

# MaxPlus® Series Rotary Motors



## MaxPlus® Brushless Rotary Servo Motors

The MaxPlus family is redefining performance, flexibility and reliability, with the industry's broadest range of brushless servo motors – from 1 1/2" to 12" (40 mm to 320 mm). Each unit delivers more performance in a smaller package for less cost. What's more, the reliability of MaxPlus Series motors is becoming legendary in demanding applications. Our rugged construction and industry-leading performance features give you an unbeatable price/performance/cost of ownership combination.

MaxPlus is not just an "off the shelf" line of servo motors. It is a line that offers unparalleled flexibility to achieve precise application requirements. What's more, Compumotor is committed to working with our customers to custom design solutions that meet specific performance and cost criteria.

MaxPlus is the only motor line with such performance specs as more torque to volume, more torque to inertia and more torque per dollar. The full line of MaxPlus brushless servo motors outperforms competitive units in virtually every performance category.

### MaxPlus Rotary Motor Features

- High-performance neodymium magnet material
- Resolver and encoder feedback
- Custom windings available
- IP65 sealing for washdown environments standard
- MS connector termination or flying lead termination
- Thermal sensor with windings
- Optional internally mounted brake
- Optional additional feedback transducers
- Optional gear reducers



Custom Designed Servo Motors For Your Specific Application. Call 1-800-358-9070 Today.

| Model #    | Size (Inches) | Horsepower (HP) | Max Operating Speed (RPM) | Speed at Rated Torque (RPM) | Peak Torque (IN-LBS [Nm]) | Model #        | Size (Inches) | Horsepower (HP) | Max Operating Speed (RPM) | Speed at Rated Torque (RPM) | Peak Torque (IN-LBS [Nm]) |
|------------|---------------|-----------------|---------------------------|-----------------------------|---------------------------|----------------|---------------|-----------------|---------------------------|-----------------------------|---------------------------|
| MPM401ASE  | 1.5"          | 0.027           | 6000                      | 4800                        | 1.5 / 0.17                | MPM1421ASG     | 6"            | 4.4             | 2700                      | 2400                        | 390.0 / 44                |
| MPM401BSE  | 1.5"          | 0.022           | 5200                      | 3600                        | 1.6 / 0.18                | MPM1421BSG     | 6"            | 2.9             | 1750                      | 1500                        | 390.0 / 44                |
| MPM401CSE  | 1.5"          | 0.016           | 4400                      | 2500                        | 1.7 / 0.19                | MPM1421CSJ     | 6"            | 4.9             | 3400                      | 2800                        | 390.0 / 44                |
| MPM402ASE  | 1.5"          | 0.065           | 6000                      | 4800                        | 3.5 / 0.39                | MPM1421DSJ     | 6"            | 2.9             | 1750                      | 1500                        | 390.0 / 44                |
| MPM402BSE  | 1.5"          | 0.059           | 5200                      | 4100                        | 3.5 / 0.39                | MPM1422ASG     | 6"            | 6.8             | 2700                      | 2400                        | 630.0 / 71                |
| MPM402CSE  | 1.5"          | 0.054           | 4400                      | 3500                        | 3.6 / 0.41                | MPM1422BSG     | 6"            | 4.5             | 1750                      | 1500                        | 630.0 / 71                |
| MPM403ASE  | 1.5"          | 0.093           | 6000                      | 4800                        | 3.7 / 0.41                | MPM1422CSJ     | 6"            | 7.6             | 3400                      | 2800                        | 630.0 / 71                |
| MPM403BSE  | 1.5"          | 0.085           | 5200                      | 4100                        | 4.7 / 0.53                | MPM1422DSJ     | 6"            | 4.5             | 1750                      | 1500                        | 630.0 / 71                |
| MPM403CSE  | 1.5"          | 0.078           | 4400                      | 3500                        | 4.9 / 0.55                | MPM1423ASG     | 6"            | 9.1             | 2700                      | 2400                        | 840.0 / 95                |
| MPM404ASE  | 1.5"          | 0.11            | 6000                      | 4800                        | 5.3 / 0.59                | MPM1423BSG     | 6"            | 6.0             | 1750                      | 1500                        | 840.0 / 95                |
| MPM404BSE  | 1.5"          | 0.10            | 5200                      | 4100                        | 5.4 / 0.61                | MPM1423CSJ     | 6"            | 9.8             | 3400                      | 2800                        | 840.0 / 95                |
| MPM404CSE  | 1.5"          | 0.093           | 4400                      | 3500                        | 5.6 / 0.63                | MPM1423DSJ     | 6"            | 6.0             | 1750                      | 1500                        | 840.0 / 95                |
| MPM661ASF  | 2"            | 0.15            | 6000                      | 4000                        | 9.7 / 1.1                 | MPM1424ASG     | 6"            | 10              | 2700                      | 2100                        | 1081.0 / 120              |
| MPM661BSF  | 2"            | 0.091           | 3000                      | 2500                        | 9.5 / 1.1                 | MPM1424BSG     | 6"            | 7.6             | 1750                      | 1500                        | 1081.0 / 120              |
| MPM662ASF  | 2"            | 0.22            | 5000                      | 4000                        | 15.1 / 1.7                | MPM1424CSJ     | 6"            | 12              | 3400                      | 2800                        | 1081.0 / 120              |
| MPM662BSF  | 2"            | 0.16            | 3000                      | 2500                        | 15.1 / 1.7                | MPM1424DSJ     | 6"            | 7.6             | 1750                      | 1500                        | 1081.0 / 120              |
| MPM663ASF  | 2"            | 0.36            | 5500                      | 4500                        | 22.5 / 2.5                | MPM1901ASG     | 8"            | 13              | 3000                      | 2400                        | 1200.0 / 140              |
| MPM663BSF  | 2"            | 0.19            | 3300                      | 2000                        | 22.5 / 2.5                | MPM1901BSG     | 8"            | 6.5             | 1500                      | 1200                        | 1200.0 / 140              |
| MPM664ASF  | 2"            | 0.48            | 6000                      | 5000                        | 30.0 / 3.4                | MPM1901CSJ     | 8"            | 13              | 3000                      | 2400                        | 1200.0 / 140              |
| MPM664BSF  | 2"            | 0.38            | 3600                      | 3000                        | 30.0 / 3.4                | MPM1901DSJ     | 8"            | 6.5             | 1500                      | 1200                        | 1200.0 / 140              |
| MPM721ASF  | 2.75"         | 0.41            | 6800                      | 5500                        | 17.0 / 1.9                | MPM1902ASG     | 8"            | 21              | 3000                      | 2400                        | 1780.0 / 200              |
| MPM721BSG  | 2.75"         | 0.41            | 6800                      | 5500                        | 17.0 / 1.9                | MPM1902BSG     | 8"            | 10              | 1500                      | 1200                        | 1920.0 / 220              |
| MPM721CSG  | 2.75"         | 0.24            | 4000                      | 3000                        | 17.0 / 1.9                | MPM1902CSJ     | 8"            | 21              | 3000                      | 2400                        | 1920.0 / 220              |
| MPM722ASF  | 2.75"         | 0.75            | 7000                      | 5000                        | 34.0 / 3.8                | MPM1902DSJ     | 8"            | 10              | 1500                      | 1200                        | 1920.0 / 220              |
| MPM722BSG  | 2.75"         | 0.75            | 7000                      | 5000                        | 34.0 / 3.8                | MPM1903ASG     | 8"            | 29              | 3000                      | 2400                        | 1780.0 / 200              |
| MPM722CSG  | 2.75"         | 0.48            | 4000                      | 3000                        | 34.0 / 3.8                | MPM1903BSG     | 8"            | 14              | 1500                      | 1200                        | 2640.0 / 300              |
| MPM723ASF  | 2.75"         | 0.91            | 6300                      | 4500                        | 45.0 / 5.1                | MPM1903CSJ     | 8"            | 29              | 3000                      | 2400                        | 2640.0 / 300              |
| MPM723BSG  | 2.75"         | 0.91            | 6300                      | 4500                        | 45.0 / 5.1                | MPM1903DSJ     | 8"            | 14              | 1500                      | 1200                        | 2640.0 / 300              |
| MPM723CSG  | 2.75"         | 0.63            | 4000                      | 3000                        | 45.0 / 5.1                | MPM1904ASG     | 8"            | 36              | 3000                      | 2400                        | 1780.0 / 200              |
| MPM724ASF  | 2.75"         | 1.3             | 6000                      | 5000                        | 56.0 / 6.3                | MPM1904BSG     | 8"            | 18              | 1500                      | 1200                        | 3276.0 / 370              |
| MPM724BSG  | 2.75"         | 1.3             | 6000                      | 5000                        | 56.0 / 6.3                | MPM1904CSJ     | 8"            | 36              | 3000                      | 2400                        | 3276.0 / 370              |
| MPM724CSG  | 2.75"         | 0.79            | 4000                      | 3000                        | 56.0 / 6.3                | MPM1904DSJ     | 8"            | 18              | 1500                      | 1200                        | 3276.0 / 370              |
| MPM891ASG  | 3"            | 0.83            | 5000                      | 4000                        | 58.8 / 6.6                | MPM3201R**-A*  |               |                 |                           |                             |                           |
| MPM891BSG  | 3"            | 0.55            | 3000                      | 2400                        | 58.8 / 6.6                | MPM3201R**-B*  |               |                 |                           |                             |                           |
| MPM892ASG  | 3"            | 1.6             | 5000                      | 4000                        | 109.9 / 12                | MPM3201R**-C*  |               |                 |                           |                             |                           |
| MPM892BSG  | 3"            | 1.0             | 3000                      | 2400                        | 111.5 / 13                | MPM3201R**-A*0 |               |                 |                           |                             |                           |
| MPM893ASG  | 3"            | 2.0             | 4100                      | 3600                        | 143.2 / 16                | MPM3201R**-B*0 |               |                 |                           |                             |                           |
| MPM893BSG  | 3"            | 0.86            | 2000                      | 1500                        | 137.6 / 16                | MPM3201R**-C*0 |               |                 |                           |                             |                           |
| MPM1141ASG | 4"            | 2.1             | 4200                      | 3000                        | 189.0 / 21                | MPM3202R**-B*  |               |                 |                           |                             |                           |
| MPM1141BSG | 4"            | 1.2             | 2100                      | 1500                        | 189.0 / 21                | MPM3202R**-C*  |               |                 |                           |                             |                           |
| MPM1141CSJ | 4"            | 2.1             | 4200                      | 3000                        | 189.0 / 21                | MPM3202R**-D*  |               |                 |                           |                             |                           |
| MPM1141DSJ | 4"            | 1.2             | 2100                      | 1500                        | 189.0 / 21                | MPM3202R**-B*0 |               |                 |                           |                             |                           |
| MPM1142ASG | 4"            | 3.3             | 4200                      | 3000                        | 291.0 / 33                | MPM3202R**-C*0 |               |                 |                           |                             |                           |
| MPM1142BSG | 4"            | 1.8             | 2100                      | 1500                        | 291.0 / 33                | MPM3202R**-D*0 |               |                 |                           |                             |                           |
| MPM1142CSJ | 4"            | 3.3             | 4200                      | 3000                        | 291.0 / 33                | MPM3203R**-B*  |               |                 |                           |                             |                           |
| MPM1142DSJ | 4"            | 1.8             | 2100                      | 1500                        | 291.0 / 33                | MPM3203R**-C*  |               |                 |                           |                             |                           |
| MPM1143ASG | 4"            | 4.6             | 4200                      | 3000                        | 407.0 / 46                | MPM3203R**-D*  |               |                 |                           |                             |                           |
| MPM1143BSG | 4"            | 2.5             | 2100                      | 1500                        | 407.0 / 46                | MPM3203R**-B*0 |               |                 |                           |                             |                           |
| MPM1143CSJ | 4"            | 4.6             | 4200                      | 3000                        | 407.0 / 46                | MPM3203R**-C*0 |               |                 |                           |                             |                           |
| MPM1143DSJ | 4"            | 2.5             | 2100                      | 1500                        | 407.0 / 46                | MPM3203R**-D*0 |               |                 |                           |                             |                           |
|            |               |                 |                           |                             |                           | MPM3204R**-B*  |               |                 |                           |                             |                           |
|            |               |                 |                           |                             |                           | MPM3204R**-C*  |               |                 |                           |                             |                           |
|            |               |                 |                           |                             |                           | MPM3204R**-D*  |               |                 |                           |                             |                           |
|            |               |                 |                           |                             |                           | MPM3204R**-B*0 |               |                 |                           |                             |                           |
|            |               |                 |                           |                             |                           | MPM3204R**-C*0 |               |                 |                           |                             |                           |
|            |               |                 |                           |                             |                           | MPM3204R**-D*0 |               |                 |                           |                             |                           |

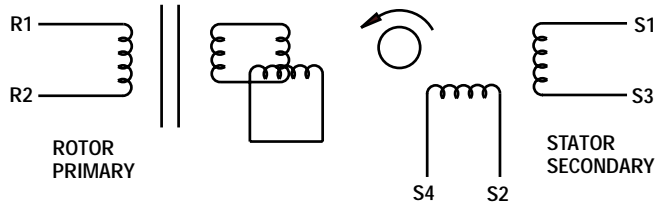
Consult Factory

| MPM              | 114         | 1            | A          | S             | G          | 7                 | JN                    | 1                      | N            |
|------------------|-------------|--------------|------------|---------------|------------|-------------------|-----------------------|------------------------|--------------|
| MAX PLUS MOTOR   | FRAME SIZE  | STACK LENGTH | WINDING    | AMP TYPE      | VOLTAGE    | MOUNTING          | FEEDBACK              | TERMINATION            | BRAKE OPTION |
| MPM - STANDARD   | 40 (1.5")   | 1            | A          | S=SINUSOIDAL  | LINE       | 6=ENGLISH         | G=RESOLVER (STANDARD) | 1=CONNECTOR (STANDARD) | R=24VSPRING  |
| MPF - FOOD GRADE | 66 (2")     | 2            | B          | T=TRAPEZOIDAL | E=54 VAC   | 7=METRIC          | J=ENCODER (STANDARD)  | 2=CONNECTOR (INTERCON) | N=NONE       |
|                  | 72 (2 3/4") | 3            | C          | X=SPECIAL*    | F=110 VAC  | 8=ENG FOOT MOUNT* | M=1000L               | 3=PIPE THREAD (NPT)    | X=SPECIAL*   |
|                  | 89 (3")     | 4            | D          |               | G=230 VAC  | 9=MET FOOT MOUNT* | N=2000L               | 4=FLYING LEADS (1.5")  |              |
|                  | 114 (4")    | 5*           | X=SPECIAL* |               | J=460 VAC  | X=SPECIAL*        | L=2500L               | X=SPECIAL*             |              |
|                  | 142 (6")    | 6*           |            |               | X=SPECIAL* |                   | P=3000L               |                        |              |
|                  | 190 (8")    |              |            |               |            |                   | Q=5000L               |                        |              |
|                  |             |              |            |               |            |                   | T=6000L               |                        |              |
|                  |             |              |            |               |            |                   | X=1024L               |                        |              |
|                  |             |              |            |               |            |                   | Y=2048L               |                        |              |
|                  |             |              |            |               |            |                   | Z=4096L               |                        |              |
|                  |             |              |            |               |            |                   | X=SPECIAL*            |                        |              |
|                  |             |              |            |               |            |                   |                       |                        |              |
|                  |             |              |            |               |            |                   |                       |                        |              |
|                  |             |              |            |               |            |                   |                       |                        |              |

\*\*\* OR "X=SPECIAL\*" - Consult Factory  
 The sample part number shown above will be superceding MPM1141T2M-AM  
 \*\*Please reference separate part numbering chart for the 12" motors.

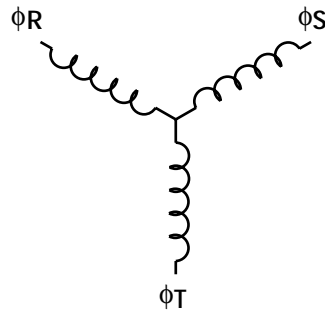
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**Resolver**



SCHEMATIC DRAWING FOR  
 BRUSHLESS RESOLVER

**Motor Winding**



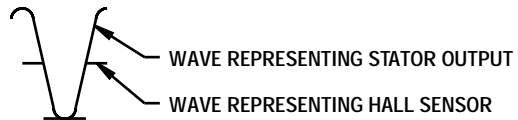
3 PHASE - 4 POLE      3 PHASE - 6 POLE  
 1 1/2" - 2" MOTORS      2 3/4" - 3" - 4" - 8" MOTORS

**Encoder**

MOTOR & HALL POSITION CHART

| HALL LEADS               | BROWN                | GRAY                | WHITE                 |
|--------------------------|----------------------|---------------------|-----------------------|
| MOTOR LEADS              | BLACK respect to RED | RED respect to BLUE | BLUE respect to BLACK |
| VIEW ON THE OSCILLOSCOPE |                      |                     |                       |

\*MOTOR ROTATION CCW (COUNTER CLOCKWISE)  
 (LOOKING AT THE FACE OF THE MOTOR)



# 1 1/2" Frame Brushless Servo Motors



## Motor Data (Sine)

| Motor Parameters                       |             | Units  | 401ASE****        | 401BE****         | 401CE****         | 402ASE****        | 402BE****         | 402CE****         |
|--|-------------|--|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|
| Horsepower                             | Hp Rated    | Hp   | 0.027             | 0.022             | 0.016             | 0.065             | 0.059             | 0.054             |
| Kilowatts                              | Watts Rated | Watts  | 20.0              | 16.0              | 12.0              | 48.0              | 44.0              | 40.0              |
| Max. Operating Speed                   | N Max       | RPM  | 6000              | 5200              | 4400              | 6000              | 5200              | 4400              |
| Speed @ Rated Torque                   | N Rated     | RPM  | 4800              | 3600              | 2500              | 4800              | 4100              | 3500              |
| *Continuous Rated Torque @ Rated Speed |             | IN-LBS[Nm]                                   | 0.36[0.041]       | 0.38[0.043]       | 0.41[0.047]       | 0.85[0.096]       | 0.90[0.10]        | 0.98[0.11]        |
| *Continuous Stall Torque               |             | IN-LBS[Nm]                                   | 0.51[0.058]       | 0.53[0.060]       | 0.56[0.063]       | 1.15[0.13]        | 1.16[0.13]        | 1.20[0.14]        |
| Continuous Line Current                |             | AMPS(RMS/φ)                                  | 1.00              | 0.50              | 0.36              | 2.29              | 1.10              | 0.79              |
| Peak Torque                            | Tpk         | IN-LBS[Nm]                                   | 1.53[0.173]       | 1.59[0.180]       | 1.68[0.190]       | 3.45[0.39]        | 3.48[0.39]        | 3.60[0.41]        |
| Peak Current                           |             | AMPS(RMS/φ)                                  | 2.99              | 1.51              | 1.07              | 68.8              | 3.32              | 2.35              |
| Max. Theoretical Accel.                |             | RAD/SEC <sup>2</sup>                         | 110,000           | 110,000           | 120,000           | 140,000           | 140,000           | 140,000           |
| Torque Sensitivity                     | Kt          | IN-LBS/AMP(RMS/φ)[Nm/AMP(RMS/φ)]             | 0.51[0.057]       | 1.05[0.118]       | 1.56[0.176]       | 0.51[0.057]       | 1.05[0.118]       | 1.53[0.172]       |
| Back EMF (Line to Line)                | ±10%        | Vrms/Krpm                                    | 3.2               | 6.6               | 9.8               | 3.2               | 6.6               | 9.6               |
| D.C.Resistance (P-P)                   | ±10%        | OHMS   | 5.9               | 23.0              | 58.0              | 2.0               | 7.7               | 18.0              |
| Inductance (P-P)                       | ±10%        | MILLIHENRIES                                 | 1.8               | 7.3               | 16.0              | 0.71              | 2.8               | 6.4               |
| Rotor Inertia                          | Jm          | IN-LBS-SEC <sup>2</sup> [Kg-M <sup>2</sup> ] | .000014[.0000016] | .000014[.0000016] | .000014[.0000016] | .000025[.0000028] | .000025[.0000028] | .000025[.0000028] |
| Static Friction                        | Tf          | IN-LBS[Nm]                                   | 0.09[0.010]       | 0.09[0.010]       | 0.09[0.010]       | 0.11[0.012]       | 0.11[0.012]       | 0.11[0.012]       |
| Motor Weight                           |             | LBS[Kg]                                      | 1.0[0.45]         | 1.0[0.45]         | 1.0[0.45]         | 1.2[0.54]         | 1.2[0.54]         | 1.2[0.54]         |
| Line Voltage                           |             | VAC  | 54                | 54                | 54                | 54                | 54                | 54                |

| Motor Parameters                       |             | Units  | 403ASE****        | 403BE****         | 403CE****         | 404ASE****        | 404BE****         | 404CE****         |
|--|-------------|--|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|
| Horsepower                             | Hp Rated    | Hp   | 0.093             | 0.085             | 0.078             | 0.110             | 0.101             | 0.093             |
| Kilowatts                              | Watts Rated | Watts  | 69.0              | 63.0              | 58.0              | 82.0              | 75.0              | 69.0              |
| Max. Operating Speed                   | N Max       | RPM  | 6000              | 5200              | 4400              | 6000              | 5200              | 4400              |
| Speed @ Rated Torque                   | N Rated     | RPM  | 4800              | 4100              | 3500              | 4800              | 4100              | 3500              |
| *Continuous Rated Torque @ Rated Speed |             | IN-LBS[Nm]                                   | 1.22[0.14]        | 1.30[0.15]        | 1.40[0.16]        | 1.45[0.16]        | 1.55[0.18]        | 1.67[0.19]        |
| *Continuous Stall Torque               |             | IN-LBS[Nm]                                   | 1.52[0.17]        | 1.56[0.18]        | 1.63[0.18]        | 1.75[0.20]        | 1.81[0.20]        | 1.87[0.21]        |
| Continuous Line Current                |             | AMPS(RMS/φ)                                  | 3.07              | 1.53              | 1.06              | 3.53              | 1.78              | 1.22              |
| Peak Torque                            | Tpk         | IN-LBS[Nm]                                   | 3.66[0.41]        | 4.68[0.53]        | 4.88[0.55]        | 5.25[0.59]        | 5.43[0.61]        | 5.60[0.63]        |
| Peak Current                           |             | AMPS(RMS/φ)                                  | 7.38              | 4.60              | 3.18              | 106               | 5.35              | 3.65              |
| Max. Theoretical Accel.                |             | RAD/SEC <sup>2</sup>                         | 100,000           | 130,000           | 130,000           | 110,000           | 110,000           | 120,000           |
| Torque Sensitivity                     | Kt          | IN-LBS/AMP(RMS/φ)[Nm/AMP(RMS/φ)]             | 0.49[0.056]       | 1.02[0.115]       | 1.54[0.174]       | 0.49[0.056]       | 1.02[0.115]       | 1.54[0.174]       |
| Back EMF (Line to Line)                | ±10%        | Vrms/Krpm                                    | 3.1               | 6.4               | 9.7               | 3.1               | 6.4               | 9.7               |
| D.C.Resistance (P-P)                   | ±10%        | OHMS   | 1.1               | 4.4               | 9.8               | 0.86              | 2.9               | 7.1               |
| Inductance (P-P)                       | ±10%        | MILLIHENRIES                                 | 0.42              | 1.8               | 4.0               | 0.36              | 1.3               | 3.0               |
| Rotor Inertia                          | Jm          | IN-LBS-SEC <sup>2</sup> [Kg-M <sup>2</sup> ] | .000036[.0000041] | .000036[.0000041] | .000036[.0000041] | .000048[.0000054] | .000048[.0000054] | .000048[.0000054] |
| Static Friction                        | Tf          | IN-LBS[Nm]                                   | 0.13[0.015]       | 0.13[0.015]       | 0.13[0.015]       | 0.15[0.017]       | 0.15[0.017]       | 0.15[0.017]       |
| Motor Weight                           |             | LBS[Kg]                                      | 1.4[0.64]         | 1.4[0.64]         | 1.4[0.64]         | 1.6[0.73]         | 1.6[0.73]         | 1.6[0.73]         |
| Line Voltage                           |             | VAC  | 54                | 54                | 54                | 54                | 54                | 54                |

\*25° C Ambient with a maximum case temperature of 85° C on motor. Motor mounted on a 6" x 6" x 1/4" aluminum heatsink. Thermostat in stator windings will open if winding temperature exceeds 130° C for an approximate 10% headroom in the continuous torque rating before thermostat opens.

Mechanical Notes:

1. Axial Load: 10 LBS. Max.
2. Radial Load: 15 LBS. Max. @ 1" from face
3. Motor sealed to IP65

Custom Designed Servo Motors For Your Specific Application. Call 1-800-358-9070 Today.

