

**BL23 SERIES**

**GEARHEAD DATA**

INTEGRATED GI SERIES GEARHEAD DATA

	1 Stage	2 Stage	3 Stage
Ratio	5:1	19:1	100:1
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	.65	.70	.75
Radial Load lbs	35	50	67
Axial Load lbs	11	18	25

4th Stage ratio available, call for details

HIGH PERFORMANCE GC\* SERIES GEARHEAD DATA

	1 Stage	2 Stage	3 Stage
Ratio	5:1	10:1	28:1
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 arc min	6	10	14
Radial Load lbs	85	85	85
Axial Load lbs	125	125	125

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

**BL34 SERIES**

	1 Stage	2 Stage	3 Stage
Ratio	5:1	19:1	100:1
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

	1 Stage	2 Stage	3 Stage
Ratio	5:1	10:1	28:1
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 arc min	6	10	14
Radial Load lbs	140	140	140
Axial Load lbs	155	155	155

Dynetic Systems classifies our product designs in three categories. Standard product motors, which are shown in this brochure, custom-standard, were a modified standard product with options shown, and custom were we change the form, fit or function of our standard product including completely new motor designs to best meet our customers application requirements.

The custom-standard line uses our base motor construction and adds options such as a special wire harness, gearing, shaft, mounting, holding brake and or filtering.

Motors are classified as customs when there are extreme changes to our standard product or a completely new frame size design. We have designed PM DC Brushed, Brushless, 400 Hz AC, wound field and frameless motors. Communication between our design staff and our customers technical personnel is essential to the success of a project which is why we make our engineering staff available for direct communication with our customers. We work with you to develop the right motor for your application.

Custom Options Include:

- MIL-STD Specifications
- SS Canister Enclosures
- High Shock & Vibration
- Extreme Temperature
- Wet Motors
- Special Shafts
- Special Mounting
- DO-160 Compliance
- Round Body
- Built-in Electronics



**DC BRUSHLESS MOTORS**



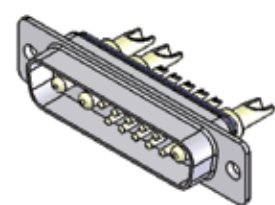
**ENCODER DATA**



Line Count \*1000 Pulses Per Revolution  
Electrical Output: Square wave two channel quadrature with index and commutation signals.  
Input: 5 VDC

\* Other PPR's available and optional line drivers.

**CONNECTOR DATA**



D-Sub Connector Potted to IP67 Rating

Specifications subject to change without notice - consult factory for current specifications

**CORPORATE OFFICE:**

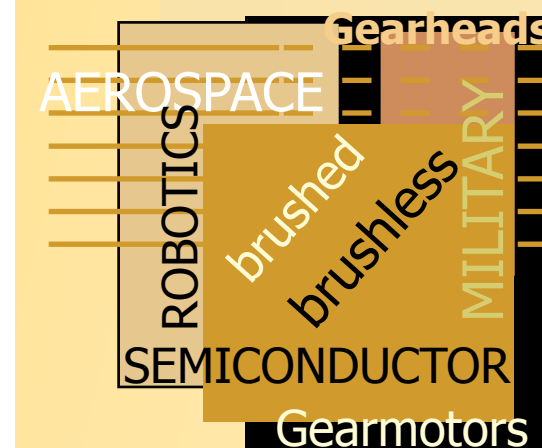
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**WWW.DYNETIC.COM**

YOUR LOCAL REPRESENTATIVE IS



For over 35 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 and supported by one of the most helpful sales and support organizations. We have many years of application experience

Dynetic Systems offers a complete line of DC Brushless Motors in sizes 17, 23 and 34. These motors are designed with Salient Pole Technology and Neodymium magnets. We build motors for all industries, but specialize in Aerospace, Military, Medical, Robotic and Semiconductor.

