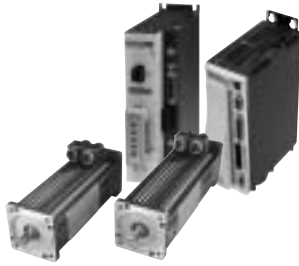


## SYSTEM OVERVIEW

## Kollmorgen GOLDLINE® B &amp; SERVOSTAR® CD, S Systems

**Kollmorgen GOLDLINE® B SERIES MOTORS** SEE PAGE 38

Kollmorgen GOLDLINE series motors offer the widest range of solutions for servomotor applications. The interior permanent magnet design is the key to achieving high torque and power density while eliminating problems with magnets placed directly on the airgap. This magnetic structure allows low inertia designs making the Kollmorgen GOLDLINE series an industry standard for performance in high response, point-to-point move applications.

- Metric mounts
- 0.84 to 149 N-m continuous torque
- IP65 sealing
- Resolver feedback

**Options:**

- NEMA mountings
- IP67 sealing
- Multiple connector options
- Explosion proof designs
- Encoder feedback
- Gearmotors
- Electromechanical fail-safe brakes

When combined with the SERVOSTAR digital amplifier series (using Kollmorgen's patented phase angle advance algorithms), the system performance provides the most peak torque and speed in the industry. All motors and drives are UL recognized.

**B-Series (Low-Inertia)**

The B-Series provides extremely low inertia rotors allowing for optimum performance in applications requiring rapid acceleration and deceleration.

**M-Series (Medium-Inertia)**

The M-Series is an extension of the B-Series. With seven times higher inertia, this motor series offers the advantage of better performance for systems having compliant loads or larger inertia mismatches.

- 0.84 to 111 N-m (0.62 to 82 lb-ft) continuous torque
- 70.0 to 190.0 mm (2.76 to 7.48 inches) square frame
- Resolver feedback
- Maximum recommended speed 7500 rpm

**EB-Series (Explosion-Proof)**

Explosion-Proof Brushless servomotors are listed by UL for use in Class 1, Division 1, Groups C and D hazardous locations. This listing includes applications where vapors or gases form flammable or explosive environments.

The EB-Series has been tested and proven capable to withstand internal explosion without bursting or allowing ignition to reach outside the motor frame. Contact the Customer Support Group for more information.

- 0.84 to 111 N-m (0.62 to 82 lb-ft)
- 75.4 to 195.5 mm (2.97 to 7.70 inches) square frame
- Resolver feedback
- Maximum recommended speed 7500 rpm

**Options**

- Fail-safe brake
- NEMA mountings

**BE-Series (Low-Inertia), ME-Series (Medium-Inertia)**

The BE and ME Series provides the same inertia advantages as the B and M Series. A commutation encoder is incorporated in place of the resolver. The encoder provides Hall tracks as well as data channels A and A, B and B, I and I.

- 0.84 to 111 N-m (0.62 to 82 lb-ft)
- 70.0 to 190.0 mm (2.76 to 7.48 inches) square frame
- Encoder feedback
- Maximum recommended speed 6200 rpm
- 2048 LPR commutation encoder

**Options**

- Front mounted gearheads
- Fail-safe brake
- IP67 sealing
- NEMA mountings
- 1024 LPR commutation encoder

**SERVOSTAR CD SERIES DRIVES** SEE PAGE 28

The SERVOSTAR CD amplifier is a compact, fully digital amplifier designed to simplify installation and system set-up. Three control algorithms and self-tuning (to the load) functionality allows high performance operation to be achieved quickly and easily.

Since not one control algorithm is best for all machines, SERVOSTAR CD contains Pole Placement, PI, and PDFF control algorithms. SERVOSTAR CD utilizes the PC-based MOTIONLINK® for Windows® which automatically takes you through the key steps of installation and start up.

- 115 to 230 volt single phase or three phase AC input power
- Resolver Feedback Standard with Kollmorgen GOLDLINE Motors, encoder feedback supported for BE/ME Series Motors
- Integrate power supply
- Fully digital control

**SERVOSTAR S SERIES DRIVES** SEE PAGE 42

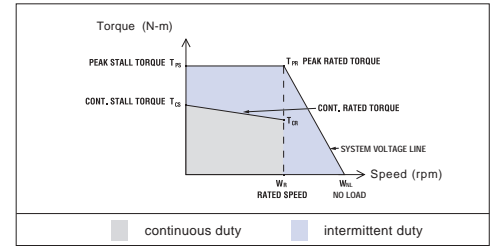
- 115 or 230 VAC Input Power (to PA Power Supply For Series)
- Resolver Feedback Standard with Kollmorgen GOLDLINE Motors, encoder feedback supported for BE/ME series motors
- Fully Digital Control

The SERVOSTAR amplifier is a compact, fully digital amplifier designed to simplify installation and system set-up. Three control algorithms and self-tuning (to the load) functionality allows high performance operation to be achieved quickly and easily.

Since not one control algorithm is best for all machines, SERVOSTAR contains Pole Placement, PI, and PDFF control algorithms. SERVOSTAR utilizes the PC-based MOTIONLINK for Windows® which automatically takes you through the key steps of installation and start up.