**Motor Data (Trap)**

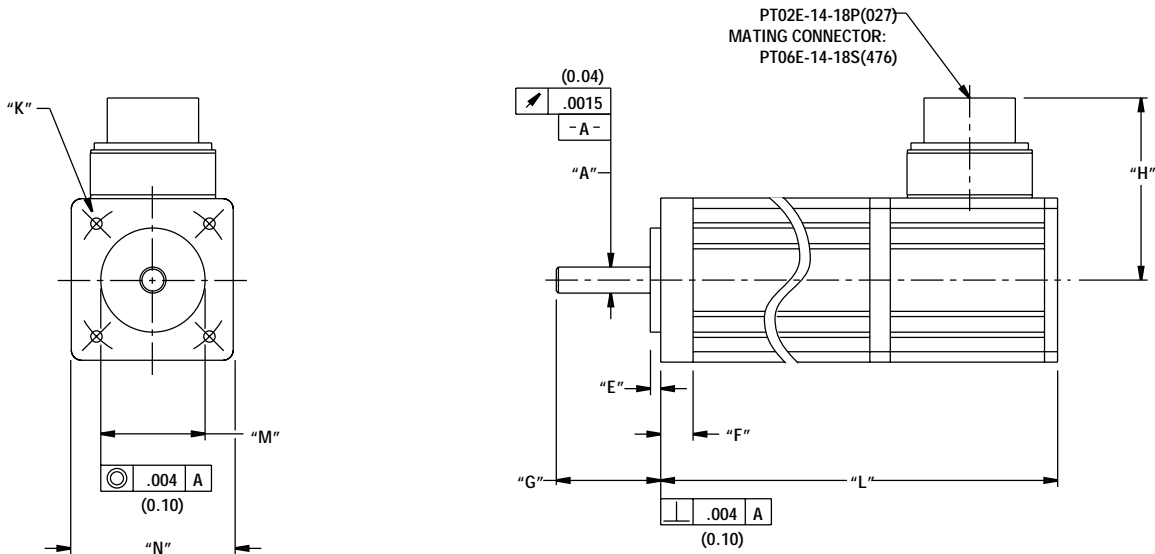
| Motor Parameters                       |             | Units  | 401ATE****         | 401BTE****         | 401CTE****         | 402ATE****         | 402BTE****         | 402CTE****         |
|--|-------------|--|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|
| Horsepower                             | Hp Rated    | Hp   | 0.027              | 0.022              | 0.016              | 0.065              | 0.059              | 0.054              |
| Kilowatts                              | Watts Rated | Watts  | 20.0               | 16.0               | 12.0               | 48.0               | 44.0               | 40.0               |
| Max. Operating Speed                   | N Max       | RPM  | 6000               | 5200               | 4400               | 6000               | 5200               | 4400               |
| Speed @ Rated Torque                   | N Rated     | RPM  | 4800               | 3600               | 2500               | 4800               | 4100               | 3500               |
| *Continuous Rated Torque @ Rated Speed |             | IN-LBS [Nm]                                  | 0.36 [0.041]       | 0.38 [0.043]       | 0.41 [0.047]       | 0.85 [0.096]       | 0.90 [0.10]        | 0.98 [0.11]        |
| *Continuous Stall Torque               |             | IN-LBS [Nm]                                  | 0.51 [0.058]       | 0.53 [0.060]       | 0.56 [0.063]       | 1.15 [0.13]        | 1.16 [0.13]        | 1.20 [0.14]        |
| Continuous Line Current                |             | AMPS   | 1.41               | 0.71               | 0.51               | 3.24               | 1.56               | 1.11               |
| Peak Torque                            | Tpk         | IN-LBS [Nm]                                  | 1.53 [0.173]       | 1.59 [0.180]       | 1.68 [0.190]       | 3.45 [0.39]        | 3.48 [0.39]        | 3.60 [0.41]        |
| Peak Current                           |             | AMPS   | 4.23               | 2.14               | 1.52               | 9.73               | 4.69               | 3.32               |
| Max. Theoretical Accel.                |             | RAD/SEC <sup>2</sup>                         | 110,000            | 110,000            | 120,000            | 140,000            | 140,000            | 140,000            |
| Torque Sensitivity                     | Kt          | IN-LBS/AMP [Nm/AMP]                          | 0.36 [0.041]       | 0.74 [0.084]       | 1.10 [0.124]       | 0.35 [0.040]       | 0.74 [0.084]       | 1.08 [0.122]       |
| Back EMF (Line to Line)                | ±10%        | Vrms/Krpm                                    | 3.2                | 6.6                | 9.8                | 3.2                | 6.6                | 9.6                |
| D.C. Resistance (P-P)                  | ±10%        | OHMS   | 5.9                | 23.0               | 58.0               | 2.0                | 7.7                | 18.0               |
| Inductance (P-P)                       | ±10%        | MILLIHENRIES                                 | 1.8                | 7.3                | 16.0               | 0.71               | 2.8                | 6.4                |
| Rotor Inertia                          | Jm          | IN-LBS-SEC <sup>2</sup> [Kg-M <sup>2</sup> ] | .000014 [.0000016] | .000014 [.0000016] | .000014 [.0000016] | .000025 [.0000028] | .000025 [.0000028] | .000025 [.0000028] |
| Static Friction                        | Tf          | IN-LBS [Nm]                                  | 0.09 [0.010]       | 0.09 [0.010]       | 0.09 [0.010]       | 0.11 [0.012]       | 0.11 [0.012]       | 0.11 [0.012]       |
| Motor Weight                           |             | LBS [Kg]                                     | 1.0 [0.45]         | 1.0 [0.45]         | 1.0 [0.45]         | 1.2 [0.54]         | 1.2 [0.54]         | 1.2 [0.54]         |
| Line Voltage                           |             | VAC  | 54                 | 54                 | 54                 | 54                 | 54                 | 54                 |

| Motor Parameters                       |             | Units  | 403ATE****         | 403BTE****         | 403CTE****         | 404ATE****         | 404BTE****         | 404CTE****         |
|--|-------------|--|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|
| Horsepower                             | Hp Rated    | Hp   | 0.093              | 0.085              | 0.078              | 0.110              | 0.101              | 0.093              |
| Kilowatts                              | Watts Rated | Watts  | 69.0               | 63.0               | 58.0               | 82.0               | 75.0               | 69.0               |
| Max. Operating Speed                   | N Max       | RPM  | 6000               | 5200               | 4400               | 6000               | 5200               | 4400               |
| Speed @ Rated Torque                   | N Rated     | RPM  | 4800               | 4100               | 3500               | 4800               | 4100               | 3500               |
| *Continuous Rated Torque @ Rated Speed |             | IN-LBS [Nm]                                  | 1.22 [0.14]        | 1.30 [0.15]        | 1.40 [0.16]        | 1.45 [0.16]        | 1.55 [0.18]        | 1.67 [0.19]        |
| *Continuous Stall Torque               |             | IN-LBS [Nm]                                  | 1.52 [0.17]        | 1.56 [0.18]        | 1.63 [0.18]        | 1.75 [0.20]        | 1.81 [0.20]        | 1.87 [0.21]        |
| Continuous Line Current                |             | AMP S  | 4.34               | 2.17               | 1.50               | 4.99               | 2.52               | 1.72               |
| Peak Torque                            | Tpk         | IN-LBS [Nm]                                  | 3.66 [0.41]        | 4.68 [0.53]        | 4.88 [0.55]        | 5.25 [0.59]        | 5.43 [0.61]        | 5.60 [0.63]        |
| Peak Current                           |             | AMPS   | 10.44              | 6.51               | 4.49               | 15.0               | 7.56               | 5.16               |
| Max. Theoretical Accel.                |             | RAD/SEC <sup>2</sup>                         | 100,000            | 130,000            | 130,000            | 110,000            | 110,000            | 120,000            |
| Torque Sensitivity                     | Kt          | IN-LBS/AMP [Nm/AMP]                          | 0.35 [0.039]       | 0.72 [0.081]       | 1.09 [0.123]       | 0.35 [0.040]       | 0.72 [0.081]       | 1.09 [0.123]       |
| Back EMF (Line to Line)                | ±10%        | Vrms/Krpm                                    | 3.1                | 6.4                | 9.7                | 3.1                | 6.4                | 9.7                |
| D.C. Resistance (P-P)                  | ±10%        | OHMS   | 1.1                | 4.4                | 9.8                | 0.86               | 2.9                | 7.1                |
| Inductance (P-P)                       | ±10%        | MILLIHENRIES                                 | 0.42               | 1.8                | 4.0                | 0.36               | 1.3                | 3.0                |
| Rotor Inertia                          | Jm          | IN-LBS-SEC <sup>2</sup> [Kg-M <sup>2</sup> ] | .000036 [.0000041] | .000036 [.0000041] | .000036 [.0000041] | .000048 [.0000054] | .000048 [.0000054] | .000048 [.0000054] |
| Static Friction                        | Tf          | IN-LBS [Nm]                                  | 0.13 [0.015]       | 0.13 [0.015]       | 0.13 [0.015]       | 0.15 [0.017]       | 0.15 [0.017]       | 0.15 [0.017]       |
| Motor Weight                           |             | LBS [Kg]                                     | 1.4 [0.64]         | 1.4 [0.64]         | 1.4 [0.64]         | 1.6 [0.73]         | 1.6 [0.73]         | 1.6 [0.73]         |
| Line Voltage                           |             | VAC  | 54                 | 54                 | 54                 | 54                 | 54                 | 54                 |

\*25 ° C Ambient with a maximum case temperature of 85° C on motor. Motor mounted on a 6" x 6" x 1/4" aluminum heatsink. Thermostat in stator windings will open if winding temperature exceeds 130° C for an approximate 10% headroom in the continuous torque rating before thermostat opens.

Mechanical Notes:

1. Axial Load: 10 LBS.Max.
2. Radial Load: 15 LBS.Max. @ 1" from face
3. Motor sealed to IP65



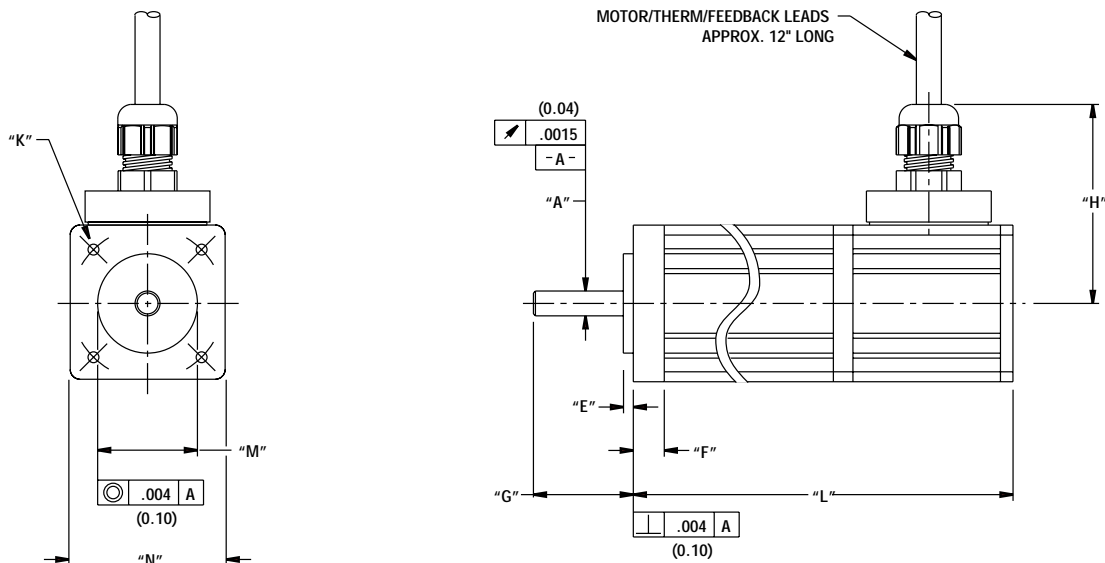
**1 1/2" (40)English and Metric Connectorized Termination-Option 1 Motors**

| Model         | "A"                              | "D"      | "F"      | "G"                     | "H"           |
|---------------|----------------------------------|----------|----------|-------------------------|---------------|
| MPM401***6*** | ∅ 2500(6.350)<br>∅ 2495(6.337)   | .10(2.5) | 31(7.9)  | 102(25.9)<br>.98(24.9)  | 1.76(44.7)Max |
| MPM401***7*** | ∅ 6.000(.2362)<br>∅ 5.992(.2359) | 2.5(10)  | 7.9(.31) | 25.4(1.00)<br>24.4(.96) | 44.7(1.76)Max |
| MPM402***6*** | ∅ 2500(6.350)<br>∅ 2495(6.337)   | .10(2.5) | 31(7.9)  | 102(25.9)<br>.98(24.9)  | 1.76(44.7)Max |
| MPM402***7*** | ∅ 6.000(.2362)<br>∅ 5.992(.2359) | 2.5(10)  | 7.9(.31) | 25.4(1.00)<br>24.4(.96) | 44.7(1.76)Max |
| MPM403***6*** | ∅ 2500(6.350)<br>∅ 2495(6.337)   | .10(2.5) | 31(7.9)  | 102(25.9)<br>.98(24.9)  | 1.76(44.7)Max |
| MPM403***7*** | ∅ 6.000(.2362)<br>∅ 5.992(.2359) | 2.5(10)  | 7.9(.31) | 25.4(1.00)<br>24.4(.96) | 44.7(1.76)Max |
| MPM404***6*** | ∅ 2500(6.350)<br>∅ 2495(6.337)   | .10(2.5) | 31(7.9)  | 102(25.9)<br>.98(24.9)  | 1.76(44.7)Max |
| MPM404***7*** | ∅ 6.000(.2362)<br>∅ 5.992(.2359) | 2.5(10)  | 7.9(.31) | 25.4(1.00)<br>24.4(.96) | 44.7(1.76)Max |

| Model         | "K"  | "L"            | "M"                              | "N"            |
|---------------|--|----------------|----------------------------------|----------------|
| MPM401***6*** | #6-32UNC-2B $\nabla$ 250(6.35)(4)EQ SPD<br>AS SHOWN ON ∅ 1.531(38.89) B.C. | 3.83(97.3)Max  | ∅ 1.000(25.40)<br>∅ .998(25.35)  | □ 1.575(40.00) |
| MPM401***7*** | M3 X .5 $\nabla$ 6.35(.250)(4)EQ SPD<br>AS SHOWN ON ∅ 46.00(1.811) B.C.    | 97.3(3.83)Max  | ∅ 30.00(1.181)<br>∅ 29.79(1.173) | □ 40.00(1.575) |
| MPM402***6*** | #6-32UNC-2B $\nabla$ 250(6.35)(4)EQ SPD<br>AS SHOWN ON ∅ 1.531(38.89) B.C. | 4.33(110.0)Max | ∅ 1.000(25.40)<br>∅ .998(25.35)  | □ 1.575(40.00) |
| MPM402***7*** | M3 X .5 $\nabla$ 6.35(.250)(4)EQ SPD<br>AS SHOWN ON ∅ 46.00(1.811) B.C.    | 110.0(4.33)Max | ∅ 30.00(1.181)<br>∅ 29.79(1.173) | □ 40.00(1.575) |
| MPM403***6*** | #6-32UNC-2B $\nabla$ 250(6.35)(4)EQ SPD<br>AS SHOWN ON ∅ 1.531(38.89) B.C. | 4.83(122.7)Max | ∅ 1.000(25.40)<br>∅ .998(25.35)  | □ 1.575(40.00) |
| MPM403***7*** | M3 X .5 $\nabla$ 6.35(.250)(4)EQ SPD<br>AS SHOWN ON ∅ 46.00(1.811) B.C.    | 122.7(4.83)Max | ∅ 30.00(1.181)<br>∅ 29.79(1.173) | □ 40.00(1.575) |
| MPM404***6*** | #6-32UNC-2B $\nabla$ 250(6.35)(4)EQ SPD<br>AS SHOWN ON ∅ 1.531(38.89) B.C. | 5.33(135.4)Max | ∅ 1.000(25.40)<br>∅ .998(25.35)  | □ 1.575(40.00) |
| MPM404***7*** | M3 X .5 $\nabla$ 6.35(.250)(4)EQ SPD<br>AS SHOWN ON ∅ 46.00(1.811) B.C.    | 135.4(5.33)Max | ∅ 30.00(1.181)<br>∅ 29.79(1.173) | □ 40.00(1.575) |

English = 6 Units: in (mm)  
 Metric = 7 Units: in (mm)

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**1 1/2" (40)English and Metric Flying Leads Termination-Option 4 Motors**

| Model         | "A"                              | "E"        | "F"       | "G"                       | "H"             |
|---------------|----------------------------------|------------|-----------|---------------------------|-----------------|
| MPM401***6*** | ∅ .2500 (6.350)<br>.2495 (6.337) | .10 (2.5)  | 31 (7.9)  | 1.02 (25.9)<br>.98 (24.9) | 2.00 (58.0) Max |
| MPM401***7*** | ∅ 6.000 (.2362)<br>5.992 (.2359) | 2.5 (1.10) | 7.9 (.31) | 25.4 (1.00)<br>24.4 (.96) | 50.8 (2.00) Max |
| MPM402***6*** | ∅ .2500 (6.350)<br>.2495 (6.337) | .10 (2.5)  | 31 (7.9)  | 1.02 (25.9)<br>.98 (24.9) | 2.00 (58.0) Max |
| MPM402***7*** | ∅ 6.000 (.2362)<br>5.992 (.2359) | 2.5 (1.10) | 7.9 (.31) | 25.4 (1.00)<br>24.4 (.96) | 50.8 (2.00) Max |
| MPM403***6*** | ∅ .2500 (6.350)<br>.2495 (6.337) | .10 (2.5)  | 31 (7.9)  | 1.02 (25.9)<br>.98 (24.9) | 2.00 (58.0) Max |
| MPM403***7*** | ∅ 6.000 (.2362)<br>5.992 (.2359) | 2.5 (1.10) | 7.9 (.31) | 25.4 (1.00)<br>24.4 (.96) | 50.8 (2.00) Max |
| MPM404***6*** | ∅ .2500 (6.350)<br>.2495 (6.337) | .10 (2.5)  | 31 (7.9)  | 1.02 (25.9)<br>.98 (24.9) | 2.00 (58.0) Max |
| MPM404***7*** | ∅ 6.000 (.2362)<br>5.992 (.2359) | 2.5 (1.10) | 7.9 (.31) | 25.4 (1.00)<br>24.4 (.96) | 50.8 (2.00) Max |

| Model         | "K"   | "L"             | "M"                            | "N"            |
|---------------|---|-----------------|--------------------------------|----------------|
| MPM401***6*** | #6-32UNC-2B $\nabla$ 250(6.35)(4)EQ SPD<br>AS SHOWN ON ∅ 1.531(38.89)B.C. | 3.83(97.3) Max  | ∅ 1.000(25.40)<br>.998(25.35)  | □ 1.575(40.00) |
| MPM401***7*** | M3 X .5 $\nabla$ 6.35(250)(4)EQ SPD<br>AS SHOWN ON ∅ 46.00(1.811)B.C.     | 97.3(3.83) Max  | ∅ 30.00(1.181)<br>29.79(1.173) | □ 40.00(1.575) |
| MPM402***6*** | #6-32UNC-2B $\nabla$ 250(6.35)(4)EQ SPD<br>AS SHOWN ON ∅ 1.531(38.89)B.C. | 4.33(110.0) Max | ∅ 1.000(25.40)<br>.998(25.35)  | □ 1.575(40.00) |
| MPM402***7*** | M3 X .5 $\nabla$ 6.35(250)(4)EQ SPD<br>AS SHOWN ON ∅ 46.00(1.811)B.C.     | 110.0(4.33) Max | ∅ 30.00(1.181)<br>29.79(1.173) | □ 40.00(1.575) |
| MPM403***6*** | #6-32UNC-2B $\nabla$ 250(6.35)(4)EQ SPD<br>AS SHOWN ON ∅ 1.531(38.89)B.C. | 4.83(122.7) Max | ∅ 1.000(25.40)<br>.998(25.35)  | □ 1.575(40.00) |
| MPM403***7*** | M3 X .5 $\nabla$ 6.35(250)(4)EQ SPD<br>AS SHOWN ON ∅ 46.00(1.811)B.C.     | 122.7(4.83) Max | ∅ 30.00(1.181)<br>29.79(1.173) | □ 40.00(1.575) |
| MPM404***6*** | #6-32UNC-2B $\nabla$ 250(6.35)(4)EQ SPD<br>AS SHOWN ON ∅ 1.531(38.89)B.C. | 5.33(135.4) Max | ∅ 1.000(25.40)<br>.998(25.35)  | □ 1.575(40.00) |
| MPM404***7*** | M3 X .5 $\nabla$ 6.35(250)(4)EQ SPD<br>AS SHOWN ON ∅ 46.00(1.811)B.C.     | 135.4(5.33) Max | ∅ 30.00(1.181)<br>29.79(1.173) | □ 40.00(1.575) |

English = 6 Units: in (mm)  
 Metric = 7 Units: in (mm)



**1 1/2" Motor with Resolver Feedback**

**Option 1**

| Motor Therm Resolver Connector 270-00024 (PT02E-14-18P(027)) |          |
|--|----------|
| Pin  | Function |
| A  | φR       |
| B  | φS       |
| C  | φT       |
| D  | PE GND   |
| U  | THERM    |
| N  | THERM    |
| H  | SIN      |
| G  | COS GND  |
| S  | COS      |
| F  | SIN GND  |
| R  | REF GND  |
| E  | REF      |
| J  | RES SHLD |
| K  | -        |
| L  | -        |
| M  | -        |
| P  | -        |
| T  | -        |

**Option 4**

| Connection Chart |            |
|------------------|------------|
| Function         | Wire Color |
| φR               | RED        |
| φS               | BLACK      |
| φT               | BLUE       |
| PE GND           | GRN/YEL    |
| THERM            | WHITE      |
| THERM            | WHITE      |
| SIN              | YELLOW     |
| COS GND          | BLACK      |
| COS              | RED        |
| SIN GND          | BLUE       |
| REF GND          | YEL/WHT    |
| REF              | RED/WHT    |
| RES SHLD         | GRN/YEL    |

Option 2 and 3-Not Available  
 Brake Option-Consult Factory  
 Encoder Option-Consult Factory



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## 2" Frame Brushless Servo Motors



### Motor Data (Sine)

| Motor Parameters                       |          | Units  | 661ASF****        | 661BSF****        | 662ASF****        | 662BSF****        |
|--|----------|--|-------------------|-------------------|-------------------|-------------------|
| Horsepower                             | Hp Rated | Hp   | .15               | .09               | .22               | .16               |
| Kilowatts                              | KW Rated | KW   | .11               | .07               | .16               | .12               |
| Max. Operating Speed                   | N Max    | RPM  | 6000              | 3000              | 5000              | 3000              |
| Speed @ Rated Torque                   | N Rated  | RPM  | 4000              | 2500              | 4000              | 2500              |
| *Continuous Rated Torque @ Rated Speed |          | IN-LBS[Nm]                                   | 2.3[.26]          | 2.3[.26]          | 3.4[.38]          | 4.0[.45]          |
| *Continuous Stall Torque               |          | IN-LBS[Nm]                                   | 2.6[.29]          | 2.6[.29]          | 5.0[.56]          | 5.0[.56]          |
| Continuous Line Current                |          | AMPS(RMS/φ)                                  | 2.1               | 1.1               | 1.8               | 1.1               |
| Peak Torque                            | Tpk      | IN-LBS[Nm]                                   | 7.8[0.9]          | 7.8[0.9]          | 15.1[1.7]         | 15.1[1.7]         |
| Peak Current                           |          | AMPS(RMS/φ)                                  | 6.9               | 3.5               | 5.4               | 3.3               |
| Max. Theoretical Accel.                |          | RAD/SEC <sup>2</sup>                         | 118.182           | 118.182           | 155,670           | 155,670           |
| Torque Sensitivity                     | Kt       | IN-LBS/AMP(RMS/φ)[Nm/AMP(RMS/φ)]             | 1.5[.16]          | 2.8[.32]          | 2.8[.32]          | 4.5[.51]          |
| Back EMF (Line to Line)                | ±10%     | Vrms/Krpm                                    | 9.2               | 18.0              | 17.8              | 28.3              |
| D.C.Resistance (P-P)                   | ±10%     | OHMS   | 6.9               | 31.9              | 8.4               | 18.5              |
| Inductance (P-P)                       | ±10%     | MILLIHENRIES                                 | 7.7               | 29.4              | 11.6              | 26.4              |
| Rotor Inertia                          | Jm       | IN-LBS-SEC <sup>2</sup> [Kg-M <sup>2</sup> ] | .000066[.0000075] | .000066[.0000075] | .000097[.0000109] | .000097[.0000109] |
| Static Friction                        | Tf       | IN-LBS[Nm]                                   | .35[.04]          | .35[.04]          | 0.5[0.06]         | 0.5[0.06]         |
| Motor Weight                           |          | LBS[Kg]                                      | 2.2[1.0]          | 2.2[1.0]          | 2.8[1.3]          | 2.8[1.3]          |
| Line Voltage                           |          | VAC  | 110               | 110               | 110               | 110               |

| Motor Parameters                       |          | Units  | 663ASF****        | 663BSF****        | 664ASF****        | 664BSF****        |
|--|----------|--|-------------------|-------------------|-------------------|-------------------|
| Horsepower                             | Hp Rated | Hp   | .36               | .19               | .48               | .34               |
| Kilowatts                              | KW Rated | KW   | .27               | .14               | .35               | .26               |
| Max. Operating Speed                   | N Max    | RPM  | 5500              | 3300              | 6000              | 3600              |
| Speed @ Rated Torque                   | N Rated  | RPM  | 4500              | 2000              | 5000              | 3000              |
| *Continuous Rated Torque @ Rated Speed |          | IN-LBS[Nm]                                   | 5.0[.56]          | 6.0[.68]          | 6.0[.68]          | 8.0[.90]          |
| *Continuous Stall Torque               |          | IN-LBS[Nm]                                   | 7.5[.85]          | 7.5[.85]          | 10.0[1.13]        | 10.0[1.13]        |
| Continuous Line Current                |          | AMPS(RMS/φ)                                  | 2.7               | 1.4               | 3.5               | 2.2               |
| Peak Torque                            | Tpk      | IN-LBS[Nm]                                   | 22.5[2.54]        | 22.5[2.54]        | 30.0[3.4]         | 30.0[3.4]         |
| Peak Current                           |          | AMPS(RMS/φ)                                  | 8.0               | 4.9               | 10.6              | 6.6               |
| Max. Theoretical Accel.                |          | RAD/SEC <sup>2</sup>                         | 175,781           | 175,781           | 188,679           | 188,679           |
| Torque Sensitivity                     | Kt       | IN-LBS/AMP(RMS/φ)[Nm/AMP(RMS/φ)]             | 2.8[.32]          | 4.5[.51]          | 2.8[.32]          | 4.5[.51]          |
| Back EMF (Line to Line)                | ±10%     | Vrms/Krpm                                    | 17.8              | 28.3              | 17.8              | 28.3              |
| D.C.Resistance (P-P)                   | ±10%     | OHMS   | 5.2               | 14.4              | 3.1               | 7.0               |
| Inductance (P-P)                       | ±10%     | MILLIHENRIES                                 | 7.0               | 17.9              | 5.1               | 11.0              |
| Rotor Inertia                          | Jm       | IN-LBS-SEC <sup>2</sup> [Kg-M <sup>2</sup> ] | .000128[.0000145] | .000128[.0000145] | .000159[.0000179] | .000159[.0000179] |
| Static Friction                        | Tf       | IN-LBS[Nm]                                   | .65[.073]         | .65[.073]         | 0.8[0.09]         | 0.8[0.09]         |
| Motor Weight                           |          | LBS[Kg]                                      | 3.2[1.5]          | 3.2[1.5]          | 3.8[1.7]          | 3.8[1.7]          |
| Line Voltage                           |          | VAC  | 110               | 110               | 110               | 110               |

#### Brake Info:

Min. Holding Torque: 10IN-LBS  
Input Voltage: 24VDC  
Current: .21 AMPS  
Inertia: .000029IN-LB-SEC<sup>2</sup>  
Weight Adder: .8LBS

\*25° C Ambient with a maximum case temperature of 100° C on motor. Motor mounted on a 10" x 10" x 1/4" aluminum heatsink. Thermostat in stator windings will open if winding temperature exceeds 155° C for an approximate +10% headroom in the continuous torque rating before thermostat opens.

