

# DC BRUSHLESS MOTORS

# DYNETIC SYSTEMS

NEW CONCEPTS IN MOTION

Reliability  
CRAFTSMANSHIP  
QUALITY  
design  
support  
EXPERIENCE  
CUSTOMIZATION  
Innovation



Encoders  
AEROSPACE  
ROBOTICS  
coreless  
motors  
MEDICAL  
SEMICONDUCTOR  
Gearmotors

## BC AND BL SERIES

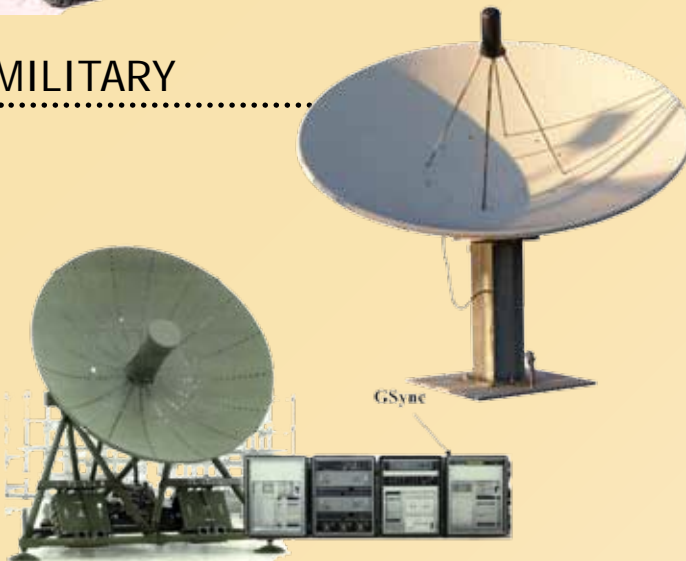


# DYNETIC SYSTEMS

## OIL & GAS



## MILITARY



## ROBOTICS



## MACHINE TOOL



## INDUSTRIES SERVED

## UUV



# DYNETIC SYSTEMS

## TRANSPORTATION



## AUTOMOTIVE



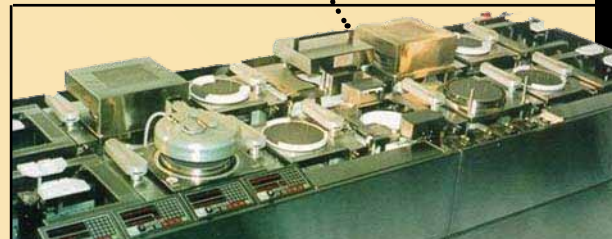
## AEROSPACE



## GAMBLING



## SEMICONDUCTOR



## MEDICAL



For almost 40 years Dynetic Systems has built a reputation based on producing quality products and offering excellent service. That tradition is carried on today by our talented and dedicated design and manufacturing staff. We have many years of application experience with both the electrical and mechanical aspects of motion control. We also take great pride in our personalized support and thorough discussion of your applications. Our specialty is integrating gearing, encoders, tachometers, filters and brakes into our servo motors to provide cost effective solutions for most motion control applications.

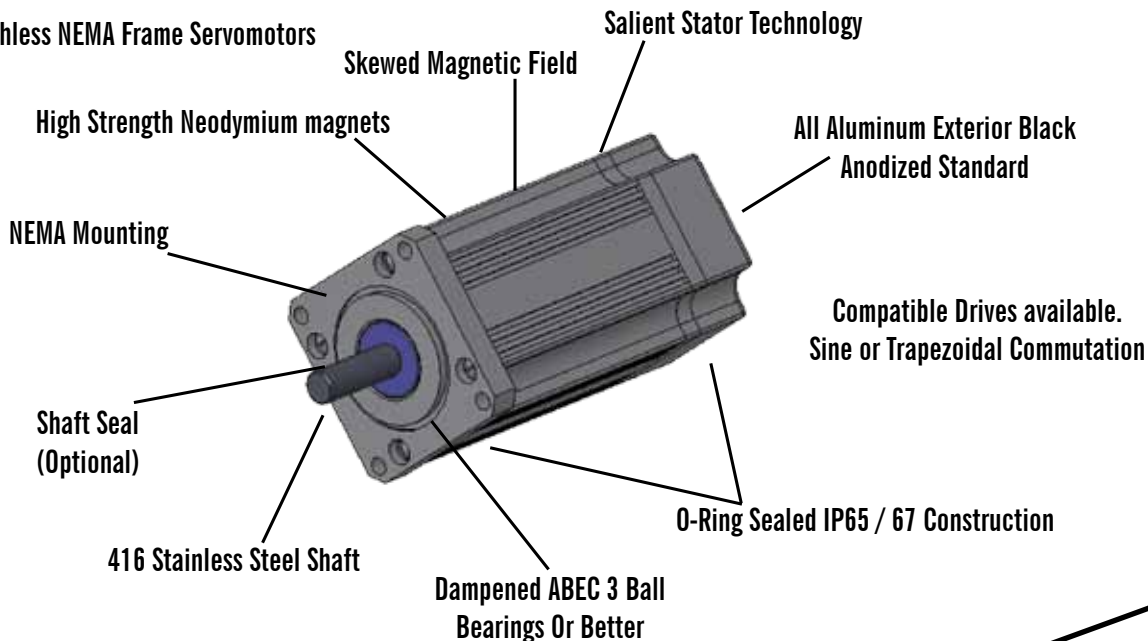
Salient Stator Technology and Neodymium magnets. We build motors for all industries, but specialize in Aerospace, Military, Medical, Robotic and Semiconductor.

Our industry leading magnetic design has produced a superior, high power Brushless motor that lives up to Dynetic Systems reputation for toughness and longevity. Both the BL and BC line of motors are designed to be compatible with industry standard motion controls. The brushless line of motors was designed with the same quality and reliability standards as our famous brushed line of product.