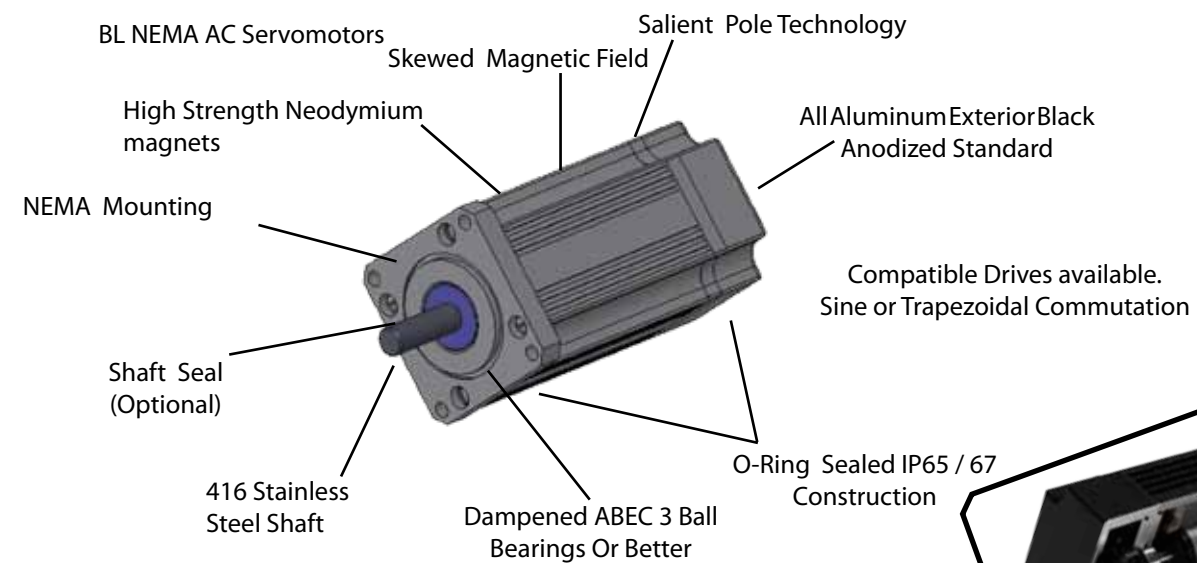
Our industry leading magnetic design has produced a superior, high power Brushless motor that lives up



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 your applications.

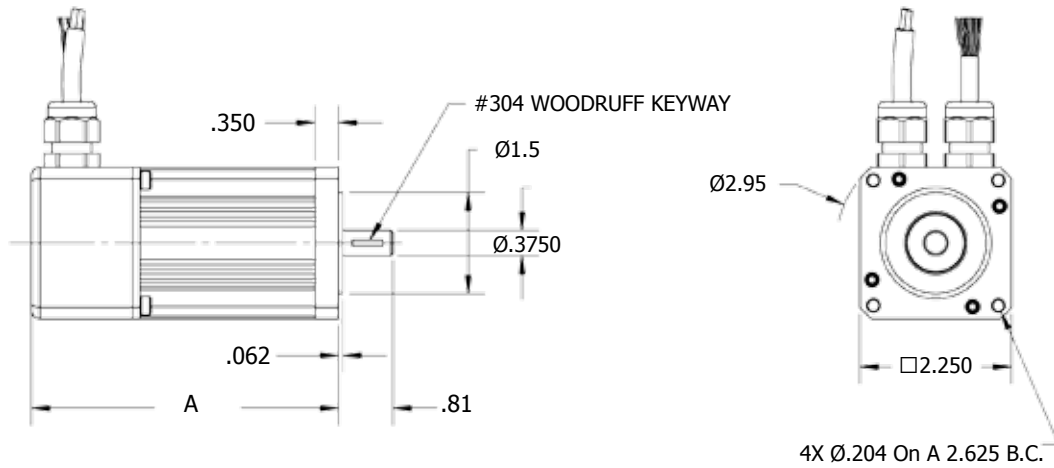
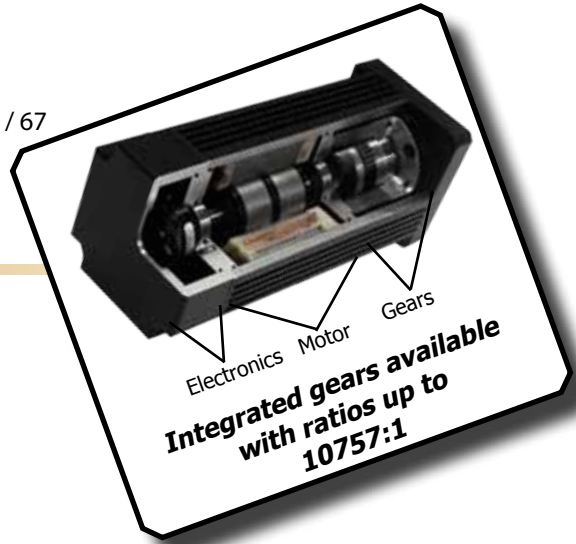
to Dynetic Systems reputation for toughness and longevity. The BL line of motors are designed to be compatible with industry standard motion controls. Born from our highly successful custom Brushed motors in use worldwide, Dynetic's new BL Line is world class designed and built in the USA.

