



## ▶ HIGH PERFORMANCE: EPR SERIES

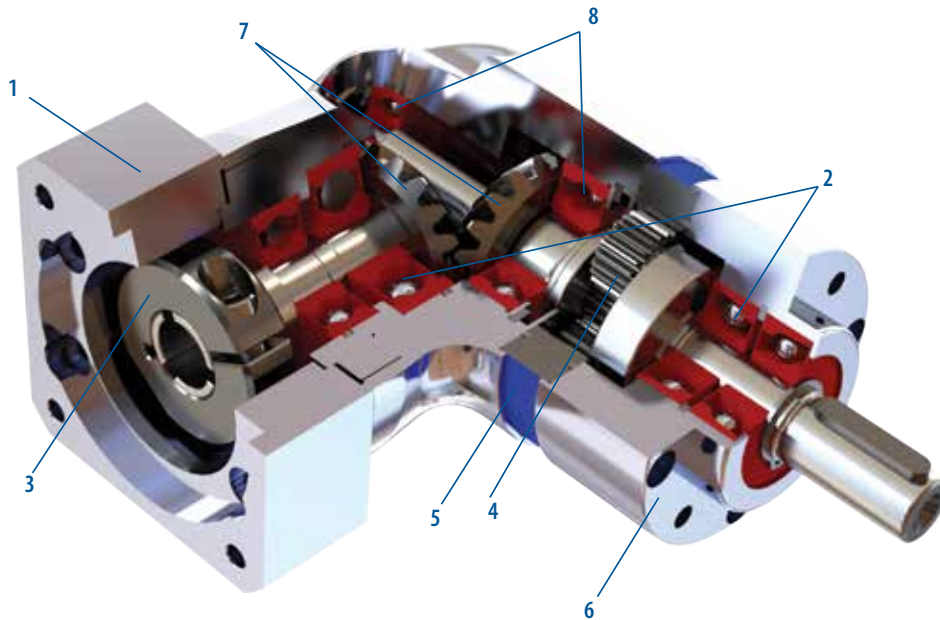
### GAM can.

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

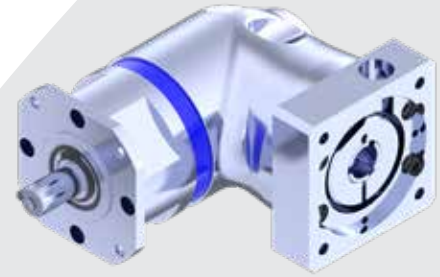
7. Precision ground spiral bevel gears

8. Bevel gear supported at both ends  
(input to planetary)



### **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-F**

- Flange output
- Sizes from 110 mm to 140 mm



### **EPR-H**

- Hollow output with zero-backlash clamping ring for direct connection to any linear actuator
- Sizes from 64 mm to 118 mm

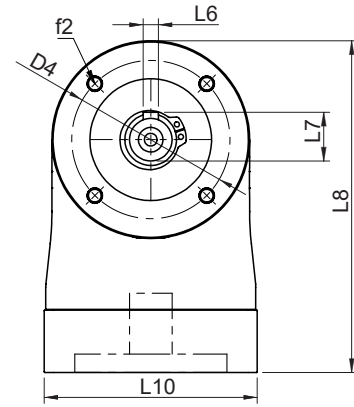
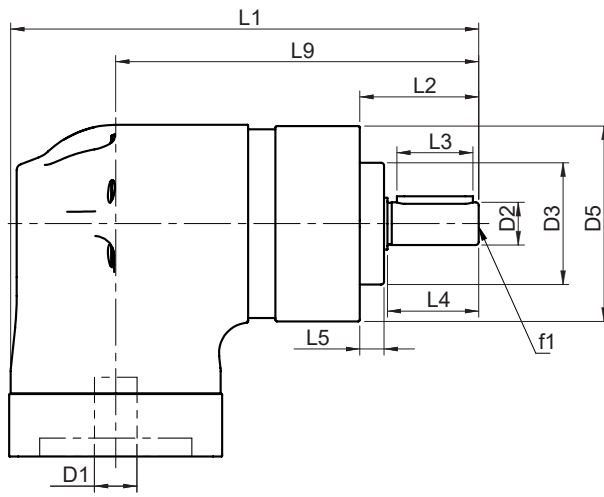