Dynetic Systems offers a complete line of DC Brushless Motors in sizes .9 to 3.25". These motors are designed with

## Standard Features

### Brushless NEMA Frame Servomotors



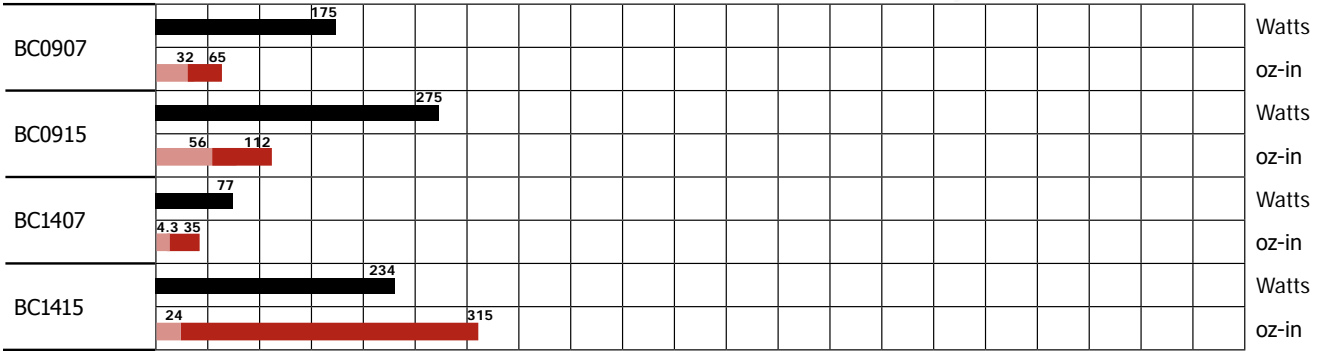
## Additional Options

- Hall Sensors
- Brakes
- Temp Sensor
- Custom Connectors
- Metric Mounting
- Resolvers
- Gearheads
- Sealed to IP67
- MIL Connectors
- Custom Magnets
- Cables
- Stainless Steel Exterior
- Commutating Encoders
- Custom Shafts
- -55°C, +150°C



### BC SERIES (Coreless)

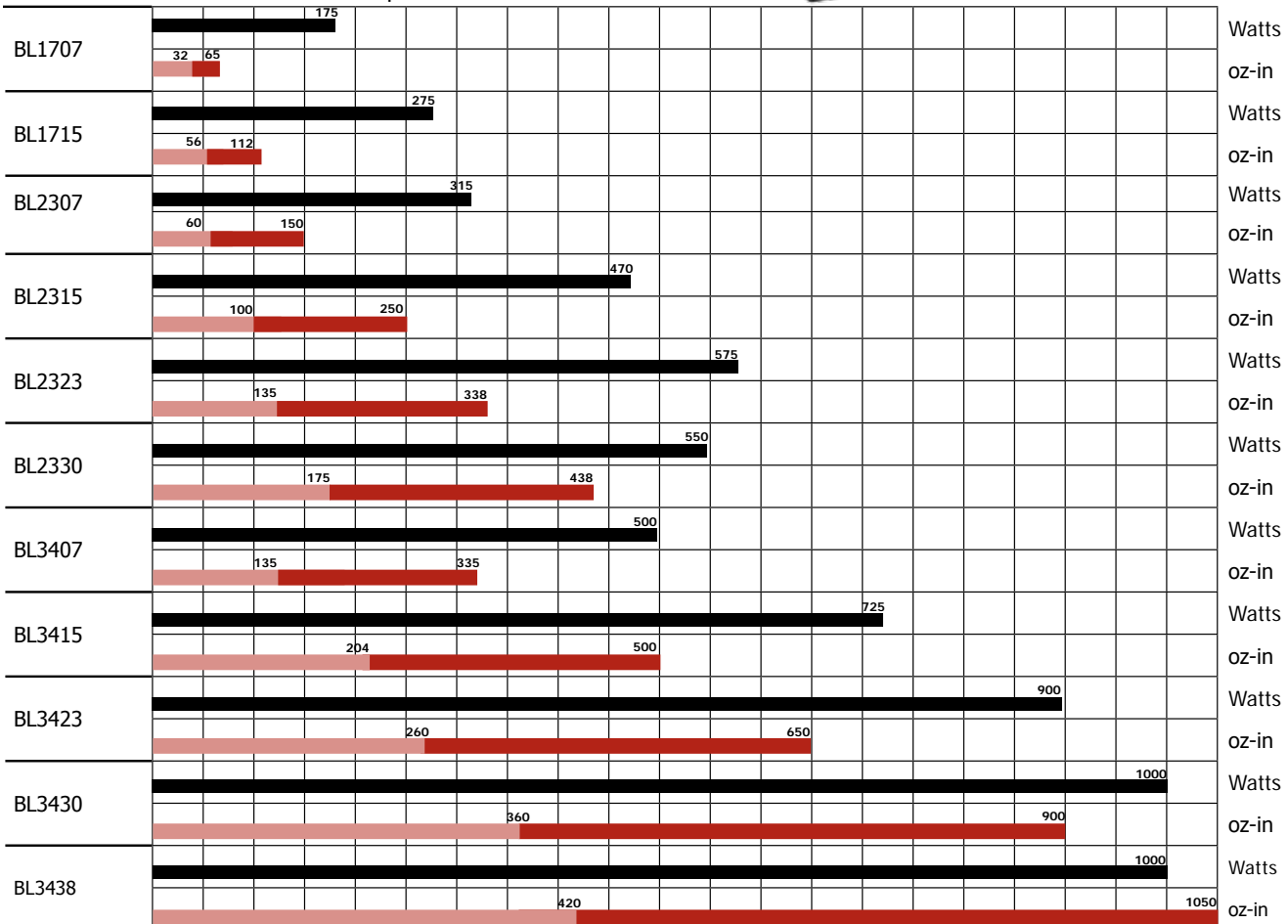
1 Power  
 2 Rated Torque  
 3 Peak Torque



