB(A)	-	< 75	< 78	< 78	< 78				
Mass Moment of Inertia (J ₁)	kg cm ² (lb-in ²)	3:1	0.95 (0.32)	5.4 (1.8)	22 (7.5)	22 (7.5)					
		4:1, 12:1, 16:1	0.88 (0.30)	5.1 (1.7)	20 (6.8)	20 (6.8)					
		5:1, 20:1, 25:1	0.86 (0.29)	5.1 (1.7)	20 (6.8)	20 (6.8)					
		7:1, 35:1	0.85 (0.29)	5.0 (1.7)	19 (6.5)	19 (6.5)					
		10:1, 40:1 - 100:1	0.84 (0.29)	4.9 (1.7)	19 (6.5)	19 (6.5)					
		120:1 - 1000:1	0.84 (0.29)	4.9 (1.7)	19 (6.5)	19 (6.5)					
Efficiency at Load		1-stage: 92% 2-stage: 90% 3-stage: 88%									
Service Life		> 30,000 hours									
Lubrication		Mineral Grease EPO									
Protection Rating		IP 64									
Operating Temperature Range		-20°C to 90°C									

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

* See page 224 for definitions



EPR-X Series		23		34		42		56	
		mm	(in)	mm	(in)	mm	(in)	mm	(in)
D1 max standard	motor shaft diameter	14	(0.55)	19	(0.748)	24	(0.945)	24	(0.945)
D2 k6	output shaft diameter	12.7	(0.50)	19.1	(0.75)	25	(0.984)	25	(0.984)
D3 h7	pilot diameter	38.1	(1.50)	73.0	(2.875)	55.55	(2.187)	114.30	(4.50)
D4	bolt circle	66.7	(2.625)	98.4	(3.875)	125.7	(4.95)	177.8	(7.000)
D5	mounting holes	5	(0.197)	5.5	(0.217)	7.1	(0.28)	10.2	(0.402)
L1 (1-stage)*	gearbox length	147.2	(5.795)	203	(7.992)	276.5	(10.886)	275.5	(10.846)
L1 (2-stage)*		169.2	(6.661)	236	(9.291)	316.5	(12.461)	316.0	(12.440)
L1 (3-stage)*		191.2	(7.528)	269	(10.591)	357.5	(14.075)	356.5	(14.035)
L2	shaft length	25.4	(1.000)	31.8	(1.25)	42	(1.654)	41	(1.614)
L3	key length	19.1	(0.75)	25.4	(1.00)	38	(1.496)	32	(1.26)
L4	pilot height	1.6	(0.063)	1.7	(0.067)	2.4	(0.094)	4	(0.157)
L5	flange thickness	5	(0.197)	10	(0.394)	19	(0.748)	20	(0.7874)
L6	key width	3.18	(0.125)	4.78	(0.188)	8	(0.315)	8	(0.315)
L7	key height / flat height	14.22	(0.56)	21.29	(0.838)	28	(1.102)	28	(1.102)
L8	flange size	65	(2.559)	90	(3.543)	120	(4.724)	145	(5.709)
L9**	gearbox height	109	(4.291)	154.7	(6.091)	184.5	(7.264)	184.5	(7.264)
L10 (1-stage)	length to input centerline	112.2	(4.417)	156	(6.142)	216.5	(8.524)	216.5	(8.524)
L10 (2-stage)		134.2	(5.283)	189	(7.441)	256.5	(10.098)	256.5	(10.098)
L10 (3-stage)		156.2	(6.150)	222	(8.740)	297.5	(11.713)	297.5	(11.713)
L11*	adapter size	70	(2.756)	90	(3.543)	120	(4.724)	120	(4.724)

*depending on the motor, value can vary

TYPE CODES FOR EPR SERIES (EPR-X (NEMA))

Example: EPR - X - 023 - 005 G - M0000 - H0000 - C0000

Gearbox Series

EPR

Gearbox Style

X = NEMA output

Gearbox Size

023, 034, 042, 056

Ratio

3, 4, 5, 7, 10, 12, 16, 20, 25, 35, 40, 50, 70, 100,
120, 160, 200, 250, 350, 490, 700, 000=1000

Configuration Code

Assigned by GAM

Output Code

Assigned by GAM

Motor Code

Assigned by GAM

Options Available for This Product

G = Key on output shaft per DIN6885

Shaft (Outer Diameter) Tolerances (mm)

