

Gearmotors



Inline and Parallel Shaft Gearmotors

60P Inline / Planetary Gearmotors | up to 226 lb-in.

- Twice the torque of conventional helical/spur parallel shaft gearboxes of similar size
- Lower-cost alternative to high-end servo systems
- Unvented gearhousing mounts in any orientation
- Permanently lubricated with high-performance lubricant
- Hardened steel gears for long life. Needle bearings for maximum performance.
- Environmental protection: **24A4-60P:** IP-66 (with shaft seal kit installed); **22B4-60P:** IP-44
- **22B4-60P:** 120° commutation
- **22B4-60P:** Encoder compatible with new screw-in encoder shaft option.
- See page 38 for reference dimensions
- See Page 36 and 37 for accessories

Permanent Magnet DC Gearmotors



Type 24A-60P

All New
PLANETARY
GEARMOTORS

U.S./Imperial Models								
Speed (rpm)	Rated Torque (lb-in.)	Rate Current (Amps)	Peak Torque (lb-in.)	Power (HP)	Gear Ratio	Radial Load (lbs.)	Product Type	Item Number

90/130VDC, Totally Enclosed, Non-ventilated, Class F Insulation

11/15	176/226	0.56 / 0.81	315	1/23 / 1/11	162:1	145	24A4BEPM-60P3	7011
19/28	96/151		278		89:1	120	24A4BEPM-60P3	7009
27/39	72/113		254		64:1	107	24A4BEPM-60P2	7008
57/83	34/54		245		30:1	86	24A4BEPM-60P2	7006
101/147	19/30		182		17:1	72	24A4BEPM-60P2	7004
136/197	14/22		136		13:1	66	24A4BEPM-60P2	7003
216/313	10/15		91		8:1	56	24A4BEPM-60P1	7002
454/658	4.6/7.1		43		4:1	44	24A4BEPM-60P1	7001

Metric Models								
(1/min)	(Nm)	(Amps)	(Nm)	(Watts)	(i)	(N)	Product Type	Item No.

24VDC, Totally Enclosed, Non-ventilated, Class F Insulation

15	26	4.1	36	63	162:1	645	24A4BEPM-60P3	7411
28	16		31		89:1	538	24A4BEPM-60P3	7409
39	12		29		64:1	480	24A4BEPM-60P2	7408
82	5.5		28		30:1	387	24A4BEPM-60P2	7406
146	3.1		20		17:1	320	24A4BEPM-60P2	7404
197	2.3		15		13:1	294	24A4BEPM-60P2	7403
313	1.5		10		8:1	249	24A4BEPM-60P1	7402
658	0.7		5		4:1	196	24A4BEPM-60P1	7401

12VDC, Totally Enclosed, Non-ventilated, Class F Insulation

15	19	6.9	36	46	162:1	658	24A4BEPM-60P3	7211
28	11		31		89:1	547	24A4BEPM-60P3	7209
39	8		29		64:1	489	24A4BEPM-60P2	7208
82	4		19		30:1	391	24A4BEPM-60P2	7206
146	2		10		17:1	325	24A4BEPM-60P2	7204
197	1.6		8		13:1	294	24A4BEPM-60P2	7203
313	1.1		5		8:1	254	24A4BEPM-60P1	7202
658	0.5		2		4:1	196	24A4BEPM-60P1	7201

Ratings are based on operation from DC power. Performance may vary with a speed control.

Brushless DC Gearmotors



Type 22B-60P

U.S./Imperial Models								
Speed (rpm)	Rated Torque (lb-in.)	Rate Current (Amps)	Peak Torque (lb-in.)	Power (HP)	Gear Ratio	Radial Load (lbs.)	Product Type	Item Number

130VDC, Totally Enclosed, Non-ventilated, Class B, Encoder Shaft Option; IP-44

15	226	0.88	315	1/8	162:1	145	22B4FEFL-60P3	7030
28	218		278		89:1	120	22B4FEFL-60P3	7029
39	176		254		64:1	107	22B4FEFL-60P2	7028
82	84		245		30:1	86	22B4FEFL-60P2	7026
146	47		229		17:1	72	22B4FEFL-60P2	7024
197	35		170		13:1	66	22B4FEFL-60P2	7023
313	24		114		8:1	56	22B4FEFL-60P1	7022
658	11		54		4:1	44	22B4FEFL-60P1	7021

Metric Models								
[1/min]	(Nm)	(Amps)	(Nm)	(Watts)	(i)	(N)	Product Type	Item No.

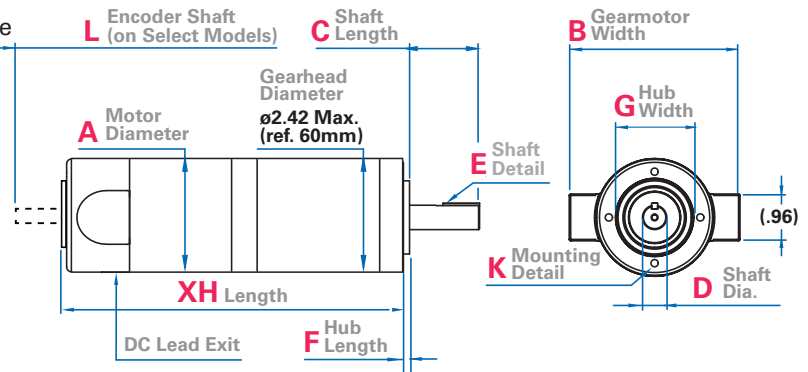
24VDC Totally Enclosed, Non-ventilated, Class B, Encoder Shaft Option; IP-44