# SYSTEM OVERVIEW

## Kollmorgen GOLDLINE® B & SERVOSTAR® CD, S Systems



### RECOMMENDED MOTOR/DRIVE SYSTEMS, 230 VAC

| Servo Motor Model                                   | Servo Drive Model | Peak Stall Torque $T_{ps}$<br>N-m (lb-in) | Peak Rated Torque $T_{PR}$<br>N-m (lb-in) | Cont. Stall Torque $T_{CS}$<br>N-m (lb-in) | Cont. Rated Torque $T_{CR}$ <sup>①</sup><br>N-m (lb-in) | Rated Speed $W_R$<br>rpm | No-Load Speed $W_{NL}$<br>rpm | Cont. Stall Current $I_{CS}$<br>$A_{RMS}$ | Current at Peak Torque $I_{PS}$<br>$A_{RMS}$ | Inertia <sup>④</sup><br>J<br>kgm <sup>2</sup><br>(lb-in) <sup>2</sup> | Inductance Line-Line<br>L<br>mH |
|---|-------------------|---|---|--|---|--------------------------|-------------------------------|---|--|---|---------------------------------|
| <b>B Series motors with SERVOSTAR® S, CD Drives</b> |                   |   |   |  |   |                          |                               |   |  |   |                                 |
| B-102-A ②   | CR03              | 2.41 (21.3)                               | 1.15 (10.2)                               | 0.84 (7.43)                                | 0.69 (6.11)   | 7,500                    | n/a                           | 2.4                                       | 7.2  | 0.000309 (0.00273)  | 30                              |
| B-104-A ②   | CR03              | 4.38 (38.8)                               | 1.89 (16.7)                               | 1.55 (13.7)                                | 1.51 (13.4)   | 5,600                    | n/a                           | 3.0                                       | 9  | 0.000461 (0.000408)   | 28.1                            |
| B-104-B ②   | CR06              | 4.45 (39.4)                               | 2.40 (21.2)                               | 1.57 (13.9)                                | 1.42 (12.6)   | 7,500                    | n/a                           | 4.2                                       | 12.6   | 0.000461 (0.000408)   | 14.4                            |
| B-106-A ②   | CR03              | 6.10 (54.0)                               | 3.50 (31.0)                               | 2.20 (19.5)                                | 2.00 (17.7)   | 4,200                    | n/a                           | 3.0                                       | 9  | 0.000765 (0.000677)   | 37.5                            |
| B-106-B ②   | CR06              | 6.35 (56.2)                               | 2.00 (17.7)                               | 2.22 (19.6)                                | 1.89 (16.7)   | 7,500                    | n/a                           | 6.0                                       | 18   | 0.000765 (0.000677)   | 9.4                             |
| B-202-A ②   | CR03              | 7.45 (65.9)                               | 2.70 (23.9)                               | 2.25 (19.9)                                | 2.25 (19.9)   | 2,500                    | n/a                           | 1.7                                       | 6  | 0.000996 (0.000882)   | 185                             |
| B-202-B ②   | CR03              | 6.93 (61.3)                               | 3.00 (26.6)                               | 2.44 (21.6)                                | 2.35 (20.8)   | 3,800                    | n/a                           | 3.0                                       | 9  | 0.000996 (0.000882)   | 68                              |
| B-202-C ②   | CR03              | 7.65 (67.7)                               | 3.10 (27.4)                               | 2.44 (21.6)                                | 2.29 (20.3)   | 6,200                    | n/a                           | 5.0                                       | 9  | 0.000996 (0.000882)   | 25                              |
| B-204-A ②   | CR03              | 13.7 (121)                                | 6.75 (59.7)                               | 4.47 (39.6)                                | 3.96 (35.0)   | 1,900                    | n/a                           | 2.7                                       | 8.7  | 0.000173 (0.00153)  | 133                             |
| B-204-B ②   | CR06              | 13.8 (122)                                | 7.00 (62.0)                               | 4.47 (39.6)                                | 4.06 (35.9)   | 3,600                    | n/a                           | 5.3                                       | 17.2   | 0.000173 (0.00153)  | 38                              |
| B-204-C ②   | CR10              | 9.49 (84.0)                               | 5.49 (48.6)                               | 4.79 (42.4)                                | 4.37 (38.7)   | 6,200                    | n/a                           | 9.8                                       | 20   | 0.000173 (0.00153)  | 12                              |
| B-206-A ②   | CR03              | 18.4 (163)                                | 8.60 (76.1)                               | 6.51 (57.6)                                | 6.51 (57.6)   | 1,400                    | n/a                           | 3.0                                       | 9  | 0.000251 (0.00222)  | 130                             |
| B-206-B ②   | CR06              | 18.4 (163)                                | 8.75 (77.4)                               | 6.24 (55.2)                                | 6.20 (54.9)   | 2,800                    | n/a                           | 5.8                                       | 18   | 0.000251 (0.00222)  | 32                              |
| B-206-C ②   | CR10              | 12.6 (112)                                | 8.54 (75.6)                               | 6.44 (57)                                  | 5.52 (48.9)   | 4,900                    | n/a                           | 10  | 20   | 0.000251 (0.00222)  | 11                              |
| B-402-A ③   | CR03              | 19.2 (170)                                | 6.10 (54.0)                               | 6.80 (60.2)                                | 6.10 (54.0)   | 1,500                    | n/a                           | 3.0                                       | 9  | 0.000323 (0.00286)  | 220                             |
| B-402-B ③   | CR06              | 19.0 (168)                                | 9.00 (79.7)                               | 6.78 (60.0)                                | 6.50 (57.5)   | 3,000                    | n/a                           | 6.4                                       | 18   | 0.000323 (0.00286)  | 50                              |
| B-402-C ③   | CR10              | 12.5 (111)                                | 8.20 (72.6)                               | 6.50 (57.5)                                | 5.40 (47.8)   | 5,000                    | n/a                           | 9.8                                       | 20   | 0.000323 (0.00286)  | 21                              |
| B-404-A ③   | CR06              | 35.9 (318)                                | 18.3 (162)                                | 13.0 (115)                                 | 13.0 (115)  | 1,500                    | n/a                           | 6.0                                       | 16.4   | 0.000656 (0.00581)  | 102                             |
| B-404-B ③   | CR10              | 25.6 (227)                                | 20.3 (180)                                | 13.3 (118)                                 | 12.8 (113)  | 2,500                    | n/a                           | 9.9                                       | 20   | 0.000656 (0.00581)  | 33.5                            |
| B-404-C ③   | SR20              | 24.1 (213)                                | 16.7 (148)                                | 13.1 (116)                                 | 10.4 (92)   | 5,000                    | n/a                           | 19.8                                      | 40   | 0.000656 (0.00581)  | 8.4                             |
| B-404-D ③   | SR20              | 33.4 (296)                                | 23.3 (206)                                | 13.1 (116)                                 | 11.5 (102)  | 3,700                    | n/a                           | 15  | 40   | 0.000656 (0.00581)  | 15                              |
| B-406-A ③   | CR10              | 36.3 (321)                                | 28.7 (254)                                | 17.6 (156)                                 | 16.3 (144)  | 1,700                    | n/a                           | 9.5                                       | 20   | 0.000929 (0.00822)  | 42                              |
| B-406-B ③   | SR20              | 37.2 (329)                                | 26.4 (234)                                | 18.6 (165)                                 | 15.5 (137)  | 3,200                    | n/a                           | 19.1                                      | 40   | 0.000929 (0.00822)  | 12                              |
| B-406-C ③   | SR30              | 37.0 (327)                                | 25.5 (226)                                | 17.0 (150)                                 | 13.8 (122)  | 5,000                    | n/a                           | 27.2                                      | 60   | 0.000929 (0.00822)  | 4.8                             |
| B-602-A ③   | CR10              | 31.9 (282)                                | 23.7 (210)                                | 17.6 (156)                                 | 15.7 (139)  | 2,000                    | n/a                           | 10  | 20   | 0.00103 (0.00912)   | 32                              |
| B-602-B ③   | SR20              | 29.6 (262)                                | 20.3 (180)                                | 17.4 (154)                                 | 13.7 (121)  | 4,000                    | n/a                           | 20  | 40   | 0.00103 (0.00912)   | 9                               |
| B-602-C ③   | SR20              | 40.0 (354)                                | 26.2 (232)                                | 17.4 (154)                                 | 14.5 (128)  | 3,000                    | n/a                           | 15  | 40   | 0.00103 (0.00912)   | 14                              |
| B-604-A ③   | SR20              | 60.2 (533)                                | 44.7 (396)                                | 30.1 (266)                                 | 26.5 (235)  | 2,150                    | n/a                           | 19  | 40   | 0.00203 (0.0180)  | 13.3                            |
| B-604-B ③   | SR30              | 59.3 (525)                                | 42.3 (374)                                | 30.1 (266)                                 | 23.6 (209)  | 3,150                    | n/a                           | 27.7                                      | 60   | 0.00203 (0.0180)  | 6.3                             |
| B-604-C ③   | SR55              | 71.2 (630)                                | 39.6 (350)                                | 31.2 (276)                                 | 19 (168)  | 4,300                    | n/a                           | 39.4                                      | 110  | 0.00203 (0.0180)  | 3.3                             |
| B-604-D ③   | SR20              | 78.6 (696)                                | 62.4 (552)                                | 30.9 (273)                                 | 28.1 (249)  | 1,600                    | n/a                           | 15  | 40   | 0.00203 (0.0180)  | 22                              |
| B-606-A ③   | SR20              | 86.2 (763)                                | 70.5 (624)                                | 44.8 (397)                                 | 40.4 (358)  | 1,500                    | n/a                           | 20  | 40   | 0.00304 (0.0269)  | 15.6                            |
| B-606-B ③   | SR55              | 107 (951)                                 | 73.5 (651)                                | 44.8 (397)                                 | 35.0 (310)  | 3,050                    | n/a                           | 40  | 110  | 0.00304 (0.0269)  | 3.8                             |
| B-606-C ③   | SR55              | 84.1 (744)                                | 51.5 (456)                                | 44.8 (397)                                 | 24.4 (216)  | 4,150                    | n/a                           | 54.8                                      | 110  | 0.00304 (0.0269)  | 2.1                             |
| B-606-D ③   | SR30              | 82.7 (732)                                | 63.0 (558)                                | 42.0 (372)                                 | 33.9 (300)  | 2,300                    | n/a                           | 28  | 60   | 0.00304 (0.0269)  | 7                               |
| B-606-F ③   | SR20              | 122 (1080)                                | 94.9 (840)                                | 44.8 (397)                                 | 42.0 (372)  | 1,100                    | n/a                           | 14  | 40   | 0.00304 (0.0269)  | 32.5                            |
| B-802-A ③   | SR30              | 90.8 (804)                                | 71.3 (631)                                | 42.0 (372)                                 | 37.7 (334)  | 2,000                    | n/a                           | 24.9                                      | 60   | 0.00488 (0.0432)  | 16.3                            |
| B-802-B ③   | SR55              | 103.4 (915)                               | 68.9 (610)                                | 40.7 (360)                                 | 35.3 (312)  | 2,750                    | n/a                           | 32.4                                      | 110  | 0.00488 (0.0432)  | 9.4                             |
| B-804-A ③   | SR55              | 201 (1779)                                | 155 (1372)                                | 78.6 (696)                                 | 68.9 (610)  | 1,500                    | n/a                           | 35  | 110  | 0.00840 (0.0743)  | 13                              |
| B-804-B ③   | SR55              | 144 (1275)                                | 119 (1053)                                | 78.6 (696)                                 | 66.2 (586)  | 2,000                    | n/a                           | 48  | 110  | 0.00840 (0.0743)  | 7.2                             |
| B-804-C ③   | SR85              | 172 (1522)                                | 130 (1151)                                | 78.6 (696)                                 | 50.0 (443)  | 3,000                    | n/a                           | 70  | 170  | 0.00840 (0.0743)  | 3.2                             |
| B-806-A ③   | SR55              | 214 (1894)                                | 180 (1593)                                | 109 (960)                                  | 94.0 (832)  | 1,550                    | n/a                           | 49.1                                      | 110  | 0.0126 (0.112)  | 8                               |
| B-806-B ③   | SR85              | 191 (1690)                                | 122 (1080)                                | 100 (885)                                  | 51.5 (456)  | 3,000                    | n/a                           | 94  | 170  | 0.0126 (0.112)  | 2.1                             |
| B-806-C ③   | SR30              | 201 (1779)                                | 182 (1611)                                | 109 (960)                                  | 96.3 (852)  | 900                      | n/a                           | 30  | 60   | 0.0126 (0.112)  | 20                              |
| B-808-C ③   | SR55              | 312 (2761)                                | 217 (1921)                                | 149 (1319)                                 | 145 (1283)  | 1,000                    | n/a                           | 47.4                                      | 110  | 0.0168 (0.149)  | 8.05                            |

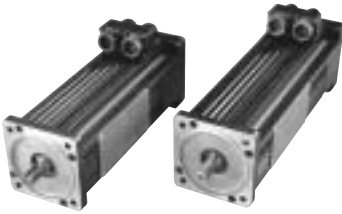
Note: System data available for M series motors, EB series motors and for all motors at 115 VAC—see the MOTIONEERING® CD bound into the back inside cover of this catalog.

- ① Ambient temperature at 40°C (or less).
- ② Continuous duty ratings are with motor mounted to a 96 in<sup>2</sup> x 1/4" Aluminum faceplate.
- ③ Continuous duty ratings are with motor mounted to a 300 in<sup>2</sup> x 3/4" Aluminum faceplate.
- ④ Inertia includes feedback inertia.

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# B/M MOTORS

## Kollmorgen GOLDLINE® B & SERVOSTAR® CD, S System Data



### Features

B / M Series  
Low / Medium Inertia

- Compact (high torque/volume ratio)
- Speeds to 7500 rpm standard
- UL recognized
- Rugged resolver feedback
- Built-in thermostat
- Rear shaft extension
- Class H insulation

EB Series  
Explosion Proof

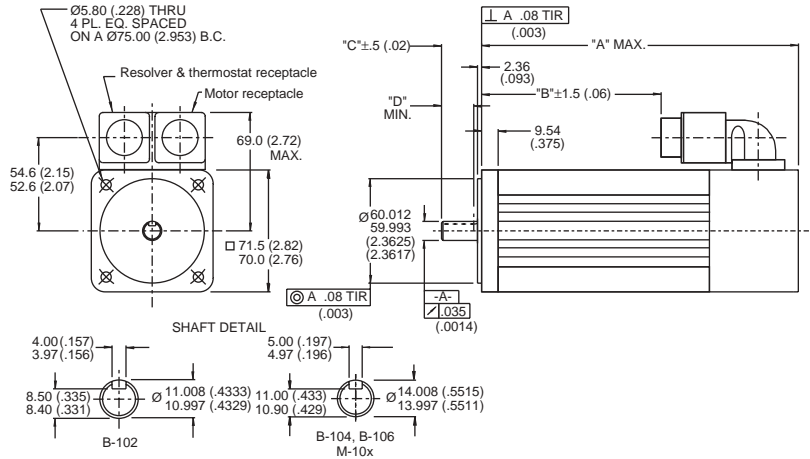
- Compact (high torque/volume ratio)
- Speeds to 7500 rpm standard
- UL recognized
- Rugged resolver feedback
- Built-in thermostat

Class H insulation

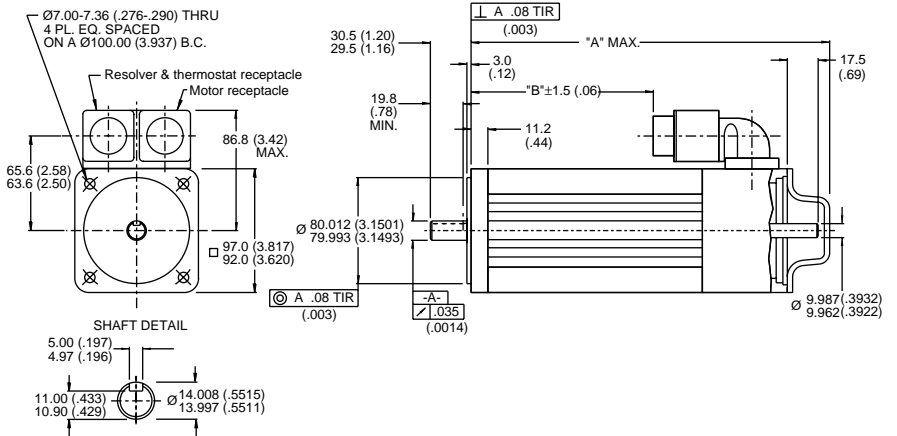
BE / ME Series  
Low / Medium Inertia

- Compact (high torque/volume ratio)
- Speeds to 6000 rpm standard
- UL recognized
- Communication encoder feedback (2048 LPR)
- Built-in thermostat
- Class H insulation