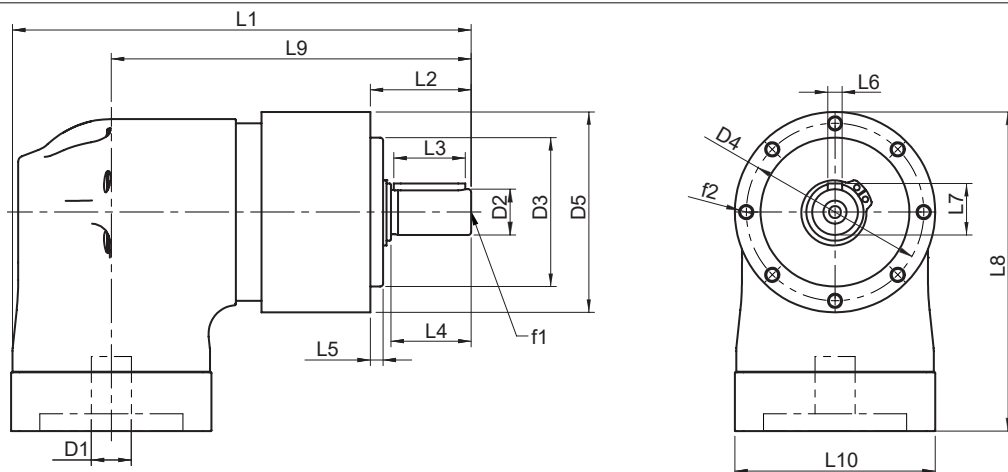
Over	To (incl.)	h7	k6
6	10	0 -0.015	+0.010 +0.001
10	18	0 -0.018	+0.012 +0.001
18	30	0 -0.021	+0.015 +0.002
30	50	0 -0.025	+0.018 +0.002
50	80	0 -0.030	+0.021 +0.002
80	120	0 -0.035	+0.025 +0.003
120	180	0 -0.040	+0.028 +0.003



EPR-A Series			70	90	120
All Ratios Available			1-Stage Planetary: 3, 4, 5, 7, 10		
			2-Stage Planetary: 12, 16, 20, 25, 35, 40, 50, 70, 100		
			3-Stage Planetary: 120, 160, 200, 250, 350, 490, 700, 1000 (Consult GAM for other ratios)		
Nominal Output Torque (T _{2n})	Nm (lb-in)	3:1	16 (142)	33 (292)	82 (726)
		4, 5, 7:1	22 (195)	45 (398)	101 (894)
		10, 100, 1000:1	14 (124)	34 (301)	90 (797)
		all other ratios	30 (266)	71 (628)	149 (1319)
Max Acceleration Output Torque (T _{2B})	Nm (lb-in)	3:1	30 (266)	57 (504)	148 (1310)
		4, 5, 7:1	37 (327)	84 (743)	168 (1487)
		10, 100, 1000:1	21 (186)	65 (575)	155 (1372)
		all other ratios	37 (327)	89 (788)	181 (1602)
Emergency Output Torque (T _{2not})	Nm (lb-in)	3:1	72 (637)	160 (1416)	200 (1770)
		4, 5, 7:1	84 (743)	216 (1912)	480 (4248)
		10, 100, 1000:1	62 (549)	160 (1416)	410 (3629)
		all other ratios	84 (743)	216 (1912)	480 (4248)
Nominal Speed (n _{1n})	RPM	-	3300	2900	2400
Max Speed (n _{1max})	RPM	-	6000	6000	5000
Standard Output Backlash* (j)	arcmin	1-stage	< 12	< 12	< 10
		2-stage	< 14	< 14	< 12
		3-stage	< 15	< 15	< 12
Allowable Radial Load (F _{rad}) ¹⁾	N (lbs)	-	1550 (348)	2400 (540)	4600 (1034)
Allowable Axial Load (F _{axial})	N (lbs)	-	1450 (326)	1900 (427)	4000 (899)
Torsional Stiffness* (C _{t21})	Nm/arcmin (lb-in/arcmin)	10,100,1000	2.8 (25)	5.4 (48)	10 (89)
		7,70,700	3.2 (28)	6.8 (60)	16 (142)
		all other ratios	3.9 (35)	9.1 (81)	19 (168)
Weight (m)	kg (lbs)	1-stage	3.0 (6.6)	5.6 (12)	15 (33)
		2-stage	3.3 (7.3)	6.4 (14)	17 (37)
		3-stage	3.6 (7.9)	7.2 (16)	19 (42)
Noise Level (L _{PA})	dB(A)	-	< 75	< 78	< 78
Mass Moment of Inertia (J ₁)	kg cm² (lb-in²)	3:1	0.95 (0.32)	5.4 (1.8)	22 (7.5)
		4:1, 12:1, 16:1	0.88 (0.30)	5.1 (1.7)	20 (6.8)
		5:1, 20:1, 25:1	0.86 (0.29)	5.1 (1.7)	20 (6.8)
		7:1, 35:1	0.85 (0.29)	5.0 (1.7)	19 (6.5)
		10:1, 40:1 - 100:1	0.84 (0.29)	4.9 (1.7)	19 (6.5)
		120:1 - 1000:1	0.84 (0.29)	4.9 (1.7)	19 (6.5)
Efficiency at Load		1-stage: 92% 2-stage: 90% 3-stage: 88%			
Service Life		> 30,000 hours			
Lubrication		Mineral Grease EPO			
Protection Rating		IP 64			
Operating Temperature Range		-20°C to 90°C			

