

## SYSTEM OVERVIEW

Kollmorgen GOLDLINE® BH &amp; SERVOSTAR® 600 Systems

**Kollmorgen GOLDLINE® BH** SEE PAGE 32

Kollmorgen **GOLDLINE** BH servomotors build on the tradition of high performance servomotors from Kollmorgen. Designed around the classic industry-standard Kollmorgen **GOLDLINE** series, the BH motors incorporate the highest energy rare earth neodymium-iron-boron magnets and excellent thermal design to provide exceptional continuous torque and peak torque performance in a compact package.

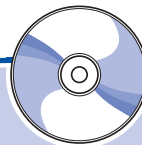
- 0.52 to 91.67 lb-ft (0.7 to 124.3 N-m) continuous torque
- 70.0 to 190 mm (2.76 to 7.5 inches) square frame
- 400/480 VAC, 565/680 VDC bus rated
- Compact (high torque/volume ratio)
- Speeds to 7500 rpm standard
- Rugged resolver feedback
- IPM (Interior Permanent Magnet) design for low cogging
- CE compliant, UL recognized
- Built-in thermostat
- Rear shaft extension for mounting additional feedback devices
- Class H insulation system
- Rotating CE connectors standard on 12x, 22x, 42x
- Terminal box standard on 62x and 82x frames
- MH Medium inertia series for high inertia load applications

**SERVOSTAR® 600** SEE PAGE 34

The **SERVOSTAR** 600 is a high performance, high power drive accepting 208-480 VAC and producing from 3-70  $A_{RMS}$  continuous. In combination with Kollmorgen **GOLDLINE** series motors (BH, XT, DDR) and Kollmorgen **PLATINUM**® DDL-series motors, it offers the highest power, most advanced features, and broadest connectivity in the global marketplace. The integrated power supply makes it ideal for single and multi-axis applications.

**Features**

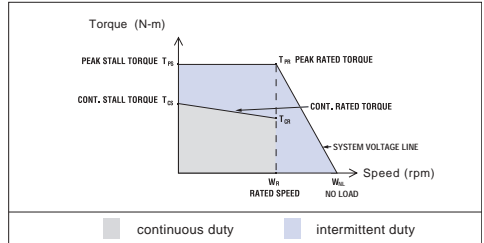
- Fully protected
- Meets CE and UL requirements
- Built-in features minimizes total machine cost by eliminating the need for external hardware
- Small footprint - CE Filters in 3-20 A (standard) units and option cards are contained inside the drive
- Digital position and velocity control
- Position generator supports trapezoidal and sinusoidal acceleration
- Motion Tasking support tied to I/O
- Interface through analog command, digital I/O, pulse direction or encoder follower, and fieldbuses
- Built-in CANOpen support

**MOTIONEERING® CD-ROM**

For more detailed product and selection information, see the **MOTIONEERING** CD-ROM inside the back cover of this catalog or visit our website at [www.DanaherMotion.com](http://www.DanaherMotion.com).