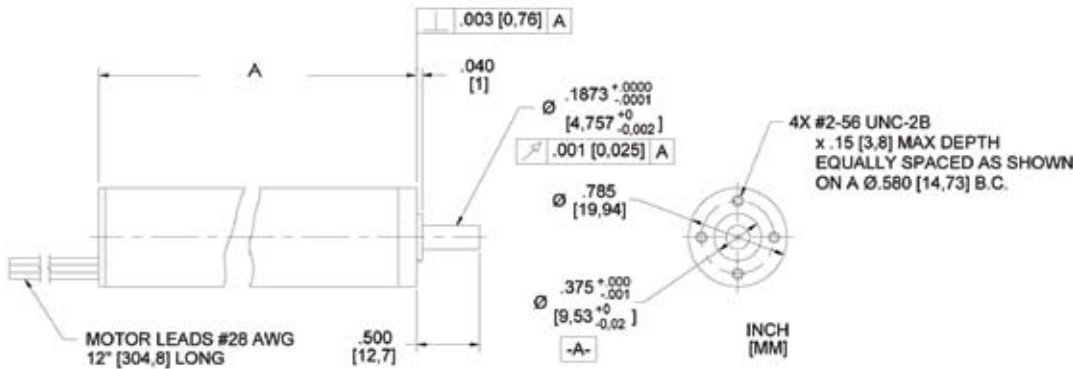
Coreless motor ratings vary greatly with speed and not size, contact for details on sizing.

### BL SERIES (Cored)

1 Power  
 2 Rated Torque  
 3 Peak Torque



\* Ratings based on 23°C Ambient Temperature, Sine Commutation



Typical dimensions can vary to customer requirements



MODEL	A
BC0907	2.090
BC0915	2.850

MODEL			BC0907			BC0915	
			-056	-105	-057	-072	-200
<b>Motor Performance</b>							
Voltage	V	V	28	28	28	24	28
Rated Speed	$\omega_r$	RPM	47500	24265	3400	30950	9720
Rated Torque	$T_r$	oz in	1.8	2.1	1.0	3.4	4.3
		Ncm	1.3	1.5	.28	2.4	3.8
Peak Torque	$T_p$	oz in	35	23	4.5	34	16
		Ncm	24.7	16.2	0.34	3.3.4	3.4
Rated Current	$I_r$	A	2.5	1.5	0.3	3.6	1.7
		Back EMF Constant	$K_e$	V/kRPM	0.56	1.05	5.7
Torque Constant	$K_t$	V/rad/s	0.005	0.010	0.054	0.007	0.019
		oz in /A	0.76	1.42	6	0.97	2.70
Output Power	P	Nm/A	0.53	1.00	0.051	0.69	1.91
		W	63	38	3	77	31
No-Load Speed	$\omega_{nl}$	RPM	50000	26665	4200	33300	12000
No-Load Current	$I_{nl}$	A	0.10	0.07	0.03	0.10	0.07
Line Resistance	R	Ohms	0.6	1.71	78	0.483	2.85
Line Inductance	L	mH	0.03	0.10	5.7	0.034	0.223
Rotor Inertia	$J_m$	oz-in-s <sup>2</sup>	3.0x10 <sup>-5</sup>	3.0x10 <sup>-5</sup>	3.0x10 <sup>-5</sup>	5.9x10 <sup>-5</sup>	5.9x10 <sup>-5</sup>
		kg m <sup>2</sup>	2.1x10 <sup>-7</sup>	2.1x10 <sup>-7</sup>	2.1x10 <sup>-7</sup>	4.2 10 <sup>-7</sup>	4.2x10 <sup>-7</sup>
Max. Winding Temp.		°C	105	105	105	105	105
<b>Physical</b>							
Weight		oz	2.8	2.8	2.8	3.8	3.8
		kg	.08	.08	.08	.11	.11
<b>Environment</b>							
Operating Temp		°C	-20C +80C				
Ingress Protection		IP	IP40				



Example gearmotor with encoder

**STANDARD ENCODER DATA**

- Line Count 500, 1000
- Square wave 2 channel quadrature
- Indexed
- Commutation channels
- 5VDC

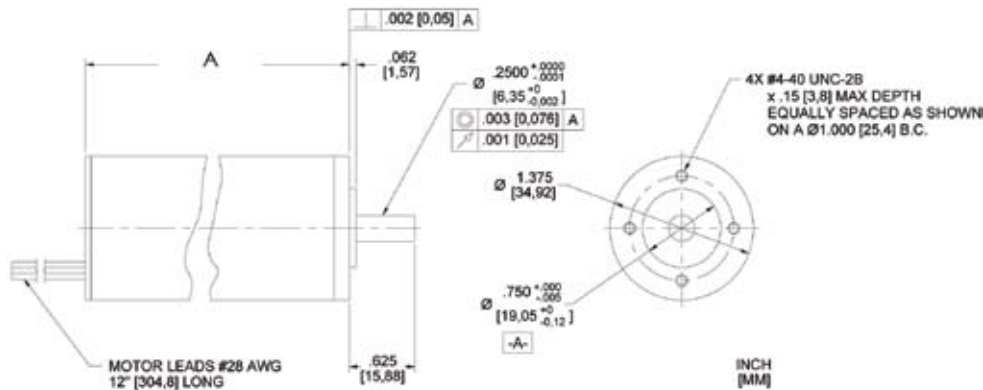
**STANDARD OPTIONS**

- Winding for speed variation
- Holding brakes
- Output shaft variations
- NEMA or Metric flange
- Gearheads

**CUSTOM OPTIONS**

- Round or square body
- Sealed to IP67
- Custom connectorization
- Resolvers
- Absolute encoders
- Extreme temperature configuration
- Thermal protection
- Hall sensors
- MIL/Aero Standards compliance
- Internal electronics

The data in this catalog contain product specifications, but are not a guarantee of particular properties. The stated values are subject to tolerances. We reserve the right to make technical changes and to restrict availability.