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

* See page 224 for definitions

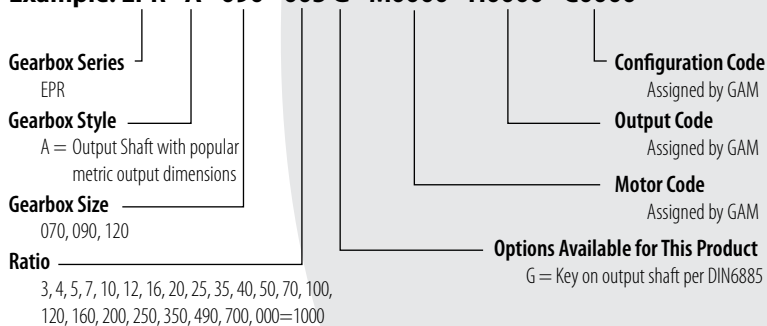


EPR-A Series		70		90		120	
		mm	(in)	mm	(in)	mm	(in)
D1 max standard	motor shaft diameter	14	(0.551)	19	(0.748)	24	(0.945)
D2 k6	output shaft diameter	16	(0.630)	22	(0.866)	32	(1.260)
D3 h7	pilot diameter	52	(2.047)	68	(2.677)	90	(3.543)
D4	bolt circle	62	(2.441)	80	(3.150)	108	(4.252)
D5	housing diameter	70	(2.756)	90	(3.543)	118	(4.646)
f1	shaft thread	M5x17		M8x25		M12x37	
f2	mounting holes	(8x) M5x12		(8x) M6x14		(8x) M8x18	
L1 (1-stage)*	gearbox total length	161	(6.339)	212	(8.346)	300.5	(11.831)
L1 (2-stage)*		183	(7.205)	244	(9.606)	341.5	(13.445)
L1 (3-stage)*		205	(8.071)	277	(10.906)	382.5	(15.059)
L2	shaft length	36	(1.417)	46	(1.811)	70	(2.756)
L3	key length	25	(0.984)	30	(1.181)	50	(1.968)
L4	usable shaft length	28	(1.102)	35	(1.378)	58	(2.283)
L5	pilot height	5.5	(0.217)	9	(0.354)	7	(0.276)
L6	key width	5	(0.197)	6	(0.236)	10	(0.394)
L7	key height	18	(0.709)	24.5	(0.965)	35	(1.378)
L8**	gearbox height	111.5	(4.390)	156	(6.142)	184.5	(7.264)
L9 (1-stage)	length to input centerline	126	(4.961)	166	(6.535)	240.5	(9.469)
L9 (2-stage)		148	(5.827)	198	(7.795)	281.5	(11.083)
L9 (3-stage)		170	(6.693)	231	(9.094)	322.5	(12.697)
L10**	adapter size	70	(2.756)	90	(3.543)	120	(4.724)

*depending on the motor, value can vary

TYPE CODES FOR EPR SERIES (EPR-A)

Example: EPR - A - 090 - 005 G - M0000 - H0000 - C0000



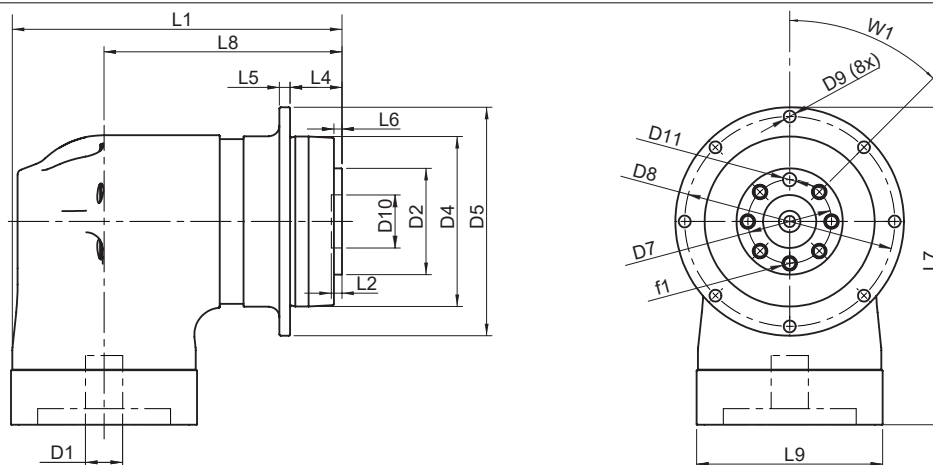
Shaft (Outer Diameter) Tolerances (mm)			
Over	To (incl.)	h6	k6
6	10	0 -0.009	+0.010 +0.001
10	18	0 -0.011	+0.012 +0.001
18	30	0 -0.013	+0.015 +0.002
30	50	0 -0.016	+0.018 +0.002
50	80	0 -0.019	+0.021 +0.002
80	120	0 -0.022	+0.025 +0.003
120	180	0 -0.025	+0.028 +0.003