# SYSTEM OVERVIEW

## Kollmorgen GOLDLINE® BH & SERVOSTAR® 600 Systems



### RECOMMENDED MOTOR/DRIVE SYSTEMS, 400 VAC

Servo Motor Model	Servo Drive Model	Peak Stall Torque $T_{PS}$ N-m (lb-in)	Peak Rated Torque $T_{PR}$ N-m (lb-in)	Cont. Stall Torque $T_{CS}$ N-m (lb-in)	Cont. Rated Torque $T_{CR}$ <sup>①</sup> N-m (lb-in)	Rated Speed $W_R$ rpm	No-Load Speed $W_{NL}$ rpm	Cont. Stall Current $I_{CS}$ $A_{RMS}$	Current at Peak Torque $I_{PS}$ $A_{RMS}$	Inertia <sup>④</sup> J kgm <sup>2</sup> (lb-in-S <sup>2</sup> )	Inductance Line-Line L mH
BH Series motors with SERVOSTAR 600 Drives											
BH-122-A ②	S603	2.4 (21.2)	1.90 (16.8)	0.70 (6.2)	0.56 (4.9)	6,000	n/a	1.0	3.6	0.000309 (0.000273)	120
BH-124-B ②	S603	4.2 (37.2)	3.98 (35.2)	1.3 (11.5)	1.11 (9.8)	6,000	n/a	1.8	6	0.000461 (0.000408)	58
BH-126-B ②	S603	4.2 (37.2)	3.98 (35.2)	1.9 (16.8)	1.56 (13.8)	6,000	n/a	2.6	6	0.000765 (0.000677)	37.6
BH-222-E ②	S603	4.8 (42.5)	4.05 (35.8)	2.1 (18.6)	1.80 (15.9)	5,300	n/a	2.5	6	0.000997 (0.000882)	74
BH-224-G ②	S603	7.3 (64.6)	5.98 (52.9)	3.8 (33.6)	3.33 (29.5)	3,600	n/a	2.9	6	0.00251 (0.002222)	90
BH-226-C ②	S606	14.2 (126)	13.2 (117)	5.6 (49.6)	4.54 (40.2)	4,000	n/a	4.46	12	0.00251 (0.002222)	44
BH-226-E ②	S603	10.5 (92.9)	8.91 (78.9)	5.6 (49.6)	5.13 (45.4)	2,500	n/a	3.0	6	0.00251 (0.002222)	92
BH-422-D ③	S606	16.5 (146)	13.5 (119)	5.8 (51.3)	4.63 (41)	3,600	n/a	4.0	12	0.00323 (0.002859)	89
BH-424-D ③	S606	20 (177)	18.8 (166)	10.5 (92.9)	8.90 (78.8)	3,000	n/a	6.3	12	0.00656 (0.005806)	60
BH-426-B ③	S610	37.1 (328)	37.1 (328)	15.8 (140)	13.3 (118)	2,500	n/a	8.1	20	0.00929 (0.008222)	48
BH-426-C ③	S614	33.2 (294)	29.3 (259)	15.5 (137)	12.7 (112)	4,200	n/a	12.4	28	0.00929 (0.008222)	19.2
BH-622-A ③	S606	40.0 (354)	30.5 (270)	14.6 (129)	12.4 (110)	1,600	n/a	4.17	12	0.0103 (0.009116)	128
BH-622-B ③	S610	33.5 (297)	33.5 (297)	14.9 (132)	11.6 (103)	3,000	n/a	8.43	20	0.0103 (0.009116)	32
BH-624-C ③	S620	56.2 (497)	52.1 (461)	25.2 (223)	18.8 (166)	3,750	n/a	17	40	0.0203 (0.017967)	11.7
BH-624-D ③	S614	54.8 (485)	49.5 (438)	25.6 (227)	21.0 (186)	2,750	n/a	12.4	28	0.0203 (0.017967)	23
BH-624-E ③	S614	46.9 (415)	41.2 (365)	25.6 (227)	21.1 (187)	3,200	n/a	14.5	28	0.0203 (0.017967)	17
BH-624-G ③	S610	46.8 (414)	44.1 (390)	24.7 (219)	19.8 (175)	2,100	n/a	10.5	20	0.0203 (0.017967)	32
BH-626-C ③	S610	82.9 (734)	78.2 (692)	36.6 (324)	31.2 (276)	1,250	n/a	8.4	20	0.0304 (0.026906)	61
BH-626-E ③	S620	68 (602)	67 (593)	35.4 (313)	30.1 (266)	3,000	n/a	19.7	40	0.0304 (0.026906)	10.7
BH-822-C ③	S610	81.6 (722)	64.2 (568)	34.8 (308)	29.3 (259)	1,300	n/a	8.1	20	0.0488 (0.043192)	110
BH-822-D ③	S620	72.7 (643)	46.4 (411)	34.7 (307)	29.2 (258)	2,500	n/a	18.1	40	0.0488 (0.043192)	20.8
BH-824-B ③	S620	95.0 (841)	69 (611)	50 (443)	44.5 (394)	1,650	n/a	20	40	0.08406 (0.074399)	29.3
BH-824-D ③	S640	158.0 (1398)	51.5 (456)	66.3 (587)	41.0 (363)	2,700	n/a	31.9	80	0.08406 (0.074399)	11
BH-826-A ③	S620	163 (1443)	147 (1301)	93.5 (828)	81.4 (720)	1,250	n/a	21.8	40	0.126 (0.111519)	30
BH-826-C ③	S640	178 (1575)	100 (885)	92.9 (822)	45 (398)	2,500	n/a	39.7	80	0.126 (0.111519)	9
BH-828-B ③	S670	300 (2655)	150 (1328)	124.3 (1100)	78 (690)	2,500	n/a	53	140	0.168 (0.148693)	4.7
BH-828-E ③	S640	230.5 (2040)	183 (1620)	122.8 (1087)	89.5 (792)	3,200	n/a	39.1	80	0.168 (0.148693)	8.05