#### Mechanical Notes:

1. Axial Load: 15 LBS. Max.
  2. Radial Load: 20 LBS. Max. @ 1" from face
  3. Motor sealed to IP65
- Please note: MPM66\*BTG\*\*\*\*are available

**Motor Data (Trap)**

| Motor Parameters                       |          | Units  | 661ATF****        | 661BTF****        | 662ATF****        | 662BTF****        |
|--|----------|--|-------------------|-------------------|-------------------|-------------------|
| Horsepower                             | Hp Rated | Hp   | .15               | .09               | .22               | .16               |
| Kilowatts                              | KW Rated | KW   | .11               | .07               | .16               | .12               |
| Max. Operating Speed                   | N Max    | RPM  | 6000              | 3000              | 5000              | 3000              |
| Speed @ Rated Torque                   | N Rated  | RPM  | 4000              | 2500              | 4000              | 2500              |
| *Continuous Rated Torque @ Rated Speed |          | IN-LBS[Nm]                                   | 2.3[.26]          | 2.3[.26]          | 3.4[.38]          | 4.0[.45]          |
| *Continuous Stall Torque               |          | IN-LBS[Nm]                                   | 2.6[.29]          | 2.6[.29]          | 5.0[.56]          | 5.0[.56]          |
| Continuous Line Current                |          | AMPS   | 3.0               | 1.53              | 2.5               | 1.6               |
| Peak Torque                            | Tpk      | IN-LBS[Nm]                                   | 7.8[0.9]          | 7.8[0.9]          | 15.1[1.7]         | 15.1[1.7]         |
| Peak Current                           |          | AMPS   | 9.7               | 5.0               | 7.6               | 4.7               |
| Max. Theoretical Accel.                |          | RAD/SEC <sup>2</sup>                         | 118,182           | 118,182           | 155,670           | 155,670           |
| Torque Sensitivity                     | Kt       | IN-LBS/AMP[Nm/AMP]                           | 1.03[.12]         | 2.0[.23]          | 2.0[.23]          | 3.2[.36]          |
| Back EMF (Line to Line)                | ±10%     | Vrms/Krpm                                    | 9.2               | 18.0              | 17.8              | 28.3              |
| D.C. Resistance (P-P)                  | ±10%     | OHMS   | 6.9               | 31.9              | 8.4               | 18.5              |
| Inductance (P-P)                       | ±10%     | MILLIHENRIES                                 | 7.7               | 29.4              | 11.6              | 26.4              |
| Rotor Inertia                          | Jm       | IN-LBS-SEC <sup>2</sup> [Kg-M <sup>2</sup> ] | .000066[.0000075] | .000066[.0000075] | .000097[.0000109] | .000097[.0000109] |
| Static Friction                        | Tf       | IN-LBS[Nm]                                   | .35[.04]          | .35[.04]          | 0.5[.06]          | 0.5[.06]          |
| Motor Weight                           |          | LBS[Kg]                                      | 2.2[1.0]          | 2.2[1.0]          | 2.8[1.3]          | 2.8[1.3]          |
| Line Voltage                           |          | VAC  | 110               | 110               | 110               | 110               |

| Motor Parameters                       |          | Units  | 663ATF****        | 663BTF****        | 664ATF****        | 664BTF****        |
|--|----------|--|-------------------|-------------------|-------------------|-------------------|
| Horsepower                             | Hp Rated | Hp   | .36               | .19               | .48               | .34               |
| Kilowatts                              | KW Rated | KW   | .27               | .14               | .35               | .26               |
| Max. Operating Speed                   | N Max    | RPM  | 5500              | 3300              | 6000              | 3600              |
| Speed @ Rated Torque                   | N Rated  | RPM  | 4500              | 2000              | 5000              | 2700              |
| *Continuous Rated Torque @ Rated Speed |          | IN-LBS[Nm]                                   | 5.0[.56]          | 6.0[.68]          | 6.0[.68]          | 8.0[.90]          |
| *Continuous Stall Torque               |          | IN-LBS[Nm]                                   | 7.5[.85]          | 7.5[.85]          | 10.0[1.13]        | 10.0[1.13]        |
| Continuous Line Current                |          | AMPS   | 3.8               | 2.0               | 5.0               | 3.1               |
| Peak Torque                            | Tpk      | IN-LBS[Nm]                                   | 22.5[2.54]        | 22.5[2.54]        | 30.0[3.4]         | 30.0[3.4]         |
| Peak Current                           |          | AMPS   | 11.3              | 7.0               | 15.0              | 9.4               |
| Max. Theoretical Accel.                |          | RAD/SEC <sup>2</sup>                         | 175,781           | 175,781           | 188,679           | 188,679           |
| Torque Sensitivity                     | Kt       | IN-LBS/AMP[Nm/AMP]                           | 2.0[.23]          | 3.2[.36]          | 2.0[.23]          | 3.2[.36]          |
| Back EMF (Line to Line)                | ±10%     | Vrms/Krpm                                    | 17.8              | 28.3              | 17.8              | 28.3              |
| D.C. Resistance (P-P)                  | ±10%     | OHMS   | 5.2               | 14.4              | 3.1               | 7.0               |
| Inductance (P-P)                       | ±10%     | MILLIHENRIES                                 | 7.0               | 17.9              | 5.1               | 11.0              |
| Rotor Inertia                          | Jm       | IN-LBS-SEC <sup>2</sup> [Kg-M <sup>2</sup> ] | .000128[.0000145] | .000128[.0000145] | .000159[.0000179] | .000159[.0000179] |
| Static Friction                        | Tf       | IN-LBS[Nm]                                   | .65[.073]         | .65[.073]         | 0.8[.09]          | 0.8[.09]          |
| Motor Weight                           |          | LBS[Kg]                                      | 3.2[1.5]          | 3.2[1.5]          | 3.8[1.7]          | 3.8[1.7]          |
| Line Voltage                           |          | VAC  | 110               | 110               | 110               | 110               |

**Brake Info:**

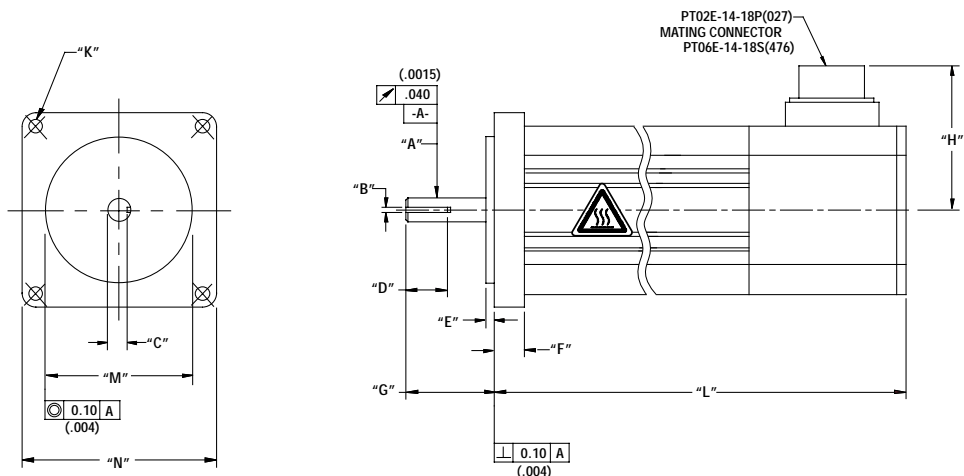
Min. Holding Torque: 10IN-LBS  
 Input Voltage: 24VDC  
 Current : .21AMPS  
 Inertia: .000025IN-LB-SEC<sup>2</sup>  
 Weight Adder: .8LBS

\*25° C Ambient with a maximum case temperature of 100° C on motor. Motor mounted on a 10" x 10" x 1/4" aluminum heatsink. Thermostat in stator windings will open if winding temperature exceeds 155° C for an approximate +10% headroom in the continuous torque rating before thermostat opens.

**Mechanical Notes:**

1. Axial Load: 15 LBS. Max.
  2. Radial Load: 20 LBS. Max. @ 1" from face
  3. Motor sealed to IP65
- Please note: MPM66\*BTF\*\*\*\*are available

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**2" (66) English and Metric Connectorized Termination-Option 1 Motors**

| Model         | "A"                              | "B"                            | "C"         | "D"              | "E"       | "F"        |
|---------------|----------------------------------|--------------------------------|-------------|------------------|-----------|------------|
| MPM662***6*** | ∅ 2500 (6.350)<br>2495 (6.337)   | NA                             | NA          | NA               | .06 (1.6) | .46 (11.7) |
| MPM662***7*** | ∅ 8,000 (.3150)<br>7,991 (.3146) | 2,000 (.0787)<br>1,971 (.0776) | 6.68 (.263) | 14.00 (.551) Min | 3.0 (.12) | 10.2 (.40) |
| MPM664***6*** | ∅ 2500 (6.350)<br>2495 (6.337)   | NA                             | NA          | NA               | .06 (1.6) | .46 (11.7) |
| MPM664***7*** | ∅ 8,000 (.3150)<br>7,991 (.3146) | 2,000 (.0787)<br>1,971 (.0776) | 6.68 (.263) | 14.00 (.551) Min | 3.0 (.12) | 10.2 (.40) |



| Model         | "G"                        | "H"          | "K"  | "L"              | "L" w/ Brake | "M"                                  | "N"             |
|---------------|----------------------------|--------------|--|------------------|--------------|--------------------------------------|-----------------|
| MPM662***6*** | .83 (21.1)<br>.79 (20.1)   | 2.0 (51) Max | 205(5.21) THRU (4) EQ SPD<br>AS SHOWN ON Ø2.625 (66.68) B.C.   | 5.55(140.9) Max  | 6.75(171.5)  | ∅ 1.502 (38.15)<br>1.498 (38.05)     | □ 2.25(57.2)    |
| MPM662***7*** | 30.5 (1.20)<br>29.5 (1.16) | 51 (2.0) Max | Ø5.00(.197) THRU (4) EQ SPD<br>AS SHOWN ON Ø80.00 (3.150) B.C. | 139.5 (5.49) Max | 169.9 (6.69) | ∅ 50.000 (1.9685)<br>49.975 (1.9675) | □ 66.00 (2.598) |
| MPM664***6*** | .83 (21.1)<br>.79 (20.1)   | 2.0 (51) Max | 205(5.21) THRU (4) EQ SPD<br>AS SHOWN ON Ø2.625 (66.68) B.C.   | 6.75(171.5) Max  | 7.95 (201.9) | ∅ 1.502 (38.15)<br>1.498 (38.05)     | □ 2.25 (57.2)   |
| MPM664***7*** | 30.5 (1.20)<br>29.5 (1.16) | 51 (2.0) Max | Ø5.00(.197) THRU (4) EQ SPD<br>AS SHOWN ON Ø80.00 (3.150) B.C. | 169.6 (6.69) Max | 200.4 (7.89) | ∅ 50.000 (1.9685)<br>49.975 (1.9675) | □ 66.00 (2.598) |

English = 6 (NEMA 23) Units: in (mm)  
 Metric = 7 Units: mm (in)

**2" Motor with Resolver Feedback**

**Option 1**



**Motor Connector 270-00024 (PT02E-14-18P(027))**

| Pin | Function  |
|-----|---|
| A   | $\phi$ R  |
| B   | $\phi$ S  |
| C   | $\phi$ T  |
| D   | PE GND  |
| U   | THERM   |
| N   | THERM   |
| H   | SIN   |
| G   | COS GND   |
| S   | COS   |
| F   | SIN GND   |
| R   | REF GND   |
| E   | REF   |
| J   | RES SHLD  |
| *K  | BRK (+)  |
| *L  | BRK (-)  |
| *M  | BRK SHLD  |
| P   | -   |
| T   | -   |

\*USE ONLY WITH BRAKE OPTION

**Option 2**

**Motor Connector 270-00256 (BEGA089NN0000009000)**

| Pin | Function  |
|-----|---|
| 1   | $\phi$ R (U1)   |
| 2   | PE GND  |
| 3   | $\phi$ T (W1)   |
| 4   | $\phi$ S (V1)   |
| *A  | BRK (+)  |
| *B  | BRK (-)  |
| C   | THERM   |
| D   | THERM   |

\*USE ONLY WITH BRAKE OPTION

**Resolver Connector 270-00257 (AEGA052NN00000013000)**



| Pin | Function     |
|-----|--------------|
| 1   | -            |
| 2   | REF (R1)     |
| 3   | REF GND (R2) |
| 4   | COS GND (S1) |
| 5   | COS (S3)     |
| 6   | SIN (S2)     |
| 7   | SIN GND (S4) |
| 8   | -            |
| 9   | -            |
| 10  | -            |
| 11  | -            |
| 12  | -            |

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**2" Motor with Encoder Feedback**

**Option 1**



**Motor Brake Encoder Connector 270-00219 (PT02E-16-23P(027))**

| Pin | Function  |
|-----|---|
| A   | $\phi$ R  |
| B   | $\phi$ S  |
| C   | $\phi$ T  |
| D   | PE GND  |
| T   | GND   |
| E   | +5VDC   |
| F   | CH A  |
| U   | CH A\   |
| G   | CH B  |
| V   | CH B\   |
| H   | CH Z  |
| W   | CH Z\   |
| J   | CH U  |
| K   | CH U\   |
| X   | CH V  |
| L   | CH V\   |
| Y   | CH W  |
| M   | CH W\   |
| N   | GND/CABLE   |
| S   | THERM   |
| R   | THERM   |
| *P  | BRK (+)  |
| *Z  | BRK (-)  |

\*USE ONLY WITH BRAKE OPTION

**Option 2**

**Motor Connector 270-00256 (BEGA089NN000009000)**

| Pin | Function  |
|-----|---|
| 1   | $\phi$ R  |
| 2   | $\phi$ S  |
| 3   | $\phi$ T  |
| 4   | $\phi$ T  |
| *A  | BRK (+)  |
| *B  | BRK (-)  |
| C   | THERM   |
| D   | THERM   |

\*USE ONLY WITH BRAKE OPTION

**Encoder Connector 270-00257 (AEGA052NN0000013000)**

| Pin | Function    |
|-----|-------------|
| 1   | GND (0V)    |
| 2   | CH A\ (A)   |
| 3   | CH A (A\)   |
| 4   | CH B (B)    |
| 5   | CH B\ (B\)  |
| 6   | CH Z (Z)    |
| 7   | CH Z\ (Z\)  |
| 8   | +5V (+5V)   |
| 9   | -           |
| 10  | CH U (RLGU) |
| 11  | CH V (RLGV) |
| 12  | CH W (RLGW) |

## 2 3/4" Frame Brushless Servo Motors



### Motor Data (Sine)

| Motor Parameters                       |          | Units  | 721ASF****      | 721BSG****      | 721CSG****      | 722ASF****      | 722BSG****      | 722CSG****      |
|--|----------|--|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|
| Horsepower                             | Hp Rated | Hp   | 0.41            | 0.41            | 0.24            | 0.74            | 0.74            | 0.47            |
| Kilowatts                              | KW Rated | KW   | 0.31            | 0.31            | 0.18            | 0.55            | 0.55            | 0.35            |
| Max. Operating Speed                   | N Max    | RPM  | 6800            | 6800            | 4000            | 7000            | 7000            | 4000            |
| Speed @ Rated Torque                   | N Rated  | RPM  | 5500            | 5500            | 3000            | 5000            | 5000            | 3000            |
| *Continuous Rated Torque @ Rated Speed |          | IN-LBS[Nm]                                   | 4.7[0.54]       | 4.7[0.54]       | 5.1[0.58]       | 9.4[1.06]       | 9.4[1.06]       | 10.0[1.13]      |
| *Continuous Stall Torque               |          | IN-LBS[Nm]                                   | 5.8[0.66]       | 5.8[0.66]       | 5.8[0.66]       | 11.3[1.28]      | 11.3[1.28]      | 11.3[1.28]      |
| Continuous Line Current                |          | AMPS(RMS/φ)                                  | 2.7             | 1.4             | 0.7             | 5.0             | 2.7             | 1.4             |
| Peak Torque                            | Tpk      | IN-LBS[Nm]                                   | 17.0[2.0]       | 17.0[2.0]       | 17.0[2.0]       | 34.0[3.8]       | 34.0[3.8]       | 34.0[3.8]       |
| Peak Current                           |          | AMPS(RMS/φ)                                  | 8.1             | 4.2             | 2.1             | 15.0            | 8.2             | 4.2             |
| Max. Theoretical Accel.                |          | RAD/SEC <sup>2</sup>                         | 110,000         | 110,000         | 110,000         | 130,000         | 130,000         | 130,000         |
| Torque Sensitivity                     | Kt       | IN-LBS/AMP(RMS/φ)[Nm/AMP(RMS/φ)]             | 2.14[0.241]     | 4.12[0.465]     | 8.10[0.916]     | 2.26[0.255]     | 4.12[0.465]     | 8.12[0.917]     |
| Back EMF (Line to Line)                | ±10%     | Vrms/Krpm                                    | 13.4            | 25.9            | 51.0            | 14.2            | 25.9            | 51.1            |
| D.C. Resistance (P-P)                  | ±10%     | OHMS   | 3.1             | 11              | 45              | 1.1             | 3.7             | 15              |
| Inductance (P-P)                       | ±10%     | MILLIHENRIES                                 | 4.9             | 17              | 70              | 2.3             | 7.3             | 29              |
| Rotor Inertia                          | Jm       | IN-LBS-SEC <sup>2</sup> [Kg-M <sup>2</sup> ] | .00015[.000017] | .00015[.000017] | .00015[.000017] | .00027[.000031] | .00027[.000031] | .00027[.000031] |
| Static Friction                        | Tf       | IN-LBS[Nm]                                   | 0.6[0.07]       | 0.6[0.07]       | 0.6[0.07]       | 0.8[0.09]       | 0.8[0.09]       | 0.8[0.09]       |
| Motor Weight                           |          | LBS[Kg]                                      | 3.5[1.59]       | 3.5[1.59]       | 3.5[1.59]       | 4.4[2.00]       | 4.4[2.00]       | 4.4[2.00]       |
| Line Voltage                           |          | VAC  | 110             | 230             | 230             | 110             | 230             | 230             |

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Motor Data (Trap)

| Motor Parameters                       |          | Units  | 721ATF****      | 721BTG****      | 721CTG****      | 722ATF****      | 722BTG****      | 722CTG****      |
|--|----------|--|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|
| Horsepower                             | Hp Rated | Hp   | 0.41            | 0.41            | 0.24            | 0.74            | 0.74            | 0.47            |
| Kilowatts                              | KW Rated | KW   | 0.31            | 0.31            | 0.18            | 0.55            | 0.55            | 0.35            |
| Max. Operating Speed                   | N Max    | RPM  | 6800            | 6800            | 4000            | 7000            | 7000            | 4000            |
| Speed @ Rated Torque                   | N Rated  | RPM  | 5500            | 5500            | 3000            | 5000            | 5000            | 3000            |
| *Continuous Rated Torque @ Rated Speed |          | IN-LBS[Nm]                                   | 4.7[0.54]       | 4.7[0.54]       | 5.1[0.58]       | 9.4[1.06]       | 9.4[1.06]       | 10.0[1.13]      |
| *Continuous Stall Torque               |          | IN-LBS[Nm]                                   | 5.8[0.66]       | 5.8[0.66]       | 5.8[0.66]       | 11.3[1.28]      | 11.3[1.28]      | 11.3[1.28]      |
| Continuous Line Current                |          | AMPS   | 3.8             | 2.0             | 1.0             | 7.1             | 3.9             | 2.0             |
| Peak Torque                            | Tpk      | IN-LBS[Nm]                                   | 17.0[2.0]       | 17.0[2.0]       | 17.0[2.0]       | 34.0[3.8]       | 34.0[3.8]       | 34.0[3.8]       |
| Peak Current                           |          | AMPS   | 12.0            | 6.0             | 3.0             | 21.0            | 12.0            | 5.9             |
| Max. Theoretical Accel.                |          | RAD/SEC <sup>2</sup>                         | 110,000         | 110,000         | 110,000         | 130,000         | 130,000         | 130,000         |
| Torque Sensitivity                     | Kt       | IN-LBS/AMP[Nm/AMP]                           | 1.51[0.171]     | 2.91[0.329]     | 5.73[0.647]     | 1.60[0.180]     | 2.91[0.329]     | 5.74[0.649]     |
| Back EMF (Line to Line)                | ±10%     | Vrms/Krpm                                    | 13.4            | 25.9            | 51.0            | 14.2            | 25.9            | 51.1            |
| D.C.Resistance (P-P)                   | ±10%     | OHMS   | 3.1             | 11              | 45              | 1.1             | 3.7             | 15              |
| Inductance (P-P)                       | ±10%     | MILLIHENRIES                                 | 4.9             | 17              | 70              | 2.3             | 7.3             | 29              |
| Rotor Inertia                          | Jm       | IN-LBS-SEC <sup>2</sup> [Kg-M <sup>2</sup> ] | .00015[.000017] | .00015[.000017] | .00015[.000017] | .00027[.000031] | .00027[.000031] | .00027[.000031] |
| Static Friction                        | Tf       | IN-LBS[Nm]                                   | 0.6[0.007]      | 0.6[0.007]      | 0.6[0.007]      | 0.8[0.09]       | 0.8[0.09]       | 0.8[0.09]       |
| Motor Weight                           |          | LBS[Kg]                                      | 3.5[1.59]       | 3.5[1.59]       | 3.5[1.59]       | 4.4[2.00]       | 4.4[2.00]       | 4.4[2.00]       |
| Line Voltage                           |          | VAC  | 110             | 230             | 230             | 110             | 230             | 230             |

| Motor Parameters                       |          | Units  | 723ATF****      | 723BTG****      | 723CTG****      | 724ATF****      | 724BTG****      | 724CTG****      |
|--|----------|--|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|
| Horsepower                             | Hp Rated | Hp   | 0.91            | 0.91            | 0.63            | 1.3             | 1.3             | 0.79            |
| Kilowatts                              | KW Rated | KW   | 0.68            | 0.68            | 0.47            | 0.93            | 0.93            | 0.58            |
| Max. Operating Speed                   | N Max    | RPM  | 6300            | 6300            | 4000            | 6000            | 6000            | 4000            |
| Speed @ Rated Torque                   | N Rated  | RPM  | 4500            | 4500            | 3000            | 5000            | 5000            | 3000            |
| *Continuous Rated Torque @ Rated Speed |          | IN-LBS[Nm]                                   | 12.8[1.44]      | 12.8[1.44]      | 13.3[1.50]      | 15.8[1.79]      | 15.8[1.79]      | 16.6[1.88]      |
| *Continuous Stall Torque               |          | IN-LBS[Nm]                                   | 15.0[1.69]      | 15.0[1.69]      | 15.0[1.69]      | 18.8[2.12]      | 18.8[2.12]      | 18.8[2.12]      |
| Continuous Line Current                |          | AMPS   | 9.8             | 5.1             | 2.6             | 13.0            | 6.2             | 3.2             |
| Peak Torque                            | Tpk      | IN-LBS[Nm]                                   | 45.0[5.1]       | 45.0[5.1]       | 45.0[5.1]       | 56.0[6.4]       | 56.0[6.4]       | 56.0[6.4]       |
| Peak Current                           |          | AMPS   | 29.0            | 15.0            | 7.8             | 38.0            | 19.0            | 9.7             |
| Max. Theoretical Accel.                |          | RAD/SEC <sup>2</sup>                         | 120,000         | 120,000         | 120,000         | 110,000         | 110,000         | 110,000         |
| Torque Sensitivity                     | Kt       | IN-LBS/AMP[Nm/AMP]                           | 1.53[0.173]     | 2.96[0.334]     | 5.78[0.652]     | 1.49[0.168]     | 3.01[0.340]     | 5.82[0.658]     |
| Back EMF (Line to Line)                | ±10%     | Vrms/Krpm                                    | 13.7            | 26.3            | 51.4            | 13.2            | 26.8            | 51.8            |
| D.C.Resistance (P-P)                   | ±10%     | OHMS   | 0.58            | 2.2             | 7.8             | 0.39            | 1.5             | 5.5             |
| Inductance (P-P)                       | ±10%     | MILLIHENRIES                                 | 1.3             | 4.9             | 18              | 0.9             | 3.6             | 13              |
| Rotor Inertia                          | Jm       | IN-LBS-SEC <sup>2</sup> [Kg-M <sup>2</sup> ] | .00038[.000043] | .00038[.000043] | .00038[.000043] | .00049[.000055] | .00049[.000055] | .00049[.000055] |
| Static Friction                        | Tf       | IN-LBS[Nm]                                   | 1.0[0.11]       | 1.0[0.11]       | 1.0[0.11]       | 1.2[0.14]       | 1.2[0.14]       | 1.2[0.14]       |
| Motor Weight                           |          | LBS[Kg]                                      | 5.3[2.40]       | 5.3[2.40]       | 5.3[2.40]       | 6.2[2.81]       | 6.2[2.81]       | 6.2[2.81]       |
| Line Voltage                           |          | VAC  | 110             | 230             | 230             | 110             | 230             | 230             |

Brake Info:

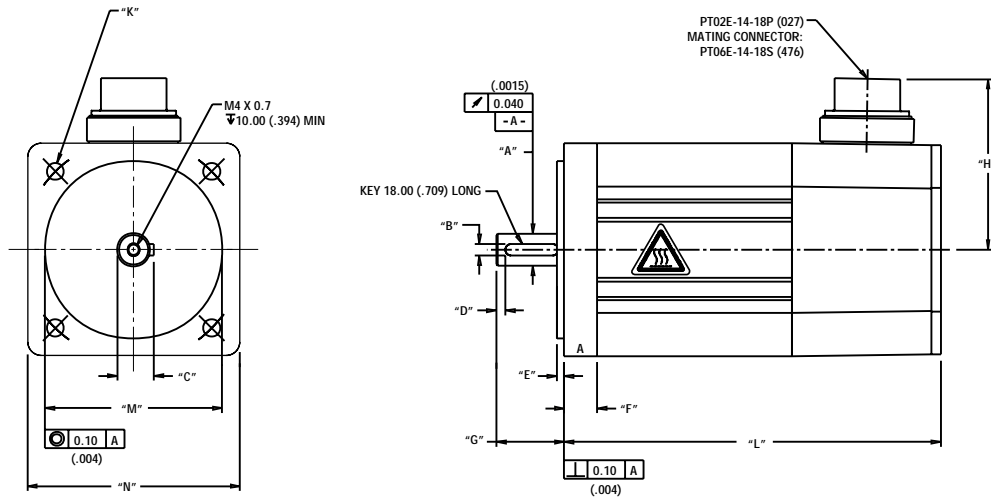
Min. Holding Torque: 24IN-LBS  
 Input Voltage: 24VDC  
 Current : .6 AMPS  
 Inertia : .00007IN-LB-SEC<sup>2</sup>  
 Weight Adder: 1.0LB

\*25° C Ambient with a maximum case temperature of 85° C on motor. Motor mounted on a 12" x 12" x 1/2" aluminum heatsink. Thermostat in stator windings will open if winding temperature exceeds 155° C for an approximate +10% headroom in the continuous torque rating before thermostat opens.