EPR-F Series			64		90		110	
All Ratios Available			1-Stage Planetary: 3, 4, 5, 7, 10 2-Stage Planetary: 12, 16, 20, 25, 35, 40, 50, 70, 100 3-Stage Planetary: 120, 160, 200, 250, 350, 490, 700, 1000					
Nominal Output Torque (T _{2n})	Nm (lb-in)	3:1	16	(142)	33	(292)	82	(726)
		4, 5, 7:1	22	(195)	45	(398)	101	(894)
		10, 100, 1000:1	14	(124)	34	(301)	90	(797)
		all other ratios	30	(266)	71	(628)	149	(1319)
Max Acceleration Output Torque (T _{2B})	Nm (lb-in)	3:1	30	(266)	57	(504)	148	(1310)
		4, 5, 7:1	37	(327)	84	(743)	168	(1487)
		10, 100, 1000:1	21	(186)	65	(575)	155	(1372)
		all other ratios	37	(327)	89	(788)	181	(1602)
Emergency Output Torque (T _{2not})	Nm (lb-in)	3:1	72	(637)	160	(1416)	200	(1770)
		4, 5, 7:1	84	(743)	216	(1912)	480	(4248)
		10, 100, 1000:1	62	(549)	160	(1416)	410	(3629)
		all other ratios	84	(743)	216	(1912)	480	(4248)
Nominal Speed (n _{1n})	RPM	-	3300		2900		2400	
Max Speed (n _{1max})	RPM	-	6000		6000		5000	
Standard Output Backlash* (j)	arcmin	1-stage	≤12		≤12		≤10	
		2-stage	≤14		≤14		≤12	
		3-stage	≤15		≤15		≤12	
Allowable Radial Load (F _{rad}) ¹⁾	N (lbs)	-	1200 (270)		2000 (450)		3100 (697)	
Allowable Axial Load (F _{axial})	N (lbs)	-	1100 (247)		2500 (562)		3900 (877)	
Torsional Stiffness* (C _{t21})	Nm/arcmin (lb-in/arcmin)	10,100,1000	2.8 (25)		5.4 (48)		10 (89)	
		7,70,700	3.2 (28)		6.8 (60)		16 (142)	
		all other ratios	3.9 (35)		9.1 (81)		19 (168)	
Weight (m)	kg (lbs)	1-stage	3.0 (6.6)		5.6 (12)		15 (33)	
		2-stage	3.3 (7.3)		6.4 (14)		17 (37)	
		3-stage	3.6 (7.9)		7.2 (16)		19 (42)	
Noise Level (L _{PA})	dB(A)	-	< 75		< 78		< 78	
Mass Moment of Inertia (J ₁)	kg cm ² (lb-in ²)	3:1	1.11 (0.38)		5.8 (2.0)		24 (8.2)	
		4:1, 12:1, 16:1	1.00 (0.34)		5.5 (1.9)		22 (7.5)	
		5:1, 20:1, 25:1	0.98 (0.33)		5.2 (1.8)		20 (6.8)	
		7:1, 35:1	0.89 (0.30)		5.1 (1.7)		19 (6.5)	
		10:1, 40:1 - 100:1	0.88 (0.30)		5.1 (1.7)		19 (6.5)	
		120:1 - 1000:1	0.88 (0.30)		5.1 (1.7)		19 (6.5)	
Efficiency at Load		1-stage: 92% 2-stage: 90% 3-stage: 88%						
Service Life		> 30,000 hours						
Lubrication		Mineral Grease EPO						
Protection Rating		IP 64						
Operating Temperature Range		-20°C to 90°C						