### RECOMMENDED MOTOR/DRIVE SYSTEMS, 480 VAC

Servo Motor Model	Servo Drive Model	Peak Stall Torque $T_{PS}$ N-m (lb-in)	Peak Rated Torque $T_{PR}$ N-m (lb-in)	Cont. Stall Torque $T_{CS}$ N-m (lb-in)	Cont. Rated Torque $T_{CR}$ <sup>①</sup> N-m (lb-in)	Rated Speed $W_R$ rpm	No-Load Speed $W_{NL}$ rpm	Cont. Stall Current $I_{CS}$ $A_{RMS}$	Current at Peak Torque $I_{PS}$ $A_{RMS}$	Inertia <sup>④</sup> J kgm <sup>2</sup> (lb-in-S <sup>2</sup> )	Inductance Line-Line L mH
BH Series motors with SERVOSTAR 600 Drives											
BH-122-A ②	S603	2.4 (21.2)	2.16 (19.1)	0.70 (6.2)	0.52 (4.6)	7,500	n/a	1.0	3.6	0.000309 (0.000273)	120
BH-124-B ②	S603	4.2 (37.2)	3.78 (33.5)	1.3 (11.5)	1.06 (9.4)	7,500	n/a	1.8	6	0.000461 (0.000408)	58
BH-126-B ②	S603	4.2 (37.2)	4.07 (36)	1.9 (16.8)	1.47 (13.0)	7,500	n/a	2.6	6	0.000765 (0.000677)	37.6
BH-222-E ②	S603	4.8 (42.5)	4.27 (37.8)	2.1 (18.6)	1.7 (15)	7,000	n/a	2.5	6	0.000997 (0.000882)	74
BH-224-G ②	S603	7.3 (64.6)	6.57 (58.1)	3.8 (33.6)	3.2 (28.3)	4,600	n/a	2.9	6	0.00251 (0.002222)	90
BH-226-C ②	S606	14.2 (126)	14.0 (124)	5.6 (49.6)	4.3 (38.1)	4,900	n/a	4.46	12	0.00251 (0.002222)	44
BH-226-E ②	S603	10.5 (92.9)	9.45 (83.6)	5.6 (49.6)	5.0 (44.3)	3,200	n/a	3.0	6	0.00251 (0.002222)	92
BH-422-D ③	S606	16.5 (146)	14.8 (131)	5.8 (51.3)	4.3 (38.1)	4,600	n/a	4.0	12	0.00323 (0.002859)	89
BH-424-D ③	S606	20 (177)	18.0 (159)	10.5 (92.9)	8.5 (75.2)	3,700	n/a	6.3	12	0.00656 (0.005806)	60
BH-426-B ③	S610	37.1 (328)	37 (327)	15.8 (140)	12.6 (112)	3,200	n/a	8.1	20	0.00929 (0.008222)	48
BH-426-C ③	S614	33.2 (294)	29.8 (264)	15.5 (137)	11.2 (99.1)	5,000	n/a	12.4	28	0.00929 (0.008222)	19.2
BH-622-A ③	S606	40.0 (354)	36 (319)	14.6 (129)	11.8 (104)	2,000	n/a	4.17	12	0.0103 (0.009116)	128
BH-622-B ③	S610	33.5 (297)	30.1 (266)	14.9 (132)	10.5 (92.9)	4,000	n/a	8.43	20	0.0103 (0.009116)	32
BH-624-C ③	S620	56.2 (497)	50.6 (448)	25.2 (223)	15.1 (134)	4,500	n/a	17	40	0.0203 (0.017967)	11.7
BH-624-D ③	S614	54.8 (485)	49.3 (436)	25.6 (227)	18.0 (159)	3,300	n/a	12.4	28	0.0203 (0.017967)	23
BH-624-E ③	S614	46.9 (415)	46.9 (415)	25.6 (227)	18.0 (159)	3,850	n/a	14.5	28	0.0203 (0.017967)	17
BH-624-G ③	S610	46.8 (414)	42.1 (373)	24.7 (219)	18.4 (163)	2,600	n/a	10.5	20	0.0203 (0.017967)	32
BH-626-C ③	S610	82.9 (734)	74.6 (660)	36.6 (324)	29.9 (265)	1,550	n/a	8.4	20	0.0304 (0.026906)	61
BH-626-E ③	S620	68 (602)	68 (602)	35.4 (313)	27.1 (240)	3,700	n/a	19.7	40	0.0304 (0.026906)	10.7
BH-822-C ③	S610	81.6 (722)	73.4 (650)	34.8 (308)	28.0 (248)	1,600	n/a	8.1	20	0.0488 (0.043192)	110
BH-822-D ③	S620	72.7 (643)	65.4 (579)	34.7 (307)	27 (239)	3,000	n/a	18.1	40	0.0488 (0.043192)	20.8
BH-824-B ③	S620	95.0 (841)	89 (788)	50 (443)	39.0 (345)	2,000	n/a	20	40	0.08406 (0.074399)	29.3
BH-824-D ③	S640	158.0 (1398)	66 (584)	66.3 (587)	38.0 (336)	3,000	n/a	31.9	80	0.08406 (0.074399)	11
BH-826-A ③	S620	163 (1443)	146 (1292)	93.5 (828)	72.6 (643)	1,500	n/a	21.8	40	0.126 (0.111519)	30
BH-826-C ③	S640	178 (1575)	100 (885)	92.9 (822)	38.4 (340)	3,000	n/a	39.7	80	0.126 (0.111519)	9
BH-828-B ③	S670	300 (2655)	150 (1328)	124.3 (1100)	67.8 (600)	3,000	n/a	53	140	0.168 (0.148693)	4.7
BH-828-E ③	S640	230.5 (2040)	183 (1620)	122.8 (1087)	89.5 (792)	3,200	n/a	39.1	80	0.168 (0.148693)	8.05

① Ambient temperature at 40°C (or less).  
 ② Continuous duty ratings are for motor mounted to a 1/4" thick aluminum faceplate of 96 square inches.