Typical dimensions can vary to customer requirements



MODEL	A
BC1407	3.070
BC1415	3.820

MODEL	BC1407			BC1415			
	-102	-250	-056	-166	-343		
<b>Motor Performance</b>							
<b>Voltage</b>	V	V	24	24	28	24	24
<b>Rated Speed</b>	$\omega_r$	RPM	21780	7970	2700	13390	5810
<b>Rated Torque</b>	Tr	oz in	11.9	3.38	10	23.7	21.8
		Ncm	.084	0.0239	0.076	0.167	0.154
<b>Peak Torque</b>	Tr	oz in	170.0	87.0	40	315.0	128.0
		Ncm	1.200	0.614	0.304	2.224	0.904
<b>Rated Current</b>	Ir	A	8.8	.11	25.7	10.80	4.90
		V/kRPM	1.02	2.50	5.6	1.66	3.43
<b>Back EMF Constant</b>	Ke	V/rad/s	0.0098	0.0239	0.053	0.0158	0.0328
		oz in /A	1.39	3.38	6.6	2.24	4.64
<b>Torque Constant</b>	Kt	Ncm/A	0.0098	0.0239	0.050	0.0158	0.0328
		P	W	191	87	21	234
<b>Output Power</b>							
<b>No-Load Speed</b>	$\omega_{nl}$	RPM	23420	9600	4200	14475	7000
<b>No-Load Current</b>	Inl	A	0.20	25.7	0.06	0.20	0.20
<b>Line Resistance</b>	R	Ohms	0.20	0.93	8.4	0.17	0.86
<b>Line Inductance</b>	L	mH	0.03	0.11	1.5	0.03	0.10
<b>Rotor Inertia</b>	Jm	oz-in-s <sup>2</sup>	4.7x10 <sup>-5</sup>	4.7x10 <sup>-5</sup>	4.7x10 <sup>-5</sup>	9.4x10 <sup>-5</sup>	9.4x10 <sup>-5</sup>
		kg m <sup>2</sup>	3.3x10 <sup>-7</sup>	3.3x10 <sup>-7</sup>	3.3x10 <sup>-7</sup>	6.6x10 <sup>-7</sup>	6.6x10 <sup>-7</sup>
<b>Max. Winding Temp.</b>		°C	105	105	105	105	105
<b>Physical</b>							
<b>Weight</b>		oz	13.0	13.0	7	15.0	15.0
		kg	0.37	0.37	.2	0.43	0.43
<b>Environment</b>							
<b>Operating Temp</b>		°C	-20C +80C				
<b>Ingress Protection</b>		IP	IP40				



Example gearmotor with encoder

### STANDARD ENCODER DATA

- Line Count 500, 1000
- Square wave 2 channel quadrature
- Indexed
- Commutation channels
- 5VDC

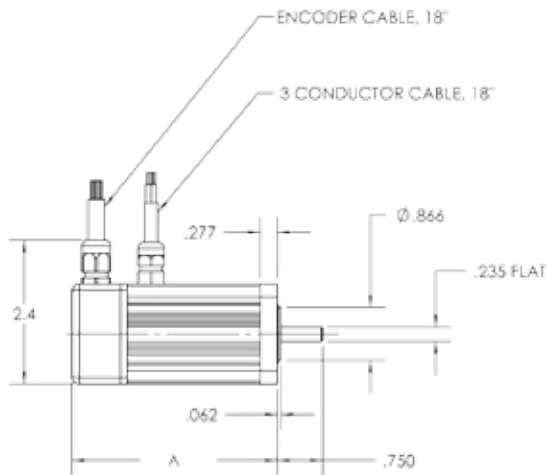
### STANDARD OPTIONS

- Winding for speed variation
- Holding brakes
- Output shaft variations
- NEMA or Metric flange
- Gearheads

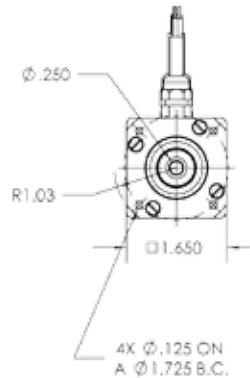
### CUSTOM OPTIONS

- Round or square body
- Sealed to IP67
- Custom connectorization
- Resolvers
- Absolute encoders
- Extreme temperature configuration
- Thermal protection
- Hall sensors
- MIL/Aero Standards compliance
- Internal electronics

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Typical dimensions can vary to customer requirements



MODEL	A
BL1707	4.01
BL1715	4.76

\* Includes encoder and cover

MODEL			BL1707*			BL1715*		
			-025	-443	-827	-027	-054	-102
<b>Motor Performance</b>								
<b>Voltage</b>	<b>V</b>	<b>V</b>	24	48	90	24	48	90
<b>Rated Speed</b>	<b><math>\omega_r</math></b>	<b>RPM</b>	7000	7000	7000	6200	6200	6200
<b>Rated Torque</b>	<b>Tr</b>	<b>oz in</b>	28	31	32	50	55	56
		<b>N m</b>	0.213	0.236	0.243	0.380	0.418	0.426
<b>Peak Torque</b>	<b>Tp</b>	<b>oz in</b>	60	65	65	100	110	112
		<b>N m</b>	0.456	0.494	0.494	0.760	0.836	0.851
<b>Rated Current</b>	<b>Ir</b>	<b>A</b>	10.5	6.6	3.6	17.4	9.6	5.2
<b>Back EMF Constant</b>	<b>Ke</b>	<b>V/kRPM</b>	2.5	4.43	8.27	2.7	5.4	10.2
		<b>V/rad/s</b>	0.024	0.042	0.079	0.026	0.052	0.097
<b>Torque Constant</b>	<b>Kt</b>	<b>oz in /A</b>	2.9	5.2	9.7	3.2	6.3	11.9
		<b>Nm/A</b>	0.022	0.039	0.074	0.024	0.048	0.091
<b>Output Power</b>	<b>P</b>	<b>W</b>	156	173	178	247	271	276
<b>No-Load Speed</b>	<b><math>\omega_{nl}</math></b>	<b>RPM</b>	9024	10185	10230	8356	8356	8294
<b>No-Load Current</b>	<b>Inl</b>	<b>A</b>	1.2	0.7	0.3	1.5	1.1	0.65
<b>Line Resistance</b>	<b>R</b>	<b>Ohms</b>	0.51	1.77	6	0.34	1.18	4.1
<b>Line Inductance</b>	<b>L</b>	<b>mH</b>	0.2	0.76	2.66	0.45	0.5	1.8
<b>Rotor Inertia</b>	<b>Jm</b>	<b>oz-in-s<sup>2</sup></b>	2.0x10 <sup>-4</sup>	2.0x10 <sup>-4</sup>	2.0x10 <sup>-4</sup>	4.0x10 <sup>-4</sup>	4.0x10 <sup>-4</sup>	4.0x10 <sup>-4</sup>
<b>Max. Mech. Speed</b>	<b><math>\omega_{max}</math></b>	<b>RPM</b>	12000	12000	12000	10000	10000	10000
<b>Max. Winding Temp.</b>		<b>°C</b>	155°C					
<b>Physical</b>								
<b>Weight</b>		<b>oz</b>	12			19		
		<b>kg</b>	.34			.54		
<b>Environment</b>								
<b>Operating Temp</b>		<b>°C</b>	-20C			+80C		
<b>Ingress Protection</b>		<b>IP</b>	IP65*					