# EPR SERIES - EPR-W



EPR-W Series		64	84	118	
Stock Ratios		3, 5, 7, 10, 25, 50, 100 (Standard Input)			
All Ratios Available		2-stage: 3, 4, 5, 7, 10 3-stage: 12, 16, 20, 25, 35, 40, 50, 70, 100 3-stage: 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)	57 (504)	148 (1310)
Max Acceleration Output Torque ( $T_{2B}$ )	Nm (lb-in)	3:1	37 (327)	84 (743)	168 (1487)
		4, 5, 7:1	21 (186)	65 (575)	155 (1372)
		10, 100, 1000:1	37 (327)	89 (788)	181 (1602)
		all other ratios	84 (743)	216 (1912)	480 (4248)
Emergency Output Torque ( $T_{2not}$ )	Nm (lb-in)	3:1	62 (549)	160 (1416)	410 (3629)
		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
Allowable Radial Load ( $F_{rad}$ ) <sup>1)</sup>	N (lbs)	-	1900 (427)	2800 (629)	5000 (1124)
Allowable Axial Load ( $F_{axial}$ )	N (lbs)	-	1500 (337)	2500 (562)	4500 (1012)
Torsional Stiffness ( $C_{221}$ )	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)	2-stage	3.0 (6.6)	5.6 (12)	15 (33)
		3-stage	3.3 (7.3)	6.4 (14)	17 (37)
		4-stage	3.6 (7.9)	7.2 (16)	19 (42)
Noise Level ( $L_{pk}$ )	dB(A)	-	≤75	≤78	≤78
Mass Moment of Inertia ( $J_1$ )	kg cm <sup>2</sup> (lb-in <sup>2</sup> )	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	2-stage: 92% 3-stage: 90% 4-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

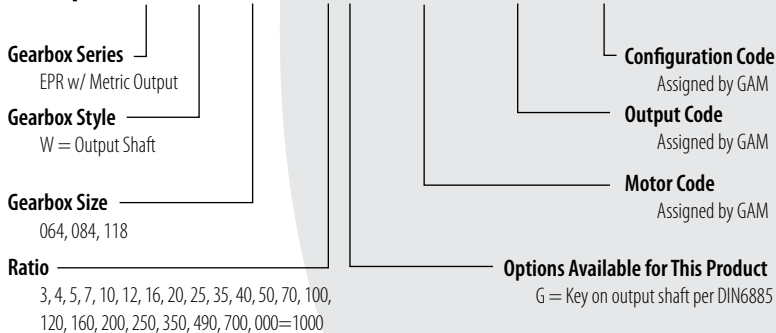


EPR-W Series		64		84		118	
		mm	(in)	mm	(in)	mm	(in)
D1 <sub>max standard</sub> *	motor shaft diameter	14	(0.551)	19	(0.748)	24	(0.945)
D1 <sub>max available</sub> *	motor shaft diameter	16	(0.63)	24	(0.945)	32	(1.26)
D2 <sub>k6</sub>	output shaft diameter	14	(0.551)	20	(0.787)	25	(0.984)
D3 <sub>h7</sub>	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 2-stage	length to input centerline	119.3	(4.697)	171	(6.732)	216.5	(8.524)
L9 3-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)

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

### TYPE CODES FOR EPR SERIES (EPR-W)

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



Tolerances (mm)		
Size	k6	h7
Over 10	+0.012	0
Thru 18	+0.001	-0.018
Over 18	+0.015	0
Thru 30	+0.002	-0.021
Over 30	+0.018	0
Thru 50	+0.002	-0.025
Over 50	+0.021	0
Thru 80	+0.002	-0.030
Over 80	+0.025	0
Thru 120	+0.003	-0.035