Mechanical Notes:

1. Axial Load: 20 LBS. Max.
2. Radial Load: 35 LBS. Max. @ 1" from face
3. Motor sealed to IP65





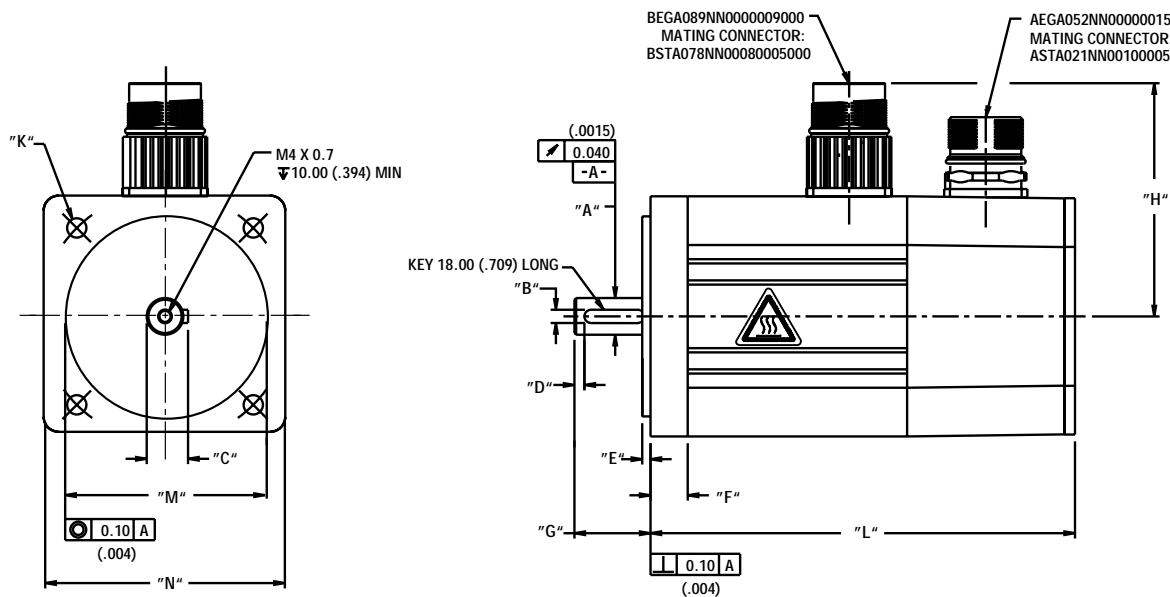
**2 3/4" (72) Metric Connectorized Termination-Option 1 Motors**

| Model         | "A"                              | "B"                          | "C"         | "D"        | "E"      | "F"       | "G"                    |
|---------------|----------------------------------|------------------------------|-------------|------------|----------|-----------|------------------------|
| MPM721***7*1* | ∅ 11.012(.4335)<br>11.001(.4331) | 3.988(.1570)<br>3.958(.1558) | 12.42(.489) | 3.00(.118) | 2.5(.10) | 11.2(.44) | 23.0(.91)<br>22.5(.89) |
| MPM722***7*1* | ∅ 11.012(.4335)<br>11.001(.4331) | 3.988(.1570)<br>3.958(.1558) | 12.42(.489) | 3.00(.118) | 2.5(.10) | 11.2(.44) | 23.0(.91)<br>22.5(.89) |
| MPM723***7*1* | ∅ 11.012(.4335)<br>11.001(.4331) | 3.988(.1570)<br>3.958(.1558) | 12.42(.489) | 3.00(.118) | 2.5(.10) | 11.2(.44) | 23.0(.91)<br>22.5(.89) |
| MPM724***7*1* | ∅ 11.012(.4335)<br>11.001(.4331) | 3.988(.1570)<br>3.958(.1558) | 12.42(.489) | 3.00(.118) | 2.5(.10) | 11.2(.44) | 23.0(.91)<br>22.5(.89) |

| Model         | "H"          | "K"  | "L"             | "L" w/ Brake    | "M"                                | "N"          |
|---------------|--------------|--|-----------------|-----------------|------------------------------------|--------------|
| MPM721***7*1* | 58 (2.3) Max | ∅5.79(.228)THRU (4)EQ SPD<br>AS SHOWN ON ∅75.01(2.953)B.C. | 128.1(5.05)Max  | 166.3 (6.55)Max | ∅ 60.012(2.3627)<br>59.993(2.3619) | □ 72.0(2.84) |
| MPM722***7*1* | 58 (2.3) Max | ∅5.79(.228)THRU (4)EQ SPD<br>AS SHOWN ON ∅75.01(2.953)B.C. | 147.3(5.80)Max  | 185.4 (7.30)Max | ∅ 60.012(2.3627)<br>59.993(2.3619) | □ 72.0(2.84) |
| MPM723***7*1* | 58 (2.3) Max | ∅5.79(.228)THRU (4)EQ SPD<br>AS SHOWN ON ∅75.01(2.953)B.C. | 166.4(6.55)Max  | 204.5 (8.05)Max | ∅ 60.012(2.3627)<br>59.993(2.3619) | □ 72.0(2.84) |
| MPM724***7*1* | 58 (2.3) Max | ∅5.79(.228)THRU (4)EQ SPD<br>AS SHOWN ON ∅75.01(2.953)B.C. | 185.4 (7.30)Max | 223.5 (8.80)Max | ∅ 60.012(2.3627)<br>59.993(2.3619) | □ 72.0(2.84) |

Metric = 7 Units: mm(in)  
 Option 6 Mount- Not Available

**Custom Designed Servo Motors For Your Specific Application. Call 1-800-358-9070 Today.**



**2 3/4" (72) Metric Intercon Termination-Option 2 Motors**

| Model         | "A"                              | "B"                          | "C"         | "D"        | "E"      | "F"       | "G"                    |
|---------------|----------------------------------|------------------------------|-------------|------------|----------|-----------|------------------------|
| MPM721***7*2* | ∅ 11.012(.4335)<br>11.001(.4331) | 3.988(.1570)<br>3.958(.1558) | 12.42(.489) | 3.00(.118) | 2.5(.10) | 11.2(.44) | 23.0(.91)<br>22.5(.89) |
| MPM722***7*2* | ∅ 11.012(.4335)<br>11.001(.4331) | 3.988(.1570)<br>3.958(.1558) | 12.42(.489) | 3.00(.118) | 2.5(.10) | 11.2(.44) | 23.0(.91)<br>22.5(.89) |
| MPM723***7*2* | ∅ 11.012(.4335)<br>11.001(.4331) | 3.988(.1570)<br>3.958(.1558) | 12.42(.489) | 3.00(.118) | 2.5(.10) | 11.2(.44) | 23.0(.91)<br>22.5(.89) |
| MPM724***7*2* | ∅ 11.012(.4335)<br>11.001(.4331) | 3.988(.1570)<br>3.958(.1558) | 12.42(.489) | 3.00(.118) | 2.5(.10) | 11.2(.44) | 23.0(.91)<br>22.5(.89) |



| Model         | "H"        | "K"   | "L"            | "L" w/ Brake | "M"                                | "N"          |
|---------------|------------|---|----------------|--------------|------------------------------------|--------------|
| MPM721***7*2* | 70(2.8)Max | ∅5.79(.228)THRU (4)EQ SPD<br>AS SHOWN ON ∅75.01(2.953) B.C. | 128.1(5.05)Max | 166.4(6.55)  | ∅ 60.012(2.3627)<br>59.993(2.3619) | □ 72.0(2.84) |
| MPM722***7*2* | 70(2.8)Max | ∅5.79(.228)THRU (4)EQ SPD<br>AS SHOWN ON ∅75.01(2.953) B.C. | 147.3(5.80)Max | 185.4(7.30)  | ∅ 60.012(2.3627)<br>59.993(2.3619) | □ 72.0(2.84) |
| MPM723***7*2* | 70(2.8)Max | ∅5.79(.228)THRU (4)EQ SPD<br>AS SHOWN ON ∅75.01(2.953) B.C. | 166.4(6.55)Max | 204.5(8.05)  | ∅ 60.012(2.3627)<br>59.993(2.3619) | □ 72.0(2.84) |
| MPM724***7*2* | 70(2.8)Max | ∅5.79(.228)THRU (4)EQ SPD<br>AS SHOWN ON ∅75.01(2.953) B.C. | 185.4(7.30)Max | 223.5(8.80)  | ∅ 60.012(2.3627)<br>59.993(2.3619) | □ 72.0(2.84) |

Metric = 7 Units: mm (in)  
 Option 6 Mount-Not Available

**2 3/4" Motor with Resolver Feedback**

**Option 1**

Motor Therm Resolver Connector 270-00024 (PT02E-14-18P(027))



| Pin | Function  |
|-----|---|
| A   | $\phi$ R  |
| B   | $\phi$ S  |
| C   | $\phi$ T  |
| D   | PE GND  |
| U   | THERM   |
| N   | THERM   |
| H   | SIN   |
| G   | COS GND   |
| S   | COS   |
| F   | SIN GND   |
| R   | REF GND   |
| E   | REF   |
| J   | RES SHLD  |
| *K  | BRK (+)  |
| *L  | BRK (-)  |
| *M  | BRK SHLD  |
| P   | -   |
| T   | -   |

\* USE ONLY WITH BRAKE OPTION

**Option 3-Not Available**

**Option 2**

Motor Therm Connector 270-000256 (BEGA089NN0000009000)

| Pin | Function  |
|-----|---|
| 1   | $\phi$ R (U1)   |
| 2   | PE GND  |
| 3   | $\phi$ T (W1)   |
| 4   | $\phi$ S (V1)   |
| *A  | BRK (+)  |
| *B  | BRK (-)  |
| C   | THERM   |
| D   | THERM   |

\* USE ONLY WITH BRAKE OPTION

Resolver Connector 270-00257 (AEGA052NN00000013000)



| Pin | Function     |
|-----|--------------|
| 1   | -            |
| 2   | REF (R1)     |
| 3   | REF GND (R2) |
| 4   | COS GND (S1) |
| 5   | COS (S3)     |
| 6   | SIN (S2)     |
| 7   | SIN GND (S4) |
| 8   | -            |
| 9   | -            |
| 10  | -            |
| 11  | -            |
| 12  | -            |

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**2 3/4" Motor with Encoder Feedback**

**Option 1**

**Motor Encoder Therm Connector 270-00219 (PT02E-16-23P(027))**



| Pin | Function  |
|-----|---|
| A   | φR  |
| B   | φS  |
| C   | φT  |
| D   | PE GND  |
| T   | GROUND  |
| E   | +5VDC   |
| F   | CH A  |
| U   | CH A\   |
| G   | CH B  |
| V   | CH B\   |
| H   | CH Z  |
| W   | CH Z\   |
| J   | CH U  |
| K   | CH U\   |
| X   | CH V  |
| L   | CH V\   |
| Y   | CH W  |
| M   | CH W\   |
| N   | GND/CABLE   |
| S   | THERM   |
| R   | THERM   |
| *P  | BRK (+)  |
| *Z  | BRK (-)  |

\* USE ONLY WITH BRAKE OPTION

Option 3-Not Available

**Option 2**

**Motor Therm Connector 270-000256 (BEGA089NN000009000)**

| Pin | Function  |
|-----|---|
| 1   | φR (U1)   |
| 2   | PE GND  |
| 3   | φS (W1)   |
| 4   | φT (V1)   |
| *A  | BRK (+)  |
| *B  | BRK (-)  |
| C   | THERM   |
| D   | THERM   |

\* USE ONLY WITH BRAKE OPTION

**Encoder Connector 270-00257 (AEGA052NN0000013000)**

| Pin | Function   |
|-----|------------|
| 1   | GND (0V)   |
| 2   | CH A(A)    |
| 3   | CH A(AI)   |
| 4   | CH B(B)    |
| 5   | CH B(BI)   |
| 6   | CH Z(Z)    |
| 7   | CH Z(ZI)   |
| 8   | +5V(+5V)   |
| 9   | -          |
| 10  | CH U(RLGU) |
| 11  | CH V(RLGV) |
| 12  | CH W(RLGW) |

# 3" Frame Brushless Servo Motors



## Motor Data (Sine)

| Motor Parameters                       |          |            | Units   | 891ASG****        | 891BSG****        |
|--|----------|------------|---|-------------------|-------------------|
| Horsepower                             | Hp Rated | Hp         |   | 0.82              | 0.55              |
| Kilowatts                              | KW Rated | KW         |   | 0.62              | 0.41              |
| Max. Operating Speed                   | N Max    | RPM        |   | 5000              | 3000              |
| Speed @ Rated Torque                   | N Rated  | RPM        |   | 4000              | 2400              |
| *Continuous Rated Torque @ Rated Speed |          |            | IN-LBS[Nm]                                      | 13.0[1.47]        | 14.5[1.64]        |
| *Continuous Stall Torque               |          |            | IN-LBS[Nm]                                      | 16.0[1.81]        | 16.0[1.81]        |
| Continuous Line Current                |          |            | AMPS(RMS/φ)                                     | 2.7               | 1.3               |
| Peak Torque                            | Tpk      | IN-LBS[Nm] |   | 58.8[6.64]        | 58.8[6.64]        |
| Peak Current                           |          |            | AMPS(RMS/φ)                                     | 9.9               | 4.9               |
| Max. Theoretical Accel.                |          |            | RAD/SEC <sup>2</sup>                            | 95,610            | 95,610            |
| Torque Sensitivity                     |          |            | Kt IN-LBS/AMP(RMS/φ)[Nm/AMP(RMS/φ)]             | 5.9[.67]          | 11.9[1.34]        |
| Back EMF (Line to Line)                |          |            | ±10% Vrms/Krpm                                  | 37.6              | 75.2              |
| D.C.Resistance (P-P)                   |          |            | ±10% OHMS                                       | 3.9               | 15.4              |
| Inductance (P-P)                       |          |            | ±10% MILLIHENRIES                               | 10.4              | 39.6              |
| Rotor Inertia                          |          |            | Jm IN-LBS-SEC <sup>2</sup> [Kg-M <sup>2</sup> ] | .000615[.0000693] | .000615[.0000693] |
| Static Friction                        |          |            | Tf IN-LBS[Nm]                                   | 0.4[0.05]         | 0.4[0.05]         |
| Motor Weight                           |          |            | LBS[Kg]   | 7.8[3.5]          | 7.8[3.5]          |
| Line Voltage                           |          |            | VAC   | 230               | 230               |

| Motor Parameters                       |          |            | Units   | 892ASG****        | 892BSG****        | 893ASG****      | 893BSG****      |
|--|----------|------------|---|-------------------|-------------------|-----------------|-----------------|
| Horsepower                             | Hp Rated | Hp         |   | 1.62              | 1.05              | 1.96            | 1.10            |
| Kilowatts                              | KW Rated | KW         |   | 1.20              | 0.78              | 1.46            | 0.85            |
| Max. Operating Speed                   | N Max    | RPM        |   | 5000              | 3000              | 4100            | 2000            |
| Speed @ Rated Torque                   | N Rated  | RPM        |   | 4000              | 2400              | 3600            | 1500            |
| *Continuous Rated Torque @ Rated Speed |          |            | IN-LBS[Nm]                                      | 25.5[2.9]         | 27.5[3.1]         | 34.4[3.8]       | 36.0[4.0]       |
| *Continuous Stall Torque               |          |            | IN-LBS[Nm]                                      | 30.0[3.4]         | 30.0[3.4]         | 39.0[4.4]       | 39.0[4.4]       |
| Continuous Line Current                |          |            | AMPS(RMS/φ)                                     | 5.2               | 2.6               | 4.5             | 2.1             |
| Peak Torque                            | Tpk      | IN-LBS[Nm] |   | 105.0[11.9]       | 105.0[11.9]       | 137.0[15.5]     | 137.0[15.5]     |
| Peak Current                           |          |            | AMPS(RMS/φ)                                     | 18.9              | 9.6               | 16.3            | 7.9             |
| Max. Theoretical Accel.                |          |            | RAD/SEC <sup>2</sup>                            | 105,954           | 105,954           | 100,000         | 100,000         |
| Torque Sensitivity                     |          |            | Kt IN-LBS/AMP(RMS/φ)[Nm/AMP(RMS/φ)]             | 5.8[.66]          | 11.6[1.31]        | 8.8[.99]        | 17.5[1.98]      |
| Back EMF (Line to Line)                |          |            | ±10% Vrms/Krpm                                  | 36.6              | 73.2              | 55.0            | 110.0           |
| D.C.Resistance (P-P)                   |          |            | ±10% OHMS                                       | 1.5               | 6.0               | 1.9             | 7.7             |
| Inductance (P-P)                       |          |            | ±10% MILLIHENRIES                               | 5.1               | 20.2              | 7.5             | 29.1            |
| Rotor Inertia                          |          |            | Jm IN-LBS-SEC <sup>2</sup> [Kg-M <sup>2</sup> ] | .000991[.0001116] | .000991[.0001116] | .00137[.000154] | .00137[.000154] |
| Static Friction                        |          |            | Tf IN-LBS[Nm]                                   | 0.5[0.06]         | 0.5[0.06]         | 0.6[0.07]       | 0.6[0.07]       |
| Motor Weight                           |          |            | LBS[Kg]   | 10.4[4.7]         | 10.4[4.7]         | 14.0[6.0]       | 14.0[6.0]       |
| Line Voltage                           |          |            | VAC   | 230               | 230               | 230             | 230             |

### Brake Info:

Min. Holding Torque: 60 IN-LBS  
 Input Voltage: 24VDC  
 Current : 0.6 AMPS  
 Inertia : .00015 IN-LB-SEC<sup>2</sup>  
 Weight Adder: 2.2 LBS

\*25° C Ambient with a maximum case temperature of 100° C on motor. Motor mounted on a 10" x 10" x 1/4" aluminum heatsink. Thermostat in stator windings will open if winding temperature exceeds 155° C. This allows +10% headroom in the continuous torque rating before thermostat opens.

### Mechanical Notes:

1. Axial Load: 25 LBS. Max.
2. Radial Load: 40 LBS. Max. @ 1" from face
3. Motor sealed to IP65

Custom Designed Servo Motors For Your Specific Application. Call 1-800-358-9070 Today.

**Motor Data (Trap)**

| Motor Parameters                       |          | Units  | 891ATG****        | 891BTG****        |
|--|----------|--|-------------------|-------------------|
| Horsepower                             | Hp Rated | Hp   | 0.82              | 0.55              |
| Kilowatts                              | KW Rated | KW   | 0.62              | 0.41              |
| Max. Operating Speed                   | N Max    | RPM  | 5000              | 3000              |
| Speed @ Rated Torque                   | N Rated  | RPM  | 4000              | 2400              |
| *Continuous Rated Torque @ Rated Speed |          | IN-LBS[Nm]                                   | 13.0[1.47]        | 14.5[1.64]        |
| *Continuous Stall Torque               |          | IN-LBS[Nm]                                   | 16.0[1.81]        | 16.0[1.81]        |
| Continuous Line Current                |          | AMPS   | 3.8               | 1.9               |
| Peak Torque                            | Tpk      | IN-LBS[Nm]                                   | 58.8[6.64]        | 58.8[6.64]        |
| Peak Current                           |          | AMPS   | 14.0              | 7.0               |
| Max. Theoretical Accel.                |          | RAD/SEC <sup>2</sup>                         | 95,610            | 95,610            |
| Torque Sensitivity                     | Kt       | IN-LBS/AMP[Nm/AMP]                           | 4.2[0.48]         | 8.4[0.96]         |
| Back EMF (Line to Line)                | ±10%     | Vrms/Krpm                                    | 37.6              | 75.2              |
| D.C.Resistance (P-P)                   | ±10%     | OHMS   | 3.9               | 15.4              |
| Inductance (P-P)                       | ±10%     | MILLIHENRIES                                 | 10.4              | 39.6              |
| Rotor Inertia                          | Jm       | IN-LBS-SEC <sup>2</sup> [Kg-M <sup>2</sup> ] | .000615[.0000693] | .000615[.0000693] |
| Static Friction                        |          | IN-LBS[Nm]                                   | 0.4[0.05]         | 0.4[0.05]         |
| Motor Weight                           |          | LBS[Kg]                                      | 7.8[3.5]          | 7.8[3.5]          |
| Line Voltage                           |          | VAC  | 230               | 230               |

| Motor Parameters                       |          | Units  | 892ATG****        | 892BTG****        | 893ATG****      | 893BTG****      |
|--|----------|--|-------------------|-------------------|-----------------|-----------------|
| Horsepower                             | Hp Rated | Hp   | 1.62              | 1.05              | 1.96            | 1.10            |
| Kilowatts                              | KW Rated | KW   | 1.20              | 0.78              | 1.46            | 0.85            |
| Max. Operating Speed                   | N Max    | RPM  | 5000              | 3000              | 4100            | 2000            |
| Speed @ Rated Torque                   | N Rated  | RPM  | 4000              | 2400              | 3600            | 1500            |
| *Continuous Rated Torque @ Rated Speed |          | IN-LBS[Nm]                                   | 25.5[2.9]         | 27.5[3.1]         | 34.4[3.8]       | 36.0[4.0]       |
| *Continuous Stall Torque               |          | IN-LBS[Nm]                                   | 30.0[3.4]         | 30.0[3.4]         | 39.0[4.4]       | 39.0[4.4]       |
| Continuous Line Current                |          | AMPS   | 7.3               | 3.7               | 6.3             | 3.0             |
| Peak Torque                            | Tpk      | IN-LBS[Nm]                                   | 105.0[11.9]       | 105.0[11.9]       | 137.0[15.5]     | 137.0[15.5]     |
| Peak Current                           |          | AMPS   | 26.8              | 13.6              | 23.1            | 11.1            |
| Max. Theoretical Accel.                |          | RAD/SEC <sup>2</sup>                         | 105,954           | 105,954           | 100,000         | 100,000         |
| Torque Sensitivity                     | Kt       | IN-LBS/AMP[Nm/AMP]                           | 4.1[0.47]         | 8.2[0.94]         | 6.2[0.7]        | 12.4[1.4]       |
| Back EMF (Line to Line)                | ±10%     | Vrms/Krpm                                    | 36.6              | 73.2              | 55.0            | 110.0           |
| D.C.Resistance (P-P)                   | ±10%     | OHMS   | 1.5               | 6.0               | 1.9             | 7.7             |
| Inductance (P-P)                       | ±10%     | MILLIHENRIES                                 | 5.1               | 20.2              | 7.5             | 29.1            |
| Rotor Inertia                          | Jm       | IN-LBS-SEC <sup>2</sup> [Kg-M <sup>2</sup> ] | .000991[.0001116] | .000991[.0001116] | .00137[.000154] | .00137[.000154] |
| Static Friction                        |          | IN-LBS[Nm]                                   | 0.5[0.06]         | 0.5[0.06]         | 0.6[0.07]       | 0.6[0.07]       |
| Motor Weight                           |          | LBS[Kg]                                      | 10.4[4.7]         | 10.4[4.7]         | 14.0[6.0]       | 14.0[6.0]       |
| Line Voltage                           |          | VAC  | 230               | 230               | 230             | 230             |

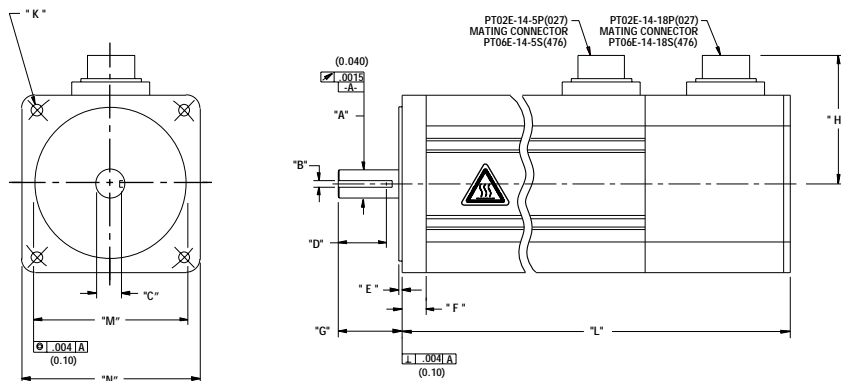
**Brake Info:**

Min. Holding Torque: 60 IN-LBS  
 Input Voltage: 24VDC  
 Current : 2.2AMPS  
 Inertia : .00015IN-LB-SEC<sup>2</sup>  
 Weight Adder: 2.2LBS

\*25° C Ambient with a maximum case temperature of 100° C on motor. Motor mounted on a 10" x 10" x 1/4" aluminum heatsink. Thermostat in stator windings will open if winding temperature exceeds 155° C. This allows +10% headroom in the continuous torque rating before thermostat opens.