\* Available in voltages up to 320

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### GEARHEAD DATA

#### INTEGRATED GI SERIES GEARHEAD DATA

	1 Stage	2 Stage	3 Stage	4 Stage
		15.88:1		
		25.01:1	68.06:1	252.24:1
Ratio	5.18:1	34.97:1	123.97:1	493.158:1
Length (GH Only) inches	.917	1.299	1.673	2.051
Efficiency %	80	75	70	65
Rated Torque in-lbs	10	20	40	40
Peak Torque in-lbs	25	50	100	100
Backlash degrees	1.5	1.55	1.60	1.65
Radial Load lbs	9	18	22	29
Axial Load lbs	2	4	7	9



Other ratios available up to 5 stage, please contact for details

#### HIGH PERFORMANCE GC\* SERIES GEARHEAD DATA

	1 Stage	2 Stage	3 Stage
			30:1
		15:1	40:1
		16:1	49:1
		20:1	50:1
		20:1	50:1
	3:1	5.5:1	22:1
	4:1	7:1	25:1
	5:1	10:1	28:1
Ratio	5:1	10:1	28:1
			100:1
			700:1
Length (GH Only) inches	2.62	3.28	3.77
Efficiency %	90	85	80
Rated Torque** in-lbs	56-167	52-183	136-185
Peak Torque** in-lbs	84 - 261	77 - 285	212 -286
Backlash std/low arc min	6 / 3	10 / 5	14 / 7
Radial Load lbs	120	120	120
Axial Load lbs	120	120	120



\* Hobbed shaft for shorter length

\*\* Torque varies by ratio

#### LOW BACKLASH, HIGH TORQUE GCRA\* SERIES GEARHEAD DATA

	1 Stage	2 Stage	3 Stage
			30:1
		15:1	40:1
		16:1	49:1
		20:1	50:1
		20:1	50:1
	3:1	5.5:1	22:1
	4:1	7:1	25:1
	5:1	10:1	28:1
Ratio	5:1	10:1	28:1
			100:1
			700:1
Length (GH Only)* inches	4.97	5.51	6.11
Efficiency %	85	80	75
Rated Torque** in-lbs	56-167	52-183	136-185
Peak Torque** in-lbs	84-261	77-285	212-286
Backlash Std/Low arc min	11 / 8	15 / 10	19 / 12
Radial Load lbs	120	120	120
Axial Load lbs	120	120	120



\* Hobbed shaft for shorter length

\*\* Torque varies by ratio

### STANDARD ENCODER DATA

- Line Count 500, 1000
- Square wave 2 channel quadrature
- Index
- Commutation channels
- 5VDC

### STANDARD OPTIONS

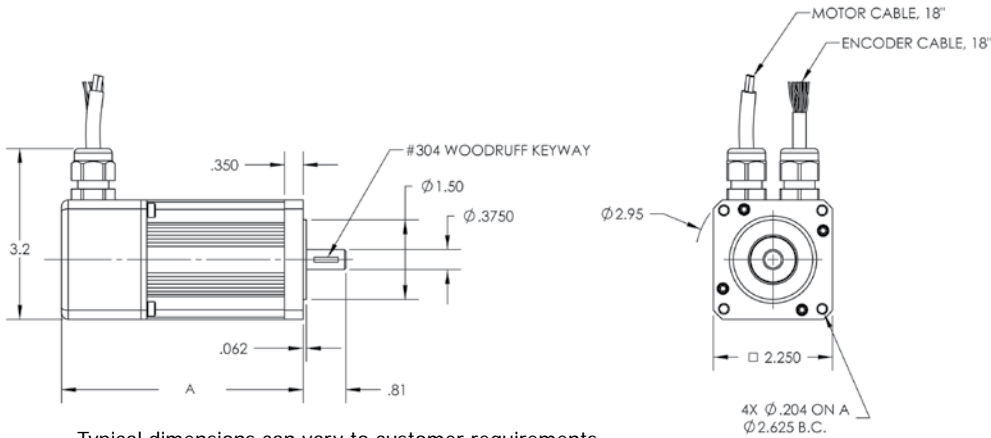
- Winding for speed variation
- Holding brakes
- Output shaft variations
- NEMA or Metric flange

### STANDARD BRAKE DATA

- Failsafe holding brake
- Deselerates inertial loads
- Power on/off
- 24VDC
- Internal or external mounting
- Holding dependent upon application needs

### CUSTOM OPTIONS

- Round or square body
- Sealed to IP67
- Custom connectorization
- Resolvers
- Absolute encoders
- Extreme temperature configuration
- Thermal protection
- Hall sensors
- MIL/Aero Standards compliance
- Internal electronics
- Stainless steel case
- Metric mounting
- Special shafts