### B/M-10x-x-24 mm (in)



### B/M-20x-x-23 mm (in)

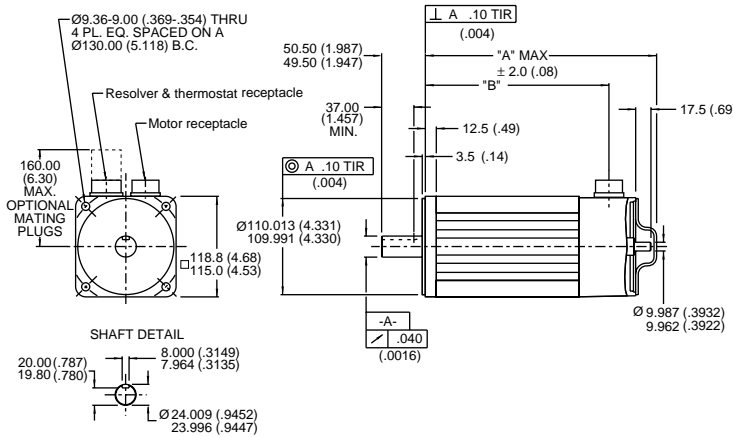


# B/M MOTORS

## Kollmorgen GOLDLINE® B & SERVOSTAR® CD, S System Data

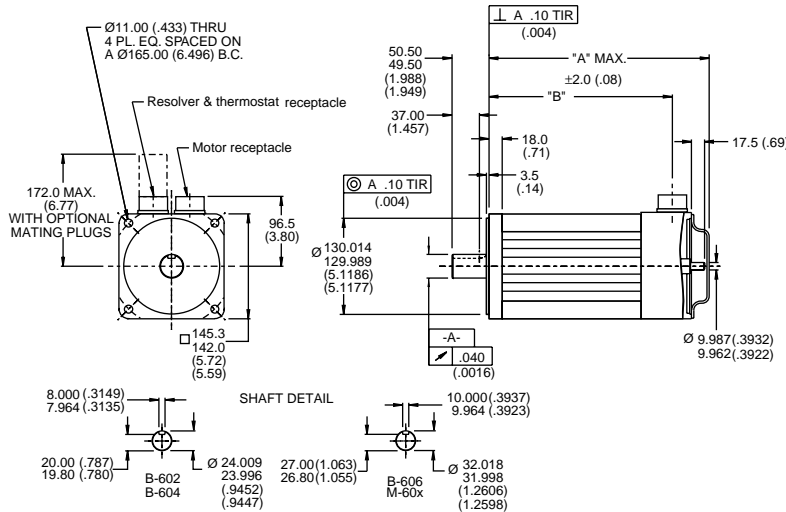
### B/M-40x-x-A3

mm (in)



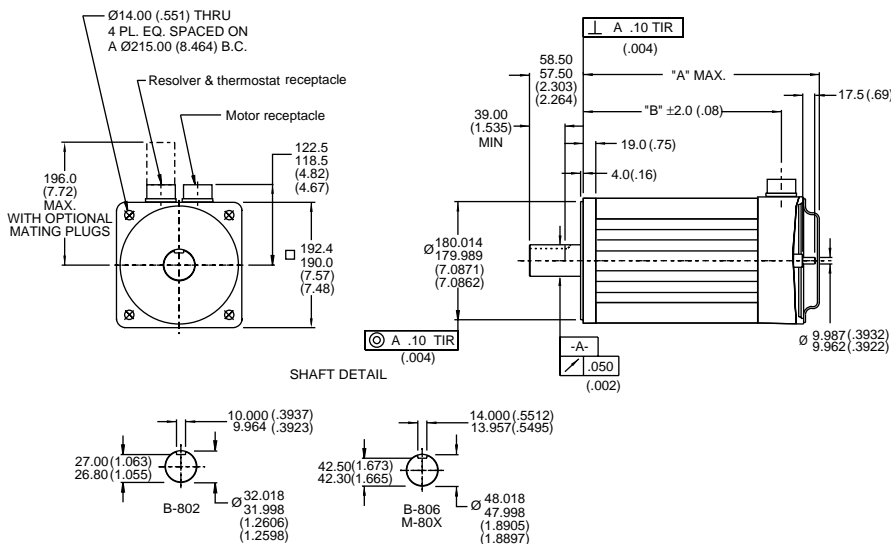
### B/M-60Ax-x-A3

mm (in)



### B/M-80x-x-A3

mm (in)



| Model | A             | B             | C            | D           |
|-------|---------------|---------------|--------------|-------------|
| B-102 | 183.2 (7.21)  | 103.2 (4.06)  | 23.0 (0.905) | 18.0 (0.71) |
| B-104 | 213.7 (8.41)  | 133.7 (5.26)  | 30.0 (1.18)  | 20.0 (0.79) |
| B-106 | 244.2 (9.61)  | 164.2 (6.46)  | 30.0 (1.18)  | 20.0 (0.79) |
| M-103 | 220.0 (8.66)  | 140.0 (5.51)  | 30.0 (1.18)  | 20.0 (0.79) |
| M-105 | 262.1 (10.32) | 182.1 (7.17)  | 30.0 (1.18)  | 20.0 (0.79) |
| M-107 | 314.5 (12.38) | 234.5 (9.23)  | 30.0 (1.18)  | 20.0 (0.79) |
| B-202 | 236.2 (9.30)  | 123.9 (4.88)  | N/A          | N/A         |
| B-204 | 275.8 (10.86) | 163.5 (6.44)  | N/A          | N/A         |
| B-206 | 315.4 (12.42) | 203.1 (8.00)  | N/A          | N/A         |
| M-203 | 275.8 (10.86) | 163.5 (6.44)  | N/A          | N/A         |
| M-205 | 315.4 (12.42) | 203.1 (8.00)  | N/A          | N/A         |
| M-207 | 373.2 (14.69) | 260.5 (10.26) | N/A          | N/A         |
| B-402 | 265.5 (10.45) | 213.6 (8.41)  | N/A          | N/A         |
| B-404 | 318.8 (12.55) | 266.9 (10.51) | N/A          | N/A         |
| B-406 | 372.1 (14.65) | 320.2 (12.61) | N/A          | N/A         |
| M-403 | 318.8 (12.55) | 266.9 (10.51) | N/A          | N/A         |
| M-405 | 372.1 (14.65) | 320.2 (12.61) | N/A          | N/A         |
| M-407 | 444.9 (17.52) | 393.0 (12.47) | N/A          | N/A         |
| B-602 | 299.2 (11.79) | 248.0 (9.76)  | N/A          | N/A         |
| B-604 | 367.8 (14.48) | 316.6 (12.46) | N/A          | N/A         |
| B-606 | 436.4 (17.18) | 385.2 (15.17) | N/A          | N/A         |
| M-603 | 367.8 (14.48) | 316.6 (12.46) | N/A          | N/A         |
| M-605 | 436.4 (17.18) | 385.2 (15.17) | N/A          | N/A         |
| M-607 | 531.5 (20.93) | 480.3 (18.91) | N/A          | N/A         |
| B-802 | 360.4 (14.19) | 300.5 (11.83) | N/A          | N/A         |
| B-804 | 449.9 (17.71) | 390.0 (15.35) | N/A          | N/A         |
| B-806 | 539.4 (21.24) | 479.5 (18.88) | N/A          | N/A         |
| B-808 | 628.9 (24.76) | 569.0 (22.40) | N/A          | N/A         |
| M-803 | 449.9 (17.71) | 390.0 (15.35) | N/A          | N/A         |
| M-805 | 539.4 (21.24) | 479.5 (18.88) | N/A          | N/A         |
| M-807 | 648.7 (25.54) | 588.8 (23.18) | N/A          | N/A         |

**Notes:**

1. EB, BE, and ME outline and dimension data and connector information is available by contacting the Customer Support Group.
2. Dimensions in mm (inches)  
Tolerances, unless otherwise specified:  
metric: X decimal place ± 0.4, XX decimal places ± 0.13  
inches: XX decimal places ± 0.015, XXX decimal places ± 0.005