### Standard Features



### Additional Options

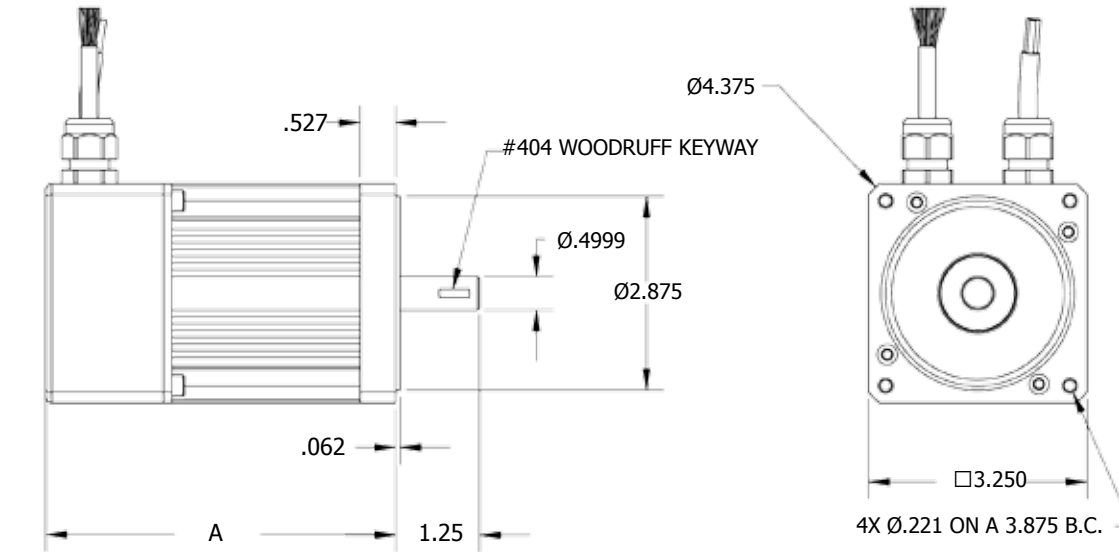
- Hall Sensors
- Brakes
- Temp Sensor
- Custom Connectors
- Metric Mounting
- Resolvers
- Gearheads
- Sealed to IP67
- MIL Connectors
- Custom Magnets
- Cables
- Stainless Steel Exterior
- Commutating Encoders
- Custom Shafts
- -55°C, +150°C



MODEL	A*
BL2307	3.85
BL2315	4.6
BL2323	5.35
BL2330	6.1

\* Includes encoder and cover

PARAMETER	Units	BL2307				BL2315				BL2323				BL2330			
<b>Motor Performance</b>																	
Voltage	V	24	48	90	320	24	48	90	320	24	48	90	320	24	48	90	320
Rated Speed	RPM	7000	7000	7000	7000	6200	6200	6200	6200	5400	5400	5400	5400	4200	4200	4200	4200
Rated Torque	oz-in	52	60	60	60	100	100	105	105	135	135	135	135	175	175	175	175
Rated Current	Amps	16	10.5	5.75	1.6	29	14.75	8.1	2.25	34	16.7	9.5	2.62	33	17	9	2.52
Back EMF (Ke)	V/kRPM	2.5	4.43	8.27	29.25	2.7	5.4	10.16	36.18	3.16	6.4	11.9	41.79	4.15	8.22	15.23	54.32
Torque Constant (Kt)	oz-in/A	3.27	5.76	10.77	38	3.51	7	13.18	46.9	4.08	8.27	15.35	54.01	5.35	10.6	19.64	70.06
Output Power	Watts	270	315	315	315	450	470	470	470	550	550	575	560	545	545	545	545
No-Load Speed (Snl)	RPM	9500	10880	10880	10880	8900	8900	8900	8900	7600	7500	7600	7650	5800	5800	5900	5900
NoLoad Current (Inl)	Amps	0.92	0.46	0.245	0.07	1.06	0.79	0.65	0.119	1.21	0.89	0.72	0.115	1.4	0.9	0.4	0.11
Line Resistance	Ohms	0.055	0.159	0.59	7.45	0.025	0.101	0.383	4.345	0.022	0.072	0.268	3.765	0.023	0.102	0.424	4.8
Line Inductance	mH	0.128	0.404	1.42	17.7	0.076	0.305	1.102	13.7	0.073	0.29	1.02	12.72	0.096	0.384	1.35	16.67
Armature Inertia	oz-in sec <sup>2</sup>	0.001	0.001	0.001	0.001	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.003	0.003	0.003	0.003
Acceleration	Krad/S <sup>2</sup>	152.94	176.47	176.47	176.47	156.25	156.25	164.06	164.06	140.62	140.62	140.62	140.62	141.12	141.12	141.12	141.12
Thermal Rise	°C/W	2.5	2.5	2.5	2.5	2.3	2.3	2.3	2.3	2.1	2.1	2.1	2.1	1.8	1.8	1.8	1.8
Thermal Time Constant	Min	13.14	13.25	13.14	13.15	15.66	15.66	15.6	15.72	17.5	18	17.8	17.6	18.3	18	17.7	17.9
Mech Time Constant	mS	2.16	1.997	2.12	2.15	1.6	1.61	1.72	1.54	1.55	1.23	1.33	1.51	1.2	1.37	1.66	1.48
Electrical Time Constant	mS	2.31	2.54	2.4	2.38	3.03	3.02	2.88	3.15	3.27	4.05	3.8	3.4	4.2	3.77	3.19	3.51
Max Mech Speed	RPM	12000	12000	12000	12000	10000	10000	10000	10000	9000	9000	9000	9000	8000	8000	8000	8000
Pulse Torque	oz-in	130	150	150	150	250	250	262.5	262.5	337.5	337.5	337.5	337.5	437.5	437.5	437.5	437.5
Max Winding Temp	°C	155	155	155	155	155	155	155	155	155	155	155	155	155	155	155	155
<b>Physical</b>																	
Weight	oz																
<b>Environment</b>																	
Operating Temp	°C	130	130	140	140	130	130	130	130	130	140	140	140	130	140	130	140
Enclosure Rating	IP																