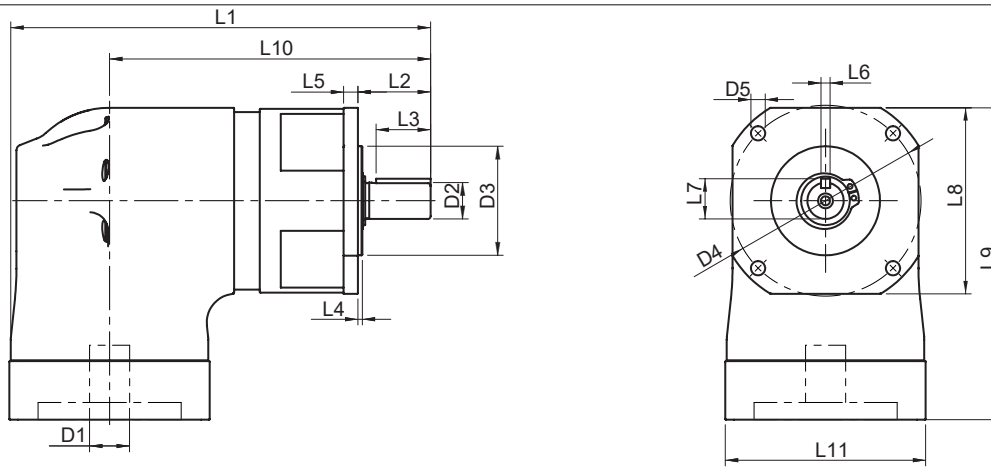


# ▶ EPR SERIES - EPR-X (NEMA)



EPR-X (NEMA) Series		23	34	42	56	
Stock Ratios		3, 5, 7, 10, 25, 50, 100		N/A		
All Ratios Available		1-stage: 3, 4, 5, 7, 10 2-stage: 12, 16, 20, 25, 35, 40, 50, 70, 100 3-stage: 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	2-stage	< 12	< 12	< 10	< 10
		3-stage	< 14	< 14	< 12	< 12
		4-stage	< 15	< 15	< 12	< 12
Allowable Radial Load ( $F_{rad}$ ) <sup>1)</sup>	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)	2-stage	3.0 (6.6)	5.6 (12)	15 (33)	15 (33)
		3-stage	3.3 (7.3)	6.4 (14)	17 (37)	17 (37)
		4-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 <sup>2</sup> (lb-in <sup>2</sup> )	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	2-stage: 92% 3-stage: 90% 4-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