Mechanical Notes:

1. Axial Load: 25 LBS. Max.
2. Radial Load: 40 LBS. Max. @ 1" from face
3. Motor sealed to IP65



**3" (89) English and Metric Connectorized Termination-Option 1 Motors**

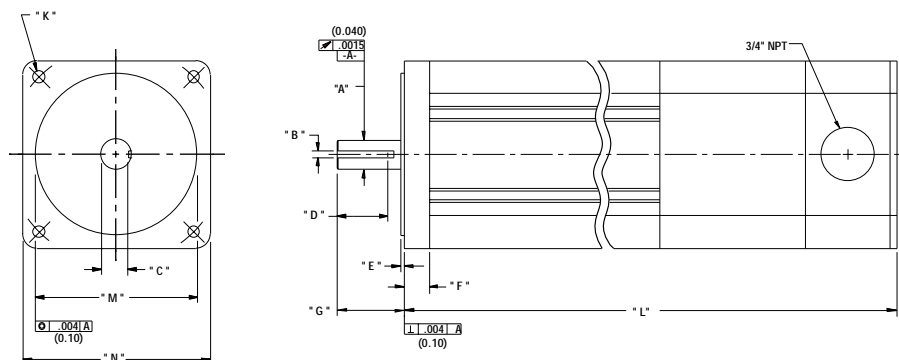
| Model          | "A"                                | "B"                            | "C"          | "D"           | "E"       | "F"        | "G"                        |
|----------------|------------------------------------|--------------------------------|--------------|---------------|-----------|------------|----------------------------|
| MPM891****6*** | ∅ .4997 (12.692)<br>.4993 (12.682) | .1265 (3.213)<br>.1250 (3.175) | .420 (10.67) | .90 (22.9)Min | .06 (1.6) | .44 (11.2) | 1.20 (30.5)<br>1.16 (29.5) |
| MPM891****7*** | ∅ 14.000 (.5512)<br>13.985 (.5508) | 5.08 (.200)<br>5.00 (.197)     | 10.90 (.429) | 20.0 (.79)Min | 3.0 (.12) | 11.2 (.44) | 30.5 (1.20)<br>29.5 (1.16) |
| MPM892****6*** | ∅ .4997 (12.692)<br>.4993 (12.682) | .1265 (3.213)<br>.1250 (3.175) | .420 (10.67) | .90 (22.9)Min | .06 (1.6) | .44 (11.2) | 1.20 (30.5)<br>1.16 (29.5) |
| MPM892****7*** | ∅ 14.000 (.5512)<br>13.985 (.5508) | 5.08 (.200)<br>5.00 (.197)     | 10.90 (.429) | 20.0 (.79)Min | 3.0 (.12) | 11.2 (.44) | 30.5 (1.20)<br>29.5 (1.16) |
| MPM893****6*** | ∅ .4997 (12.692)<br>.4993 (12.682) | .1265 (3.213)<br>.1250 (3.175) | .420 (10.67) | .90 (22.9)Min | .06 (1.6) | .44 (11.2) | 1.20 (30.5)<br>1.16 (29.5) |
| MPM893****7*** | ∅ 14.000 (.5512)<br>13.985 (.5508) | 5.08 (.200)<br>5.00 (.197)     | 10.90 (.429) | 20.0 (.79)Min | 3.0 (.12) | 11.2 (.44) | 30.5 (1.20)<br>29.5 (1.16) |

| Model          | "H"           | "K"   | "L"              | "L" w/ Brake      | "M"                              | "N"           |
|----------------|---------------|---|------------------|-------------------|----------------------------------|---------------|
| MPM891****6*** | 2.5 (64.0)Max | ∅.223 (5.66)THRU (4)EQ SPD<br>AS SHOWN ON ∅3.875 (98.43)B.C.  | 7.24 (183.9)Max  | 8.74 (222.0) Max  | ∅ 2.877 (73.08)<br>2.873 (72.97) | □ 3.31 (84.1) |
| MPM891****7*** | 64.0 (2.5)Max | ∅7.00 (.276)THRU (4)EQ SPD<br>AS SHOWN ON ∅100.00 (3.937)B.C. | 183.9 (7.24)Max  | 222.0 (8.74) Max  | ∅ 80.00 (3.150)<br>79.98 (3.149) | □ 89.0 (3.50) |
| MPM892****6*** | 2.5 (64.0)Max | ∅.223 (5.66)THRU (4)EQ SPD<br>AS SHOWN ON ∅3.875 (98.43)B.C.  | 8.74 (222.0)Max  | 10.24 (260.1) Max | ∅ 2.877 (73.08)<br>2.873 (72.97) | □ 3.31 (84.1) |
| MPM892****7*** | 64.0 (2.5)Max | ∅7.00 (.276)THRU (4)EQ SPD<br>AS SHOWN ON ∅100.00 (3.937)B.C. | 222.0 (8.74)Max  | 260.1 (10.24) Max | ∅ 80.00 (3.150)<br>79.98 (3.149) | □ 89.0 (3.50) |
| MPM893****6*** | 2.5 (64.0)Max | ∅.223 (5.66)THRU (4)EQ SPD<br>AS SHOWN ON ∅3.875 (98.43)B.C.  | 10.24 (260.1)Max | 11.74 (298.2) Max | ∅ 2.877 (73.08)<br>2.873 (72.97) | □ 3.31 (84.1) |
| MPM893****7*** | 64.0 (2.5)Max | ∅7.00 (.276)THRU (4)EQ SPD<br>AS SHOWN ON ∅100.00 (3.937)B.C. | 260.1 (10.24)Max | 298.2 (11.74) Max | ∅ 80.00 (3.150)<br>79.98 (3.149) | □ 89.0 (3.50) |

English = 6 (NEMA 34) Units: in (mm)  
 Metric = 7 Units: mm (in)

For Mechanical Dimensions on Termination Option 2 Consult Factory.

**Custom Designed Servo Motors For Your Specific Application. Call 1-800-358-9070 Today.**



**3" (89)English and Metric NPT Termination-Option 3 Motors**

| Model         | "A"                                | "B"                            | "C"          | "D"            | "E"       | "F"        | "G"                        |
|---------------|------------------------------------|--------------------------------|--------------|----------------|-----------|------------|----------------------------|
| MPM891***6*** | ∅ .4997 (12.692)<br>.4993 (12.682) | .1265 (3.213)<br>.1250 (3.175) | .420 (10.67) | .90 (22.9) Min | .06 (1.6) | .44 (11.2) | 1.20 (30.5)<br>1.16 (29.5) |
| MPM891***7*** | ∅ 14.000 (.5512)<br>13.985 (.5508) | 5.08 (.200)<br>5.00 (.197)     | 10.90 (.429) | 20.0 (.79) Min | 3.0 (.12) | 11.2 (.44) | 30.5 (762)<br>29.5 (750)   |
| MPM892***6*** | ∅ .4997 (12.692)<br>.4993 (12.682) | .1265 (3.213)<br>.1250 (3.175) | .420 (10.67) | .90 (22.9) Min | .06 (1.6) | .44 (11.2) | 1.20 (30.5)<br>1.16 (29.5) |
| MPM892***7*** | ∅ 14.000 (.5512)<br>13.985 (.5508) | 5.08 (.200)<br>5.00 (.197)     | 10.90 (.429) | 20.0 (.79) Min | 3.0 (.12) | 11.2 (.44) | 30.5 (762)<br>29.5 (750)   |
| MPM893***6*** | ∅ .4997 (12.692)<br>.4993 (12.682) | .1265 (3.213)<br>.1250 (3.175) | .420 (10.67) | .90 (22.9) Min | .06 (1.6) | .44 (11.2) | 1.20 (30.5)<br>1.16 (29.5) |
| MPM893***7*** | ∅ 14.000 (.5512)<br>13.985 (.5508) | 5.08 (.200)<br>5.00 (.197)     | 10.90 (.429) | 20.0 (.79) Min | 3.0 (.12) | 11.2 (.44) | 30.5 (762)<br>29.5 (750)   |



**3" Motor with Resolver Feedback**

**Option 1**

**Motor Connector 270-00026 (PT02E-14-5P(027))**

| Pin | Function |
|-----|----------|
| A   | $\phi$ R |
| B   | $\phi$ S |
| C   | $\phi$ T |
| D   | PE GND   |
| E   | -        |

**Resolver Connector 270-00024(PT02E-14-18P(027))**

| Pin | Function |
|-----|----------|
| U   | THERM    |
| N   | THERM    |
| H   | SIN      |
| G   | COS GND  |
| S   | COS      |
| F   | SIN GND  |
| R   | REF GND  |
| E   | REF      |
| D   | RES SHLD |
| P   | GND      |
| A   | -        |
| B   | -        |
| C   | -        |
| J   | -        |
| K   | -        |
| L   | -        |
| M   | -        |
| T   | -        |

**\* Option 1 with brake**

**Motor Brake Connector 270-00032 (PT02E-16-8P(027))**

| Pin | Function |
|-----|----------|
| A   | $\phi$ R |
| B   | $\phi$ S |
| C   | $\phi$ T |
| D   | PE GND   |
| E   | BRK SHLD |
| F   | BRK (+)  |
| G   | BRK (-)  |
| H   | -        |

**Option 2**

**Motor Connector 270-00256 (BEGA089NN000009000)**

| Pin | Function      |
|-----|---------------|
| 1   | $\phi$ R (U1) |
| 2   | PE GND        |
| 3   | $\phi$ T (W1) |
| 4   | $\phi$ S (V1) |
| *A  | BRK (+)       |
| *B  | BRK (-)       |
| C   | THERM         |
| D   | THERM         |

\*USE ONLY WITH BRAKE OPTION

**Resolver Connector 270-00257(AEGA052NN0000013000)**

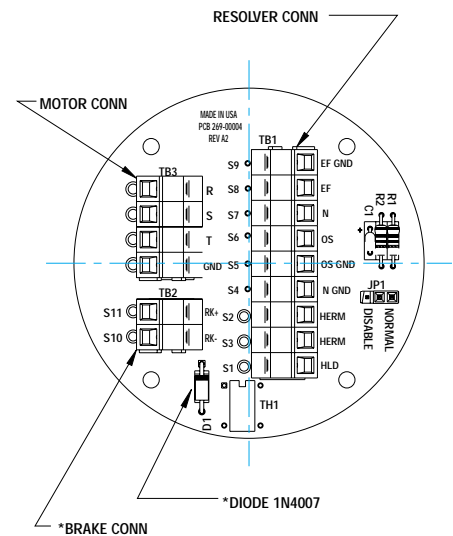
| Pin | Function     |
|-----|--------------|
| 1   | -            |
| 2   | REF (R1)     |
| 3   | REF GND (R2) |
| 4   | COS GND (S1) |
| 5   | COS (S3)     |
| 6   | SIN (S2)     |
| 7   | SIN GND (S4) |
| 8   | -            |
| 9   | -            |
| 10  | -            |
| 11  | -            |
| 12  | -            |

**Option 3**

**Connection Chart (NPT) Resolver**

| Terminal | Function |
|----------|----------|
| R        | $\phi$ R |
| S        | $\phi$ S |
| T        | $\phi$ T |
| GND      | PE GND   |
| *S11     | BRK (+)  |
| *S10     | BRK (-)  |
| S9       | REF GND  |
| S8       | REF      |
| S7       | SIN      |
| S6       | COS      |
| S5       | COS GND  |
| S4       | SIN GND  |
| S3       | THERM    |
| S2       | THERM    |
| S1       | RES SHLD |

\*USE ONLY WITH BRAKE OPTION



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**3" Motor with Encoder Feedback**

**Option 1**

**Motor Connector 270-00026 (PT02E-14-5P(027))**



| Pin | Function |
|-----|----------|
| A   | $\phi$ R |
| B   | $\phi$ S |
| C   | $\phi$ T |
| D   | PE GND   |
| E   | -        |

**Encoder Connector 270-00024 (PT02E-14-18P(027))**

| Pin | Function  |
|-----|-----------|
| T   | GND       |
| K   | +5VDC     |
| B   | CH A      |
| C   | CH A\     |
| N   | CH B      |
| P   | CH B\     |
| M   | CH Z      |
| U   | CH Z\     |
| E   | CH U      |
| R   | CH U\     |
| F   | CH V      |
| S   | CH V\     |
| G   | CH W      |
| H   | CH W\     |
| D   | GND/CABLE |
| A   | THERM     |
| L   | THERM     |
| J   | GND       |

**Option 2**

**Motor Brake Connector 270-00256 (BEGA089NN00000013000)**

| Pin | Function  |
|-----|---|
| 1   | $\phi$ R (U1)   |
| 2   | PE GND  |
| 3   | $\phi$ T (W1)   |
| 4   | $\phi$ S (V1)   |
| *A  | BRK (+)  |
| *B  | BRK (-)  |
| C   | THERM   |
| D   | THERM   |



\*USE ONLY WITH BRAKE OPTION

**Encoder Connector 270-00257 (AEGA052NN00000013000)**

| Pin | Function    |
|-----|-------------|
| 1   | GND (OV)    |
| 2   | CH A\ (A)   |
| 3   | CH A (A\)   |
| 4   | CH B (B)    |
| 5   | CH B\ (B\)  |
| 6   | CH Z (Z)    |
| 7   | CH Z\ (Z\)  |
| 8   | +5V (+5V)   |
| 9   | -           |
| 10  | CH U (RLGU) |
| 11  | CH V (RLGV) |
| 12  | CH W (RLGW) |

**Option 1 with brake**

**Motor Brake Connector 270-00032 (PT02E-16-8P(027))**

| Pin | Function  |
|-----|---|
| A   | $\phi$ R  |
| B   | $\phi$ S  |
| C   | $\phi$ T  |
| D   | PE GND  |
| E   | BRK SHLD  |
| F   | BRK (+)  |
| G   | BRK (-)  |
| H   | -   |

**Option 3-Consult Factory**

# 4" Frame Brushless Servo Motors



## Motor Data (Sine)

| Motor Parameters                       |          | Units                           | 1141ASG****                                  | 1141BSG****   |
|--|----------|---------------------------------|--|---------------|
| Horsepower                             | Hp Rated | Hp                              | 2.1  | 1.2           |
| Kilowatts                              | KW Rated | KW                              | 1.60   | .88           |
| Max. Operating Speed                   | N Max    | RPM                             | 4200   | 2100          |
| Speed @ Rated Torque                   | N Rated  | RPM                             | 3000   | 1500          |
| *Continuous Rated Torque @ Rated Speed |          | IN-LBS[Nm]                      | 45.0[5.1]                                    | 50.0[5.6]     |
| *Continuous Stall Torque               |          | IN-LBS[Nm]                      | 54.0[6.1]                                    | 54.0[6.1]     |
| Continuous Line Current                |          | AMPS(RMS/φ)                     | 6.2  | 3.1           |
| Peak Torque                            | Tpk      | IN-LBS[Nm]                      | 189.0[21.3]                                  | 189.0[21.3]   |
| Peak Current                           |          | AMPS(RMS/φ)                     | 21.6   | 10.8          |
| Max. Theoretical Accel.                |          | RAD/SEC <sup>2</sup>            | 54,000                                       | 54,000        |
| Torque Sensitivity                     |          | Kt                              | 8.8[.99]                                     | 17.5[1.98]    |
| Back EMF (Line to Line)                |          | IN-LBS/AMP(RMS/φ)[Nm/AMP(RMSφ)] | 8.8[.99]                                     | 17.5[1.98]    |
| Back EMF (Line to Line)                |          | ±10% Vrms/Krpm                  | 55.0   | 110.0         |
| D.C.Resistance (P-P)                   |          | ±10% OHMS                       | 0.83   | 3.3           |
| Inductance (P-P)                       |          | ±10% MILLIHENRIES               | 6.1  | 24.4          |
| Rotor Inertia                          |          | Jm                              | IN-LBS-SEC <sup>2</sup> [Kg-M <sup>2</sup> ] | .0035[.00039] |
| Static Friction                        |          | Tf                              | IN-LBS[Nm]                                   | 1.0[0.11]     |
| Motor Weight                           |          | LBS[Kg]                         | 19.4[8.8]                                    | 19.4[8.8]     |
| Line Voltage                           |          | VAC                             | 230  | 230           |

| Motor Parameters                       |          | Units                           | 1142ASG****                                  | 1142BSG****   | 1143ASG****   | 1143BSG****   |
|--|----------|---------------------------------|--|---------------|---------------|---------------|
| Horsepower                             | Hp Rated | Hp                              | 3.3  | 1.8           | 4.6           | 2.4           |
| Kilowatts                              | KW Rated | KW                              | 2.5  | 1.33          | 3.4           | 1.8           |
| Max. Operating Speed                   | N Max    | RPM                             | 4200   | 2100          | 4200          | 2100          |
| Speed @ Rated Torque                   | N Rated  | RPM                             | 3000   | 1500          | 3000          | 1500          |
| *Continuous Rated Torque @ Rated Speed |          | IN-LBS[Nm]                      | 69.1[7.8]                                    | 75.0[8.4]     | 96.8[10.9]    | 104.0[11.7]   |
| *Continuous Stall Torque               |          | IN-LBS[Nm]                      | 83.0[9.3]                                    | 83.0[9.3]     | 116.2[13.1]   | 116.2[13.1]   |
| Continuous Line Current                |          | AMPS(RMS/φ)                     | 9.5  | 4.7           | 13.2          | 6.6           |
| Peak Torque                            | Tpk      | IN-LBS[Nm]                      | 290.5[32.7]                                  | 290.5[32.7]   | 406.7[45.7]   | 406.7[45.7]   |
| Peak Current                           |          | AMPS(RMS/φ)                     | 33.1   | 16.5          | 46.4          | 23.2          |
| Max. Theoretical Accel.                |          | RAD/SEC <sup>2</sup>            | 44,015                                       | 44,015        | 42,811        | 42,811        |
| Torque Sensitivity                     |          | Kt                              | 8.8[.99]                                     | 17.5[1.98]    | 8.8[.99]      | 17.5[1.98]    |
| Back EMF (Line to Line)                |          | IN-LBS/AMP(RMS/φ)[Nm/AMP(RMSφ)] | 8.8[.99]                                     | 17.5[1.98]    | 8.8[.99]      | 17.5[1.98]    |
| Back EMF (Line to Line)                |          | ±10% Vrms/Krpm                  | 55.0   | 110.0         | 55.0          | 110.0         |
| D.C.Resistance (P-P)                   |          | ±10% OHMS                       | .40  | 1.8           | .27           | 1.1           |
| Inductance (P-P)                       |          | ±10% MILLIHENRIES               | 2.8  | 12.6          | 2.0           | 8.1           |
| Rotor Inertia                          |          | Jm                              | IN-LBS-SEC <sup>2</sup> [Kg-M <sup>2</sup> ] | .0066[.00074] | .0066[.00074] | .0095[.00107] |
| Static Friction                        |          | Tf                              | IN-LBS[Nm]                                   | 1.4[0.16]     | 1.4[0.16]     | 1.8[0.2]      |
| Motor Weight                           |          | LBS[Kg]                         | 27.6[12.5]                                   | 27.6[12.5]    | 37.0[16.8]    | 37.0[16.8]    |
| Line Voltage                           |          | VAC                             | 230  | 230           | 230           | 230           |

### Brake Info

Min. Holding Torque: 240 IN-LBS  
 Input Voltage: 24VDC  
 Current : .88 AMPS  
 Inertia: .000412 IN-LB-SEC<sup>2</sup>  
 Weight Adder: 6 LBS

\*25° C Ambient with a maximum case temperature of 100° C on motor. Motor mounted on a 12" x 12" x 1/2" aluminum heatsink. Thermostat in stator windings will open if winding temperature exceeds 155° C. This allows +10% headroom in the continuous torque rating before thermostat opens.

#### Mechanical Notes:

1. Axial Load: 50 LBS. Max.
2. Radial Load: 100 LBS. Max. @ 1" from face
3. Motor Sealed to IP65

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Motor Data (Trap)

| Motor Parameters                       |          | Units  | 1141ATG****   | 1141BTG****   |
|--|----------|--|---------------|---------------|
| Horsepower                             | Hp Rated | Hp   | 2.1           | 1.2           |
| Kilowatts                              | KW Rated | KW   | 1.6           | .88           |
| Max. Operating Speed                   | N Max    | RPM  | 4200          | 2100          |
| Speed @ Rated Torque                   | N Rated  | RPM  | 3000          | 1500          |
| *Continuous Rated Torque @ Rated Speed |          | IN-LBS[Nm]                                   | 45.0[5.1]     | 50.0[5.6]     |
| *Continuous Stall Torque               |          | IN-LBS[Nm]                                   | 54.0[6.1]     | 54.0[6.1]     |
| Continuous Line Current                |          | AMPS   | 8.7           | 4.4           |
| Peak Torque                            | Tpk      | IN-LBS[Nm]                                   | 189.0[21.3]   | 189.0[21.3]   |
| Peak Current                           |          | AMPS   | 30.5          | 15.3          |
| Max. Theoretical Accel.                |          | RAD/SEC <sup>2</sup>                         | 54,000        | 54,000        |
| Torque Sensitivity                     | Kt       | IN-LBS/AMP[Nm/AMP]                           | 6.2[0.71]     | 12.4[1.40]    |
| Back EMF (Line to Line)                | ±10%     | Vrms/Krpm                                    | 55.0          | 110.0         |
| D.C. Resistance (P-P)                  | ±10%     | OHMS   | .82           | 3.3           |
| Inductance (P-P)                       | ±10%     | MILLIHENRIES                                 | 6.1           | 24.4          |
| Rotor Inertia                          | Jm       | IN-LBS-SEC <sup>2</sup> [Kg-M <sup>2</sup> ] | .0035[.00039] | .0035[.00039] |
| Static Friction                        | Tf       | IN-LBS[Nm]                                   | 1.0[0.11]     | 1.0[0.11]     |
| Motor Weight                           |          | LBS[Kg]                                      | 19.4[8.8]     | 19.4[8.8]     |
| Line Voltage                           |          | VAC  | 230           | 230           |

| Motor Parameters                       |          | Units  | 1142ATG****   | 1142BTG****   | 1143ATG****   | 1143BTG****   |
|--|----------|--|---------------|---------------|---------------|---------------|
| Horsepower                             | Hp Rated | Hp   | 3.3           | 1.8           | 4.6           | 2.4           |
| Kilowatts                              | KW Rated | KW   | 2.5           | 1.3           | 3.4           | 1.8           |
| Max. Operating Speed                   | N Max    | RPM  | 4200          | 2100          | 4200          | 2100          |
| Speed @ Rated Torque                   | N Rated  | RPM  | 3000          | 1500          | 3000          | 1500          |
| *Continuous Rated Torque @ Rated Speed |          | IN-LBS[Nm]                                   | 69.1[7.8]     | 75.0[8.4]     | 96.8[10.9]    | 104.0[11.7]   |
| *Continuous Stall Torque               |          | IN-LBS[Nm]                                   | 83.0[9.3]     | 83.0[9.3]     | 116.2[13.1]   | 116.2[13.1]   |
| Continuous Line Current                |          | AMPS   | 13.4          | 6.7           | 18.7          | 9.4           |
| Peak Torque                            | Tpk      | IN-LBS[Nm]                                   | 290.5[32.7]   | 290.5[32.7]   | 406.7[45.7]   | 406.7[45.7]   |
| Peak Current                           |          | AMPS   | 46.8          | 23.4          | 65.6          | 32.8          |
| Max. Theoretical Accel.                |          | RAD/SEC <sup>2</sup>                         | 44,015        | 44,015        | 42,811        | 42,811        |
| Torque Sensitivity                     | Kt       | IN-LBS/AMP[Nm/AMP]                           | 6.2[0.71]     | 12.4[1.40]    | 6.2[0.71]     | 12.4[1.40]    |
| Back EMF (Line to Line)                | ±10%     | Vrms/Krpm                                    | 55.0          | 110.0         | 55.0          | 110.0         |
| D.C. Resistance (P-P)                  | ±10%     | OHMS   | .40           | 1.8           | .27           | 1.1           |
| Inductance (P-P)                       | ±10%     | MILLIHENRIES                                 | 2.8           | 12.6          | 2.0           | 8.1           |
| Rotor Inertia                          | Jm       | IN-LBS-SEC <sup>2</sup> [Kg-M <sup>2</sup> ] | .0066[.00074] | .0066[.00074] | .0095[.00107] | .0095[.00107] |
| Static Friction                        | Tf       | IN-LBS[Nm]                                   | 1.4[0.16]     | 1.4[0.16]     | 1.8[0.2]      | 1.8[0.2]      |
| Motor Weight                           |          | LBS[Kg]                                      | 27.6[12.5]    | 27.6[12.5]    | 37.0[16.8]    | 37.0[16.8]    |
| Line Voltage                           |          | VAC  | 230           | 230           | 230           | 230           |

Brake Info:

Min. Holding Torque: 240IN-LBS  
 Input Voltage: 24VDC  
 Current : .88 AMPS  
 Inertia : .000412IN-LB-SEC<sup>2</sup>  
 Weight Adder: 6 LBS

\*25° C Ambient with a maximum case temperature of 100° C on motor. Motor mounted on a 12" x 12" x 1/2" aluminum heatsink. Thermostat in stator windings will open if winding temperature exceeds 155° C. This allows +10% headroom in the continuous torque rating before thermostat opens.

Mechanical Notes:

1. Axial Load: 50 LBS. Max.
2. Radial Load: 100 LBS. Max. @ 1" from face
3. Motor Sealed to IP65

**Motor Data (Sine)**

| Motor Parameters                       |          | Units  | 1141CSJ****   | 1141DSJ****   |
|--|----------|--|---------------|---------------|
| Horsepower                             | Hp Rated | Hp   | 2.1           | 1.2           |
| Kilowatts                              | KW Rated | KW   | 1.6           | .88           |
| Max. Operating Speed                   | N Max    | RPM  | 4200          | 2100          |
| Speed @ Rated Torque                   | N Rated  | RPM  | 3000          | 1500          |
| *Continuous Rated Torque @ Rated Speed |          | IN-LBS[Nm]                                   | 45.0[5.1]     | 50.0[5.6]     |
| *Continuous Stall Torque               |          | IN-LBS[Nm]                                   | 54.0[6.1]     | 54.0[6.1]     |
| Continuous Line Current                |          | AMPS(RMS/φ)                                  | 3.1           | 1.6           |
| Peak Torque                            | Tpk      | IN-LBS[Nm]                                   | 189.0[21.3]   | 189.0[21.3]   |
| Peak Current                           |          | AMPS(RMS/φ)                                  | 10.8          | 5.4           |
| Max. Theoretical Accel.                |          | RAD/SEC <sup>2</sup>                         | 54,000        | 54,000        |
| Torque Sensitivity                     | Kt       | IN-LBS/AMP(RMS/φ)[Nm/AMP(RMS/φ)]             | 17.5[1.98]    | 34.9[3.94]    |
| Back EMF (Line to Line)                | ±10%     | Vrms/Krpm                                    | 110.0         | 220.0         |
| D.C. Resistance (P-P)                  | ±10%     | OHMS   | 3.2           | 13.3          |
| Inductance (P-P)                       | ±10%     | MILLIHENRIES                                 | 24.0          | 99.0          |
| Rotor Inertia                          | Jm       | IN-LBS-SEC <sup>2</sup> [Kg-M <sup>2</sup> ] | .0035[.00039] | .0035[.00039] |
| Static Friction                        | Tf       | IN-LBS[Nm]                                   | 1.0[0.11]     | 1.0[0.11]     |
| Motor Weight                           |          | LBS[Kg]                                      | 19.4[8.8]     | 19.4[8.8]     |
| Line Voltage                           |          | VAC  | 460           | 460           |

| Motor Parameters                       |          | Units  | 1142CSJ****   | 1142DSJ****   | 1143CSJ****   | 1143DSJ****   |
|--|----------|--|---------------|---------------|---------------|---------------|
| Horsepower                             | Hp Rated | Hp   | 3.3           | 1.8           | 4.6           | 2.4           |
| Kilowatts                              | KW Rated | KW   | 2.5           | 1.3           | 3.4           | 1.8           |
| Max. Operating Speed                   | N Max    | RPM  | 4200          | 2100          | 4200          | 2100          |
| Speed @ Rated Torque                   | N Rated  | RPM  | 3000          | 1500          | 3000          | 1500          |
| *Continuous Rated Torque @ Rated Speed |          | IN-LBS[Nm]                                   | 69.1[7.8]     | 75.0[8.4]     | 96.8[10.9]    | 104.0[11.7]   |
| *Continuous Stall Torque               |          | IN-LBS[Nm]                                   | 83.0[9.3]     | 83.0[9.3]     | 116.2[13.1]   | 116.2[13.1]   |
| Continuous Line Current                |          | AMPS(RMS/φ)                                  | 4.7           | 2.3           | 6.6           | 3.3           |
| Peak Torque                            | Tpk      | IN-LBS[Nm]                                   | 290.5[32.7]   | 290.5[32.7]   | 406.7[45.7]   | 406.7[45.7]   |
| Peak Current                           |          | AMPS(RMS/φ)                                  | 16.5          | 8.3           | 23.2          | 11.6          |
| Max. Theoretical Accel.                |          | RAD/SEC <sup>2</sup>                         | 44,015        | 44,015        | 42,811        | 42,811        |
| Torque Sensitivity                     | Kt       | IN-LBS/AMP(RMS/φ)[Nm/AMP(RMS/φ)]             | 17.5[1.98]    | 34.9[3.94]    | 17.5[1.98]    | 34.9[3.94]    |
| Back EMF (Line to Line)                | ±10%     | Vrms/Krpm                                    | 110.0         | 220.0         | 110.0         | 220.0         |
| D.C. Resistance (P-P)                  | ±10%     | OHMS   | 1.8           | 6.3           | 1.0           | 3.9           |
| Inductance (P-P)                       | ±10%     | MILLIHENRIES                                 | 12.1          | 47.4          | 7.8           | 29.6          |
| Rotor Inertia                          | Jm       | IN-LBS-SEC <sup>2</sup> [Kg-M <sup>2</sup> ] | .0066[.00074] | .0066[.00074] | .0095[.00107] | .0095[.00107] |
| Static Friction                        | Tf       | IN-LBS[Nm]                                   | 1.4[0.16]     | 1.4[0.16]     | 1.8[0.2]      | 1.8[0.2]      |
| Motor Weight                           |          | LBS[Kg]                                      | 27.6[12.5]    | 27.6[12.5]    | 37.0[16.8]    | 37.0[16.8]    |
| Line Voltage                           |          | VAC  | 460           | 460           | 460           | 460           |

**Brake Info:**

Min. Holding Torque: 240 IN-LBS  
 Input Voltage: 24VDC  
 Current : .88 AMPS  
 Inertia : .000412 IN-LB-SEC<sup>2</sup>  
 Weight Adder: 6 LBS

\*25° C Ambient with a maximum case temperature of 100° C on motor. Motor mounted on a 12" x 12" x 1/2" aluminum heatsink. Thermostat in stator windings will open if winding temperature exceeds 155° C. This allows +10% headroom in the continuous torque rating before thermostat opens.