③ Continuous duty ratings are for motors mounted to a 1" thick aluminum faceplate of 452 square inches.  
 ④ Inertia includes feedback inertia.

# BH SERIES MOTORS

## Kollmorgen GOLDLINE® BH & SERVOSTAR® 600 System



### Kollmorgen GOLDLINE® BH

The BH series motors incorporate the patented IPM (Interior Permanent Magnet) design technology which results in superior torque-to-inertia and torque-to-volume ratios.

The BH line of servomotors is available in 5 frame sizes and 3 stack lengths per frame. With multiple windings per stack, the BH Series meets the needs of a wide range of applications.

The BH Series provides extremely low inertia rotors, allowing optimum performance in applications requiring rapid acceleration and deceleration. The IPM magnetic design provides for very high torque density and torque-to-inertia ratios. When used with the SERVOSTAR 600 family of amplifiers, the resulting speed/torque is the widest range in the industry. MH Series medium inertia models also available, for better performance in systems having compliant loads or high inertia mismatches.

### Features

#### BH Series Motors

0.52 to 91.4 lb-ft (0.7 to 124 N-m) continuous torque	Maximum application flexibility
70.0 to 190 mm (2.76 to 7.5 inches) square frame	Best space utilization
400/480 VAC, 565/680 VDC bus rated	Global high voltage capability
Compact (high torque/volume ratio)	Maximum Torque in minimum space
Speeds to 7500 rpm standard	Maximum application flexibility
IPM (Interior Permanent Magnet) design	Low cogging
CE compliant, UL recognition	Global acceptance
Rugged resolver feedback	Reliable precise operation
Built-in thermostat	Protection
Rear shaft extension	Allows mounting of additional feedback devices
Class H insulation system	High temperature reliability

### Benefits

### STANDARD FEATURES

- Rotatable CE connectors standard on 12x, 22x, 42x
- Terminal box standard on 62x, 82x frames
- IP65 sealing
- Metric mountings

### OPTIONS

- IP67 sealing
- Fail-safe brake, 24 and 90 VDC
- NEMA mountings
- Standard SERVOSTAR 600 UL/CE cable assemblies available in 3 meter increments.

Model	"A" MAX. without brake-with brake	"B"	"C"	"D"	"E"
BH-122	204.0 (8.03)-243.8 (9.59)	159.0 (6.26)	18.0 (0.71)	23.0 (0.90)	10.997-11.0008 (0.4330-0.4334)
BH-124	234.5 (9.23)-273.8 (9.59)	189.5 (7.46)	20.0 (0.79)	30.0 (1.18)	13.997-14.0008 (0.5511-0.5515)
BH-126	265.0 (10.43)-303.7 (11.96)	220.0 (8.66)	20.0 (0.79)	30.0 (1.18)	13.997-14.0008 (0.5511-0.5515)
MH-123	241.0 (9.49)-279.6 (11.01)	196.0 (7.72)	20.0 (0.79)	30.0 (1.18)	13.997-14.0008 (0.5511-0.5515)
MH-125	283.1 (11.15)-321.7 (12.67)	238.1 (9.37)	20.0 (0.79)	30.0 (1.18)	13.997-14.0008 (0.5511-0.5515)
MH-127	283.1 (11.15)-321.7 (12.67)	238.1 (9.37)	20.0 (0.79)	30.0 (1.18)	13.997-14.0008 (0.5511-0.5515)
BH-222	236.2 (9.30)-276.5 (10.89)	179.0 (7.08)			
BH-224	275.8 (10.86)-316.8 (9.59)	189.5 (7.46)			
BH-226	315.4 (12.42)-355.1 (14.00)	258.9 (10.19)			
MH-223	275.8 (10.86)-316.0 (12.44)	219.3 (8.63)			
MH-225	315.4 (12.42)-355.7 (14.00)	258.9 (10.19)			
MH-227	373.2 (14.69)-413.4 (16.28)	316.7 (12.47)			
BH-422	265.5 (10.45)-313.9 (12.36)	212.6 (8.37)			
BH-424	318.8 (12.55)-367.3 (14.46)	265.9 (10.47)			
BH-426	372.1 (14.65)-420.6 (16.56)	319.2 (12.57)			
MH-423	318.8 (12.55)-367.3 (14.46)	265.9 (10.47)			
MH-425	372.1 (14.65)-420.6 (16.56)	319.2 (12.57)			
MH-427	444.9 (17.52)-493.4 (19.43)	392.0 (15.43)			
BH-622	299.2 (11.79)-355.6 (14.00)	96.8 (3.81)			
BH-624	367.8 (14.48)-424.2 (16.70)	165.4 (6.51)			
BH-626	436.4 (17.18)-492.8 (19.40)	234.0 (9.21)			
MH-623	367.8 (14.48)-424.2 (16.70)	165.4 (6.51)			
MH-625	436.4 (17.18)-492.8 (19.40)	234.0 (9.21)			
MH-627	531.5 (20.93)-588.0 (23.15)	329.1 (12.96)			
BH-822	360.4 (14.19)-416.9 (16.41)	158.3 (6.23)	39.0 (1.535)	58.0 (2.283)	32.002-32.018 (1.2600-1.2606)
MH-823	449.9 (17.71)-506.4 (19.94)	247.8 (9.76)	54.0 (2.126)	82.0 (3.228)	48.002-48.018 (1.8898-1.8905)
BH-824	449.9 (17.71)-506.4 (19.94)	247.8 (9.76)			
MH-825	539.4 (21.24)-595.9 (23.46)	337.3 (13.28)			
BH-826	539.4 (21.24)-595.9 (23.46)	337.3 (13.28)	54.0 (2.126)	82.0 (3.228)	48.002-48.018 (1.8898-1.8905)
MH-827	648.7 (25.54)-686.0 (27.01)	446.6 (17.58)	54.0 (2.126)	82.0 (3.228)	48.002-48.018 (1.8898-1.8905)
BH-828	628.9 (24.76)-685.4 (26.98)	426.8 (16.80)			