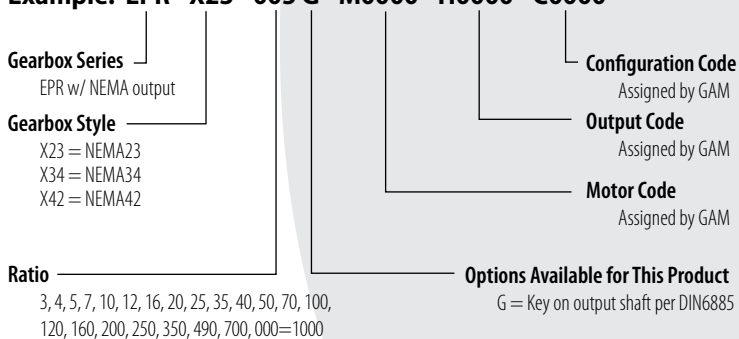


EPR-X Series		23		34		42	
		mm	(in)	mm	(in)	mm	(in)
D1 <sub>max standard</sub> *	motor shaft diameter	14	(0.55)	19	(0.748)	24	(0.945)
D1 <sub>max available</sub> *	motor shaft diameter	16	(0.63)	24	(0.945)	32	(1.26)
D2 k6	output shaft diameter	12.7	(0.50)	19.1	(0.75)	25	(0.984)
D3 h7	pilot diameter	38.1	(1.50)	73.0	(2.875)	55.55	(2.187)
D4	bolt circle	66.7	(2.625)	98.4	(3.875)	125.7	(4.95)
D5	mounting holes	5	(0.197)	5.5	(0.217)	7.1	(0.28)
f1	shaft thread						
L12-stage**	gearbox length	147.2	(5.795)	203	(7.992)	276.5	(10.886)
L13-stage**		169.2	(6.661)	236	(9.291)	316.5	(12.461)
L14-stage**		191.2	(7.528)	269	(10.591)	357.5	(14.075)
L2	shaft length	25.4	(1.000)	31.8	(1.25)	42	(1.654)
L3	key length	19.1	(0.75)	25.4	(1.00)	38	(1.496)
L4	pilot height	1.6	(0.063)	1.7	(0.067)	2.4	(0.094)
L5	flange thickness	5	(0.197)	10	(0.394)	19	(0.748)
L6	key width	3.18	(0.125)	4.78	(0.188)	8	(0.315)
L7	key height / flat height	14.22	(0.56)	21.29	(0.838)	28	(1.102)
L8	flange size	65	(2.559)	90	(3.543)	120	(4.724)
L9**	gearbox height	109	(4.291)	154.7	(6.091)	184.5	(7.264)
L10 2-stage	length to input centerline	112.2	(4.417)	156	(6.142)	216.5	(8.524)
L10 3-stage		134.2	(5.283)	189	(7.441)	256.5	(10.098)
L10 4-stage		156.2	(6.150)	222	(8.740)	297.5	(11.713)
L11**	adapter size	70	(2.756)	90	(3.543)	120	(4.724)

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

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

**Example: EPR - X23 - 005 G - M0000 - H0000 - C0000**



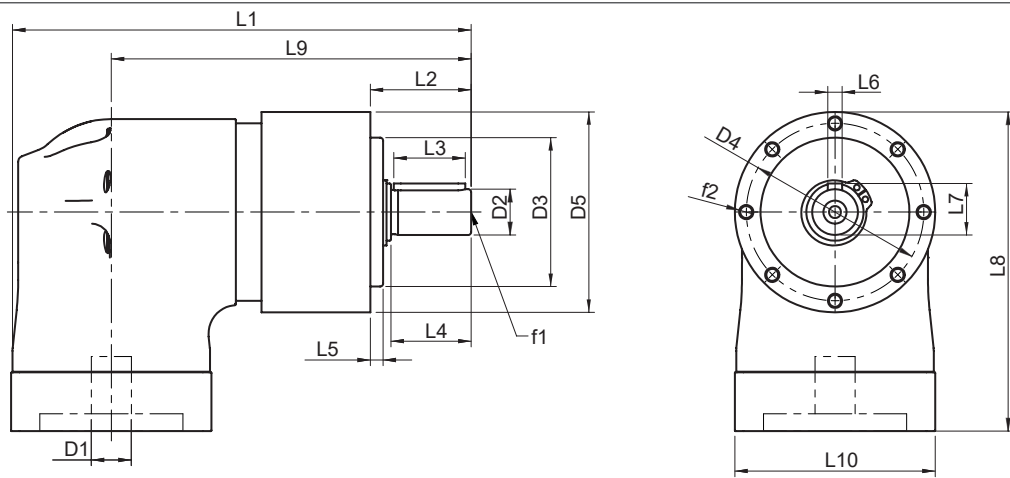
Tolerances (mm)		
Size	k6	h7
Over 10	+0.012	0
Thru 18	+0.001	-0.018
Over 18	+0.015	0
Thru 30	+0.002	-0.021
Over 30	+0.018	0
Thru 50	+0.002	-0.025
Over 50	+0.021	0
Thru 80	+0.002	-0.030
Over 80	+0.025	0
Thru 120	+0.003	-0.035