Typical dimensions can vary to customer requirements



MODEL	A*
BL2307	4.01
BL2315	4.76
BL2323	5.51
BL2330	6.26

\* Includes encoder and cover

MODEL	BL2307*			BL2315*			BL2323*			BL2330*				
	-025	-443	-827	-270	-054	-102	-316	-064	-012	-042	-082	-152		
<b>Motor Performance</b>														
Voltage	V	V	24	48	90	24	48	90	24	48	90	24	48	90
Rated Speed	$\omega_r$	RPM	7000	7000	7000	6200	6200	6200	5400	5400	5400	4200	4200	4200
Rated Torque	Tr	oz in	52	60	60	100	100	105	135	135	135	175	175	175
		N m	0.395	0.456	0.456	0.760	0.760	0.798	1.026	1.026	1.026	1.330	1.330	1.330
Peak Torque	Tp	oz in	130	150	150	250	250	262	338	338	338	438	438	438
		N m	0.988	1.140	1.140	1.900	1.900	1.991	2.569	2.569	2.569	3.329	3.329	3.329
Rated Current	Ir	A	16	10.5	5.75	29	14.5	8.1	34	16.7	9.5	33	17	9
Back EMF Constant	Ke	V/kRPM	2.5	4.43	8.27	2.7	5.4	10.2	3.16	6.4	12	4.2	8.2	15.2
		V/rad/s	0.024	0.042	0.079	0.026	0.052	0.097	0.030	0.061	0.115	0.040	0.078	0.145
Torque Constant	Kt	oz in /A	3.27	5.76	10.77	3.51	7	13.2	4.1	8.3	15.3	5.6	10.6	19.7
		Nm/A	0.025	0.044	0.082	0.027	0.053	0.100	0.031	0.063	0.116	0.043	0.081	0.150
Output Power	P	W	270	315	315	450	470	470	550	550	575	545	545	545
No-Load Speed	$\omega_{nl}$	RPM	9500	10900	10900	8900	8900	8900	7600	7600	7600	5800	5800	5800
No-Load Current	Inl	A	0.92	0.46	0.245	1.06	0.8	0.65	1.21	0.9	0.72	1.4	0.9	0.4
Line Resistance	R	Ohms	0.055	0.159	0.59	0.025	0.1	0.38	0.022	0.072	0.27	0.023	0.1	0.42
Line Inductance	L	mH	0.128	0.4	1.42	0.076	0.3	1.1	0.07	0.3	1.02	0.096	0.38	1.35
Rotor Inertia	Jm	oz-in-s <sup>2</sup>	0.001	0.001	0.001	0.002	0.002	0.002	0.003	0.003	0.003	0.004	0.004	0.004
Max. Mech. Speed	$\omega_{max}$	RPM	12000	12000	12000	10000	10000	10000	9000	9000	9000	8000	8000	8000
Max. Winding Temp.		°C	155°C											
<b>Physical</b>														
Weight		oz	28			36.8			45.6			54.4		
		kg	.79			1.04			1.29			1.54		
<b>Environment</b>														
Operating Temp		°C	-40°C						+115°C					
Ingress Protection		IP	IP65*											

\* Available in voltages up to 320

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### GEARHEAD DATA

#### INTEGRATED GI SERIES GEARHEAD DATA

		1 Stage	2 Stage	3 Stage
				115:1
				51:1 124:1
				59:1 130:1
				68:1 139:1
			22:1	71:1 150:1
		4:1	25:1	79:1 169:1
		16:1	27:1	93:1 181:1
	4:1	18:1	29:1	95:1 195:1
Ratio	5:1	19:1	35:1	100:1 236:1
Length (GH Only) inches		1.63	2.15	2.67
Efficiency %		80	75	70
Rated Torque in-lbs		27	63	133
Peak Torque in-lbs		40	94	199
Backlash degrees		.90	.95	1.0
Radial Load lbs		35	50	67
Axial Load lbs		11	18	25

Additional ratios up to 5 stages available, contact for details



#### HIGH PERFORMANCE GC\* SERIES GEARHEAD DATA

		1 Stage	2 Stage	3 Stage
				30:1
				15:1 40:1
				16:1 49:1 160:1
				20:1 50:1 280:1
	3:1	5.5:1	22:1	55:1 400:1
	4:1	7:1	25:1	70:1 550:1
Ratio	5:1	10:1	28:1	100:1 700:1
Length (GH Only)* inches		2.66	3.48	4.27
Efficiency %		90	85	80
Rated Torque** in-lbs		380	408	409
Peak Torque** in-lbs		594	639	640
Backlash Std/Low arc min		6 / 3	10 / 5	14 / 7
Radial Load lbs		85	85	85
Axial Load lbs		125	125	125

\* Hobbed shaft for shorter length

\*\* Torque varies by ratio



#### LOW BACKLASH, HIGH TORQUE GCRA\* SERIES GEARHEAD DATA

		1 Stage	2 Stage	3 Stage
				30:1
				15:1 40:1
				16:1 49:1 160:1
				20:1 50:1 280:1
	3:1	5.5:1	22:1	55:1 400:1
	4:1	7:1	25:1	70:1 550:1
Ratio	5:1	10:1	28:1	100:1 700:1
Length (GH Only)* inches		6.49	7.32	7.10
Efficiency %		85	80	75
Rated Torque** in-lbs		119-380	110-408	303-409
Peak Torque** in-lbs		594	639	640
Backlash Std/Low arc min		11 / 8	15 / 10	19 / 12
Radial Load lbs		600	600	600
Axial Load lbs		600	600	600

\* Hobbed shaft for shorter length

\*\* Torque varies by ratio



### STANDARD ENCODER DATA

- Line Count 500, 1000
- Square wave 2 channel quadrature
- Index
- Commutation channels
- 5VDC