B/M MOTORS

Kollmorgen GOLDLINE® B & SERVOSTAR® CD, S System Data

B/M 10X & 20X SERIES MOTORS

| PARAMETER  | SYMBOL              | UNITS                                       | B-102-A<br>BE-102-A<br>M-103-A<br>ME-103-A<br>EB-102-A | B-104-A<br>BE-104-A<br>M-105-A<br>ME-105-A<br>EB-104-A | B-104-B<br>BE-104-B<br>M-105-B<br>ME-105-B<br>EB-104-B | B-106-A<br>BE-106-A<br>M-107-A<br>ME-107-A<br>EB-106-A | B-106-B<br>BE-106-B<br>M-107-B<br>ME-107-B<br>EB-106-B | B-202-A<br>BE-202-A<br>M-203-A<br>ME-203-A<br>EB-202-A | B-202-B<br>BE-202-B<br>M-203-B<br>ME-203-B<br>EB-202-B | B-202-C<br>BE-202-C<br>M-203-C<br>ME-203-C<br>EB-202-C | B-204-A<br>BE-204-A<br>M-205-A<br>ME-205-A<br>EB-204-A |
|--|---------------------|---|--|--|--|--|--|--|--|--|--|
| Horsepower   | HP <sub>RATED</sub> | hp  | 0.73   | 1.2  | 1.5  | 1.2  | 2.0  | 0.80   | 1.3  | 2.0  | 1.1  |
| Kilowatts  | KW <sub>RATED</sub> | kW  | 0.54   | 0.90   | 1.1  | 0.90   | 1.5  | 0.60   | 1.0  | 1.5  | 0.82   |
| Speed at Rated Power   | N <sub>RATED</sub>  | rpm   | 7500   | 5600   | 7500   | 4200   | 7500   | 2500   | 3800   | 6200   | 1900   |
| Max Operating Speed  | N <sub>MAX</sub>    | rpm   | 7500   | 5600   | 7500   | 4200   | 7500   | 2500   | 3800   | 6200   | 1900   |
| Cont. Torque (Stall) at 40°C   | T <sub>CS</sub>     | N-m (lb-ft)                                 | 0.84 (0.62)  | 1.55 (1.14)  | 1.57 (1.16)  | 2.20 (1.62)  | 2.22 (1.64)  | 2.25 (1.66)  | 2.44 (1.80)  | 2.44 (1.80)  | 4.47 (3.30)  |
| Cont. Torque (Stall) at 25°C   | T <sub>CS</sub>     | N-m (lb-ft)                                 | 0.89 (0.66)  | 1.64 (1.21)  | 1.67 (1.23)  | 2.33 (1.72)  | 2.36 (1.74)  | 2.39 (1.76)  | 2.59 (1.91)  | 2.59 (1.91)  | 4.7 (3.5)  |
| Cont. Line Current   | I <sub>CS</sub>     | A <sub>RMS</sub>                            | 2.4  | 3  | 4.2  | 3.0  | 6.0  | 1.70   | 3.0  | 5.0  | 2.7  |
| Peak Torque  | T <sub>PS</sub>     | N-m (lb-ft)                                 | 2.41 (1.78)  | 4.38 (3.23)  | 4.45 (3.28)  | 6.18 (4.56)  | 6.35 (4.68)  | 7.45 (5.50)  | 7.38 (5.45)  | 7.65 (5.65)  | 13.7 (10.1)  |
| Peak Line Current  | I <sub>PS</sub>     | A <sub>RMS</sub>                            | 7.2  | 9  | 12.6   | 9  | 18   | 6  | 9.6  | 16.6   | 8.7  |
| Max Theoretical Acceleration<br>(B, BE, EB-10/20x)<br>(M, ME-10/20x) | Z                   | rad/sec <sup>2</sup>                        | 78100<br>11400   | 95000<br>13000   | 96500<br>13200   | 80000<br>11400   | 83000<br>11700   | 74800<br>8910  | 74100<br>8330  | 76900<br>9160  | 79200<br>12000   |
| Torque Sensitivity (Stall) ±10%                                      | K <sub>t</sub>      | N-m (lb-ft)/A <sub>RMS</sub>                | 0.35 (0.26)  | 0.51 (0.38)  | 0.37 (0.27)  | 0.72 (0.53)  | 0.37 (0.27)  | 1.32 (0.97)  | 0.81 (0.60)  | 0.49 (0.36)  | 1.66 (1.23)  |
| Back EMF (Line to Line) ±10%   | K <sub>b</sub>      | V <sub>RMS</sub> / krpm                     | 20.9   | 31   | 22.5   | 43.7   | 22.5   | 79.5   | 49   | 29.4   | 100.5  |
| Max Line-to-Line volts   | V <sub>MAX</sub>    | V <sub>RMS</sub>                            | 250  | 250  | 250  | 250  | 250  | 250  | 250  | 250  | 250  |
| DC Res at 25°C<br>(Line-to-Line) ±10%                                | R <sub>m</sub>      | ohms  | 6.8  | 5.30   | 2.72   | 6.50   | 1.60   | 17.7   | 6.98   | 2.34   | 9.46   |
| Inductance (Line-to-Line) ±30%                                       | L <sub>m</sub>      | mH  | 30   | 28.1   | 14.4   | 37.5   | 9.4  | 185.0  | 68   | 25   | 133  |
| Rotor Inertia<br>(B, BE, EB-10/20x)<br>(M, ME-10/20x)                | J <sub>m</sub>      | kg-m <sup>2</sup><br>lb-ft-sec <sup>2</sup> | 0.000228-0.000031<br>0.000212-0.000156                 | 0.000461-0.0000340<br>0.000338-0.000249                | 0.000461-0.0000340<br>0.000338-0.000249                | 0.000765-0.0000564<br>0.00054-0.00040                  | 0.000765-0.0000564<br>0.00054-0.00040                  | 0.000996-0.0000735<br>0.000836-0.000617                | 0.000996-0.0000735<br>0.000836-0.000617                | 0.000996-0.0000735<br>0.000836-0.000617                | 0.001729-0.001275<br>0.001143-0.000843                 |
| Weight<br>(B, BE-10/20x)<br>(M, ME-10/20x)<br>(EB-10/20x)            | W <sub>t</sub>      | kg (lb)                                     | 2.5 (5.5)<br>3.2 (7)<br>2.5 (5.5)                      | 3.2 (7)<br>4.1 (9)<br>3.2 (7)                          | 3.2 (7)<br>4.1 (9)<br>3.2 (7)                          | 3.9 (8.5)<br>5 (11)<br>3.9 (8.5)                       | 3.9 (8.5)<br>5 (11)<br>3.9 (8.5)                       | 4.1 (9)<br>5 (11)<br>6.8 (15)                          | 4.1 (9)<br>5 (11)<br>6.8 (15)                          | 4.1 (9)<br>5 (11)<br>6.8 (15)                          | 6.2 (13.6)<br>7.3 (16)<br>8.2 (18)                     |
| Static Friction  | T <sub>f</sub>      | N-m (lb-ft)                                 | 0.04 (0.03)  | 0.05 (0.04)  | 0.05 (0.04)  | 0.07 (0.05)  | 0.07 (0.05)  | 0.08 (0.06)  | 0.08 (0.06)  | 0.08 (0.06)  | 0.10 (0.07)  |
| Thermal Time Constant<br>(B, BE, M, ME-10/20x)-(EB-10/20x)           | TCT                 | minutes                                     | 10-2   | 11-3   | 11-3   | 12-4   | 12-4   | 18-18  | 18-18  | 18-18  | 20-20  |
| Viscous Damping Z Source   | F <sub>v</sub>      | N-m (lb-ft)/krpm                            | 0.002 (0.0015)   | 0.003 (0.0020)   | 0.003 (0.0020)   | 0.004 (0.003)  | 0.004 (0.003)  | 0.007 (0.005)  | 0.007 (0.005)  | 0.007 (0.005)  | 0.009 (0.007)  |
| Motor Constant at 25°C   | K <sub>m</sub>      | N-m (lb-ft)/√watts                          | 0.111 (0.082)  | 0.194 (0.143)  | 0.196 (0.145)  | 0.249 (0.184)  | 0.253 (0.187)  | 0.272 (0.201)  | 0.266 (0.196)  | 0.276 (0.204)  | 0.466 (0.344)  |
| Thermal Resistance at Stall  | R <sub>th</sub>     | °C/watt                                     | 1.30   | 1.07   | 1.07   | 0.87   | 0.89   | 1.0  | 0.81   | 0.87   | 0.74   |
| Number of Poles  |                     |   | 4  | 4  | 4  | 4  | 4  | 4  | 4  | 4  | 4  |