# EPR SERIES - EPR-A



EPR-A Series		70	90	120	
All Ratios Available		1stage: 3, 4, 5, 7, 10 2stage: 12,16, 20, 25, 35, 40, 50, 70, 100 3stage: 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	2-stage	< 12	< 12	< 10
		3-stage	< 14	< 14	< 12
		4-stage	< 15	< 15	< 12
Allowable Radial Load ( $F_{rad}$ ) <sup>1)</sup>	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 (lbin/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)	1stage	3.0 (6.6)	5.6 (12)	15 (33)
		2stage	3.3 (7.3)	6.4 (14)	17 (37)
		3stage	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 <sup>2</sup> (lb-in <sup>2</sup> )	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	2-stage: 92% 3-stage: 90% 4-stage: 88%				
Service Life	> 30,000 hours				
Lubrication	Mineral Grease EPO				
Protection Rating	IP 64				
Operating Temperature Range	-20°C to 90°C				

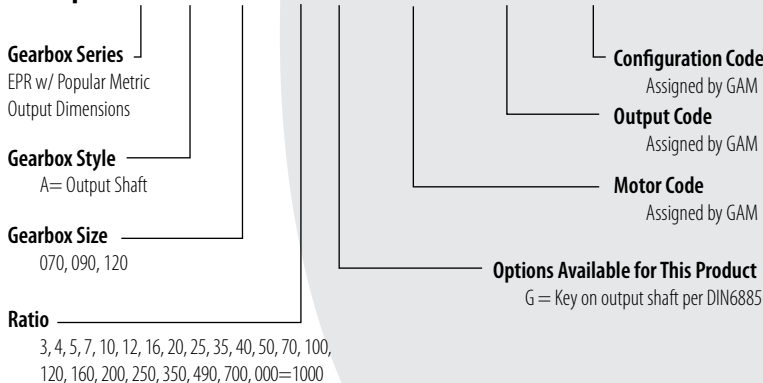


EPR-A Series		70		90		120	
		mm	(in)	mm	(in)	mm	(in)
D1 <sub>max standard</sub> *	motor shaft diameter	14	(0.551)	19	(0.748)	24	(0.945)
D1 <sub>max available</sub> *	motor shaft diameter	16	(0.630)	24	(0.945)	32	(1.260)
D2 k6	output shaft diameter	16	(0.630)	22	(0.866)	32	(1.260)
D3 h7	pilot diameter	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 2-stage**	gearbox total length	161	(6.339)	212	(8.346)	300.5	(11.831)
L1 3-stage**		183	(7.205)	244	(9.606)	341.5	(13.445)
L1 4-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	useable 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 2-stage	length to input centerline	126	(4.961)	166	(6.535)	240.5	(9.469)
L9 3-stage		148	(5.827)	198	(7.795)	281.5	(11.083)
L9 4-stage		170	(6.693)	231	(9.094)	322.5	(12.697)
L10**	adapter size	70	(2.756)	90	(3.543)	120	(4.724)

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

### TYPE CODES FOR EPR SERIES (EPR-A)

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



Tolerances (mm)		
Size	k6	h6
Over 10	+0.012	0
Thru 18	+0.001	-0.011
Over 18	+0.015	0
Thru 30	+0.002	-0.013
Over 30	+0.018	0
Thru 50	+0.002	-0.016
Over 50	+0.021	0
Thru 80	+0.002	-0.019
Over 80	+0.025	0
Thru 120	+0.003	-0.022