Model	Standard Options	
	Mating Plugs	Shaft Seal
-41	No	Yes
-43	No	No
-51	Yes	Yes
-53	Yes	No
-61	No	Yes
-63	No	No
-71	Yes	Yes
-73	Yes	No

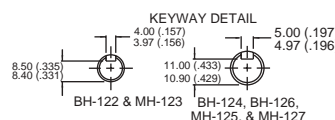
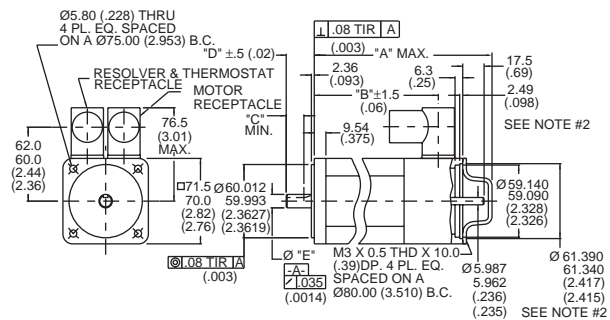
Notes:

1. Motor can be mounted in any position.
2. Counterbore for o-ring seal.
3. -61 and -71 models have been certified to meet IP65 sealing. -S model has been certified to meet IP67 sealing and has viton shaft seal and viton o-rings.
4. -63 and -73 models meet sealing specs except for mounting face.
5. Kollmorgen approved mating plugs with filler plugs must be installed before motor meets sealing specs.
6. Customer shaft key supplied with motor.
7. Dimensions in parentheses ( ) are in English and are for reference only.
8. Tolerances unless otherwise specified:  
Metric: X decimal place ± 0.4  
English: XX decimal places ± 0.015  
XX decimal places ± 0.13  
XXX decimal places ± 0.005

Detailed motor selection information on both BH series and medium-inertia MH series motors is available on the MOTIONEERING® CD-ROM inside the back cover of this catalog, or visit our website at [www.DanaherMotion.com](http://www.DanaherMotion.com).

### BH/MH-12x

mm (in)



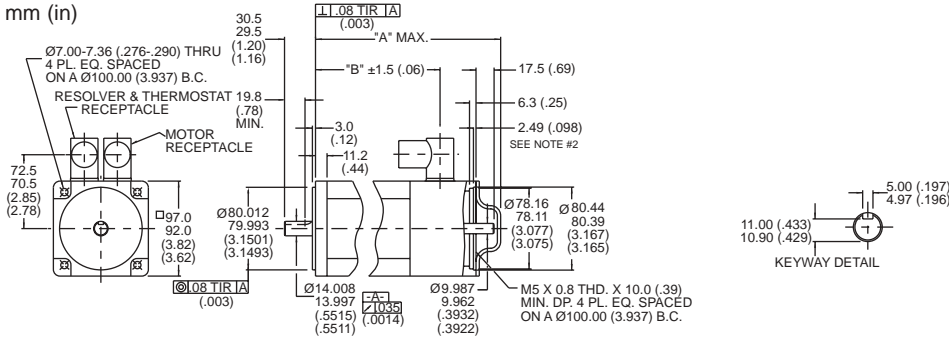
# BH SERIES MOTORS

Kollmorgen GOLDLINE® BH & SERVOSTAR® 600 System

SEE SYSTEM INFORMATION ON PAGE 31.