B/M 20X & 40X SERIES MOTORS

| PARAMETER  | SYMBOL              | UNITS                                       | B-204-B<br>BE-204-B<br>M-205-B<br>ME-205-B<br>EB-204-B | B-204-C<br>BE-204-C<br>M-205-C<br>ME-205-C<br>EB-204-C | B-206-A<br>BE-206-A<br>M-207-A<br>ME-207-A<br>EB-206-A | B-206-B<br>BE-206-B<br>M-207-B<br>ME-207-B<br>EB-206-B | B-206-C<br>BE-206-C<br>M-207-C<br>ME-207-C<br>EB-206-C | B-206-D<br>BE-206-D<br>M-207-D<br>ME-207-D<br>EB-206-D | B-402-A<br>BE-402-A<br>M-403-A<br>ME-403-A<br>EB-402-A | B-402-B<br>BE-402-B<br>M-403-B<br>ME-403-B<br>EB-402-B | B-402-C<br>BE-402-C<br>M-403-C<br>ME-403-C<br>EB-402-C |
|--|---------------------|---|--|--|--|--|--|--|--|--|--|
| Horsepower   | HP <sub>RATED</sub> | hp  | 2.1  | 3.8  | 1.3  | 2.5  | 3.8  | 5.0  | 1.3  | 2.9  | 3.8  |
| Kilowatts  | KW <sub>RATED</sub> | kW  | 1.6  | 2.8  | .97  | 1.8  | 2.8  | 3.7  | 0.97   | 2.2  | 2.8  |
| Speed at Rated Power   | N <sub>RATED</sub>  | rpm   | 3600   | 6200   | 1400   | 2800   | 4900   | 7000   | 1500   | 3000   | 5000   |
| Max Operating Speed  | N <sub>MAX</sub>    | rpm   | 3600   | 6200   | 1400   | 2800   | 4900   | 7000   | 1500   | 3000   | 5000   |
| Cont. Torque (Stall) at 40°C   | T <sub>CS</sub>     | N-m (lb-ft)                                 | 4.47 (3.30)  | 4.79 (3.53)  | 6.51 (4.80)  | 6.24 (4.6)   | 6.44 (4.75)  | 6.51 (4.80)  | 6.8 (5.0)  | 6.8 (5.0)  | 6.5 (4.8)  |
| Cont. Torque (Stall) at 25°C   | T <sub>CS</sub>     | N-m (lb-ft)                                 | 4.7 (3.5)  | 5.1 (3.7)  | 6.9 (5.09)   | 6.62 (4.88)  | 6.83 (5.04)  | 6.90 (5.09)  | 7.2 (5.3)  | 7.4 (5.5)  | 6.9 (5.1)  |
| Cont. Line Current   | I <sub>CS</sub>     | A <sub>RMS</sub>                            | 5.3  | 9.8  | 3.0  | 5.8  | 10.0   | 15.0   | 3.0  | 6.4  | 9.8  |
| Peak Torque  | T <sub>PS</sub>     | N-m (lb-ft)                                 | 13.8 (10.2)  | 13.7 (10.1)  | 20.5 (15.1)  | 19.9 (14.7)  | 19.5 (14.4)  | 19.9 (14.7)  | 19.8 (14.6)  | 19.8 (14.6)  | 19.8 (14.6)  |
| Peak Line Current  | I <sub>PS</sub>     | A <sub>RMS</sub>                            | 17.2   | 29.5   | 10   | 19.5   | 33.0   | 48.5   | 9.3  | 18.8   | 31.3   |
| Max Theoretical Acceleration<br>(B, BE, EB-20/40x)<br>(M, ME-20/40x) | Z                   | rad/sec <sup>2</sup>                        | 80000<br>12100   | 79200<br>12000   | 81500<br>11600   | 79300<br>11300   | 77700<br>11100   | 79300<br>11300   | 61300<br>7640  | 61300<br>7640  | 61300<br>7640  |
| Torque Sensitivity (Stall) ±10%                                      | K <sub>t</sub>      | N-m (lb-ft)/A <sub>RMS</sub>                | 0.85 (0.63)  | 0.49 (.36)   | 2.15 (1.59)  | 1.08 (0.79)  | 0.62 (0.46)  | 0.43 (0.32)  | 2.51 (1.66)  | 1.11 (0.82)  | 0.66 (0.49)  |
| Back EMF (Line to Line) ±10%   | K <sub>b</sub>      | V <sub>RMS</sub> / krpm                     | 51.2   | 29.6   | 130  | 65.1   | 37.7   | 26.2   | 136.0  | 67.2   | 40.2   |
| Max Line-to-Line volts   | V <sub>MAX</sub>    | V <sub>RMS</sub>                            | 250  | 250  | 250  | 250  | 250  | 250  | 250  | 250  | 250  |
| DC Res at 25°C<br>(Line-to-Line) ±10%                                | R <sub>m</sub>      | ohms  | 2.48   | 0.786  | 8.82   | 2.32   | 0.82   | 0.38   | 10.5   | 2.6  | 0.97   |
| Inductance (Line-to-Line) ±30%                                       | L <sub>m</sub>      | mH  | 38   | 12   | 130  | 32   | 11   | 5.3  | 220  | 50   | 21   |
| Rotor Inertia<br>(B, BE, EB-20/40x)<br>(M, ME-20/40x)                | J <sub>m</sub>      | kg-m <sup>2</sup><br>lb-ft-sec <sup>2</sup> | 0.0001729-0.00001275<br>0.001143-0.000843              | 0.0001729-0.00001275<br>0.001143-0.000843              | 0.0002512-0.0001853<br>0.0018-0.0013                   | 0.0002512-0.0001853<br>0.0018-0.0013                   | 0.0002512-0.0001853<br>0.0018-0.0013                   | 0.0002512-0.0001853<br>0.0018-0.0013                   | 0.0003236-0.000238<br>0.00259-0.001910                 | 0.000323-0.0000238<br>0.00259-0.00191                  | 0.000323-0.0000238<br>0.00259-0.00191                  |
| Weight<br>(B, BE-20/40x)<br>(M, ME-20/40x)<br>(EB-20/40x)            | W <sub>t</sub>      | kg (lb)                                     | 6.2 (13.6)<br>7.3 (16)<br>8.2 (18)                     | 6.2 (13.6)<br>7.3 (16)<br>8.2 (18)                     | 7.6 (16.7)<br>9.5 (21)<br>9.5 (21)                     | 7.6 (16.7)<br>9.5 (21)<br>9.5 (21)                     | 7.6 (16.7)<br>9.5 (21)<br>9.5 (21)                     | 7.6 (16.7)<br>9.5 (21)<br>9.5 (21)                     | 4.1 (9)<br>5 (11)<br>6.8 (15)                          | 8.4 (18.5)<br>10.5 (23)<br>8.4 (18.5)                  | 8.4 (18.5)<br>10.5 (23)<br>8.4 (18.5)                  |
| Static Friction  | T <sub>f</sub>      | N-m (lb-ft)                                 | 0.10 (0.07)  | 0.10 (0.07)  | 0.08 (0.11)  | 0.08 (0.11)  | 0.08 (0.11)  | 0.08 (0.11)  | 0.08 (0.06)  | 0.24 (0.18)  | 0.24 (0.18)  |
| Thermal Time Constant<br>(B, BE, M, ME-20/40x)-(EB-20/40x)           | TCT                 | minutes                                     | 20-20  | 20-20  | 22-22  | 22-22  | 22-22  | 22-22  | 22-6   | 22-6   | 22-6   |
| Viscous Damping Z Source   | F <sub>v</sub>      | N-m (lb-ft)/krpm                            | 0.009 (0.007)  | 0.009 (0.007)  | 0.009 (0.012)  | 0.009 (0.012)  | 0.009 (0.012)  | 0.009 (0.012)  | 0.015 (0.011)  | 0.015 (0.011)  | 0.015 (0.011)  |
| Motor Constant at 25°C   | K <sub>m</sub>      | N-m (lb-ft)/√watts                          | 0.464 (.342)   | 0.477 (0.352)  | 0.632 (0.466)  | 0.611 (0.451)  | 0.616 (0.454)  | 0.609 (0.449)  | 0.604 (0.446)  | 0.587 (0.433)  | 0.583 (0.430)  |
| Thermal Resistance at Stall  | R <sub>th</sub>     | °C/watt                                     | 0.73   | 0.68   | 0.64   | 0.65   | 0.62   | 0.60   | 0.54   | 0.48   | 0.55   |
| Number of Poles  |                     |   | 4  | 4  | 4  | 4  | 4  | 4  | 4  | 4  | 4  |

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B/M MOTORS

| B/M 40X & 60X SERIES MOTORS  |                     |   | B-404-A<br>BE-404-A<br>M-405-A<br>ME-405-A<br>EB-404-A | B-404-B<br>BE-404-B<br>M-405-B<br>ME-405-B<br>EB-404-B | B-404-C<br>BE-404-C<br>M-405-C<br>ME-405-C<br>EB-404-C | B-404-D<br>BE-404-D<br>M-404-D<br>ME-404-D<br>EB-404-D | B-406-A<br>BE-406-A<br>M-407-A<br>ME-407-A<br>EB-406-A | B-406-B<br>BE-406-B<br>M-407-B<br>ME-407-B<br>EB-406-B | B-406-C<br>BE-406-C<br>M-407-C<br>ME-407-C<br>EB-406-C | B-602-A<br>BE-602-A<br>M-603-A<br>ME-603-A<br>EB-602-A | B-602-B<br>BE-602-B<br>M-603-B<br>ME-603-B<br>EB-602-B |
|--|---------------------|---|--|--|--|--|--|--|--|--|--|
| PARAMETER  | SYMBOL              | UNITS                                       |  |  |  |  |  |  |  |  |  |
| Horsepower   | HP <sub>rated</sub> | hp  | 2.7  | 4.5  | 7.3  | 6.0  | 3.9  | 7.4  | 9.6  | 4.4  | 7.7  |
| Kilowatts  | kW <sub>rated</sub> | kW  | 2.0  | 3.4  | 5.4  | 4.5  | 2.9  | 5.5  | 7.2  | 3.3  | 5.7  |
| Speed at Rated Power   | N <sub>rated</sub>  | rpm   | 1500   | 2500   | 5000   | 3700   | 1700   | 3200   | 5000   | 2000   | 4000   |
| Max Operating Speed  | N <sub>max</sub>    | rpm   | 1500   | 2500   | 5000   | 3700   | 1700   | 3200   | 5000   | 2000   | 4000   |
| Cont. Torque (Stall) at 40°C   | T <sub>CS</sub>     | N-m (lb-ft)                                 | 13.0 (9.6)   | 13.3 (9.8)   | 13.1 (9.7)   | 13.1 (9.7)   | 17.6 (13.0)  | 18.6 (13.7)  | 17 (12.5)  | 17.6 (13.0)  | 17.4 (12.8)  |
| Cont. Torque (Stall) at 25°C   | T <sub>CS</sub>     | N-m (lb-ft)                                 | 13.8 (10.2)  | 14.1 (10.4)  | 13.9 (10.3)  | 14 (10.3)  | 18.7 (13.8)  | 19.7 (14.5)  | 18 (13.3)  | 18.7 (13.8)  | 18.4 (13.6)  |
| Cont. Line Current   | I <sub>CS</sub>     | A <sub>RMS</sub>                            | 6.0  | 9.9  | 19.8   | 15.0   | 9.5  | 19.1   | 27.2   | 10.0   | 20.0   |
| Peak Torque  | T <sub>PS</sub>     | N-m (lb-ft)                                 | 35.9 (26.5)  | 36.6 (27.0)  | 35.3 (26)  | 37.5 (27.6)  | 48.5 (35.8)  | 49.5 (36.5)  | 48.3 (35.6)  | 51.2 (37.7)  | 49.8 (36.7)  |
| Peak Line Current  | I <sub>PS</sub>     | A <sub>RMS</sub>                            | 16.4   | 28.8   | 55.9   | 45   | 27.3   | 53.3   | 81.4   | 30.5   | 61.4   |
| Max Theoretical Acceleration<br>(B, BE, EB-60/60x)<br>(M, ME-40/60x) | Z                   | rad/sec <sup>2</sup>                        | 54800<br>8150  | 55800<br>8310  | 53700<br>8000  | 57000<br>8490  | 52300<br>7380  | 53300<br>7530  | 52000<br>7340  | 49700<br>6590  | 48400<br>6420  |
| Torque Sensitivity (Stall) ±10%                                      | K <sub>t</sub>      | N-m (lb-ft)/A <sub>RMS</sub>                | 2.31 (1.70)  | 1.34 (0.99)  | 0.66 (0.49)  | 0.877 (0.647)  | 1.87 (1.38)  | 0.98 (0.72)  | 0.63 (0.46)  | 1.77 (1.30)  | 0.85 (0.63)  |
| Back EMF (Line to Line) ±10%   | K <sub>b</sub>      | V <sub>RMS</sub> / krpm                     | 139  | 81.2   | 40.2   | 53   | 113  | 58.8   | 37.7   | 107  | 51.6   |
| Max Line-to-Line volts   | V <sub>max</sub>    | V <sub>RMS</sub>                            | 250  | 250  | 250  | 250  | 250  | 250  | 250  | 250  | 250  |
| DC Res at 25°C<br>(Line-to-Line) ±10%                                | R <sub>m</sub>      | ohms  | 4.1  | 1.32   | 0.34   | 0.63   | 1.7  | 0.44   | 0.20   | 1.55   | 0.382  |
| Inductance (Line-to-Line) ±30%                                       | L <sub>m</sub>      | mH  | 102  | 33.5   | 8.4  | 15.0   | 42   | 12   | 4.8  | 32   | 9  |
| Rotor Inertia<br>(B, BE, EB-40/60x)<br>(M, ME-40/60x)                | J <sub>m</sub>      | kg-m <sup>2</sup><br>lb-ft-sec <sup>2</sup> | 0.000656-0.000484<br>0.00441-0.00325                   | 0.000656-0.000484<br>0.00441-0.00325                   | 0.000656-0.000484<br>0.00441-0.00325                   | 0.000656-0.000484<br>0.00441-0.00325                   | 0.000929-0.000685<br>0.00657-0.00485                   | 0.000929-0.000685<br>0.00657-0.00485                   | 0.000929-0.000685<br>0.00657-0.00485                   | 0.001028-0.000758<br>0.00715-0.00572                   | 0.001028-0.000758<br>0.00715-0.00572                   |
| Weight<br>(B, BE-40/60x)<br>(M, ME-40/60x)<br>(EB-40/60x)            | W <sub>t</sub>      | kg (lb)                                     | 12.5 (27.5)<br>15.5 (34)<br>12.5 (27)                  | 12.5 (27.5)<br>15.5 (34)<br>12.5 (27)                  | 12.5 (27.5)<br>15.5 (34)<br>12.5 (27)                  | 12.5 (27.5)<br>15.5 (34)<br>12.5 (27)                  | 15.9 (35)<br>20 (44)<br>21.5 (47.6)                    | 15.9 (35)<br>20 (44)<br>21.5 (47.6)                    | 15.9 (35.0)<br>20 (44)<br>21.5 (47.6)                  | 16.8 (37)<br>20 (44)<br>16.8 (37)                      | 16.8 (37)<br>20 (44)<br>16.8 (37)                      |
| Static Friction  | T <sub>f</sub>      | N-m (lb-ft)                                 | 0.26 (0.19)  | 0.26 (0.19)  | 0.26 (0.19)  | 0.26 (0.19)  | 0.287 (0.212)  | 0.287 (0.212)  | 0.287 (0.212)  | 0.49 (0.36)  | 0.49 (0.36)  |
| Thermal Time Constant<br>(B, BE, M, ME-40/60x)-(EB-40/60x)           | TCT                 | minutes                                     | 25-9   | 25-9   | 25-9   | 25-9   | 28-12  | 28-12  | 28-12  | 28-12  | 28-12  |
| Viscous Damping Z Source   | F <sub>i</sub>      | N-m (lb-ft)/krpm                            | 0.018 (0.013)  | 0.018 (0.013)  | 0.018 (0.013)  | 0.018 (0.013)  | 0.020 (0.015)  | 0.020 (0.015)  | 0.020 (0.015)  | 0.072 (0.053)  | 0.072 (0.053)  |
| Motor Constant at 25°C   | K <sub>m</sub>      | N-m (lb-ft)/watts                           | 0.926 (0.683)  | 1.01 (0.746)   | 0.982 (0.724)  | 0.952 (0.702)  | 1.23 (907)   | 1.27 (937)   | 1.21 (0.892)   | 1.22 (0.903)   | 1.22 (0.898)   |
| Thermal Resistance at Stall  | R <sub>th</sub>     | °C/watt                                     | 0.35   | 0.40   | 0.38   | 0.36   | 0.33   | 0.32   | 0.35   | 0.33   | 0.33   |
| Number of Poles  |                     |   | 4  | 4  | 4  | 4  | 4  | 4  | 4  | 6  | 6  |