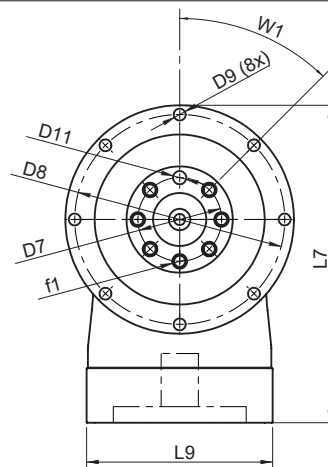
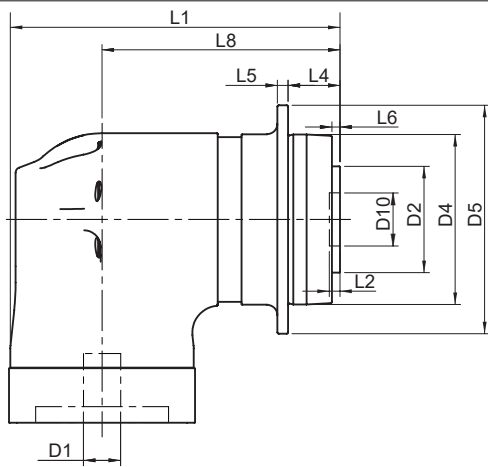




# EPR SERIES - EPR-F



EPR-F Series		64		90		110	
All Ratios Available		1-Stage: 3, 4, 5, 7, 10 2-Stage: 12, 16, 20, 25, 35, 40, 50, 70, 100 3-Stage: 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	2-stage	$\leq 12$	$\leq 12$	$\leq 10$		
		3-stage	$\leq 14$	$\leq 14$	$\leq 12$		
		4-stage	$\leq 15$	$\leq 15$	$\leq 12$		
Allowable Radial Load ( $F_{rad}$ ) <sup>1)</sup>	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 (lbin/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)	2-stage	3.0 (6.6)	5.6 (12)	15 (33)		
		3-stage	3.3 (7.3)	6.4 (14)	17 (37)		
		4-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 <sup>2</sup> (lb-in <sup>2</sup> )	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	2-stage: 92% 3-stage: 90% 4-stage: 88%						
Service Life	> 30,000 hours						
Lubrication	Mineral Grease EPO						
Protection Rating	IP 64						
Operating Temperature Range	-20°C to 90°C						

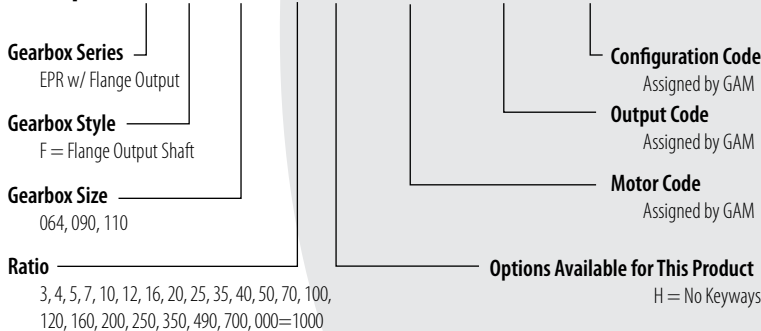


EPR-F Series		64		90		110	
		mm	(in)	mm	(in)	mm	(in)
D1 <sub>max standard</sub> *	motor shaft diameter	14	(0.551)	19	(0.748)	24	(0.945)
D1 <sub>max available</sub> *	motor shaft diameter	16	(0.630)	24	(0.945)	32	(1.260)
D2 h7	output flange diameter	40	(1.575)	63	(2.480)	80	(3.150)
D4 h7	pilot diameter	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 2-stage	length to input centerline	89.5 (3.524)		122 (4.803)		178.5 (7.028)	
L8 3-stage		111.5 (4.390)		155 (6.102)		219.5 (8.642)	
L8 4-stage		133.5 (5.256)		188 (7.402)		260.5 (10.256)	
L9**	adapter size	70	(2.756)	90	(3.543)	120	(4.724)