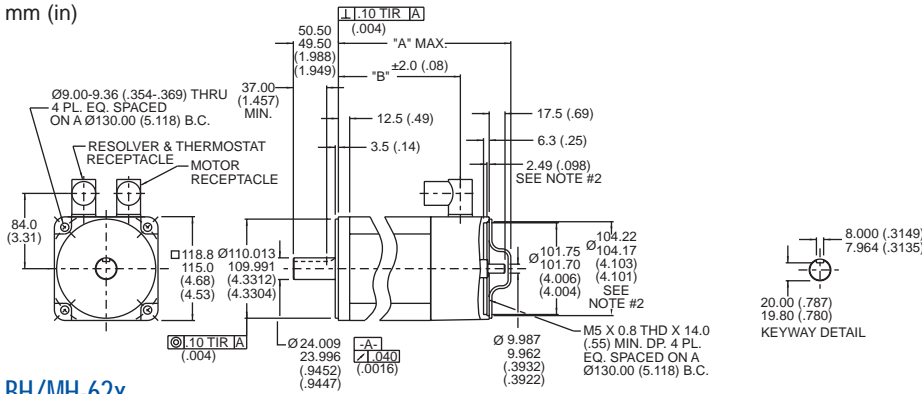
## BH/MH-22x

mm (in)



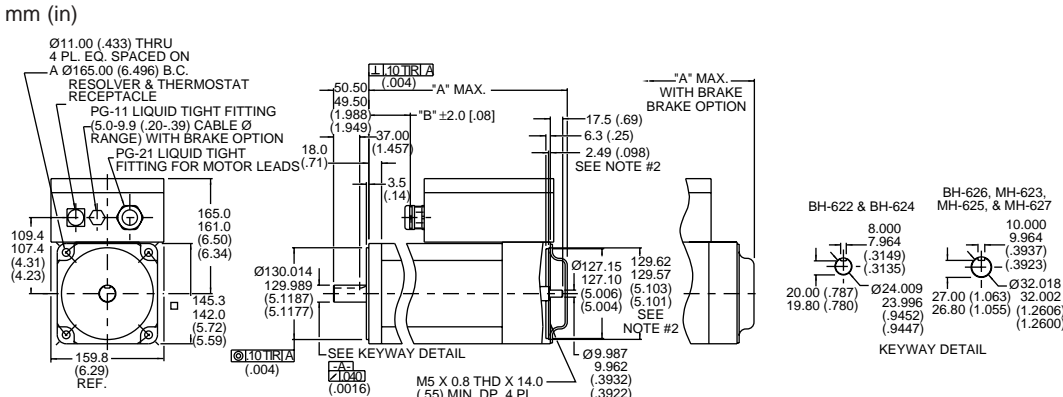
## BH/MH-42x

mm (in)



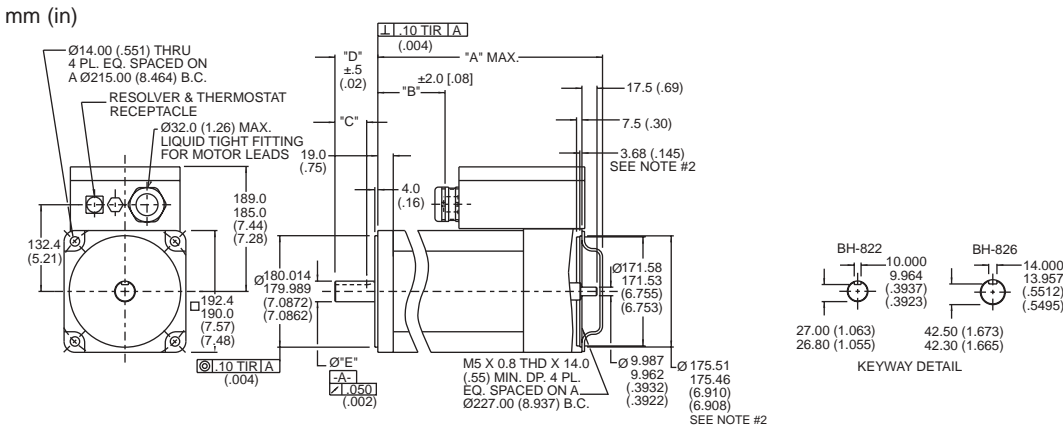
## BH/MH-62x

mm (in)



## BH/MH-82x

mm (in)



# SERVOSTAR® 600 DRIVES



## SERVOSTAR® 600 FEATURES

### Servo Control

- Easy to tune servo loops
- Advanced sinewave commutation technology provides smooth, precise low-speed control and high speed performance
- Velocity loop bandwidths to 400 Hz
- DQ Current control increases high speed peak torque performance for faster cycle rates
- Space Vector Modulation reduces normal power stage switching losses
- Torque angle control enhances motor performance
- Fully digital control loops
- Compact and attractive rugged metal package for space-saving, modern appearance - metal package minimizes electrical noise emission & susceptibility
- Command modes: Torque, Velocity, Position, Electronic Gearing Pulse Following, and Motion Task
- Seven current ratings: 3, 6, 10, 14, 20, 40 and 70 amp RMS/phase continuous
- 2 to 1 peak/continuous current rating (5 second at peak) (S610-30 has 3:1 peak/cont.)