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

* See page 224 for definitions



EPR-F Series		64		90		110	
		mm	(in)	mm	(in)	mm	(in)
D1 max standard	motor shaft diameter	14	(0.551)	19	(0.748)	24	(0.945)
D2 h7	output flange diameter	40	(1.575)	63	(2.480)	80	(3.150)
D4 h7	pilot diameter	64	(2.520)	90	(3.543)	110	(4.331)
D5	flange diameter	86	(3.386)	118	(4.646)	145	(5.709)
D7	inner bolt circle	31.5	(1.240)	50	(1.968)	63	(2.480)
D8	outer bolt circle	79	(3.110)	109	(4.291)	135	(5.315)
D9	mounting hole diameter (8x)	4.5	(0.177)	5.5	(0.217)	5.5	(0.217)
D10 H7	flange pilot	20	(0.787)	31.5	(1.240)	40	(1.575)
D11 H7	dowel diameter	5	(0.197)	6	(0.236)	6	(0.236)
f1	flange tap	(7) M5x10		(7) M6x12		(15) M6x12	
L1 (1-stage)*	gearbox Length	124.5	(4.902)	169	(6.654)	238.5	(9.390)
L1 (2-stage)*		146.5	(5.768)	202	(7.953)	279.5	(11.004)
L1 (3-stage)*		168.5	(6.634)	235	(9.252)	320.5	(12.618)
L2	flange pilot depth	4	(0.157)	6	(0.236)	6	(0.236)
L4	output length	19.5	(0.768)	30	(1.181)	29	(1.142)
L5	flange thickness	4	(0.157)	7	(0.276)	8	(0.315)
L6	output flange length	3	(0.118)	6	(0.236)	6	(0.236)
W1	output flange thread angle	45°		45°		22.5°	
L7**	gearbox height	119.5	(4.705)	170	(6.693)	197	(7.756)
L8 (1-stage)	length to input centerline	89.5	(3.524)	122	(4.803)	178.5	(7.028)
L8 (2-stage)		111.5	(4.390)	155	(6.102)	219.5	(8.642)
L8 (3-stage)		133.5	(5.256)	188	(7.402)	260.5	(10.256)
L9**	adapter size	70	(2.756)	90	(3.543)	120	(4.724)

* depending on the motor, value can vary

TYPE CODES FOR EPR SERIES (EPR-F)

Example: EPR - F - 090 - 005 H - M0000 - H0000 - C0000

Gearbox Series

EPR

Gearbox Style

F = Flange output

Gearbox Size

064, 090, 110

Ratio

3, 4, 5, 7, 10, 12, 16, 20, 25, 35, 40, 50, 70, 100,
120, 160, 200, 250, 350, 490, 700, 000=1000

Configuration Code

Assigned by GAM

Output Code

Assigned by GAM

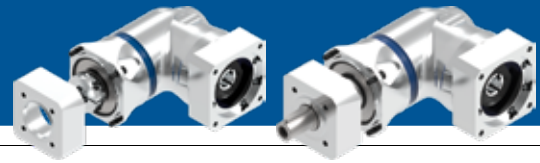
Motor Code

Assigned by GAM

Options Available for This Product

H = No Keyways

Tolerances (mm)			
Over	To (incl.)	h7	H7
6	10	0 -0.015	+0.015 0
10	18	0 -0.018	+0.018 0
18	30	0 -0.021	+0.021 0
30	50	0 -0.025	+0.025 0
50	80	0 -0.030	+0.030 0
80	120	0 -0.035	+0.035 0
120	180	0 -0.040	+0.040 0