15	26	5.6	36	93	162:1	645	22B4FEFL-60P3	7040
28	25		31		89:1	538	22B4FEFL-60P3	7039
39	20		29		64:1	480	22B4FEFL-60P2	7038
82	9.4		28		30:1	387	22B4FEFL-60P2	7036
146	5.3		23		17:1	320	22B4FEFL-60P2	7034
197	3.9		17		13:1	294	22B4FEFL-60P2	7033
313	2.7		12		8:1	249	22B4FEFL-60P1	7032
658	1.3		5		4:1	196	22B4FEFL-60P1	7031

Reference Drawings and Dimensions

60P Planetary Gearmotor Dimensions

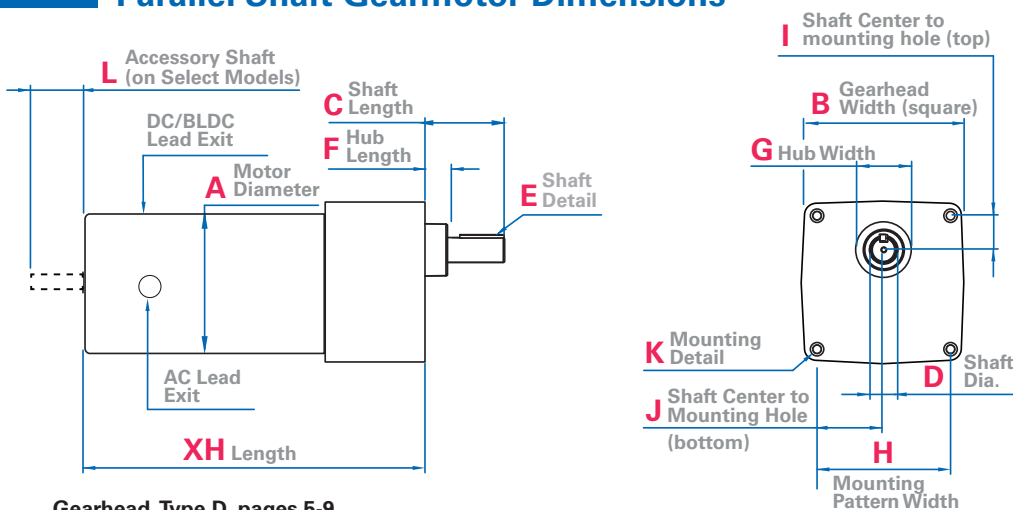
Dimensions (in inches unless otherwise noted) are for reference only.



Gearhead Type 60P, page 4

	Product Type	Wt. (lbs.)	XH Length Max.	A Diameter	B Width	C Shaft Length	D Shaft Diameter	E Shaft Detail	F Hub Length	G Hub Width	H Mounting Pattern Width	K Mounting Detail	L Encoder Shaft	Cord/Lead Length (in.)
24A-60P	24A4-60P1	4.5	7.083	2.42	3.57 Max.	1.56	.500 tapped end hole	Key	.125	1.5	90° on a ø2.000 BC	[4] #10-32 UNF-2B	No	24 Ref.
	24A4-60P2	5.0	7.693											
	24A4-60P3	5.5	8.303											
24A-60P Metric	24A4-60P1	2.0 kg	180 mm	61.5 mm	91 mm Max.	35 mm	14 mm h6	Key	3mm	40 mm h7	90° on a ø52 mm BC	[4] M5x0.8-6h	No	610 mm
	24A4-60P2	2.3 kg	195 mm											
	24A4-60P3	2.5 kg	211 mm											
22B-60P	22B4-60P1	5.1	7.04	2.39	2.39	1.56	.500 tapped end hole	Key	.118	1.5	90° on a ø2.000 BC	[4] #10-32 UNF-2B	Optional	24 Ref.
	22B4-60P2	5.7	7.65											
	22B4-60P3	6.2	8.26											
22B-60P Metric	22B4-60P1	2.3 kg	179 mm	60.71 mm	60.71 mm Max.	35 mm	14 mm h6	Key	3mm	40 mm h7	90° on a ø52 mm BC	[4] M5x0.8-6h	Optional	610 mm
	22B4-60P2	2.6 kg	194 mm											
	22B4-60P3	2.8 kg	210 mm											

D Parallel Shaft Gearmotor Dimensions



Gearhead Type D, pages 5-9

	Product Type	Wt. (lbs.)	XH Length	A Diameter (Height)	B Width	C Shaft Length	D Shaft Diameter	E Shaft Detail	F Hub Length	G Hub Width	H Mounting Pattern Width	I Shaft Center to Mounting Hole (top)	J Shaft Center to Mounting Hole (bottom)	K Mounting Detail	L Acc'y Shaft	Cord/Lead Length (in.)
Type D Gearmotor																
24A-D	24A2-D	4.0	5.887	2.42	3.42	1.56	.500	Flat	.554	1.125	2.652	.582	1.326	[4]10-32 UNF-2B x .38 deep on a 3.75 B.C.	Yes	24
	24A4-D	4.5	6.637												Yes	24
22B-D	22B2-D	3.75	5.522	2.378											Yes	12 or 24
22B-D INTEGRA	22B2-D	5.4	6.631	2.93											No	None

Only the first four characters of the product type are relevant to dimensions.