Mechanical Notes:

1. Axial Load: 50 LBS. Max.
2. Radial Load: 100 LBS. Max. @ 1" from face
3. Motor Sealed to IP65

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**Motor Data (Trap)**

| Motor Parameters                       |          | Units  | 1141CTJ****   | 1141DTJ****   |
|--|----------|--|---------------|---------------|
| Horsepower                             | Hp Rated | Hp   | 2.1           | 1.2           |
| Kilowatts                              | KW Rated | KW   | 1.6           | .88           |
| Max. Operating Speed                   | N Max    | RPM  | 4200          | 2100          |
| Speed @ Rated Torque                   | N Rated  | RPM  | 3000          | 1500          |
| *Continuous Rated Torque @ Rated Speed |          | IN-LBS[Nm]                                   | 45.0[5.1]     | 50.0[5.6]     |
| *Continuous Stall Torque               |          | IN-LBS[Nm]                                   | 54.0[6.1]     | 54.0[6.1]     |
| Continuous Line Current                |          | AMPS   | 4.4           | 2.2           |
| Peak Torque                            | Tpk      | IN-LBS[Nm]                                   | 189.0[21.3]   | 189.0[21.3]   |
| Peak Current                           |          | AMPS   | 15.3          | 7.6           |
| Max. Theoretical Accel.                |          | RAD/SEC <sup>2</sup>                         | 54,000        | 54,000        |
| Torque Sensitivity                     | Kt       | IN-LBS/AMP[Nm/AMP]                           | 12.4[1.40]    | 24.7[2.79]    |
| Back EMF (Line to Line)                | ±10%     | Vrms/Krpm                                    | 1100          | 220.0         |
| D.C.Resistance (P-P)                   | ±10%     | OHMS   | 3.2           | 13.3          |
| Inductance (P-P)                       | ±10%     | MILLIHENRIES                                 | 24.0          | 99.0          |
| Rotor Inertia                          | Jm       | IN-LBS-SEC <sup>2</sup> [Kg-M <sup>2</sup> ] | .0035[.00039] | .0035[.00039] |
| Static Friction                        | Tf       | IN-LBS[Nm]                                   | 1.0[0.11]     | 1.0[0.11]     |
| Motor Weight                           |          | LBS[Kg]                                      | 19.4[8.8]     | 19.4[8.8]     |
| Line Voltage                           |          | VAC  | 460           | 460           |

| Motor Parameters                       |          | Units  | 1142CTJ****   | 1142DTJ****   | 1143CTJ****   | 1143DTJ****   |
|--|----------|--|---------------|---------------|---------------|---------------|
| Horsepower                             | Hp Rated | Hp   | 3.3           | 1.8           | 4.6           | 2.4           |
| Kilowatts                              | KW Rated | KW   | 2.5           | 1.3           | 3.4           | 1.8           |
| Max. Operating Speed                   | N Max    | RPM  | 4200          | 2100          | 4200          | 2100          |
| Speed @ Rated Torque                   | N Rated  | RPM  | 3000          | 1500          | 3000          | 1500          |
| *Continuous Rated Torque @ Rated Speed |          | IN-LBS[Nm]                                   | 69.1[7.8]     | 75.0[8.4]     | 96.8[10.9]    | 104.0[11.7]   |
| *Continuous Stall Torque               |          | IN-LBS[Nm]                                   | 83.0[9.3]     | 83.0[9.3]     | 116.2[13.1]   | 116.2[13.1]   |
| Continuous Line Current                |          | AMPS   | 6.7           | 3.3           | 9.4           | 4.7           |
| Peak Torque                            | Tpk      | IN-LBS[Nm]                                   | 290.5[32.7]   | 290.5[32.7]   | 406.7[45.7]   | 406.7[45.7]   |
| Peak Current                           |          | AMPS   | 23.4          | 11.7          | 32.8          | 16.4          |
| Max. Theoretical Accel.                |          | RAD/SEC <sup>2</sup>                         | 44,015        | 44,015        | 42,811        | 42,811        |
| Torque Sensitivity                     | Kt       | IN-LBS/AMP[Nm/AMP]                           | 12.4[1.40]    | 24.7[2.79]    | 12.4[1.40]    | 24.7[2.79]    |
| Back EMF (Line to Line)                | ±10%     | Vrms/Krpm                                    | 1100          | 2200          | 1100          | 2200          |
| D.C.Resistance (P-P)                   | ±10%     | OHMS   | 1.8           | 6.3           | 1.0           | 3.9           |
| Inductance (P-P)                       | ±10%     | MILLIHENRIES                                 | 12.1          | 47.4          | 7.8           | 29.6          |
| Rotor Inertia                          | Jm       | IN-LBS-SEC <sup>2</sup> [Kg-M <sup>2</sup> ] | .0066[.00074] | .0066[.00074] | .0095[.00107] | .0095[.00107] |
| Static Friction                        | Tf       | IN-LBS[Nm]                                   | 1.40[.16]     | 1.4[0.16]     | 1.8[0.2]      | 1.8[0.2]      |
| Motor Weight                           |          | LBS[Kg]                                      | 27.6[12.5]    | 27.6[12.5]    | 37.0[16.8]    | 37.0[16.8]    |
| Line Voltage                           |          | VAC  | 460           | 460           | 460           | 460           |

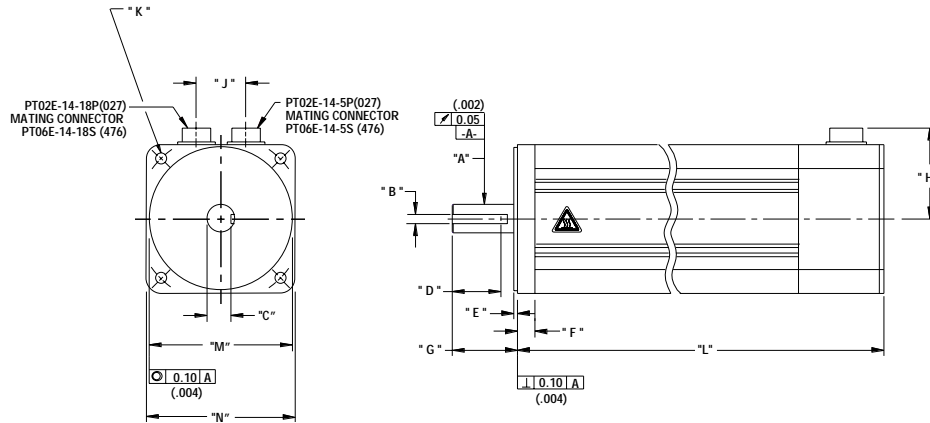
**Brake Info:**

Min. Holding Torque: 240IN-LBS  
 Input Voltage: 24VDC  
 Current : .88AMPS  
 Inertia : .000412IN-LB-SEC<sup>2</sup>  
 Weight Adder: 6 LBS

\*25° C Ambient with a maximum case temperature of 100° C on motor. Motor mounted on a 12" x 12" x 1/2" aluminum heatsink. Thermostat in stator windings will open if winding temperature exceeds 155° C. This allows +10% headroom in the continuous torque rating before thermostat opens.

Mechanical Notes:

1. Axial Load: 50 LBS. Max.
2. Radial Load: 100 LBS. Max. @ 1" from face
3. Motor Sealed to IP65



**4" (114) English and Metric Connectorized Termination-Option 1 Motors**

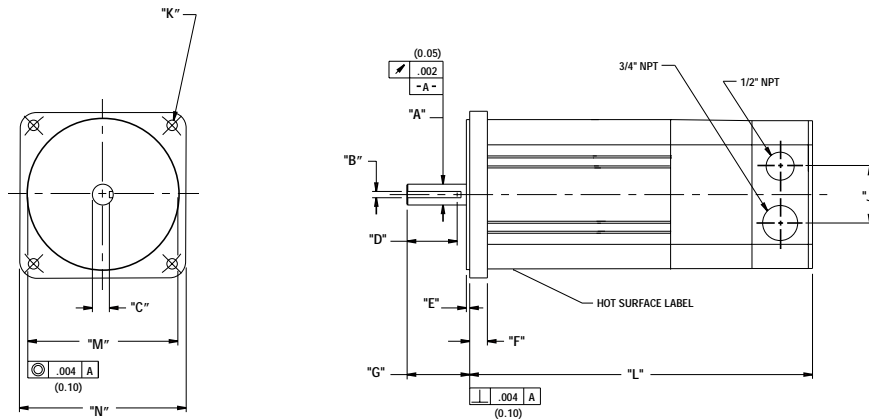
| Model          | "A"                              | "B"                          | "C"         | "D"           | "E"      | "F"       | "G"                      |
|----------------|----------------------------------|------------------------------|-------------|---------------|----------|-----------|--------------------------|
| MPM1141***6*** | ∅ .6245(15.862)<br>.6241(15.852) | .1890(4.801)<br>.1875(4.763) | .509(12.93) | 1.5(38.1)Min  | .10(2.5) | .53(13.5) | 1.90(48.2)<br>1.86(47.1) |
| MPM1141***7*** | ∅ 18.999(.7480)<br>18.987(.7475) | 5.99(.236)<br>5.97(.235)     | 15.49(.610) | 37.0(1.46)Min | 3.0(.12) | 13.0(.51) | 50.5(1.99)<br>49.5(1.95) |
| MPM1142***6*** | ∅ .8750(22.225)<br>.8745(22.212) | .1890(4.801)<br>.1875(4.763) | .774(19.65) | 1.5(38.1)Min  | .10(2.5) | .53(13.5) | 1.90(48.2)<br>1.86(47.1) |
| MPM1142***7*** | ∅ 24.000(.9449)<br>23.988(.9444) | 7.998(.3149)<br>7.963(.3135) | 19.90(.784) | 37.0(1.46)Min | 3.0(.12) | 13.0(.51) | 50.5(1.99)<br>49.5(1.95) |
| MPM1143***6*** | ∅ .8750(22.225)<br>.8745(22.212) | .1890(4.801)<br>.1875(4.763) | .774(19.65) | 1.5(38.1)Min  | .10(2.5) | .53(13.5) | 1.90(48.2)<br>1.86(47.1) |
| MPM1143***7*** | ∅ 24.000(.9449)<br>23.988(.9444) | 7.998(.3149)<br>7.963(.3135) | 19.90(.784) | 37.0(1.46)Min | 3.0(.12) | 13.0(.51) | 50.5(1.99)<br>49.5(1.95) |

| Model          | "H"        | "J"       | "K"   | "L"             | "L" w/ Brake | "M"                              | "N"           |
|----------------|------------|-----------|---|-----------------|--------------|----------------------------------|---------------|
| MPM1141***6*** | 2.8(71)Max | 1.5(38.0) | 3/8-16UNC-2B THRU (4)EQ SPD<br>AS SHOWN ON ∅5.875(149.23)B.C. | 8.61(218.7)Max  | 10.61(269.5) | ∅ 4.500(114.30)<br>4.499(114.27) | □ 5.00(127.0) |
| MPM1141***7*** | 71(2.8)Max | 38.0(1.5) | ∅9.18(.362)THRU (4)EQ SPD<br>AS SHOWN ON ∅130.00(5.118)B.C.   | 218.2(8.59)Max  | 269.0(10.59) | ∅ 110.01(4.331)<br>109.98(4.330) | □ 114.3(4.50) |
| MPM1142***6*** | 2.8(71)Max | 1.5(38.0) | 3/8-16UNC-2B THRU (4)EQ SPD<br>AS SHOWN ON ∅5.875(149.23)B.C. | 11.11(282.2)Max | 13.11(333.0) | ∅ 4.500(114.30)<br>4.499(114.27) | □ 5.00(127.0) |
| MPM1142***7*** | 71(2.8)Max | 38.0(1.5) | ∅9.18(.362)THRU (4)EQ SPD<br>AS SHOWN ON ∅130.00(5.118)B.C.   | 281.7(11.09)Max | 332.5(13.09) | ∅ 110.01(4.331)<br>109.98(4.330) | □ 114.3(4.50) |
| MPM1143***6*** | 2.8(71)Max | 1.5(38.0) | 3/8-16UNC-2B THRU (4)EQ SPD<br>AS SHOWN ON ∅5.875(149.23)B.C. | 13.61(345.7)Max | 15.61(396.5) | ∅ 4.500(114.30)<br>4.499(114.27) | □ 5.00(127.0) |
| MPM1143***7*** | 71(2.8)Max | 38.0(1.5) | ∅9.18(.362)THRU (4)EQ SPD<br>AS SHOWN ON ∅130.00(5.118)B.C.   | 345.2(13.59)Max | 396.0(15.59) | ∅ 110.01(4.331)<br>109.98(4.330) | □ 114.3(4.50) |

English = 6 Units: in (mm)  
 Metric = 7 Units: mm (in)

For Mechanical Dimensions on Termination Option 2 Consult Factory.

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**4" (114) English and Metric NPT Termination-Option 3 Motors**

| Model          | "A"                                | "B"                          | "C"         | "D"           | "E"      | "F"       | "G"                      |
|----------------|------------------------------------|------------------------------|-------------|---------------|----------|-----------|--------------------------|
| MPM1141***6*** | ∅ .6245(15.862)<br>∅ .6241(15.852) | .1890(4.801)<br>.1875(4.763) | .509(12.93) | 1.5(38.1)Min  | .10(2.5) | .53(13.5) | 1.90(48.2)<br>1.86(47.1) |
| MPM1141***7*** | ∅ 18.999(.7480)<br>∅ 18.987(.7475) | 5.99(.236)<br>5.97(.235)     | 15.49(.610) | 37.0(1.46)Min | 3.0(.12) | 13.0(.51) | 50.5(1.99)<br>49.5(1.95) |
| MPM1142***6*** | ∅ .8750(22.225)<br>∅ .8745(22.212) | .1890(4.801)<br>.1875(4.763) | .774(19.65) | 1.5(38.1)Min  | .10(2.5) | .53(13.5) | 1.90(48.2)<br>1.86(47.1) |
| MPM1142***7*** | ∅ 24.000(.9449)<br>∅ 23.988(.9444) | 7.998(.3149)<br>7.963(.3135) | 19.90(.784) | 37.0(1.46)Min | 3.0(.12) | 13.0(.51) | 50.5(1.99)<br>49.5(1.95) |
| MPM1143***6*** | ∅ .8750(22.225)<br>∅ .8745(22.212) | .1890(4.801)<br>.1875(4.763) | .774(19.65) | 1.5(38.1)Min  | .10(2.5) | .53(13.5) | 1.90(48.2)<br>1.86(47.1) |
| MPM1143***7*** | ∅ 24.000(.9449)<br>∅ 23.988(.9444) | 7.998(.3149)<br>7.963(.3135) | 19.90(.784) | 37.0(1.46)Min | 3.0(.12) | 13.0(.51) | 50.5(1.99)<br>49.5(1.95) |

| Model          | "J"        | "K"  | "L"             | "L" w/ Brake  | "M"                              | "N"           |
|----------------|------------|--|-----------------|---------------|----------------------------------|---------------|
| MPM1141***6*** | 1.71(43.4) | 3/8-16UNC-2B THRU (4)EQ SPD<br>AS SHOWN ON ∅5.875(149.23) B.C. | 10.30(261.6)Max | 12.30(312.42) | ∅ 4.500(114.30)<br>4.499(114.27) | □ 5.00(127.0) |
| MPM1141***7*** | 43.4(1.71) | ∅9.18(.362)THRU (4)EQ SPD<br>AS SHOWN ON ∅130.00(5.118) B.C.   | 261.0(10.28)Max | 311.9(12.28)  | ∅ 110.00(4.331)<br>109.98(4.330) | □ 114.3(4.50) |
| MPM1142***6*** | 1.71(43.4) | 3/8-16UNC-2B THRU (4)EQ SPD<br>AS SHOWN ON ∅5.875(149.23) B.C. | 12.80(325.1)Max | 14.80(375.92) | ∅ 4.500(114.30)<br>4.499(114.27) | □ 5.00(127.0) |
| MPM1142***7*** | 43.4(1.71) | ∅9.18(.362)THRU (4)EQ SPD<br>AS SHOWN ON ∅130.00(5.118) B.C.   | 324.5(12.78)Max | 375.4(14.78)  | ∅ 110.00(4.331)<br>109.98(4.330) | □ 114.3(4.50) |
| MPM1143***6*** | 1.71(43.4) | 3/8-16UNC-2B THRU (4)EQ SPD<br>AS SHOWN ON ∅5.875(149.23) B.C. | 15.30(388.6)Max | 17.30(439.42) | ∅ 4.500(114.30)<br>4.499(114.27) | □ 5.00(127.0) |
| MPM1143***7*** | 43.4(1.71) | ∅9.18(.362)THRU (4)EQ SPD<br>AS SHOWN ON ∅130.00(5.118) B.C.   | 388.0(15.28)Max | 438.9(17.28)  | ∅ 110.00(4.331)<br>109.98(4.330) | □ 114.3(4.50) |

English = 6 Units: in (mm)  
 Metric = 7 Units: mm (in)

For Mechanical Dimensions on Termination Option 2 Consult Factory.



**4" Motor with Resolver Feedback**

**Option 1**

**Motor Connector 270-00026 (PT02E-14-5P(027))**

| Pin | Function |
|-----|----------|
| A   | $\phi$ R |
| B   | $\phi$ S |
| C   | $\phi$ T |
| D   | PE GND   |
| E   | -        |

**Resolver Connector 270-00024 (PT02E-14-18P(027))**

| Pin | Function |
|-----|----------|
| U   | THERM    |
| N   | THERM    |
| H   | SIN      |
| G   | COS GND  |
| S   | COS      |
| F   | SIN GND  |
| R   | REF GND  |
| E   | REF      |
| D   | RES SHLD |
| P   | GND      |
| A   | -        |
| B   | -        |
| C   | -        |
| J   | -        |
| K   | -        |
| L   | -        |
| M   | -        |
| T   | -        |

**\* Option 1 with brake**

**Motor Brake Connector 270-00032 (PT02E-16-8P(027))**

| Pin | Function |
|-----|----------|
| A   | $\phi$ R |
| B   | $\phi$ S |
| C   | $\phi$ T |
| D   | PE GND   |
| E   | BRK SHLD |
| F   | BRK (+)  |
| G   | BRK (-)  |
| H   | -        |

**Option 2**

**Motor Brake Connector 270-00256 (BEGA0589NN000009000)**

| Pin | Function      |
|-----|---------------|
| 1   | $\phi$ R (U1) |
| 2   | PE GND        |
| 3   | $\phi$ T (W1) |
| 4   | $\phi$ S (V1) |
| *A  | BRK (+)       |
| *B  | BRK (-)       |
| C   | THERM         |
| D   | THERM         |

**\* USE ONLY WITH BRAKE OPTION**

**Resolver Connector 270-00257 (AEGA052NN0000013000)**

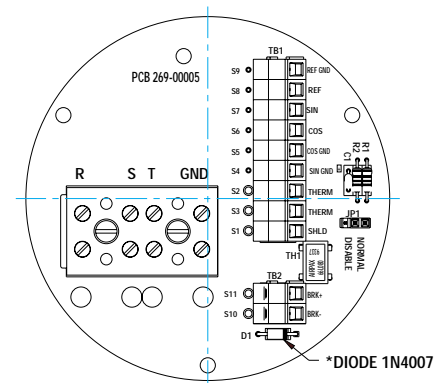
| Pin | Function     |
|-----|--------------|
| 1   | -            |
| 2   | REF (R1)     |
| 3   | REF GND (R2) |
| 4   | COS GND (S1) |
| 5   | COS (S3)     |
| 6   | SIN (S2)     |
| 7   | SIN GND (S4) |
| 8   | -            |
| 9   | -            |
| 10  | -            |
| 11  | -            |
| 12  | -            |

**Option 3**

**Connection Chart (NPT) Resolver**

| Terminal | Function |
|----------|----------|
| R        | $\phi$ R |
| S        | $\phi$ S |
| T        | $\phi$ T |
| GND      | PE GND   |
| *S11     | BRK (+)  |
| *S10     | BRK (-)  |
| S9       | REF GND  |
| S8       | REF      |
| S7       | SIN      |
| S6       | COS      |
| S5       | COS GND  |
| S4       | SIN GND  |
| S3       | THERM    |
| S2       | THERM    |
| S1       | RES SHLD |

**\* USE ONLY WITH BRAKE OPTION**



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**4" Motor with Encoder Feedback**

**Option 1**

**Motor Connector 270-00026 (PT02E-14-5P(027))**



| Pin | Function |
|-----|----------|
| A   | $\phi$ R |
| B   | $\phi$ S |
| C   | $\phi$ T |
| D   | PE GND   |
| E   | -        |

**Encoder Connector 270-00024 (PT02E-14-18P(027))**

| Pin | Function  |
|-----|-----------|
| T   | GND       |
| K   | +5VDC     |
| B   | CH A      |
| C   | CH A\     |
| N   | CH B      |
| P   | CH B\     |
| M   | CH Z      |
| U   | CH Z\     |
| E   | CH U      |
| R   | CH U\     |
| F   | CH V      |
| S   | CH V\     |
| G   | CH W      |
| H   | CH W\     |
| D   | GND/CABLE |
| A   | THERM     |
| L   | THERM     |
| J   | GND       |

**Option 2**

**Motor Brake Connector 270-00256 (BEGA089NN00000013000)**

| Pin | Function  |
|-----|---|
| 1   | $\phi$ R (U1)   |
| 2   | PE GND  |
| 3   | $\phi$ T (W1)   |
| 4   | $\phi$ S (V1)   |
| *A  | BRK (+)  |
| *B  | BRK (-)  |
| C   | THERM   |
| D   | THERM   |



\*USE ONLY WITH BRAKE OPTION

**Encoder Connector 270-00257 (AEGA052NN00000013000)**

| Pin | Function    |
|-----|-------------|
| 1   | GND (0V)    |
| 2   | CH A\ (A)   |
| 3   | CH A (A\)   |
| 4   | CH B (B)    |
| 5   | CH B\ (B\)  |
| 6   | CH Z (Z)    |
| 7   | CH Z\ (Z\)  |
| 8   | +5V (+5V)   |
| 9   | -           |
| 10  | CH U (RLGU) |
| 11  | CH V (RLGV) |
| 12  | CH W (RLGW) |

**Option 1 with brake**

**Motor Brake Connector 270-00032 (PT02E-16-8P(027))**

| Pin | Function  |
|-----|---|
| A   | $\phi$ R  |
| B   | $\phi$ S  |
| C   | $\phi$ T  |
| D   | PE GND  |
| E   | BRK SHLD  |
| F   | BRK (+)  |
| G   | BRK (-)  |
| H   | -   |

**Option 3-Consult Factory**

# 6" Frame Brushless Servo Motors



## Motor Data (Sine)

| Motor Parameters                       |          | Units  | 1421ASG****    | 1421BSG***     | 1422ASG****    |
|--|----------|--|----------------|----------------|----------------|
| Horsepower                             | Hp Rated | Hp   | 4.4            | 2.8            | 6.8            |
| Kilowatts                              | KW Rated | KW   | 3.3            | 2.1            | 5.1            |
| Max. Operating Speed                   | N Max    | RPM  | 2700           | 1750           | 2700           |
| Speed @ Rated Torque                   | N Rated  | RPM  | 2400           | 1500           | 2400           |
| *Continuous Rated Torque @ Rated Speed |          | IN-LBS[Nm]                                   | 115.0[13.0]    | 120.0[13.5]    | 179.0[20.2]    |
| *Continuous Stall Torque               |          | IN-LBS[Nm]                                   | 130.0[14.7]    | 130.0[14.7]    | 210.0[23.7]    |
| Continuous Line Current                |          | AMPS(RMSφ)                                   | 11.6           | 6.9            | 18.7           |
| Peak Torque                            | Tpk      | IN-LBS[Nm]                                   | 390.0[43.9]    | 390.0[43.9]    | 630.0[70.8]    |
| Peak Current                           |          | AMPS(RMSφ)                                   | 33.9           | 20.9           | 56.3           |
| Max. Theoretical Accel.                |          | RAD/SEC <sup>2</sup>                         | 36,792         | 36,792         | 33,511         |
| Torque Sensitivity                     | Kt       | IN-LBS/AMP (RMSφ)[Nm/AMP(RMSφ)]              | 11.2[1.26]     | 18.8[2.06]     | 11.2[1.26]     |
| Back EMF (Line to Line)                | ±10%     | Vrms/Krpm                                    | 70.0           | 115.0          | 70.0           |
| D.C.Resistance (P-P)                   | ±10%     | OHMS   | .66            | 1.7            | .24            |
| Inductance (P-P)                       | ±10%     | MILLIHENRIES                                 | 4.7            | 12.6           | 2.0            |
| Rotor Inertia                          | Jm       | IN-LBS-SEC <sup>2</sup> [Kg-M <sup>2</sup> ] | .0106 [.00119] | .0106 [.00119] | .0188 [.00212] |
| Static Friction                        | Tf       | IN-LBS[Nm]                                   | 2.4[0.27]      | 2.4[.27]       | 3.0[0.34]      |
| Motor Weight                           |          | LBS[Kg]                                      | 36.0[16.3]     | 36.0[16.3]     | 51.0[23.1]     |
| Line Voltage                           |          | VAC  | 230            | 230            | 230            |

| Motor Parameters                       |          | Units  | 1422BSG****   | 1423ASG****   | 1423BSG****   | 1424ASG****   | 1424BSG****   |
|--|----------|--|---------------|---------------|---------------|---------------|---------------|
| Horsepower                             | Hp Rated | Hp   | 4.5           | 9.1           | 6.0           | 10.2          | 7.6           |
| Kilowatts                              | KW Rated | KW   | 3.4           | 6.8           | 4.5           | 7.6           | 5.7           |
| Max. Operating Speed                   | N Max    | RPM  | 1750          | 2700          | 1750          | 2400          | 1750          |
| Speed @ Rated Torque                   | N Rated  | RPM  | 1500          | 2400          | 1500          | 2100          | 1500          |
| *Continuous Rated Torque @ Rated Speed |          | IN-LBS[Nm]                                   | 190.0[21.3]   | 238.0[26.9]   | 252.0[28.2]   | 306.0[34.6]   | 320.0[36.0]   |
| *Continuous Stall Torque               |          | IN-LBS[Nm]                                   | 210.0[23.7]   | 280.0[31.5]   | 280.0[31.5]   | 360.0[40.7]   | 360.0[40.7]   |
| Continuous Line Current                |          | AMPS(RMS/φ)                                  | 11.2          | 25.0          | 14.9          | 24.0          | 19.2          |
| Peak Torque                            | Tpk      | IN-LBS[Nm]                                   | 630.0[70.8]   | 840.0[94.4]   | 840.0[94.4]   | 1081.0[122.2] | 1081.0[122.2] |
| Peak Current                           |          | AMPS(RMS/φ)                                  | 33.5          | 75.2          | 44.7          | 72.1          | 57.5          |
| Max. Theoretical Accel.                |          | RAD/SEC <sup>2</sup>                         | 33,511        | 30,769        | 30,769        | 30,710        | 30,710        |
| Torque Sensitivity                     | Kt       | IN-LBS/AMP (RMSφ)[Nm/AMP(RMSφ)]              | 18.2[2.06]    | 11.2[1.26]    | 18.2[2.06]    | 15.0[1.70]    | 18.2[2.06]    |
| Back EMF (Line to Line)                | ±10%     | Vrms/Krpm                                    | 115.0         | 70.0          | 115.0         | 93.0          | 115.0         |
| D.C.Resistance (P-P)                   | ±10%     | OHMS   | .72           | .13           | .45           | .18           | .26           |
| Inductance (P-P)                       | ±10%     | MILLIHENRIES                                 | 6.1           | 1.4           | 4.3           | 1.7           | 2.9           |
| Rotor Inertia                          | Jm       | IN-LBS-SEC <sup>2</sup> [Kg-M <sup>2</sup> ] | .0188[.00212] | .0273[.00308] | .0273[.00308] | .0352[.00397] | .0352[.00397] |
| Static Friction                        | Tf       | IN-LBS[Nm]                                   | 3.0[0.34]     | 3.6[0.41]     | 3.6[0.41]     | 4.2[0.47]     | 4.2[0.47]     |
| Motor Weight                           |          | LBS[Kg]                                      | 51.0[23.1]    | 66.0[29.9]    | 66.0[29.9]    | 83.0[37.7]    | 83.0[37.7]    |
| Line Voltage                           |          | VAC  | 230           | 230           | 230           | 230           | 230           |

### Brake Info:

Min. Holding Torque: 360 IN-LBS  
 Input Voltage: 24VDC  
 Current: 1.13 AMPS  
 Inertia: .00227 IN-LB-SEC<sup>2</sup>  
 Weight Added: 12 LBS

\*25° C Ambient with a maximum case temperature of 100° C on motor. Motor mounted on a 12" x 12" x 1/2" aluminum heatsink. Thermostat in stator windings will open if winding temperature exceeds 155° C. This allows for an approximate +10% headroom in the continuous torque rating before thermostat opens.