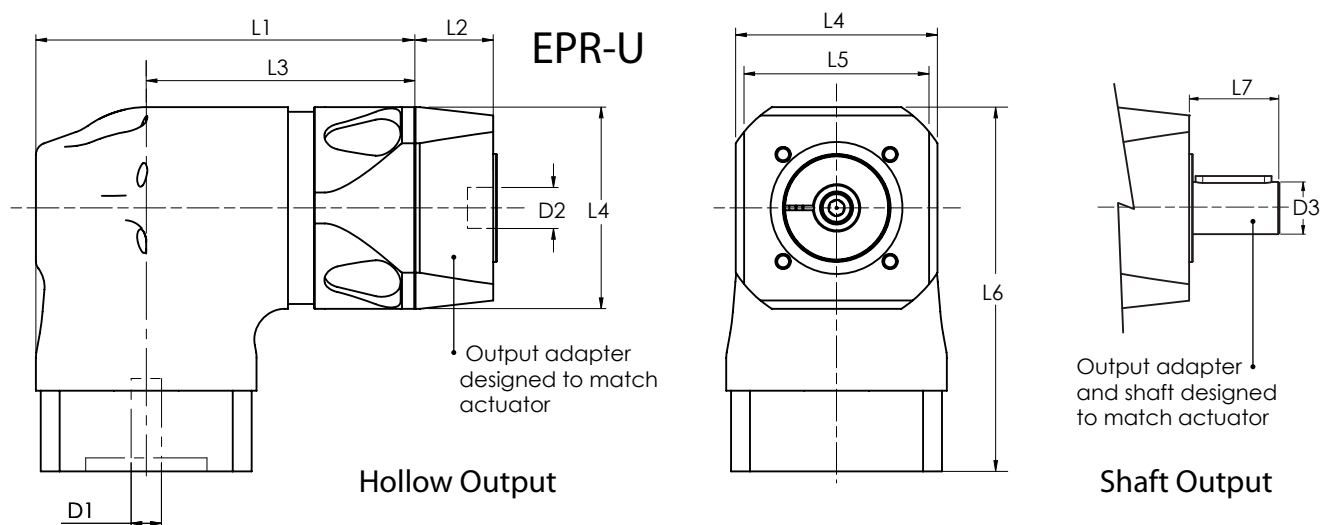


The EPR-U is designed to drive linear actuators with an integral mounting plate and hollow or shaft output

- Hollow output to mount to shaft input actuators (*replaces the **EPR-H***)
- Shaft output to mount to hollow input actuators

EPR-U Series				64		84		118	
Stock Ratios				3, 5, 7, 10, 25, 50, 100 (Standard Input)					
All Ratios Available				1-Stage Planetary: 3, 4, 5, 7, 10					
				2-Stage Planetary: 12, 16, 20, 25, 35, 40, 50, 70, 100					
				3-Stage Planetary: 120, 160, 200, 250, 350, 490, 700, 1000 (Consult GAM for other ratios)					
Nominal Output Torque (T _{2n})	Nm (lb-in)	3:1	16	(142)	33	(292)	82	(726)	
		4, 5, 7:1	22	(195)	45	(398)	101	(894)	
		10, 100, 1000:1	14	(124)	34	(301)	90	(797)	
		all other ratios	30	(266)	71	(628)	149	(1319)	
Max Acceleration Output Torque (T _{2B})	Nm (lb-in)	3:1	30	(266)	57	(504)	148	(1310)	
		4, 5, 7:1	37	(327)	84	(743)	168	(1487)	
		10, 100, 1000:1	21	(186)	65	(575)	155	(1372)	
		all other ratios	37	(327)	89	(788)	181	(1602)	
Emergency Output Torque (T _{2not})	Nm (lb-in)	3:1	72	(637)	160	(1416)	200	(1770)	
		4, 5, 7:1	84	(743)	216	(1912)	480	(4248)	
		10, 100, 1000:1	62	(549)	160	(1416)	410	(3629)	
		all other ratios	84	(743)	216	(1912)	480	(4248)	
Nominal Speed (n _{1n})	RPM	-	3500		3000		2500		
Max Speed (n _{1max})		-	6000		6000		5000		
Standard Output Backlash* (j)	arcmin	1-stage	≤12		≤12		≤10		
		2-stage	≤14		≤14		≤12		
		3-stage	≤15		≤15		≤12		
Weight (m)	kg (lbs)	1-stage	3.0	(6.6)	5.6	(12)	15	(33)	
		2-stage	3.3	(7.3)	6.4	(14)	17	(37)	
		3-stage	3.6	(7.9)	7.2	(16)	19	(42)	
Noise Level (L _{PA})	dB(A)	-	≤75		≤78		≤78		
Mass Moment of Inertia (J ₁)	kg cm ² (lb-in ²)	3:1	0.95	(0.32)	5.4	(1.8)	22	(7.5)	
		4:1, 12:1, 16:1	0.88	(0.30)	5.1	(1.7)	20	(6.8)	
		5:1, 20:1, 25:1	0.86	(0.29)	5.1	(1.7)	20	(6.8)	
		7:1, 35:1	0.85	(0.29)	5.0	(1.7)	19	(6.5)	
		10:1, 40:1 - 100:1	0.84	(0.29)	4.9	(1.7)	19	(6.5)	
		120:1 - 1000:1	0.84	(0.29)	4.9	(1.7)	19	(6.5)	
Efficiency at Load		1-stage: 92% 2-stage: 90% 3-stage: 88%							
Service Life		> 30,000 hours							
Lubrication		Mineral Grease EP0							
Protection Rating		IP 64							
Operating Temperature Range		-20°C to 90°C							