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

### TYPE CODES FOR EPR SERIES (EPR-F)

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



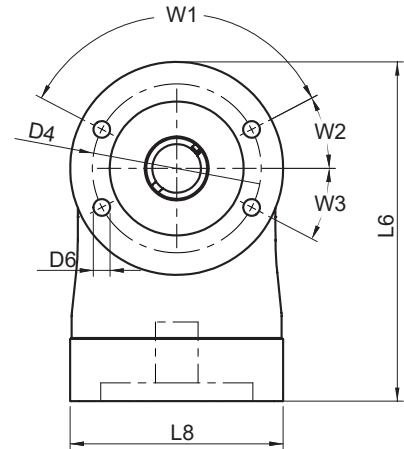
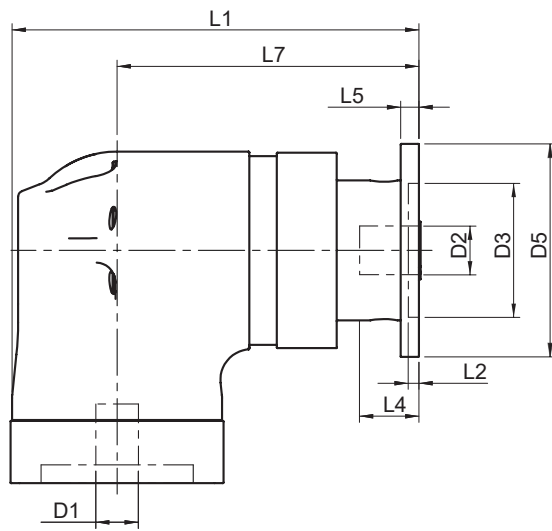
Tolerances (mm)		
Size	h7	H7
Over 10	0	0.018
Thru 18	-0.018	0
Over 18	0	0.021
Thru 30	-0.021	0
Over 30	0	+0.025
Thru 50	-0.025	0
Over 50	0	+0.030
Thru 80	-0.030	0
Over 80	0	+0.035
Thru 120	-0.035	0



# EPR SERIES: EPR-H



EPR-H Series		64		84		118	
Stock Ratios		3, 5, 7, 10, 25, 50, 100 (Standard Input)					
All Ratios Available		1-stage: 3, 4, 5, 7, 10 2-stage: 12, 16, 20, 25, 35, 40, 50, 70, 100 3-stage: 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	2-stage	≤12	≤12	≤10		
		3-stage	≤14	≤14	≤12		
		4-stage	≤15	≤15	≤12		
Weight (m)	kg (lb)	2-stage	3.0 (6.6)	5.6 (12)	15 (33)		
		3-stage	3.3 (7.3)	6.4 (14)	17 (37)		
		4-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 <sup>2</sup> (lb-in <sup>2</sup> )	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	2-stage: 92% 3-stage: 90% 4-stage: 88%						
Service Life	> 20,000 hours						
Lubrication	Mineral Grease EPO						
Protection Rating	IP 64						
Operating Temperature Range	-20°C to 90°C						



EPR-H Series		64		84		118	
		mm	(in)	mm	(in)	mm	(in)
D1 <sub>max standard</sub> *	motor shaft diameter	14	(0.551)	19	(0.748)	24	(0.945)
D1 <sub>max available</sub> *	motor shaft diameter	16	(0.630)	24	(0.945)	32	(1.26)
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	5.5	(0.217)	5.5	(0.217)	6.6	(0.260)
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°		4x 90°		4x 90°	
W2	hole angle 1	27.5°		67.5°		67.5°	
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 2-stage	length to input centerline	99.2	(3.906)	130.5	(5.138)	173.7	(6.839)
L7 3-stage		121.2	(4.772)	163.5	(6.437)	214.7	(8.453)
L7 4-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)

\* for larger motor shaft diameters, please contact GAM \*\* 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**

EPR w/ Linear Mount  
Output

**Gearbox Style**

H = Hollow Output Shaft

**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**

H = No Keyways

### Tolerances (mm)

Size	H7
Over 6	+0.015
Thru 10	0
Over 10	+0.018
Thru 18	0
Over 18	+0.021
Thru 30	0
Over 30	+0.025
Thru 50	0
Over 50	+0.030
Thru 80	0