| B/M 60X & 80X SERIES MOTORS  |                     |   | B-602-C<br>BE-602-C<br>M-603-C<br>ME-603-C<br>EB-602-C | B-604-A<br>BE-604-A<br>M-605-A<br>ME-605-A<br>EB-604-A | B-604-B<br>BE-604-B<br>M-605-B<br>ME-605-B<br>EB-604-B | B-604-C<br>BE-604-C<br>M-605-C<br>ME-605-C<br>EB-604-C | B-606-A<br>BE-606-A<br>M-607-A<br>ME-607-A<br>EB-606-A | B-606-B<br>BE-606-B<br>M-607-B<br>ME-607-B<br>EB-606-B | B-606-C<br>BE-606-C<br>M-607-C<br>ME-607-C<br>EB-606-C | B-802-A<br>BE-802-A<br>M-803-A<br>ME-803-A<br>EB-802-A | B-802-B<br>BE-802-B<br>M-803-B<br>ME-803-B<br>EB-802-B |
|--|---------------------|---|--|--|--|--|--|--|--|--|--|
| PARAMETER  | SYMBOL              | UNITS                                       |  |  |  |  |  |  |  |  |  |
| Horsepower   | HP <sub>rated</sub> | hp  | 6.1  | 8.0  | 10.4   | 11.5   | 8.8  | 15   | 14.2   | 11   | 10.6   |
| Kilowatts  | kW <sub>rated</sub> | kW  | 4.6  | 6.0  | 7.7  | 8.6  | 6.6  | 11.2   | 10.6   | 8.2  | 7.9  |
| Speed at Rated Power   | N <sub>rated</sub>  | rpm   | 3000   | 2150   | 3150   | 4300   | 1550   | 3050   | 4150   | 2300   | 2000   |
| Max Operating Speed  | N <sub>max</sub>    | rpm   | 3000   | 2150   | 3150   | 4300   | 1550   | 3050   | 4160   | 2300   | 2000   |
| Cont. Torque (Stall) at 40°C   | T <sub>CS</sub>     | N-m (lb-ft)                                 | 17.4 (12.8)  | 30.1 (22.2)  | 30.1 (22.2)  | 31.2 (23)  | 44.8 (33.0)  | 42 (31)  | 44.8 (33)  | 42 (31)  | 42 (31)  |
| Cont. Torque (Stall) at 25°C   | T <sub>CS</sub>     | N-m (lb-ft)                                 | 18.4 (13.6)  | 31.9 (23.5)  | 31.8 (23.5)  | 33.6 (24.4)  | 47.5 (35.0)  | 44.6 (32.9)  | 45.5 (35)  | 44.6 (32.9)  | 44.6 (32.9)  |
| Cont. Line Current   | I <sub>CS</sub>     | A <sub>RMS</sub>                            | 15.0   | 19.0   | 27.7   | 39.4   | 20.0   | 37.5   | 54.8   | 28   | 24.9   |
| Peak Torque  | T <sub>PS</sub>     | N-m (lb-ft)                                 | 49.5 (36.5)  | 86.4 (63.7)  | 87.7 (64.7)  | 86.4 (63.7)  | 132 (97.2)   | 126 (93)   | 124 (91.6)   | 123 (90.4)   | 130 (96)   |
| Peak Line Current  | I <sub>PS</sub>     | A <sub>RMS</sub>                            | 45   | 57.4   | 84.8   | 114.8  | 62   | 118.6  | 160  | 86.2   | 81   |
| Max Theoretical Acceleration<br>(B, BE, EB-60/80x)<br>(M, ME-60/80x) | Z                   | rad/sec <sup>2</sup>                        | 48400<br>6420  | 42500<br>6140  | 43100<br>6240  | 42500<br>6140  | 43400<br>6220  | 41500<br>5960  | 40900<br>5870  | 40400<br>5790  | 26700<br>3710  |
| Torque Sensitivity (Stall) ±10%                                      | K <sub>t</sub>      | N-m (lb-ft)/A <sub>RMS</sub>                | 1.15 (0.85)  | 1.59 (1.17)  | 1.09 (0.80)  | 0.79 (0.58)  | 2.24 (1.65)  | 1.12 (0.83)  | 0.82 (0.60)  | 1.2 (1.1)  | 1.68 (1.25)  |
| Back EMF (Line to Line) ±10%   | K <sub>b</sub>      | V <sub>RMS</sub> / krpm                     | 70   | 95.8   | 65.9   | 47.9   | 135.0  | 67.7   | 49.5   | 90.5   | 102  |
| Max Line-to-Line volts   | V <sub>max</sub>    | V <sub>RMS</sub>                            | 250  | 250  | 250  | 250  | 250  | 250  | 250  | 250  | 250  |
| DC Res at 25°C<br>(Line-to-Line) ±10%                                | R <sub>m</sub>      | ohms  | 674  | 0.508  | 0.234  | 0.126  | 0.500  | 0.140  | 0.076  | 0.26   | 0.361  |
| Inductance (Line-to-Line) ±30%                                       | L <sub>m</sub>      | mH  | 14   | 13.3   | 6.3  | 3.3  | 15.6   | 3.8  | 2.1  | 7.0  | 16.3   |
| Rotor Inertia<br>(B, BE, EB-60/80x)<br>(M, ME-60/80x)                | J <sub>m</sub>      | kg-m <sup>2</sup><br>lb-ft-sec <sup>2</sup> | 0.001028-0.000758<br>0.00715-0.00572                   | 0.002034-0.001500<br>0.01406-0.01037                   | 0.002034-0.001500<br>0.01406-0.01037                   | 0.002034-0.001500<br>0.01406-0.01037                   | 0.00304-0.00224<br>0.02117-0.01561                     | 0.00304-0.00224<br>0.02117-0.01561                     | 0.00304-0.00224<br>0.02117-0.01561                     | 0.00304-0.00224<br>0.02117-0.01561                     | 0.00488-0.00360<br>0.0352-0.0259                       |
| Weight<br>(B, BE-60/80x)<br>(M, ME-60/80x)<br>(EB-60/80x)            | W <sub>t</sub>      | kg (lb)                                     | 16.8 (37)<br>20 (44)<br>16.8 (37)                      | 23.1 (51)<br>28.7 (63)<br>23.1 (51)                    | 23.1 (51)<br>28.7 (63)<br>23.1 (51)                    | 23.1 (51)<br>28.7 (63)<br>23.1 (51)                    | 29.9 (66)<br>37.8 (83)<br>29.9 (66)                    | 29.9 (66)<br>37.8 (83)<br>29.9 (66)                    | 29.9 (66)<br>37.8 (83)<br>29.9 (66)                    | 29.9 (66)<br>37.8 (83)<br>29.9 (66)                    | 36 (79)<br>43.7 (96)<br>36 (79)                        |
| Static Friction  | T <sub>f</sub>      | N-m (lb-ft)                                 | 0.49 (0.36)  | 0.52 (0.38)  | 0.52 (0.38)  | 0.52 (0.38)  | 0.941 (0.694)  | 0.941 (0.694)  | 0.941 (0.694)  | 0.941 (0.694)  | 0.64 (0.47)  |
| Thermal Time Constant<br>(B, BE, M, ME-60/80x)-(EB-60/80x)           | TCT                 | minutes                                     | 28-12  | 33-14  | 33-14  | 33-14  | 38-16  | 38-16  | 38-16  | 38-16  | 40-0.60  |
| Viscous Damping Z Source   | F <sub>i</sub>      | N-m (lb-ft)/krpm                            | 0.072 (0.053)  | 0.109 (0.080)  | 0.109 (0.080)  | 0.109 (0.080)  | 0.147 (0.108)  | 0.147 (0.108)  | 0.147 (0.108)  | 0.147 (0.108)  | 0.237-0.175  |
| Motor Constant at 25°C   | K <sub>m</sub>      | N-m (lb-ft)/watts                           | 1.22 (0.902)   | 1.92 (1.42)  | 1.94 (1.43)  | 1.93 (1.42)  | 2.74 (2.02)  | 2.59 (1.91)  | 2.55 (1.88)  | 2.55 (1.88)  | 2.431-1.79   |
| Thermal Resistance at Stall  | R <sub>th</sub>     | °C/watt                                     | 0.34   | 0.28   | 0.28   | 0.26   | 0.26   | 0.26   | 0.22   | 0.25   | 0.23   |
| Number of Poles  |                     |   | 6  | 6  | 6  | 6  | 6  | 6  | 6  | 6  | 6  |