### Mechanical Notes:

1. Axial Load: 50 LBS. Max.
2. Radial Load: 150 LBS. Max. @ 1" from face
3. Motor Sealed to IP65

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**Motor Data (Trap)**

| Motor Parameters                       |          | Units  | 1421ATG****    | 1421BTG****    | 1422ATG****    | 1422BTG****    |
|--|----------|--|----------------|----------------|----------------|----------------|
| Horsepower                             | Hp Rated | Hp   | 4.4            | 2.9            | 6.8            | 4.5            |
| Kilowatts                              | KW Rated | KW   | 3.2            | 2.1            | 5.1            | 3.4            |
| Max. Operating Speed                   | N Max    | RPM  | 2700           | 1750           | 2700           | 1750           |
| Speed @ Rated Torque                   | N Rated  | RPM  | 2400           | 1500           | 2400           | 1500           |
| *Continuous Rated Torque @ Rated Speed |          | IN-LBS[Nm]                                   | 115.0 [13.0]   | 120.0 [13.5]   | 179.0 [20.2]   | 190.0 [21.3]   |
| *Continuous Stall Torque               |          | IN-LBS[Nm]                                   | 130.0 [14.7]   | 130.0 [14.7]   | 210.0 [23.7]   | 210.0 [23.7]   |
| Continuous Line Current                |          | AMPS   | 16.9           | 9.8            | 26.5           | 15.8           |
| Peak Torque                            | Tpk      | IN-LBS[Nm]                                   | 390.0 [43.9]   | 390.0 [43.9]   | 630.0 [70.8]   | 630.0 [70.8]   |
| Peak Current                           |          | AMPS   | 48.0           | 29.6           | 79.6           | 47.4           |
| Max. Theoretical Accel.                |          | RAD/SEC <sup>2</sup>                         | 36,792         | 36,792         | 33,511         | 33,511         |
| Torque Sensitivity                     | Kt       | IN-LBS/AMP[Nm/AMP]                           | 7.9 [0.89]     | 12.9 [1.46]    | 7.9 [0.89]     | 12.9 [1.46]    |
| Back EMF (Line to Line)                | ±10%     | Vrms/Krpm                                    | 70.0           | 115.0          | 70.0           | 115.0          |
| D.C. Resistance (P-P)                  | ±10%     | OHMS   | .66            | 1.7            | .24            | .72            |
| Inductance (P-P)                       | ±10%     | MILLIHENRIES                                 | 4.7            | 12.6           | 2.0            | 6.1            |
| Rotor Inertia                          | Jm       | IN-LBS-SEC <sup>2</sup> [Kg-M <sup>2</sup> ] | .0106 [.00119] | .0106 [.00119] | .0188 [.00212] | .0188 [.00212] |
| Static Friction                        | Tf       | IN-LBS[Nm]                                   | 2.4 [0.27]     | 2.4 [0.27]     | 3.0 [0.34]     | 3.0 [0.34]     |
| Motor Weight                           |          | LBS[Kg]                                      | 36.0 [16.3]    | 36.0 [16.3]    | 51.0 [23.1]    | 51.0 [23.1]    |
| Line Voltage                           |          | VAC  | 230            | 230            | 230            | 230            |

| Motor Parameters                       |          | Units  | 1423ATG****    | 1423BTG****    | 1424ATG****    | 1424BTG****    |
|--|----------|--|----------------|----------------|----------------|----------------|
| Horsepower                             | Hp Rated | Hp   | 9.1            | 6.0            | 10.2           | 7.6            |
| Kilowatts                              | KW Rated | KW   | 6.8            | 4.5            | 7.6            | 5.7            |
| Max. Operating Speed                   | N Max    | RPM  | 2700           | 1750           | 2400           | 1750           |
| Speed @ Rated Torque                   | N Rated  | RPM  | 2400           | 1500           | 2100           | 1500           |
| *Continuous Rated Torque @ Rated Speed |          | IN-LBS[Nm]                                   | 238.0 [26.9]   | 252.0 [28.2]   | 306.0 [34.6]   | 320.0 [36.0]   |
| *Continuous Stall Torque               |          | IN-LBS[Nm]                                   | 280.0 [31.5]   | 280.0 [31.5]   | 360.0 [40.7]   | 360.0 [40.7]   |
| Continuous Line Current                |          | AMPS   | 35.4           | 21.1           | 34.0           | 27.1           |
| Peak Torque                            | Tpk      | IN-LBS[Nm]                                   | 840.0 [94.4]   | 840.0 [94.4]   | 1081.0 [122.2] | 1081.0 [122.2] |
| Peak Current                           |          | AMPS   | 106.3          | 63.2           | 102.0          | 81.3           |
| Max. Theoretical Accel.                |          | RAD/SEC <sup>2</sup>                         | 30,769         | 30,769         | 30,710         | 30,710         |
| Torque Sensitivity                     | Kt       | IN-LBS/AMP[Nm/AMP]                           | 7.9 [0.89]     | 12.9 [1.46]    | 10.4 [1.2]     | 12.9 [1.46]    |
| Back EMF (Line to Line)                | ±10%     | Vrms/Krpm                                    | 70.0           | 115.0          | 93.0           | 115.0          |
| D.C. Resistance (P-P)                  | ±10%     | OHMS   | .13            | .45            | .18            | .26            |
| Inductance (P-P)                       | ±10%     | MILLIHENRIES                                 | 1.4            | 4.3            | 1.7            | 2.9            |
| Rotor Inertia                          | Jm       | IN-LBS-SEC <sup>2</sup> [Kg-M <sup>2</sup> ] | .0273 [.00308] | .0273 [.00308] | .0352 [.00397] | .0352 [.00397] |
| Static Friction                        | Tf       | IN-LBS[Nm]                                   | 3.6 [0.41]     | 3.6 [0.41]     | 4.2 [0.47]     | 4.2 [0.47]     |
| Motor Weight                           |          | LBS[Kg]                                      | 66.0 [29.9]    | 66.0 [29.9]    | 83.0 [37.7]    | 83.0 [37.7]    |
| Line Voltage                           |          | VAC  | 230            | 230            | 230            | 230            |

**Brake Info:**

Min. Holding Torque: 360IN-LBS  
 Input Voltage: 24VDC  
 Current : 1.13AMPS  
 Inertia : .00227IN-LB-SEC<sup>2</sup>  
 Weight Added: 12LBS

\*25° C Ambient with a maximum case temperature of 100° C on motor. Motor mounted on a 12" x 12" x 1/2" aluminum heatsink. Thermostat in stator windings will open if winding temperature exceeds 155° C. This allows for an approximate +10% headroom in the continuous torque rating before thermostat opens.

Mechanical Notes:

1. Axial Load: 50 LBS. Max.
2. Radial Load: 150 LBS. Max. @ 1" from face
3. Motor Sealed to IP65

**Motor Data (Sine)**

| Motor Parameters                       |          | Units  | 1421CSJ****   | 1421DSJ****   | 1422CSJ****   | 1422DSJ****   |
|--|----------|--|---------------|---------------|---------------|---------------|
| Horsepower                             | Hp Rated | Hp   | 4.9           | 2.9           | 7.5           | 4.5           |
| Kilowatts                              | KW Rated | KW   | 3.6           | 2.1           | 5.7           | 3.4           |
| Max. Operating Speed                   | N Max    | RPM  | 3400          | 1750          | 3400          | 1750          |
| Speed @ Rated Torque                   | N Rated  | RPM  | 2800          | 1500          | 2800          | 1500          |
| *Continuous Rated Torque @ Rated Speed |          | IN-LBS[Nm]                                   | 110.0[12.4]   | 120.0[13.5]   | 170.0[19.2]   | 190.0[21.3]   |
| *Continuous Stall Torque               |          | IN-LBS[Nm]                                   | 130.0[14.7]   | 130.0[14.7]   | 210.0[23.7]   | 210.0[23.7]   |
| Continuous Line Current                |          | AMPS(RMS/φ)                                  | 4 6.9         | 3.5           | 11.2          | 5.6           |
| Peak Torque                            | Tpk      | IN-LBS[Nm]                                   | 390.0[43.9]   | 390.0[43.9]   | 630.0[70.8]   | 630.0[70.8]   |
| Peak Current                           |          | AMPS(RMS/φ)                                  | 20.9          | 10.5          | 33.5          | 16.8          |
| Max. Theoretical Accel.                |          | RAD/SEC <sup>2</sup>                         | 36,792        | 36,792        | 33,511        | 33,511        |
| Torque Sensitivity                     | Kt       | IN-LBS/AMP (RMS/φ)[Nm/AMP (RMS/φ)]           | 18.2[2.1]     | 36.5[4.1]     | 18.2[2.1]     | 36.5[4.1]     |
| Back EMF (Line to Line)                | ±10%     | Vrms/Krpm                                    | 115.0         | 230.0         | 115.0         | 230.0         |
| D.C.Resistance (P-P)                   | ±10%     | OHMS   | 1.9           | 7.1           | .68           | 2.5           |
| Inductance (P-P)                       | ±10%     | MILLIHENRIES                                 | 13.0          | 52.3          | 5.6           | 23.0          |
| Rotor Inertia                          | Jm       | IN-LBS-SEC <sup>2</sup> [Kg-M <sup>2</sup> ] | .0106[.00119] | .0106[.00119] | .0188[.00212] | .0188[.00212] |
| Static Friction                        | Tf       | IN-LBS[Nm]                                   | 2.4[0.27]     | 2.4[0.27]     | 3.0[0.34]     | 3.0[0.34]     |
| Motor Weight                           |          | LBS[Kg]                                      | 36.0[16.3]    | 36.0[16.3]    | 51.0[23.1]    | 51.0[23.1]    |
| Line Voltage                           |          | VAC  | 460           | 460           | 460           | 460           |

| Motor Parameters                       |          | Units  | 1423CSJ****   | 1423DSJ****   | 1424CSJ****   | 1424DSJ****   |
|--|----------|--|---------------|---------------|---------------|---------------|
| Horsepower                             | Hp Rated | Hp   | 9.8           | 6.0           | 12.4          | 7.6           |
| Kilowatts                              | KW Rated | KW   | 7.3           | 4.5           | 9.3           | 5.7           |
| Max. Operating Speed                   | N Max    | RPM  | 3400          | 1750          | 3400          | 1750          |
| Speed @ Rated Torque                   | N Rated  | RPM  | 2800          | 1500          | 2800          | 1500          |
| *Continuous Rated Torque @ Rated Speed |          | IN-LBS[Nm]                                   | 220.0[24.8]   | 252.0[28.2]   | 280.0[31.6]   | 320.0[36.0]   |
| *Continuous Stall Torque               |          | IN-LBS[Nm]                                   | 280.0[31.5]   | 280.0[31.5]   | 360.0[40.7]   | 360.0[40.7]   |
| Continuous Line Current                |          | AMPS(RMS/φ)                                  | 14.           | 7.5           | 19.2          | 9.6           |
| Peak Torque                            | Tpk      | IN-LBS[Nm]                                   | 840.0[94.4]   | 840.0[94.4]   | 1081.0[122.2] | 1081.0[122.2] |
| Peak Current                           |          | AMPS(RMS/φ)                                  | 44.7          | 22.3          | 57.5          | 28.7          |
| Max. Theoretical Accel.                |          | RAD/SEC <sup>2</sup>                         | 30,769        | 30,769        | 30,710        | 30,710        |
| Torque Sensitivity                     | Kt       | IN-LBS/AMP (RMS/φ)[Nm/AMP (RMS/φ)]           | 18.2[2.1]     | 36.5[4.1]     | 18.2[2.1]     | 36.5[4.1]     |
| Back EMF (Line to Line)                | ±10%     | Vrms/Krpm                                    | 115.0         | 230.0         | 115.0         | 2300          |
| D.C.Resistance (P-P)                   | ±10%     | OHMS   | 45            | 1.7           | 2.6           | 1.2           |
| Inductance (P-P)                       | ±10%     | MILLIHENRIES                                 | 4.3           | 16.9          | 2.9           | 11.1          |
| Rotor Inertia                          | Jm       | IN-LBS-SEC <sup>2</sup> [Kg-M <sup>2</sup> ] | .0273[.00308] | .0273[.00308] | .0352[.00397] | .0352[.00397] |
| Static Friction                        | Tf       | IN-LBS[Nm]                                   | 3.6[0.41]     | 3.6[0.41]     | 4.2[0.47]     | 4.2[0.47]     |
| Motor Weight                           |          | LBS[Kg]                                      | 66.0[29.9]    | 66.0[29.9]    | 83.0[37.7]    | 83.0[37.7]    |
| Line Voltage                           |          | VAC  | 460           | 460           | 460           | 460           |

**Brake Info:**

Min. Holding Torque: 360 IN-LBS  
 Input Voltage: 24VDC  
 Current: 1.13 AMPS  
 Inertia: .00227 IN-LB-SEC<sup>2</sup>  
 Weight Added: 12 LBS

\*25° C Ambient with a maximum case temperature of 100° C on motor. Motor mounted on a 12" x 12" x 1/2" aluminum heatsink. Thermostat in stator windings will open if winding temperature exceeds 155° C. This allows for an approximate +10% headroom in the continuous torque rating before thermostat opens.

**Mechanical Notes:**

1. Axial Load: 50 LBS. Max.
2. Radial Load: 150 LBS. Max. @ 1" from face
3. Motor Sealed to IP65

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**Motor Data (Trap)**

| Motor Parameters                       |          | Units  | 1421CTJ****   | 1421DTJ****   | 1422CTJ****   | 1422DTJ****   |
|--|----------|--|---------------|---------------|---------------|---------------|
| Horsepower                             | Hp Rated | Hp   | 4.9           | 2.9           | 7.5           | 4.5           |
| Kilowatts                              | KW Rated | KW   | 3.6           | 2.1           | 5.7           | 3.4           |
| Max. Operating Speed                   | N Max    | RPM  | 3400          | 1750          | 3400          | 1750          |
| Speed @ Rated Torque                   | N Rated  | RPM  | 2800          | 1500          | 2800          | 1500          |
| *Continuous Rated Torque @ Rated Speed |          | IN-LBS[Nm]                                   | 110.0[12.4]   | 120.0[13.5]   | 170.0[19.2]   | 190.0[21.3]   |
| *Continuous Stall Torque               |          | IN-LBS[Nm]                                   | 130.0[14.7]   | 130.0[14.7]   | 210.0[23.7]   | 210.0[23.7]   |
| Continuous Line Current                |          | AMPS   | 9.8           | 4.9           | 15.8          | 7.9           |
| Peak Torque                            | Tpk      | IN-LBS[Nm]                                   | 390.0[43.9]   | 390.0[43.9]   | 630.0[70.8]   | 630.0[70.8]   |
| Peak Current                           |          | AMPS   | 29.6          | 14.8          | 47.4          | 23.7          |
| Max. Theoretical Accel.                |          | RAD/SEC <sup>2</sup>                         | 36,792        | 36,792        | 33,511        | 33,511        |
| Torque Sensitivity                     | Kt       | IN-LBS/AMP[Nm/AMP]                           | 12.9[1.46]    | 25.8[2.92]    | 12.9[1.46]    | 25.8[2.92]    |
| Back EMF (Line to Line)                | ±10%     | Vrms/Krpm                                    | 115.0         | 230.0         | 115.0         | 230.0         |
| D.C.Resistance (P-P)                   | ±10%     | OHMS   | 1.9           | 7.1           | .68           | 2.5           |
| Inductance (P-P)                       | ±10%     | MILLIHENRIES                                 | 13.0          | 52.3          | 5.6           | 23.0          |
| Rotor Inertia                          | Jm       | IN-LBS-SEC <sup>2</sup> [Kg-M <sup>2</sup> ] | .0106[.00119] | .0106[.00119] | .0188[.00212] | .0188[.00212] |
| Static Friction                        | Tf       | IN-LBS[Nm]                                   | 2.4[0.27]     | 2.4[0.27]     | 3.0[0.34]     | 3.0[0.34]     |
| Motor Weight                           |          | LBS[Kg]                                      | 36.0[16.3]    | 36.0[16.3]    | 51.0[23.1]    | 51.0[23.1]    |
| Line Voltage                           |          | VAC  | 460           | 460           | 460           | 460           |

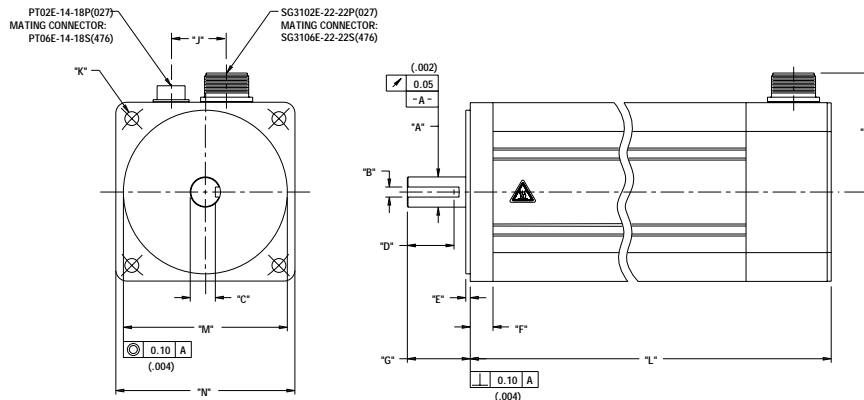
| Motor Parameters                       |          | Units  | 1423CTJ****   | 1423DTJ****   | 1424CTJ****   | 1424DTJ****   |
|--|----------|--|---------------|---------------|---------------|---------------|
| Horsepower                             | Hp Rated | Hp   | 9.8           | 6.0           | 12.4          | 7.6           |
| Kilowatts                              | KW Rated | KW   | 7.3           | 4.5           | 9.3           | 5.7           |
| Max. Operating Speed                   | N Max    | RPM  | 3400          | 1750          | 3400          | 1750          |
| Speed @ Rated Torque                   | N Rated  | RPM  | 2800          | 1500          | 2800          | 1500          |
| *Continuous Rated Torque @ Rated Speed |          | IN-LBS[Nm]                                   | 220.0[24.8]   | 252.0[28.2]   | 280.0[31.6]   | 320.0[36.0]   |
| *Continuous Stall Torque               |          | IN-LBS[Nm]                                   | 280.0[31.5]   | 280.0[31.5]   | 360.0[40.7]   | 360.0[40.7]   |
| Continuous Line Current                |          | AMPS   | 21.1          | 10.6          | 27.1          | 13.6          |
| Peak Torque                            | Tpk      | IN-LBS[Nm]                                   | 840.0[94.4]   | 840.0[94.4]   | 1081.0[122.2] | 1081.0[122.2] |
| Peak Current                           |          | AMPS   | 63.2          | 31.6          | 81.3          | 40.6          |
| Max. Theoretical Accel.                |          | RAD/SEC <sup>2</sup>                         | 30,769        | 30,769        | 30,710        | 30,710        |
| Torque Sensitivity                     | Kt       | IN-LBS/AMP[Nm/AMP]                           | 12.9[1.46]    | 25.8[2.92]    | 12.9[1.46]    | 25.8[2.92]    |
| Back EMF (Line to Line)                | ±10%     | Vrms/Krpm                                    | 115.0         | 230.0         | 115.0         | 2300          |
| D.C.Resistance (P-P)                   | ±10%     | OHMS   | .45           | 1.7           | .26           | 1.2           |
| Inductance (P-P)                       | ±10%     | MILLIHENRIES                                 | 4.3           | 16.9          | 2.9           | 11.1          |
| Rotor Inertia                          | Jm       | IN-LBS-SEC <sup>2</sup> [Kg-M <sup>2</sup> ] | .0273[.00308] | .0273[.00308] | .0352[.00397] | .0352[.00397] |
| Static Friction                        | Tf       | IN-LBS[Nm]                                   | 3.6[0.41]     | 3.6[0.41]     | 4.2[0.47]     | 4.2[0.47]     |
| Motor Weight                           |          | LBS[Kg]                                      | 66.0[29.9]    | 66.0[29.9]    | 83.0[37.7]    | 83.0[37.7]    |
| Line Voltage                           |          | VAC  | 460           | 460           | 460           | 460           |

**Brake Info:**

Min. Holding Torque: 360 IN-LBS  
 Input Voltage: 24VDC  
 Current : 1.13 AMPS  
 Inertia : .00227 IN-LB-SEC<sup>2</sup>  
 Weight Added: 12 LBS

\*25° C Ambient with a maximum case temperature of 100° C on motor. Motor mounted on a 12" x 12" x 1/2" aluminum heatsink. Thermostat in stator windings will open if winding temperature exceeds 155° C. This allows for an approximate +10% headroom in the continuous torque rating before thermostat opens.