### Easy Connectivity

- PROFIBUS-DP communication option card
- DeviceNet communication option card
- Built in encoder equivalent output can eliminate the need for an additional position feedback device
- RS-232 Communication
- Unique multi-drop configuration allows a PC or PLC to communicate to multiple SERVOSTAR 600 amplifiers via single RS-232 connection
- SERVOSTAR 600's versatile communication capabilities make it easy to integrate machine control data directly from the factory floor to your information system
- Analog  $\pm 10$  V, pulse/direction, master encoder, and serial port, I/O command options

### Robust Design

- ESD rugged circuit design and fully metallic enclosure
- Full protection against short circuit, overvoltage, undervoltage, heatsink overtemperature, motor overtemperature, overspeed, overcurrent, and feedback loss
- UL , cUL listed, and CE
- Built-in line filter for CE (models up to 20 amp)
- Flash memory

### Windows Start-up Environment

- Graphical environment simplifies set up
- PC "Oscilloscope" for measuring real-time motion performance
- Graphical Motion tasking: fully graphical programming environment provides single-axis control capability
- On-board Dynamic Signal Analyzer (DSA) generates Bode plots to improve servo tuning.

### Configurable I/O

- 2 separate analog inputs (14 and 12 bit resolution) configurable to 6 different command modes

- 2 analog outputs
- 4 digital inputs
- 2 digital outputs
- I/O can be configured to a variety of functions to customize the SERVOSTAR 600 to individual machines

### I/O Option Card

- Adds 14 additional digital inputs and 8 digital outputs
- All I/O are optically isolated
- Simple plug in to top face of amplifier

### Regenerative Power Sharing

- Patented circuitry allows the DC bus from two or more amplifiers to be connected together allowing regen power to be shared among multiple drives

### Optional Built-in Safety Relay

- Switches off the power stage to ensure personnel safety and prevents an unintended restart of the drive, even in the event of a fault
- Allows DC bus to remain on

### Motion Capabilities

The SERVOSTAR 600 can be configured to perform motion control that normally requires a fully programmable drive with a motion language. With the SERVOSTAR 600 there is no programming language to learn; the user only "fill in the blanks" to create common motion tasks

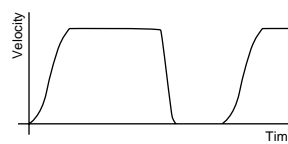
- Fully graphical programming environment
- Make decisions in real time
- Set parameters in real time
- Up to 180 motion tasks can be stored in permanent memory
- Motion Tasks can be linked together.
- Linking of motion tasks (sequencing)
- 10 types of homing
- Speed profile/registration control
- Adjustable S curve acceleration
- Absolute and relative (index) moves
- Adjustable Following-Error window
- Adjustable window for the In Position signal

Linked motion tasks are started:

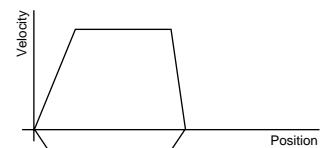
- Immediately upon reaching a targeted position
- From a Digital Input upon reaching the targeted position
- At Preset Time Delay after the targeted position is reached

## MOTION EXAMPLES

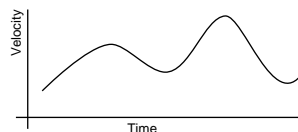
### INCREMENTAL MOVE



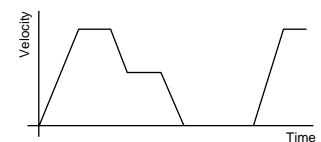
### ABSOLUTE MOVE



### ELECTRONIC GEARING 5:1 (MASTER/SLAVE)



### BLENDED MOVE



## APPLICATION EXAMPLES

- Material handling
- Bottle making
- Packaging
- Soft positioning
- Robot
- Conveyor belt controlling
- Fast positioning
- Special cleaning process
- Part selection
- Glass processing
- Wirepuller
- Textile industry
- Printing
- Electronics
- Web converting
- Cut to length

# SERVOSTAR® 600 DRIVES

## AMPLIFIER SPECIFICATIONS

### Electrical characteristics

- Closed loop velocity bandwidth up to 400 Hz
- Motor current ripple frequency 16 kHz
- Switching frequency: 8 kHz
- Long term speed regulation (0.01%)
- Position loop update rate 250 μs (4 kHz)
- Velocity loop update rate 62.5 μs (16 kHz)
- Commutation update rate 62.5 μs (16 kHz)
- SVM Current loop update rate 62.5 μs (16 kHz)