* See page 224 for definitions



EPR-U Series		64		84		118	
		mm	(in)	mm	(in)	mm	(in)
D1 max standard*	motor shaft diameter	14	(0.551)	19	(0.748)	24	(0.945)
D1 max available*		16	(0.630)	24	(0.945)	32	(1.260)
D2 min	output hollow shaft diameter	8	(0.315)	10	(0.394)	12	(0.472)
D2 max		35	(1.378)	50	(1.969)	80	(3.150)
D3 min	output shaft diameter	14	(0.551)	20	(0.787)	25	(0.984)
D3 max		35	(1.378)	55	(2.165)	70	(2.756)
L1 1-stage**	gearbox length	118	(4.646)	160	(6.299)	205	(8.071)
L1 2-stage**		140	(5.512)	193	(7.598)	245.5	(9.665)
L1 3-stage**		162	(6.378)	226	(8.898)	286	(11.260)
L2	output adapter length	dimensions determined by actuator used in application					
L3 1-stage**	gearbox length to input center line	85.5	(3.366)	113	(4.449)	146	(5.748)
L3 2-stage**		107.5	(4.232)	146	(5.748)	186.5	(7.343)
L3 3-stage**		129.5	(5.098)	179	(7.047)	227	(8.937)
L4	housing size (square)	64	(2.520)	85	(3.346)	118	(4.646)
L5	output mounting face	dimensions determined by actuator used in application					
L6	gearbox height	105	(4.134)	153.5	(6.043)	188.5	(7.421)
L7	output shaft length	dimensions determined by actuator used in application					

*for larger motor shaft diameters, please contact GAM ** depending on the motor, value can vary

TYPE CODES FOR EPR SERIES (EPR-U)

Example: EPR - U - 084 - 005 H - M0000 - H0000 - C0000

Gearbox Series

EPR

Gearbox Style

U = Universal

Gearbox Size

064, 084, 118

Ratio

3, 4, 5, 7, 10, 12, 16, 20, 25, 35, 40, 50, 70, 100,
120, 160, 200, 250, 350, 490, 700, 000 = 1000

Configuration Code

Assigned by GAM

Output Code

Assigned by GAM

Motor Code

Assigned by GAM

Options Available for This Product

G = Keyway on output per DIN6885
H = No Keyway

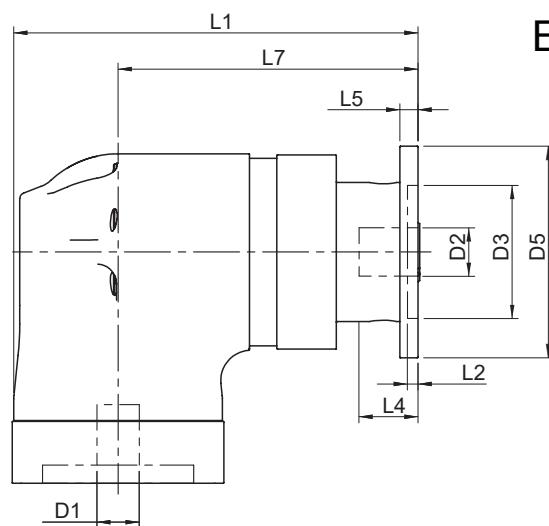
Tolerances (mm)		
Over	To (incl.)	H7
6	10	+0.015 0
10	18	+0.018 0
18	30	+0.021 0
30	50	+0.025 0
50	80	+0.030 0
80	120	+0.035 0
120	180	+0.040 0



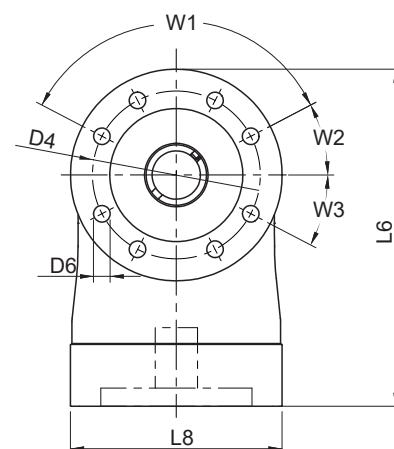
NOTE: The EPR-H will be replaced by the EPR-MH