### STANDARD OPTIONS

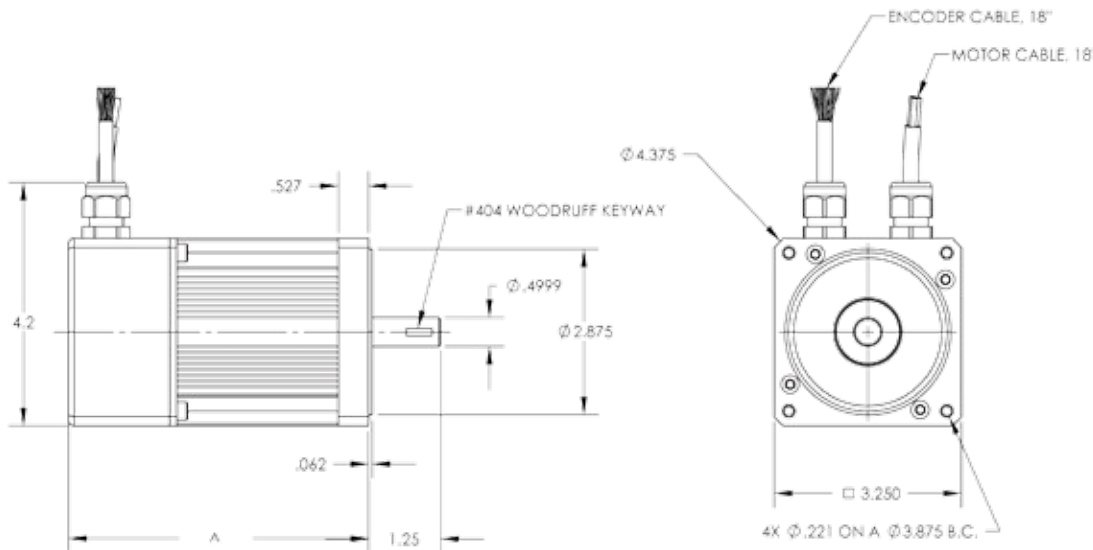
- Winding for speed variation
- Holding brakes
- Output shaft variations
- NEMA or Metric flange

### STANDARD BRAKE DATA

- Failsafe holding brake
- Power on/off
- 24VDC
- Internal or external mounting
- Holding force dependent upon application needs

### CUSTOM OPTIONS

- Round or square body
- Sealed to IP67
- Custom connectorization
- Resolvers
- Absolute encoders
- Extreme temperature configuration
- Thermal protection
- Hall sensors
- MIL/Aero Standards compliance
- Internal electronics
- Stainless steel case
- Metric mounting
- Special shafts



MODEL	A*
BL3407	4.652
BL3415	5.402
BL3423	6.152
BL3430	6.902
BL3438	7.655

Typical dimensions can vary to customer requirements

\* Includes encoder and cover

MODEL	BL3407*			BL3415*			BL3423*			BL3430*			BL3438*		
	-037	-070	-134	-041	-813	-146	-036	-084	-157	-046	-092	-177	-046		
<b>Motor Performance</b>															
Voltage	V	V	24 48 90	24 48 90	24 48 90	24 48 90	24 48 90	24 48 90	24 48 90	24 48 90	24 48 90	24 48 90	24*		
Rated Speed	$\omega_r$	RPM	5000 5000 5000	4800 4800 4800	4800 4800 4800	4800 4600 4600	4600 4600 4600	3900 3900 3900	3900 3900 3900	3900 3900 3900	3900 3900 3900	3900 3900 3900	3200		
Rated Torque	Tr	oz in	132 134 133	190 200 204	255 260 260	360 360 360	360 360 360	420							
		N m	1.003 1.018 1.011	1.444 1.520 1.550	1.938 1.976 1.976	2.736 2.736 2.736	2.96								
Peak Torque	Tp	oz in	330 335 333	475 502 500	625 650 650	900 900 900	1050								
		N m	2.508 2.546 2.531	3.610 3.815 3.800	4.750 4.940 4.940	6.840 6.840 6.840	7.980								
Rated Current	Ir	A	28.2 15.1 7.9	36.7 19.5 10.9	55 25 13.1	62 30.8 16	70								
Back EMF Constant	Ke	V/kRPM	3.7 7 13.4	4.1 8.13 14.6	3.6 8.4 15.7	4.6 9.2 17.7	4.75								
		V/rad/s	0.035 0.067 0.128	0.039 0.078 0.139	0.034 0.080 0.150	0.044 0.088 0.169	0.045								
Torque Constant	Kt	oz in /A	4.8 9.1 17.3	5.3 10.6 19	4.65 10.9 20.3	5.96 11.8 22.9	6.1								
		Nm/A	0.036 0.069 0.131	0.040 0.081 0.144	0.035 0.083 0.154	0.045 0.090 0.174	0.046								
Output Power	P	W	488 490 495	674 714 725	890 890 880	1040 1050 1040	1000								
No-Load Speed	$\omega_{nl}$	RPM	6400 6700 6550	5800 5800 6000	6500 5500 5600	5080 5200 5000	5100								
No-Load Current	Inl	A	0.83 0.44 0.23	0.94 0.48 0.26	1.3 0.55 0.3	1.2 0.6 0.3	9								
Line Resistance	R	Ohms	0.042 0.142 0.621	0.019 0.08 0.25	0.01 0.052 0.175	0.014 0.054 0.18	.014								
Line Inductance	L	mH	0.14 0.5 1.7	0.033 0.33 1.1	0.032 0.174 0.6	0.06 0.23 0.67	.073								
Rotor Inertia	Jm	oz-in-s <sup>2</sup>	0.003 0.003 0.003	0.007 0.007 0.007	0.01 0.01 0.01	0.013 0.013 0.013	0.016								
Max. Mech. Speed	$\omega_{max}$	RPM	7000 7000 7000	6500 6500 6500	6500 6500 6500	6000 6000 6000	6000								
Max. Winding Temp.		°	155°C												
<b>Physical</b>															
Weight		oz	57.6			88			116.8			128			140
		kg	1.63			2.49			3.31			3.63			3.97
<b>Environment</b>															
Operating Temp		°C	-40°C +1150°C												
Ingress Protection		IP	IP65s*												

\* Available in voltages up to 320

The data in this catalog contain product specifications, but are not a guarantee of particular properties. The stated values are subject to tolerances. We reserve the right to make technical changes and to restrict availability.