### Fault protection

- Output phase to phase and phase to ground short circuit protection
- Overvoltage
- Undervoltage
- Overtemperature (motor and amplifier)
- Overspeed
- Overcurrent
- Feedback loss
- Foldback
- Supply loss
- Excessive position error

### Environmental

- Operation range
  - Ambient 0 to 45°C (derated above ambient up to 55°C)
  - Storage -25°C to 55°C
- Humidity (non-condensing) max. 85%

### Velocity Loop Compensation

- PI Plus controller (PDDF Format) or PI controller
- Field tunable and digital repeatability

### Position Loop Compensation

- Proportional loop with Feed Forward

### Analog I/O

- 2 Configurable Inputs: ±10 V, 12 and 14 bit resolution
- 2 Configurable Outputs: ±10 V, 10 bit resolution

### Digital I/O

- 4 Configurable Inputs: 24 volts, PLC-compatible
- 2 Configurable Outputs: 24 volts (open collector), PLC-compatible
- Remote enable Input: 24 V, PLC-compatible Drive Status Relay (BTB/RTO)
- Contact closure rated for 0.5 amps, 24 volt

### Pulse or Master/Slave Input

- Pulse command: pulse/direction or quadrature encoder format
- RS-485 receivers
- Up to 16 slave amplifiers can be connected together
- Input ratio is configurable

### Position Feedback For User (Encoder Equivalent Output Port)

- Configurable to Encoder Equivalent (ROD) or SSI format
- Encoder Equivalent (ROD): A Quad B with Marker (zero) pulse, RS-485 driver
- SSI (serial synchronous interface): max clock frequency is 1.5 Mhz, RS-485 driver
- Programmable resolution

### I/O Extension Card (Option)

- Field Installable
- 14 Digital Inputs 24 V, PLC-compatible
- 8 Digital Outputs 24 V, PLC-compatible
- 24 V PLC Interface

### Communications

- RS-232 Interface

### Motor Feedback

- Resolver, Sine Encoder

### Power Regeneration Options

- Internal
- External - using BAR housed resistors
- Bus Sharing - Distributes regen power among multiple amplifiers

### Built-in Parameter Unit

- Displays drive status information
- Parameters: drive address, baud rate, velocity loop tuning, motor type, position output information format, brake, regen type

### Motor Brake Control

- 24 V optional holding brake in the motor can be controlled directly by the SERVOSTAR 600

### Power Inputs

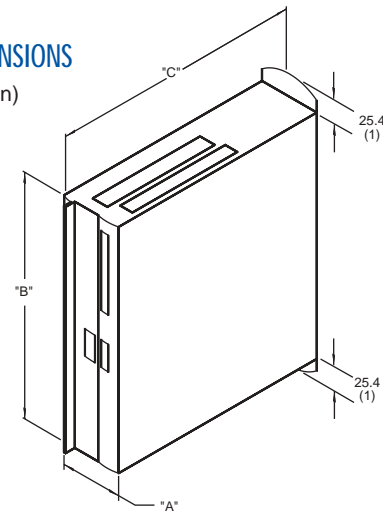
- 208-480 VAC 3 phase, 50 or 60 Hz, built in line filter for CE requirements (models up to 20 amps)
- 24 VDC @ 1 amp (3 amps with brake) For Logic

## AMPLIFIER RATINGS

Model	S603	S606	S610	S610-30	S614	S620	S640	S670
Output Continuous Current Per Phase (RMS/phase)	3	6	10	10	14	20	40	70
Output Peak Current Per Phase (5 sec)	6	12	20	30	28	40	80	140
Rated Input Power (KVA) @ 480 V	2.3	4.6	8.1	16.6	11.6	16.6	30	50
Internal Power Dissipation Watts	40	60	90	90	160	200	400	700
AC Input Line Voltage (3 phase)	208-480	208-480	208-480	208-480	208-480	208-480	208-480	208-480
Continuous Regen Power Internal Watts	80	200	200	200	200	200	N/A	N/A
External Watts	500	1,500	1,500	1,500	1,500	1,500	6,000	6,000

## DIMENSIONS

mm (in)



MODEL	SIZE (amp)	DIM "A"	DIM "B"	DIM "C" NO CONN. - WITH CONN
S603	3	70 (2.8)	275 (10.8)	265 (10.4)-273 (10.7)
S606	6	70 (2.8)	275 (10.8)	265 (10.4)-273 (10.7)
S610	10	70 (2.8)	275 (10.8)	265 (10.4)-273 (10.7)
S610-30	10	70 (2.8)	275 (10.8)	265 (10.4)-273 (10.7)
S614	14	100 (3.9)	275 (10.8)	265 (10.4)-273 (10.7)
S620	20	120 (4.7)	275 (10.8)	265 (10.4)-273 (10.7)
S640	40	250 (9.8)	495 (19.5)	300 (11.8)-325 (12.8)
S670	70	250 (9.8)	495 (19.5)	300 (11.8)-325 (12.8)