| B/M 80X SERIES MOTORS  |                     |   | B-802-B<br>BE-802-B<br>M-803-B<br>ME-803-B<br>EB-802-B | B-802-C<br>BE-802-C<br>M-803-C<br>ME-803-C<br>EB-802-C | B-804-A<br>BE-804-A<br>M-805-A<br>ME-805-A<br>EB-804-A | B-804-B<br>BE-804-B<br>M-805-B<br>ME-805-B<br>EB-804-B | B-804-C<br>BE-804-C<br>M-805-C<br>ME-805-C<br>EB-804-C | B-806-A<br>BE-806-A<br>M-807-A<br>ME-807-A<br>EB-806-A | B-806-B<br>BE-806-B<br>M-807-B<br>ME-807-B<br>EB-806-B | B-806-C<br>BE-806-C<br>M-807-C<br>ME-807-C<br>EB-806-C | B-808-C<br>BE-808-C<br>M-809-C<br>ME-809-C<br>EB-808-C |
|--|---------------------|---|--|--|--|--|--|--|--|--|--|
| PARAMETER  | SYMBOL              | UNITS                                       |  |  |  |  |  |  |  |  |  |
| Horsepower   | HP <sub>rated</sub> | hp  | 13.6   | 8.2  | 14.5   | 18.6   | 21.0   | 20.5   | 21.7   | 12.2   | 20.3   |
| Kilowatts  | kW <sub>rated</sub> | kW  | 10.1   | 6.1  | 10.8   | 13.9   | 15.7   | 15.3   | 16.2   | 9.1  | 15.1   |
| Speed at Rated Power   | N <sub>rated</sub>  | rpm   | 2750   | 1600   | 1500   | 2000   | 3000   | 1550   | 3000   | 900  | 1000   |
| Max Operating Speed  | N <sub>max</sub>    | rpm   | 2750   | 1600   | 1500   | 2000   | 3000   | 1550   | 3000   | 900  | 1000   |
| Cont. Torque (Stall) at 40°C                                   | T <sub>CS</sub>     | N-m (lb-ft)                                 | 40.7 (30)  | 40.7 (30)  | 78.6 (50)  | 78.6 (50)  | 78.6 (50)  | 109 (80)   | 111 (82)   | 109 (80)   | 149 (110)  |
| Cont. Torque (Stall) at 25°C                                   | T <sub>CS</sub>     | N-m (lb-ft)                                 | 43.1 (31.8)  | 43.1 (31.8)  | 83.4 (61.5)  | 83.4 (61.5)  | 83.4 (61.5)  | 115 (84.8)   | 117.9 (86.9)   | 115 (84.8)   | 158 (117)  |
| Cont. Line Current   | I <sub>CS</sub>     | A <sub>RMS</sub>                            | 32.4   | 18.9   | 35   | 48   | 70   | 49.1   | 94   | 30   | 47.4   |
| Peak Torque  | T <sub>PS</sub>     | N-m (lb-ft)                                 | 129 (95.3)   | 129 (95.3)   | 232 (171)  | 230 (170)  | 232 (171)  | 323 (238)  | 327 (241)  | 362 (267)  | 422 (311)  |
| Peak Line Current  | I <sub>PS</sub>     | A <sub>RMS</sub>                            | 108  | 60   | 109  | 147  | 217  | 154  | 291  | 100  | 134  |
| Max Theoretical Acceleration<br>(B, BE, EB-80x)<br>(M, ME-80x) | Z                   | rad/sec <sup>2</sup>                        | 26500<br>3680  | 26500<br>3680  | 27600<br>3870  | 27400<br>3850  | 25600<br>3630  | 25900<br>3680  | 25900<br>3680  | 28700<br>4080  | 2510<br>n/a  |
| Torque Sensitivity (Stall) ±10%                                | K <sub>t</sub>      | N-m (lb-ft)/A <sub>RMS</sub>                | 1.26 (0.93)  | 2.16 (1.59)  | 2.25 (1.66)  | 1.65 (1.21)  | 1.13 (0.83)  | 2.21 (1.63)  | 1.18 (0.87)  | 3.62 (2.67)  | 3.15 (2.32)  |
| Back EMF (Line to Line) ±10%                                   | K <sub>b</sub>      | V <sub>RMS</sub> / krpm                     | 76   | 130  | 136  | 99.6   | 68.1   | 71.6   | 68.1   | 250  | 191  |
| Max Line-to-Line volts   | V <sub>max</sub>    | V <sub>RMS</sub>                            | 250  | 250  | 250  | 250  | 250  | 250  | 250  | 250  | 250  |
| DC Res at 25°C<br>(Line-to-Line) ±10%                          | R <sub>m</sub>      | ohms  | 0.200  | 0.568  | 0.230  | 0.129  | 0.058  | 0.130  | 0.034  | 0.340  | 0.168  |
| Inductance (Line-to-Line) ±30%                                 | L <sub>m</sub>      | mH  | 9.4  | 25.7   | 13   | 7.2  | 3.2  | 2.1  | 20   | 8.05   |  |
| Rotor Inertia<br>(B, BE, EB-80x)<br>(M, ME-80x)                | J <sub>m</sub>      | kg-m <sup>2</sup><br>lb-ft-sec <sup>2</sup> | 0.00488-0.00360<br>0.0352-0.0259                       | 0.00488-0.00360<br>0.0352-0.0259                       | 0.00840-0.00620<br>0.05990-0.04415                     | 0.00840-0.00620<br>0.05990-0.04415                     | 0.00840-0.00620<br>0.05990-0.04415                     | 0.0126-0.0093<br>0.0888-0.0655                         | 0.0126-0.0093<br>0.0888-0.0655                         | 0.0126-0.0093<br>0.0888-0.0655                         | 0.0168-0.0124<br>n/a-n/a                               |
| Weight<br>(B, BE-80x)<br>(M, ME-80x)<br>(EB-80x)               | W <sub>t</sub>      | kg (lb)                                     | 36 (79)<br>43.7 (96)<br>36 (79)                        | 36 (79)<br>43.7 (96)<br>36 (79)                        | 50.6 (112)<br>62.8 (138)<br>50.6 (112)                 | 50.6 (112)<br>62.8 (138)<br>50.6 (112)                 | 50.6 (112)<br>62.8 (138)<br>50.6 (112)                 | 67 (147)<br>86.5 (190)<br>91 (200)                     | 67 (147)<br>86.5 (190)<br>91 (200)                     | 67 (147)<br>8  |  |



# SERVOSTAR® S DRIVES

Kollmorgen GOLDLINE® B & SERVOSTAR® S System Data



## SERVOSTAR® S FEATURES

### Servo Control

- Advanced sinewave commutation technology provides smooth, precise low-speed control and high-speed performance
- Accurate torque control due to precision balanced current loops with closed loop sensors
- Velocity loop bandwidths to 400 Hz
- Self-tuning to the load
- Patented torque angle control that enhances motor performance
- Fully digital control loops
- Compact and attractive rugged metal package for space-saving, modern appearance - metal package minimizes electrical noise emission and susceptibility
- Pole Placement, PI, and PDFF control options
- Command modes: Torque (analog or serial); Velocity (analog or serial); Position (analog, serial, stored or pulse)
- Seven current ratings: 3, 6, 10, 20, 30, 55, and 85 amps RMS/phase continuous
- 2 to 1 peak/continuous current rating
- Run time counter

### Easy Connectivity

- Built in encoder equivalent output which can eliminate the need for an additional position feedback device
- RS-232 or RS-485 Communication
- Unique multi-drop configuration allows a PC or PLC to communicate to multiple SERVOSTAR amplifiers via single RS-232 connection
- SERVOSTAR'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, serial port command options

### Robust Design

- Excellent protection against miswired connection on 24 volt I/O
- ESD rugged circuit design and fully metallic enclosure
- Self-protecting intelligent power modules
- Full protection against short circuit, overvoltage, undervoltage, heatsink overtemperature, motor overtemperature, overspeed, overcurrent, and feedback loss
- UL and cUL listed, CE approval
- Flash memory

### Windows® Start-up Environment – MOTIONLINK®

- Advanced motion “wizard” automatically walks you through set-up
- PC “Oscilloscope” for measuring real-time motion performance

### PA Series Power Supply

- PTC resistive soft-start technology eliminates nuisance tripping of fuses or breakers
- Six power supply options for optimal configuration of single and multi-axis systems
- Up to four amplifier axis can be used with one PA power supply, up to six with PA-LM logic only power supply
- Separate inputs for logic and bus voltages allow communications to SERVOSTAR without the bus power applied (PA14, PA28, PA50, PA75 and PA85 models)

#### Note:

Information on the required PA Series power supply may be found on the MOTIONEERING® CD-ROM bound into the inside back cover of this catalog, or visit our website at [www.DanaherMotion.com](http://www.DanaherMotion.com).

# SERVOSTAR® S DRIVES

## Kollmorgen GOLDLINE® B & SERVOSTAR® S System Data

### AMPLIFIER SPECIFICATIONS

#### Electrical characteristics

- Closed loop velocity bandwidth up to 400 Hz
- Motor current ripple frequency:
  - 32 kHz (3/6/10 amp models)
  - 16 kHz (20/30/55/85 amp models)
- Analog command: 14 bit resolution
- Long term speed regulation (0.01%)
- Position loop update rate 500 µsec (2 kHz)
- Velocity loop update rate 250 µsec (4 kHz)
- Commutation update rate 62.5 µsec (16 kHz) (for smooth sinusoidal commutation)
- Current loop update rate 62.5 µs (16 kHz)

#### Fault protection

- Output phase to phase 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)
  - Storage -20°C to 70°C
- Humidity (non-condensing) 10% to 90%

#### Digital Compensation

- Velocity loop: PI, PDFF or Pole Placement selectable algorithms
- Factory preset or field tunable
- MOTIONLINK software provides tuning programming via RS-232 or RS-485 serial interface
- Position loop gain adjustment
- Digital current loop
- Adjustable filters

#### Inputs

- Analog command: ±10 V bit resolution up to 16,000 to 1 dynamic speed range
- Remote enable: 24 V
- Three multi-purpose inputs: 24 V Configurable to: CW limit switch, CCW limit switch, gear enable, start motion, second current limit, change velocity to torque mode, home switch, search for home, move to home registration capture, active disable, control fault relay, hold position plus using two inputs, up to four stored indexes or speeds can be executed
- Pulse command: up/down, pulse/direction, pulse or quadrature encoder format into RS-485 receivers or opto isolators