EPR-H Series			64		84		118	
Stock Ratios			3, 5, 7, 10, 25, 50, 100 (Standard Input)					
All Ratios Available			1-Stage Planetary: 3, 4, 5, 7, 10 2-Stage Planetary: 12, 16, 20, 25, 35, 40, 50, 70, 100 3-Stage Planetary: 120, 160, 200, 250, 350, 490, 700, 1000					
Nominal Output Torque (T _{2n})	Nm (lb-in)	3:1	14	(124)	33	(292)	82	(726)
		4:1, 5:1, 7:1	22	(195)	45	(398)	101	(894)
		10:1, 100:1, 1000:1	14	(124)	34	(301)	90	(797)
		all other ratios	30	(266)	64	(566)	149	(1319)
Max Accel Output Torque (T _{2B})	Nm (lb-in)	3:1	25	(221)	57	(504)	148	(1310)
		4:1, 5:1, 7:1	37	(327)	75	(664)	168	(1487)
		10:1, 100:1, 1000:1	21	(186)	65	(575)	155	(1372)
		all other ratios	37	(327)	75	(664)	180	(1593)
Nominal Input Speed (n _{1n})	RPM	-	3300		2900		2400	
Max Input Speed (n _{1max})	RPM	-	6000		6000		5000	
Standard Output Backlash (j)	arcmin	1-stage	≤12		≤12		≤10	
		2-stage	≤14		≤14		≤12	
		3-stage	≤15		≤15		≤12	
Weight (m)	kg (lb)	1-stage	3.0	(6.6)	5.6 (12)		15 (33)	
		2-stage	3.3	(7.3)	6.4 (14)		17 (37)	
		3-stage	3.6	(7.9)	7.2 (16)		19 (42)	
Noise Level (L _{pA})	dB (A)	-	< 75		< 78		< 78	
Mass Moment of Inertia (J ₁)	kg cm ² (lb-in ²)	3:1	0.95	(0.32)	5.4 (1.8)		22 (7.5)	
		4:1, 12:1, 16:1	0.88	(0.30)	5.1 (1.7)		20 (6.8)	
		5:1, 20:1, 25:1	0.86	(0.29)	5.1 (1.7)		20 (6.8)	
		7:1, 35:1	0.85	(0.29)	5.0 (1.7)		19 (6.5)	
		10:1, 40:1 - 100:1	0.84	(0.29)	4.9 (1.7)		19 (6.5)	
		120:1 - 1000:1	0.84	(0.29)	4.9 (1.7)		19 (6.5)	
Efficiency at Load		1-stage: 92% 2-stage: 90% 3-stage: 88%						
Service Life		> 20,000 hours						
Lubrication		Mineral Grease EP0						
Protection Rating		IP 64						
Operating Temperature Range		-20°C to 90°C						

* See page 224 for definitions



EPR-H



EPR-H Series		64		84		118	
		mm	(in)	mm	(in)	mm	(in)
D1 _{max standard}	motor shaft diameter	14	(0.551)	19	(0.748)	24	(0.945)
D2 _{max}	output shaft diameter	16	(0.630)	20	(0.787)	30	(1.181)
D3 _{H7}	pilot diameter	44	(1.732)	60	(2.362)	80	(3.150)
D4	bolt circle	55.5	(2.185)	73	(2.874)	105	(4.134)
D5	flange diameter	70	(2.756)	84	(3.307)	118	(4.646)
D6	mounting holes	8 x 5.5	(0.217)	8 x 5.5	(0.217)	8 x 6.8	(0.267)
L1 (1-stage)*	gearbox length	134.2	(5.283)	177	(6.969)	234	(9.213)
L1 (2-stage)*		156.2	(6.150)	210	(8.268)	275	(10.827)
L1 (3-stage)*		178.2	(7.016)	243	(9.567)	316	(12.441)
L2	pilot depth	3.5	(0.138)	3.5	(0.138)	3.5	(0.138)
L4	allowable shaft depth	28	(1.102)	30	(1.181)	27	(1.063)
L5	flange thickness	6	(0.236)	6	(0.236)	10	(0.394)
W1	bolt hole spacing	125°		135°		135°	
W2	hole angle 1	27.5°		22.5°		22.5°	
W3	hole angle 2	27.5°		22.5°		22.5°	
L6**	gearbox height	111.5	(4.390)	153	(6.024)	183.5	(7.224)
L7 (1-stage)	length to input centerline	99.2	(3.906)	130.5	(5.138)	173.7	(6.839)
L7 (2-stage)		121.2	(4.772)	163.5	(6.437)	214.7	(8.453)
L7 (3-stage)		143.2	(5.638)	196.5	(7.736)	255.7	(10.067)
L8**	adapter size	50	(1.969)	70	(2.756)	90	(3.543)

* depending on the motor, value can vary

TYPE CODES FOR EPR SERIES (EPR-H)

Example: EPR - H - 084 - 005 H - M0000 - H0000 - C0000

Gearbox Series
EPRGearbox Style
H = Hollow Output ShaftGearbox Size
064, 084, 118Ratio
3, 4, 5, 7, 10, 12, 16, 20, 25, 35, 40, 50, 70, 100,
120, 160, 200, 250, 350, 490, 700, 000 = 1000Configuration Code
Assigned by GAMOutput Code
Assigned by GAMMotor Code
Assigned by GAMOptions Available for This Product
H = No Keyways

Tolerances (mm)		
Over	To (incl.)	H7
6	10	+0.015 0
10	18	+0.018 0
18	30	+0.021 0
30	50	+0.025 0
50	80	+0.030 0
80	120	+0.035 0
120	180	+0.040 0