### GEARHEAD DATA

#### INTEGRATED GI SERIES GEARHEAD DATA

		1 Stage	2 Stage	3 Stage
Ratio				115:1 51:1 124:1 59:1 130:1 68:1 139:1 22:1 71:1 150:1 4:1 25:1 79:1 169:1 16:1 27:1 93:1 181:1 4:1 18:1 29:1 95:1 195:1 5:1 19:1 35:1 100:1 236:1
Length (GH Only)	inches	2.21	2.86	3.54
Efficiency	%	80	75	70
Rated Torque	in-lbs	71	221	442
Peak Torque	in-lbs	106	331	663
Backlash	degrees	.65	.70	.75
Radial Load	lbs	54	81	117
Axial Load	lbs	16	22	34



- Other ratios up to 5 stage available, contact for details
- High performance model available, contact for details

		1 Stage	2 Stage	3 Stage
Ratio				30:1 15:1 40:1 16:1 49:1 160:1 20:1 50:1 280:1 3:1 5.5:1 22:1 55:1 400:1 4:1 7:1 25:1 70:1 550:1 5:1 10:1 28:1 100:1 700:1
Length (GH Only)*	inches	4.19	5.31	6.53
Efficiency	%	90	85	80
Rated Torque**	in-lbs	1285	1381	1458
Peak Torque**	in-lbs	2008	2158	2278
Backlash Std/ Low	arc min	6 / 3	10 / 5	14 / 7
Radial Load	lbs	140	140	140
Axial Load	lbs	155	155	155



- \* Hobbed shaft for shorter length available
- \*\* Torque varies by ratio

#### LOW BACKLASH, HIGH TORQUE GCRA\* SERIES GEARHEAD DATA

		1 Stage	2 Stage	3 Stage
Ratio				30:1 15:1 40:1 16:1 49:1 160:1 20:1 50:1 280:1 3:1 5.5:1 22:1 55:1 400:1 4:1 7:1 25:1 70:1 550:1 5:1 10:1 28:1 100:1 700:1
Length (GH Only)*	inches			
Efficiency	%	85	80	75
Rated Torque**	in-lbs	552-1285	507-1430	1090-1458
Peak Torque**	in-lbs	2008	2235	2278
Backlash Std/Low	arc min	11 / 8	15 / 10	19 / 12
Radial Load	lbs	140	140	140
Axial Load	lbs	155	155	155



- \* Hobbed shaft for shorter length available
- \*\* Torque varies by ratio

### STANDARD ENCODER DATA

- Line Count 500, 1000
- Square wave 2 channel quadrature
- Indexed
- Commutation channels
- 5VDC

### STANDARD OPTIONS

- Winding for speed variation
- Holding brakes
- Output shaft variations
- NEMA or Metric flange

### STANDARD BRAKE DATA

- Failsafe holding brake
- Deselerates inertial loads
- Power on or power off
- 24VDC
- Internal or external mounting
- Holding dependent upon application needs

### CUSTOM OPTIONS

- Round or square body
- Sealed to IP67
- Custom connectorization
- Resolvers
- Absolute encoders
- Extreme temperature configuration
- Thermal protection
- Hall sensors
- MIL/Aero Standards compliance
- Internal electronics
- Stainless steel case
- Metric mounting
- Special shafts



Model 075702 & 075704



Model 075703



Model 075700 & 075701

Parameter	Units	075700	075701	075702	075703	075704
Rated Input Voltage	Volts	200-240 VAC		10-54 VDC	10-54 VDC	160 VDC
Rated Power Output		6.8 KVA	26.6 KVA	1080 W	320 W	500 W
Rated Output Current	Amps	16.5	64	20	8	3.1
Peak Output Current	Amps	33	128	40	16	6.2
Peak Output Current Time	Sec	24.7	96	30	30	30
Control		VDC/4-20mA/Remote		0-10	0-20VDC	0-5VDC
Tuning		Potentiometer/Digital		Potentiometer	Potentiometer	
I/O	#	8-in/5-out Programmable		2-Fixed	4-Fixed	3-Fixed
Control Type		Vector		Hall Sensored	Hall Sensored	
Accel/Decel Control		Yes 0-3600sec		Replote	Yes 0-10Sec	
Operating Temperature		0-50C				

- Open Loop or Integrated Closed Loop
- Internal +5VDC Hall Power
- NEMA 4/12 Enclosed Models
- IGBT Power Devices
- Run/Stop Induction
- Fault Indicator
- Brake Control
- Current Limit Adjustable

\*CUSTOM DRIVES AVAILABLE UPON REQUEST

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**MOTOR AND DRIVE SELECTION TABLE**

	075700	075701	075702	075703	075704
BC0907					✓
BC0915					✓
BC1407					✓
BC1415			✓		✓
BL1707			✓	✓	
BL1715	✓		✓		
BL2307	✓		✓		✓
BL2315	✓	✓	✓		✓
BL2323	✓	✓	✓		✓
BL2330	✓	✓	✓		✓
BL3407	✓	✓			✓
BL3415	✓	✓			✓
BL3423	✓	✓			
BL3430	✓	✓			
BL3438	✓	✓			

**INTERNAL DRIVES**

- Integrated Power and Control Electronics
- Extended Range Operation
- DO160 Certified
- DO254 Capable



**ELECTRONIC TRANSMISSION**

- Electronic control of motor winding configuration
- Dual speed/torque operation
- Delta/Wye - Series/parallel modes



**ELECTRONIC SURGE PROTECTION**

- RFI/EMI Filter Protection
- EMI Analysis
  - Emmissions
  - Susceptability
- Hr Protection Designs

## COMPLETE MOTION SYSTEMS DESIGN AND DEVELOPMENT

Many applications call for specialized motion capabilities. It can be the coordination of a complete production line or as simple as tuning a system to function economically. In some cases we build to print. Others we step in and design the entire motion system including the drives and drive motors. Our engineering department is available to discuss your needs.

- Computerized Electro Magnetic Design
- Finite Element Analysis
- 3D Computerized Modeling
- Improve Power Density and Efficiency
- Application Sizing
- Prototyping
- Medical/Military/Aerospace Compliance Testing
- Extreme Environment Design
- Product Integration
- Gearing Application Design
- Custom Drive Development
- Integrated Drive Designs
- System Efficiency Analysis
- Specialized Feedback Types and Considerations
- Motion Tuning



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