#### Communications

- RS-232 or RS-485 serial interface up to 19.2 kb

#### Outputs

- Fault: contact closure rated for 1 amp, 24 volt
- One multi-purpose output 24 V configuration: speed exceeded, current exceeded, amplifier in foldback, brake enable, motion complete, in position, zero speed detect

#### Operational Modes

- Torque control – from analog or serial command
- Velocity control –from analog or serial command

- Pulse following
- Gearing from quad encoder input
- Position control from analog or serial command

#### Diagnostics

- Seven segment LED display
- Error history log
- Internal variable monitoring
- DC scope

#### Motor Feedback

- Resolver: sine/cosine 2 V peak to peak (SERVOSTAR provides 4.25 V peak to peak for resolver excitation)
- Encoder: 5 V quadrature with or without Halls, with or without marker
- Absolute Sine Encoder: HEIDENHAIN EnDat™ Format

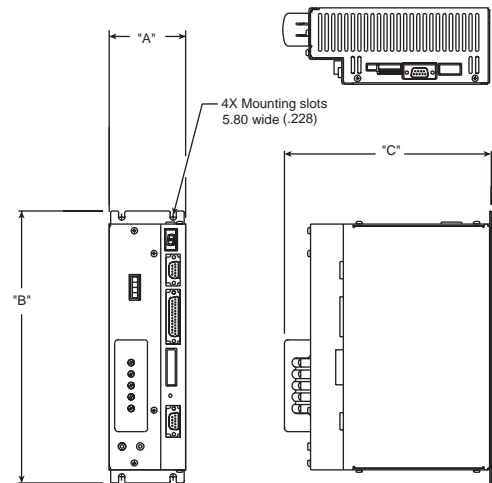
### AMPLIFIER RATINGS

| Model  | Sx03    | Sx06    | Sx10    | Sx20    | Sx30    | Sx55    | Sx85    |
|--|---------|---------|---------|---------|---------|---------|---------|
| Output Continuous Current Per Phase (RMS/phase)    | 3       | 6       | 10      | 20      | 30      | 55      | 85      |
| Output Peak Current Per Phase (RMS/phase) (2 sec.) | 6       | 12      | 20      | 40      | 60      | 110     | 170     |
| Output (kW) Continuous Power                       | 1.1     | 2.2     | 3.6     | 7.2     | 11      | 20      | 33.8    |
| Internal Power Dissipation (watts)                 | 37      | 84      | 120     | 240     | 254     | 465     | 675     |
| DC Bus Voltage Input (VDC) ①                       | 110-360 | 110-360 | 110-360 | 260-360 | 260-360 | 260-360 | 260-360 |
| PWM Switching Frequency (kHz)                      | 16      | 16      | 16      | 8       | 8       | 8       | 8       |

**Notes:**  
 ① DC input voltage is supplied by a separate PA series power supply. For information about models and ratings of these supplies, see the MOTIONEERING® CD-ROM bound into the inside back cover of this catalog, or visit our website at [www.DanaherMotion.com](http://www.DanaherMotion.com).

### Sx03/06/10/20/30/55/85 AMPLIFIER

mm (in)



| MODEL | DIM "A"      | DIM "B"     | DIM "C"      |
|-------|--------------|-------------|--------------|
| Sx03  | 75 (2.95)    | 264 (10.39) | 202 (7.95)   |
| Sx06  | 75 (2.95)    | 264 (10.39) | 202 (7.95)   |
| Sx10  | 90 (3.54)    | 264 (10.39) | 202 (7.95)   |
| Sx20  | 118.6 (4.67) | 264 (10.39) | 202 (7.95)   |
| Sx30  | 142 (5.59)   | 264 (10.39) | 210 (8.27)   |
| Sx55  | 160 (6.3)    | 302 (11.89) | 211 (8.30)   |
| Sx85  | 184.7 (7.27) | 302 (11.89) | 218.8 (8.61) |



# SERVOSTAR® CD DRIVES

Kollmorgen GOLDLINE® XT & SERVOSTAR® CD System



## SERVOSTAR® CD FEATURES

### Servo Control

- Advanced patented sinewave commutation technology provides smooth, precise low-speed control and high-speed performance
- Accurate torque control due to precision balanced current loops with closed loop sensors
- Velocity loop bandwidths to 400 Hz
- Self-tuning to the load
- S-curve acceleration feature for reducing acceleration "jerk" and machine wear
- Patented 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 and susceptibility
- Pole Placement, PI, and PDF control options
- Low Pass or Notch Filters for compliant & resonant machines
- Command modes: Torque (analog or serial); Velocity (analog or serial); Position (analog, serial, stored or pulse)
- Three current ratings: 3/9, 6/18 & 10/20 amp RMS/phase continuous/peak current
- 3 to 1 peak/continuous current rating (2 to 1 on 10 amp product)

### Analog Command:

- 14 Bit analog conversion
- Simple absolute & incremental moves thru internal profile generator

### Easy Connectivity

- Built in encoder equivalent output can eliminate the need for an additional position feedback device
- RS232 or RS485 Communication
- Unique multi-drop configuration allows a PC or PLC to communicate to multiple SERVOSTAR CD amplifiers via single RS-232 connection
- SERVOSTAR CD'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, serial port, command options
- SERCOS interface™

### Robust Design

- Protection against miswired connection on 24 volt I/O
- ESD rugged circuit design and fully metallic enclosure
- Self-protecting intelligent power modules
- Full protection against short circuit, overvoltage, undervoltage, heatsink overtemperature, motor overtemperature, overspeed, overcurrent, and feedback loss
- UL , cUL listed, and CE
- Flash memory

### Windows® Start-up Environment – MOTIONLINK®

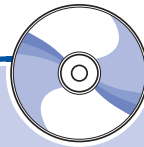
- Advanced motion "wizard" automatically walks you through set-up
- Auto configuration function checks for correct wiring of motor and feedback
- PC "Oscilloscope" for measuring real-time motion performance

### Motion Indexing

- Stores up to 4 motion profiles in memory
- Start motion through serial command or digital I/O
- Homing functions

### Configurable I/O

- 3 digital inputs, 1 digital output, & 1 analog output can be configured to a variety of functions to customize the SERVOSTAR CD to individual machines



## 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).

# SERVOSTAR® CD DRIVES

## Kollmorgen GOLDLINE® XT & SERVOSTAR® CD System

### AMPLIFIER SPECIFICATIONS

#### Electrical characteristics

- Closed loop velocity bandwidth up to 400 Hz
- Motor current ripple frequency (16-32 kHz)
- Long term speed regulation (0.01%)
- Position loop update rate 500 µs (2 kHz)
- Velocity loop update rate 250 µs (4 kHz)
- Commutation update rate 62.5 µs (16 kHz)
- Current loop update rate 62.5 µs (16 kHz)

#### Fault protection

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

#### Environmental

- Operation range
  - Ambient 5 to 45°C
  - Storage -20°C to 70°C
- Humidity (non-condensing) 10% to 90%

#### Velocity Loop Compensation

- Vel: PI, PDFF or Pole Placement selectable algorithms
- Factory preset or field tunable
- **MOTIONLINK** software provides tuning programming via RS-232 or RS-485 serial interface
- Adjustable filters

#### Position Loop Compensation

- PID

#### Operational modes

- Torque control — from analog or serial command
- Velocity control — from analog or serial command
- Pulse following/Up-Down count
- Gearing from quad encoder input
- Position control

#### Inputs

- Analog command: ±10 V
- Remote enable: 24 V
- Three multi-purpose 24 V inputs configurable to: CW limit switch, CCW limit switch, gear enable, start motion, second current limit, change velocity to torque mode, home switch, search for home, move to home registration capture, active disable, control fault relay, hold position plus using two inputs, up to four stored indexes or speeds can be executed
- Pulse command: up/down, pulse/direction, pulse or quadrature encoder format into RS-485 receivers or opto isolators

#### Communications

- RS-232 or RS-48S serial interface 9600 or 19.2 kb
- Drive-to-Drive multidrop
- SERCOS interface™

#### Outputs

- Fault: contact closure rated for 1 amp, 24 volt
- One multi-purpose 24 V output configurable to: speed exceeded, current exceeded, amplifier in foldback, brake enable, motion complete, in position, zero speed detect, encoder INIT complete
- ±10 V, 12-bit analog output, configurable, for monitoring of various parameters

#### Diagnostics

- Seven segment LED display
- Error history log
- Internal variable monitoring
- PC scope

#### Motor Feedback

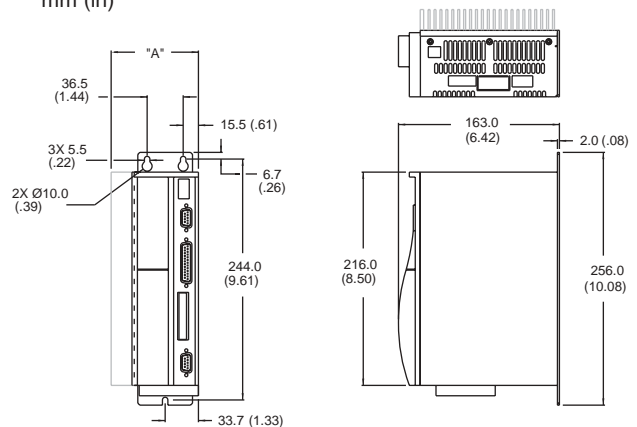
- Resolver, Incremental Encoder, Sine Encoder (including HEIDENHAIN EnDat™ support) or halls-only operation
- Auxiliary encoder feedback, used for Dual Loop or Master/Slave Operation.
- Commutation initialization with minimal motion

### AMPLIFIER RATINGS

| Model   | Cx03    | Cx06    | Cx10         |
|---|---------|---------|--------------|
| Output Continuous Current Per Phase (RMS/phase) | 3       | 6       | 10           |
| Output Peak Current Per Phase (1/2 sec)         | 9       | 18      | 20           |
| Rated Output Continuous Power (kW)              | 1.1     | 2.2     | 3.5          |
| Internal Power Dissipation (watts)              | 60      | 80      | 132          |
| PWM Switching Frequency (kHz)                   | 16      | 8       | 8            |
| AC Input Line Voltage (V) (1 phase)             | 115-230 | 115-230 | 230, 3 phase |
| Rated Input Power (kW)                          | 1.7     | 2.8     | 4.6          |

### SERVOSTAR CD Cx03/06/10

mm (in)



| MODEL | SIZE (amp) | DIM. "A"    |
|-------|------------|-------------|
| Cx03  | 3          | 67.4 (2.65) |
| Cx06  | 6          | 88.4 (3.48) |
| Cx10  | 10         | 99.1 (3.90) |