MODEL	A*
BL3407	3.95
BL3415	4.7
BL3423	5.45
BL3430	6.2

\* Includes encoder and cover

PARAMETER	Units	BL3407				BL3415				BL3423				BL3430			
<b>Motor Performance</b>																	
Voltage	V	24	48	90	320	24	48	90	320	24	48	90	320	24	48	90	320
Rated Speed	RPM	5000	5000	5000	5000	4800	4800	4800	4800	4600	4600	4600	4600	3900	3900	3900	3900
Rated Torque	oz-in	132	134	133	130	190	201	204	200	255	261	259	254	360	358	359	361
Rated Current	Amps	28.22	15.12	7.9	2.24	36.65	19.47	10.89	2.86	55.05	24.48	13.07	3.48	61.58	30.83	16	4.42
Back EMF (Ke)	V/kRPM	3.69	6.98	13.41	45.64	4.09	8.13	14.62	55.07	3.6	8.44	15.67	57.73	4.62	9.17	17.74	64.64
Torque Constant (Kt)	oz-in/A	4.82	9.13	17.34	59.7	5.32	10.58	19.02	71.64	4.65	10.93	20.27	74.69	5.96	11.84	22.87	83.34
Output Power	Watts	488	490	495	481	674	714	725	712	893	888	878	865	1038	1054	1037	1040
No-Load Speed (Snl)	RPM	6400	6700	6550	6900	5800	5800	5900	5700	6500	5500	5600	5450	5080	5200	5000	4900
NoLoad Current (Inl)	Amps	0.83	0.44	0.23	0.07	0.94	0.48	0.26	0.07	1.29	0.55	0.3	0.08	1.18	0.59	0.31	0.08
Line Resistance	Ohms	0.042	0.142	0.621	7.41	0.019	0.079	0.253	3.86	0.009	0.052	0.175	2.59	0.014	0.054	0.181	2.66
Line Inductance	mH	0.139	0.497	1.706	21.54	0.082	0.329	1.07	15.22	0.032	0.174	0.599	8.17	0.058	0.232	0.674	9.56
Armature Inertia	oz-in sec <sup>2</sup>	0.003	0.003	0.003	0.003	0.007	0.007	0.007	0.007	0.01	0.01	0.01	0.01	0.013	0.013	0.013	0.013
Acceleration	Krad/S <sup>2</sup>	100	101.52	100.91	98.48	73.08	77.23	78.46	76.92	62.5	65.2	64.7	63.5	69.23	68.85	69	69.38
Thermal Rise	°C/W	2.15	2.15	2.15	2.15	1.75	1.75	1.75	1.75	1.5	1.5	1.5	1.5	1.25	1.25	1.25	1.25
Thermal Time Constant	Min	19	19	19	19	21.4	21.4	21.4	25.36	25.36	25.36	25.36	24.5	24.5	24.5	24.5	24.5
Mech Time Constant	mS	2.79	2.62	3.18	2.52	2.03	2.14	2.12	2.28	1.95	2.04	1.99	2.12	2.4	2.36	2.11	2.32
Electrical Time Constant	mS	3.31	3.5	2.74	2.91	4.31	4.16	4.23	3.94	3.55	3.35	3.43	3.15	4.14	4.28	3.79	3.6
Max Mech Speed	RPM	7000	7000	7000	7000	6500	6500	6500	6500	6500	6500	6500	6500	6000	6000	6000	6000
Pulse Torque	oz-in	330	335	333	325	475	502	510	500	625	652	647	685	900	895	897	902
Max Winding Temp	°C	155	155	155	155	155	155	155	155	155	155	155	155	155	155	155	155
Physical ISP		36	18	9.5	2.6	44	24	13	3.75	61	28	15	100	70	36	18	5
Weight	oz																
<b>Environment</b>																	
Operating Temp	°C	130	130	140	140	130	130	130	130	140	140	140	130	140	130	140	140
Enclosure Rating	IP																