- Mechanical Notes:
1. Axial Load: 50 LBS. Max.
  2. Radial Load: 150 LBS. Max. @ 1" from face
  3. Motor Sealed to IP65



**6" (142) English and Metric Connectorized Termination-Option 1 Motors**

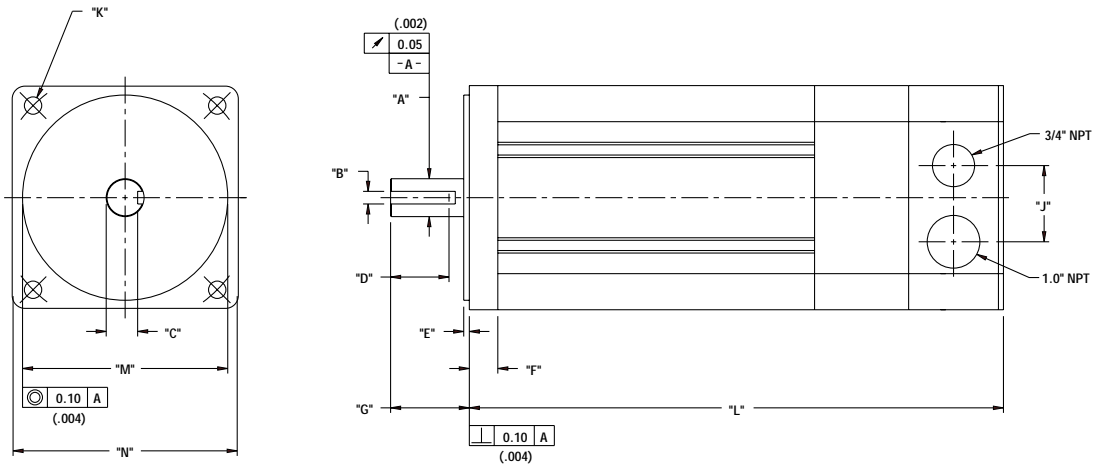
| Model          | "A"                                | "B"                           | "C"          | "D"            | "E"       | "F"        | "G"                        |
|----------------|------------------------------------|-------------------------------|--------------|----------------|-----------|------------|----------------------------|
| MPM1421***6*** | ∅ .8750(22.225)<br>.8745(22.212)   | .1890(4.801)<br>.1875(4.763)  | .774(19.66)  | 1.41(35.8) Min | .13 (3.2) | .73 (18.4) | 1.97 (50.0)<br>1.93 (49.0) |
| MPM1421***7*** | ∅ 24.000(9449)<br>23.988(9444)     | 7.998(3149)<br>7.963(3135)    | 19.91(.784)  | 37.0(1.46) Min | 3.6 (.14) | 18.0 (.71) | 50.5 (1.99)<br>49.5 (1.95) |
| MPM1422***6*** | ∅ .8750(22.225)<br>.8745(22.212)   | .1890(4.801)<br>.1875(4.763)  | .774(19.66)  | 1.41(35.8) Min | .13 (3.2) | .73 (18.4) | 1.97 (50.0)<br>1.93 (49.0) |
| MPM1422***7*** | ∅ 24.000(9449)<br>23.988(9444)     | 7.998(3149)<br>7.963(3135)    | 19.91(.784)  | 37.0(1.46) Min | 3.6 (.14) | 18.0 (.71) | 50.5 (1.99)<br>49.5 (1.95) |
| MPM1423***6*** | ∅ .8750(22.225)<br>.8745(22.212)   | .1890(4.801)<br>.1875(4.763)  | .774(19.66)  | 1.41(35.8) Min | .13 (3.2) | .73 (18.4) | 1.97 (50.0)<br>1.93 (49.0) |
| MPM1423***7*** | ∅ 31.999(1.2598)<br>31.986(1.2593) | 10.000(.3937)<br>9.964(.3923) | 26.90(1.059) | 37.0(1.46) Min | 3.6 (.14) | 18.0 (.71) | 50.5 (1.99)<br>49.5 (1.95) |
| MPM1424***6*** | ∅ .8750(22.225)<br>.8745(22.212)   | .1890(4.801)<br>.1875(4.763)  | .774(19.66)  | 1.41(35.8) Min | .13 (3.2) | .73 (18.4) | 1.97 (50.0)<br>1.93 (49.0) |
| MPM1424***7*** | ∅ 31.999(1.2598)<br>31.986(1.2593) | 10.000(.3937)<br>9.964(.3923) | 26.90(1.059) | 37.0(1.46) Min | 3.6 (.14) | 18.0 (.71) | 50.5 (1.99)<br>49.5 (1.95) |

| Model          | "H"        | "J"        | "K"   | "L"             | "L" w/ Brake    | "M"                              | "N"           |
|----------------|------------|------------|---|-----------------|-----------------|----------------------------------|---------------|
| MPM1421***6*** | 3.7(95)Max | 1.74(44.1) | 3/8-16UNC-2BTHRU (4)EQ SPD<br>AS SHOWN ON Ø5.875(149.22) B.C. | 11.31(287.3)Max | 14.01(355.9)Max | ∅ 4.500(114.30)<br>4.499(114.27) | □ 5.59(142.0) |
| MPM1421***7*** | 95(3.7)Max | 44.1(1.74) | ∅11.00(.433)THRU (4)EQ SPD<br>AS SHOWN ON Ø165.00(6.496) B.C. | 286.8(11.29)Max | 355.3(13.99)Max | ∅ 130.00(5.118)<br>129.97(5.117) | □ 142.0(5.59) |
| MPM1422***6*** | 3.7(95)Max | 1.74(44.1) | 3/8-16UNC-2BTHRU (4)EQ SPD<br>AS SHOWN ON Ø5.875(149.22) B.C. | 14.01(355.9)Max | 16.71(424.4)Max | ∅ 4.500(114.30)<br>4.499(114.27) | □ 5.59(142.0) |
| MPM1422***7*** | 95(3.7)Max | 44.1(1.74) | ∅11.00(.433)THRU (4)EQ SPD<br>AS SHOWN ON Ø165.00(6.496) B.C. | 355.3(13.99)Max | 423.9(16.69)Max | ∅ 130.00(5.118)<br>129.97(5.117) | □ 142.0(5.59) |
| MPM1423***6*** | 3.7(95)Max | 1.74(44.1) | 3/8-16UNC-2BTHRU (4)EQ SPD<br>AS SHOWN ON Ø5.875(149.22) B.C. | 16.71(424.4)Max | 19.41(493.0)Max | ∅ 4.500(114.30)<br>4.499(114.27) | □ 5.59(142.0) |
| MPM1423***7*** | 95(3.7)Max | 44.1(1.74) | ∅11.00(.433)THRU (4)EQ SPD<br>AS SHOWN ON Ø165.00(6.496) B.C. | 423.9(16.69)Max | 492.5(19.39)Max | ∅ 130.00(5.118)<br>129.97(5.117) | □ 142.0(5.59) |
| MPM1424***6*** | 3.7(95)Max | 1.74(44.1) | 3/8-16UNC-2BTHRU (4)EQ SPD<br>AS SHOWN ON Ø5.875(149.22) B.C. | 19.41(493.0)Max | 22.11(561.6)Max | ∅ 4.500(114.30)<br>4.499(114.27) | □ 5.59(142.0) |
| MPM1424***7*** | 95(3.7)Max | 44.1(1.74) | ∅11.00(.433)THRU (4)EQ SPD<br>AS SHOWN ON Ø165.00(6.496) B.C. | 492.5(19.39)Max | 561.1(22.09)Max | ∅ 130.00(5.118)<br>129.97(5.117) | □ 142.0(5.59) |

English = 6 Units: in (mm)  
 Metric = 7 Units: mm (in)

For Mechanical Dimensions on Termination Option 2 Consult Factory.

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**6" (142) English and Metric NPT Termination-Option 3 Motors**

| Model          | "A"                                  | "B"                           | "C"          | "D"            | "E"      | "F"       | "G"                      |
|----------------|--------------------------------------|-------------------------------|--------------|----------------|----------|-----------|--------------------------|
| MPM1421***6*** | ∅ .8750(22.225)<br>∅ .8745(22.212)   | .1890(4.801)<br>.1875(4.763)  | .774(19.66)  | 1.41(35.8) Min | .13(3.2) | .73(18.4) | 1.97(50.0)<br>1.93(49.0) |
| MPM1421***7*** | ∅ 24.00(9449)<br>∅ 23.988(9444)      | 7.998(3149)<br>7.963(3135)    | 19.91(.784)  | 37.0(1.46) Min | 3.6(.14) | 18.0(.71) | 50.4(1.98)<br>49.4(1.94) |
| MPM1422***6*** | ∅ .8750(22.225)<br>∅ .8745(22.212)   | .1890(4.801)<br>.1875(4.763)  | .774(19.66)  | 1.41(35.8) Min | .13(3.2) | .73(18.4) | 1.97(50.0)<br>1.93(49.0) |
| MPM1422***7*** | ∅ 24.00(9449)<br>∅ 23.988(9444)      | 7.998(3149)<br>7.963(3135)    | 19.91(.784)  | 37.0(1.46) Min | 3.6(.14) | 18.0(.71) | 50.4(1.98)<br>49.4(1.94) |
| MPM1423***6*** | ∅ .8750(22.225)<br>∅ .8745(22.212)   | .1890(4.801)<br>.1875(4.763)  | .774(19.66)  | 1.41(35.8) Min | .13(3.2) | .73(18.4) | 1.97(50.0)<br>1.93(49.0) |
| MPM1423***7*** | ∅ 31.999(1.2598)<br>∅ 31.986(1.2593) | 10.000(.3937)<br>9.964(.3923) | 26.90(1.059) | 37.0(1.46) Min | 3.6(.14) | 18.0(.71) | 50.4(1.98)<br>49.4(1.94) |
| MPM1424***6*** | ∅ .8750(22.225)<br>∅ .8745(22.212)   | .1890(4.801)<br>.1875(4.763)  | .774(19.66)  | 1.41(35.8) Min | .13(3.2) | .73(18.4) | 1.97(50.0)<br>1.93(49.0) |
| MPM1424***7*** | ∅ 31.999(1.2598)<br>∅ 31.986(1.2593) | 10.000(.3937)<br>9.964(.3923) | 26.90(1.059) | 37.0(1.46) Min | 3.6(.14) | 18.0(.71) | 50.4(1.98)<br>49.4(1.94) |

| Model          | "J"        | "K"   | "L"              | "L" w/ Brake     | "M"                                | "N"           |
|----------------|------------|---|------------------|------------------|------------------------------------|---------------|
| MPM1421***6*** | 1.90(48.3) | 3/8-16UNC-2BTHRU (4)EQ SPD<br>AS SHOWN ON ∅5.875(149.22) B.C. | 13.37(339.6) Max | 16.07(408.2) Max | ∅ 4.500(114.30)<br>∅ 4.499(114.27) | □ 5.59(142.0) |
| MPM1421***7*** | 48.3(1.90) | ∅11.00(.433)THRU (4)EQ SPD<br>AS SHOWN ON ∅165.00(6.496) B.C. | 339.0(13.35) Max | 408.0(16.05) Max | ∅ 130.00(5.118)<br>∅ 129.97(5.117) | □ 142.0(5.59) |
| MPM1422***6*** | 1.90(48.3) | 3/8-16UNC-2BTHRU (4)EQ SPD<br>AS SHOWN ON ∅5.875(149.22) B.C. | 16.07(408.2) Max | 18.77(476.8) Max | ∅ 4.500(114.30)<br>∅ 4.499(114.27) | □ 5.59(142.0) |
| MPM1422***7*** | 48.3(1.90) | ∅11.00(.433)THRU (4)EQ SPD<br>AS SHOWN ON ∅165.00(6.496) B.C. | 408.0(16.05) Max | 477.0(18.75) Max | ∅ 130.00(5.118)<br>∅ 129.97(5.117) | □ 142.0(5.59) |
| MPM1423***6*** | 1.90(48.3) | 3/8-16UNC-2BTHRU (4)EQ SPD<br>AS SHOWN ON ∅5.875(149.22) B.C. | 18.77(476.8) Max | 21.47(545.3) Max | ∅ 4.500(114.30)<br>∅ 4.499(114.27) | □ 5.59(142.0) |
| MPM1423***7*** | 48.3(1.90) | ∅11.00(.433)THRU (4)EQ SPD<br>AS SHOWN ON ∅165.00(6.496) B.C. | 477.0(18.75) Max | 546.0(21.45) Max | ∅ 130.00(5.118)<br>∅ 129.97(5.117) | □ 142.0(5.59) |
| MPM1424***6*** | 1.90(48.3) | 3/8-16UNC-2BTHRU (4)EQ SPD<br>AS SHOWN ON ∅5.875(149.22) B.C. | 21.47(545.3) Max | 24.17(613.9) Max | ∅ 4.500(114.30)<br>∅ 4.499(114.27) | □ 5.59(142.0) |
| MPM1424***7*** | 48.3(1.90) | ∅11.00(.433)THRU (4)EQ SPD<br>AS SHOWN ON ∅165.00(6.496) B.C. | 546.0(21.45) Max | 613.3(24.15) Max | ∅ 130.00(5.118)<br>∅ 129.97(5.117) | □ 142.0(5.59) |

English = 6 Units: in (mm)  
 Metric = 7 Units: mm (in)

For Mechanical Dimensions on Termination Option 2 Consult Factory.



**6" Motor with Resolver Feedback**

**Option 1**

Motor Connector 270-00017(SG3102E-22-22P(027))

| Pin | Function |
|-----|----------|
| A   | $\phi$ R |
| B   | $\phi$ S |
| C   | $\phi$ T |
| D   | PE GND   |

Resolver Connector 270-00024(PT02E-14-18P(027))

| Pin | Function |
|-----|----------|
| U   | THERM    |
| N   | THERM    |
| H   | SIN      |
| G   | COS GND  |
| S   | COS      |
| F   | SIN GND  |
| R   | REF GND  |
| E   | REF      |
| D   | RES SHLD |
| P   | GND      |
| *A  | BRK (+)  |
| *B  | BRK (-)  |
| *C  | BRK SHLD |
| J   | -        |
| K   | -        |
| L   | -        |
| M   | -        |
| T   | -        |

\*USE ONLY WITH BRAKE OPTION

**Option 2**

Motor Connector 270-00325 (CEGA258NN0000001000)

| Pin | Function     |
|-----|--------------|
| U   | $\phi$ R(U1) |
| V   | $\phi$ S(V1) |
| W   | $\phi$ T(W1) |
| PE  | PE GND       |
| *+  | BRK (+)      |
| *-  | BRK (-)      |
| 1   | THERM        |
| 2   | THERM        |

\*USE ONLY WITH BRAKE OPTION

Resolver Connector 270-00257(AEGA052NN00000013000)

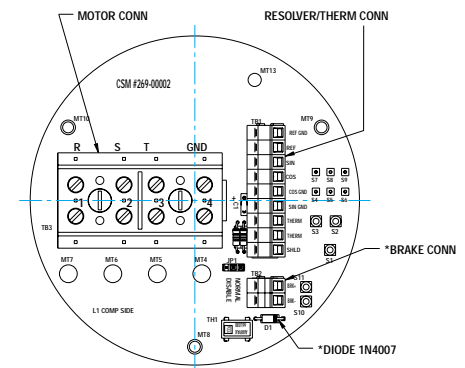
| Pin | Function     |
|-----|--------------|
| 1   | -            |
| 2   | REF (R1)     |
| 3   | REF GND (R2) |
| 4   | COS GND (S1) |
| 5   | COS (S3)     |
| 6   | SIN (S2)     |
| 7   | SIN GND (S4) |
| 8   | -            |
| 9   | -            |
| 10  | -            |
| 11  | -            |
| 12  | -            |

**Option 3**

Connection Chart (NPT) Resolver

| Terminal | Function |
|----------|----------|
| 1        | $\phi$ R |
| 2        | $\phi$ S |
| 3        | $\phi$ T |
| 4        | PE GND   |
| *S11     | BRK (+)  |
| *S10     | BRK (-)  |
| S9       | REF GND  |
| S8       | REF      |
| S7       | SIN      |
| S6       | COS      |
| S5       | COS GND  |
| S4       | SIN GND  |
| S3       | THERM    |
| S2       | THERM    |
| S1       | RES SHLD |

\*USE ONLY WITH BRAKE OPTION



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
**6" Motor with Encoder Feedback**

**Option 1**

| Motor Connector 270-00017 (SG3102E-22-22P(027)) |          |
|---|----------|
| Pin   | Function |
| A   | $\phi$ R |
| B   | $\phi$ S |
| C   | $\phi$ T |
| D   | PE GND   |



| Encoder Connector 270-00024 (PT02E-14-18P(027)) |           |
|---|-----------|
| Pin   | Function  |
| T   | GROUND    |
| K   | +5VDC     |
| B   | CH A      |
| C   | CH A\     |
| N   | CH B      |
| P   | CH B\     |
| M   | CH Z      |
| U   | CH Z\     |
| E   | CH U      |
| R   | CH U\     |
| F   | CH V      |
| S   | CH V\     |
| G   | CH W      |
| H   | CH W\     |
| D   | GND/CABLE |
| A   | THERM     |
| L   | THERM     |
| J   | GND       |

**Option 1 with brake**

| Encoder Brake Connector 270-00219 (PT02E-16-23P(027)) |  |
|---|--|
| Pin   | Function   |
| T   | GROUND   |
| K   | +5VDC  |
| B   | CH A   |
| C   | CH A\  |
| N   | CH B   |
| P   | CH B\  |
| M   | CH Z   |
| U   | CH Z\  |
| E   | CH U   |
| R   | CH U\  |
| F   | CH V   |
| S   | CH V\  |
| G   | CH W   |
| H   | CH W\  |
| D   | GND/CABLE  |
| A   | THERM  |
| L   | THERM  |
| J   | GND  |
| V*  | BRK (+)  |
| W*  | BRK (-)  |
| X*  | BRK SHLD   |
| Y   | -  |
| Z   | -  |

\* Use only with Brake option

**Option 2**

| Motor Connector 270-00325 (CEGA258NN0000001000) |   |
|---|---|
| Pin   | Function  |
| U   | $\phi$ R(U1)  |
| PE  | PE GND  |
| W   | $\phi$ S(W1)  |
| V   | $\phi$ T(V1)  |
| *+  | BRK (+)  |
| *-  | BRK (-)  |
| 1   | THERM   |
| 2   | THERM   |

\* USE ONLY WITH BRAKE OPTION

| Motor Connector 270-00257 (AEGA052NN00000013000) |            |
|--|------------|
| Pin  | Function   |
| 1  | GND(OV)    |
| 2  | CH A(A)    |
| 3  | CH A(A\)   |
| 4  | CH B(B)    |
| 5  | CH B(B\)   |
| 6  | CH Z(Z)    |
| 7  | CH Z(Z\)   |
| 8  | +5V(+5V)   |
| 9  | -          |
| 10   | CH U(RLGU) |
| 11   | CH V(RLGV) |
| 12   | CH W(RLGW) |

**Option 3-Consult Factory**

# 8" Frame Brushless Servo Motors



## Motor Data (Sine)

| Motor Parameters                       |          | Units  | 1901ASG****    | 1901BSG****    | 1902ASG****    |
|--|----------|--|----------------|----------------|----------------|
| Horsepower                             | Hp Rated | Hp   | 6.0            | 3.0            | 11.9           |
| Kilowatts                              | KW Rated | KW   | 4.5            | 2.2            | 8.9            |
| Max. Operating Speed                   | N Max    | RPM  | 2500           | 1250           | 2500           |
| Speed @ Rated Torque                   | N Rated  | RPM  | 1800           | 750            | 2000           |
| *Continuous Rated Torque @ Rated Speed |          | IN-LBS[Nm]                                   | 209 [23.6]     | 250 [28.2]     | 375 [42.4]     |
| *Continuous Stall Torque               |          | IN-LBS[Nm]                                   | 280 [31.9]     | 280 [31.6]     | 600 [67.8]     |
| Continuous Line Current                |          | AMPS   | 22.0           | 10.7           | 47.2           |
| Peak Torque                            | Tpk      | IN-LBS[Nm]                                   | 746 [84.3]     | 625 [70.6]     | 1800 [203.0]   |
| Peak Current                           |          | AMPS   | 58.7           | 23.8           | 141.6          |
| Max. Theoretical Accel.                |          | RAD/SEC <sup>2</sup>                         | 18,195         | 15,244         | 23,077         |
| Torque Sensitivity                     | Kt       | IN-LBS/AMP[Nm/AMP]                           | 12.7 [1.44]    | 26.21 [2.96]   | 12.71 [1.44]   |
| Back EMF (Line to Line)                | ±10%     | Vrms/Krpm                                    | 80             | 165            | 80             |
| D.C. Resistance (P-P)                  | ±10%     | OHMS   | .31            | 1.36           | 11             |
| Inductance (P-P)                       | ±10%     | MILLIHENRIES                                 | 3.70           | 15.5           | .65            |
| Rotor Inertia                          | Jm       | IN-LBS-SEC <sup>2</sup> [Kg-M <sup>2</sup> ] | .0411 [.00464] | .0411 [.00464] | .0714 [.00807] |
| Static Friction                        | Tf       | IN-LBS[Nm]                                   | 8.2 [.92]      | 8.2 [.92]      | 9.8 [1.1]      |
| Motor Weight                           |          | LBS[Kg]                                      | 67 [30.4]      | 67 [30.4]      | 98 [44.5]      |
| Line Voltage                           |          | VAC  | 230            | 230            | 230            |

| Motor Parameters                       |          | Units  | 1902BSG****    | 1904ASG****  | 1904BSG****  |
|--|----------|--|----------------|--------------|--------------|
| Horsepower                             | Hp Rated | Hp   | 6.7            | 17.5         | 10.8         |
| Kilowatts                              | KW Rated | KW   | 5.0            | 13.0         | 8.0          |
| Max. Operating Speed                   | N Max    | RPM  | 1250           | 2250         | 1250         |
| Speed @ Rated Torque                   | N Rated  | RPM  | 850            | 2000         | 1000         |
| *Continuous Rated Torque @ Rated Speed |          | IN-LBS[Nm]                                   | 500 [56.5]     | 550 [62.1]   | 680 [76.8]   |
| *Continuous Stall Torque               |          | IN-LBS[Nm]                                   | 600 [67.8]     | 820 [92.7]   | 820 [92.7]   |
| Continuous Line Current                |          | AMPS   | 23.5           | 58.7         | 32.1         |
| Peak Torque                            | Tpk      | IN-LBS[Nm]                                   | 1560 [176.3]   | 3000 [339.0] | 3000 [339.0] |
| Peak Current                           |          | AMPS   | 61.0           | 214.5        | 117          |
| Max. Theoretical Accel.                |          | RAD/SEC <sup>2</sup>                         | 20,000         | 22,556       | 22,556       |
| Torque Sensitivity                     | Kt       | IN-LBS/AMP[Nm/AMP]                           | 25.58 [2.89]   | 13.98 [1.58] | 25.58 [2.89] |
| Back EMF (Line to Line)                | ±10%     | Vrms/Krpm                                    | 161            | 88           | 161          |
| D.C. Resistance (P-P)                  | ±10%     | OHMS   | .44            | .05          | .19          |
| Inductance (P-P)                       | ±10%     | MILLIHENRIES                                 | 6.8            | .96          | 3.2          |
| Rotor Inertia                          | Jm       | IN-LBS-SEC <sup>2</sup> [Kg-M <sup>2</sup> ] | .0714 [.00807] | .133 [.0150] | .133 [.0150] |
| Static Friction                        | Tf       | IN-LBS[Nm]                                   | 9.8 [1.1]      | 13.0 [1.5]   | 13.0 [1.5]   |
| Motor Weight                           |          | LBS[Kg]                                      | 98 [44.5]      | 160 [72.6]   | 160 [72.6]   |
| Line Voltage                           |          | VAC  | 230            | 230          | 230          |

### Brake Info:

Min. Holding Torque: 90FT-LBS  
 Input Voltage: 24VDC  
 Current: 1.4AMPS  
 Inertia: .0085 IN-LB-SEC<sup>2</sup>  
 Weight Adder: 18LBS

\*25° C Ambient with a maximum case temperature of 100° C on motor. Motor mounted on a 14" x 14" x 3/4" aluminum heatsink. Thermostat in stator windings will open if winding temperature exceeds 155° C. This allows for an approximate +10% headroom in the continuous torque rating before thermostat opens.

- Mechanical Notes:
1. Axial Load: 100 LBS. Max.
  2. Radial Load: 250 LBS. Max. @ 1" from face
  3. Motor Sealed to IP65

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**Motor Data (Trap)**

| Motor Parameters                       |          | Units  | 1901ATG****   | 1901BTG****   | 1902ATG****   |
|--|----------|--|---------------|---------------|---------------|
| Horsepower                             | Hp Rated | Hp   | 6.0           | 3.0           | 11.4          |
| Kilowatts                              | KW Rated | KW   | 4.5           | 2.2           | 8.9           |
| Max. Operating Speed                   | N Max    | RPM  | 2500          | 1250          | 2500          |
| Speed @ Rated Torque                   | N Rated  | RPM  | 1800          | 750           | 2000          |
| *Continuous Rated Torque @ Rated Speed |          | IN-LBS[Nm]                                   | 209 [23.6]    | 250 [28.2]    | 375 [42.4]    |
| *Continuous Stall Torque               |          | IN-LBS[Nm]                                   | 280 [31.9]    | 280 [31.6]    | 600 [67.8]    |
| Continuous Line Current                |          | AMPS   | 31.15         | 15.10         | 66.7          |
| Peak Torque                            | Tpk      | IN-LBS[Nm]                                   | 746 [84.3]    | 625 [70.6]    | 1800 [203.0]  |
| Peak Current                           |          | AMPS   | 82.98         | 33.71         | 200           |
| Max. Theoretical Accel.                |          | RAD/SEC <sup>2</sup>                         | 18,195        | 15,244        | 23,077        |
| Torque Sensitivity                     | Kt       | IN-LBS/AMP[Nm/AMP]                           | 8.99 [1.02]   | 18.54 [2.09]  | 8.99 [10.02]  |
| Back EMF (Line to Line)                | ±10%     | Vrms/Krpm                                    | 80            | 165           | 80            |
| D.C.Resistance (P-P)                   | ±10%     | OHMS   | .31           | 1.36          | 11            |
| Inductance (P-P)                       | ±10%     | MILLIHENRIES                                 | 3.70          | 15.5          | 1.65          |
| Rotor Inertia                          | Jm       | IN-LBS-SEC <sup>2</sup> [Kg-M <sup>2</sup> ] | .0411[.00464] | .0411[.00464] | .0714[.00807] |
| Static Friction                        | Tf       | IN-LBS[Nm]                                   | 8.2[.92]      | 8.2[.92]      | 9.8[1.1]      |
| Motor Weight                           |          | LBS[Kg]                                      | 67[30.4]      | 67[30.4]      | 98[44.5]      |
| Line Voltage                           |          | VAC  | 230           | 230           | 230           |

| Motor Parameters                       |          | Units  | 1902BTG****   | 1904ATG****  | 1904BTG****  |
|--|----------|--|---------------|--------------|--------------|
| Horsepower                             | Hp Rated | Hp   | 6.7           | 17.5         | 10.8         |
| Kilowatts                              | KW Rated | KW   | 5.0           | 13.0         | 8.0          |
| Max. Operating Speed                   | N Max    | RPM  | 1250          | 2250         | 1250         |
| Speed @ Rated Torque                   | N Rated  | RPM  | 850           | 2000         | 1000         |
| *Continuous Rated Torque @ Rated Speed |          | IN-LBS[Nm]                                   | 500 [56.5]    | 550 [62.1]   | 680 [76.8]   |
| *Continuous Stall Torque               |          | IN-LBS[Nm]                                   | 600 [67.8]    | 820 [92.7]   | 820 [92.7]   |
| Continuous Line Current                |          | AMPS   | 33            | 82.9         | 45.3         |
| Peak Torque                            | Tpk      | IN-LBS[Nm]                                   | 1560 [176.3]  | 3000 [339.0] | 3000 [339.0] |
| Peak Current                           |          | AMPS   | 86.2          | 303          | 166          |
| Max. Theoretical Accel.                |          | RAD/SEC <sup>2</sup>                         | 21,849        | 22,556       | 22,556       |
| Torque Sensitivity                     | Kt       | IN-LBS/AMP[Nm/AMP]                           | 18.09 [2.04]  | 9.89 [1.12]  | 18.09 [2.04] |
| Back EMF (Line to Line)                | ±10%     | Vrms/Krpm                                    | 161           | 88           | 161          |
| D.C.Resistance (P-P)                   | ±10%     | OHMS   | .44           | .05          | .19          |
| Inductance (P-P)                       | ±10%     | MILLIHENRIES                                 | 6.8           | .96          | 3.2          |
| Rotor Inertia                          | Jm       | IN-LBS-SEC <sup>2</sup> [Kg-M <sup>2</sup> ] | .0714[.00807] | .133[.0150]  | .133[.0150]  |
| Static Friction                        | Tf       | IN-LBS[Nm]                                   | 9.8[1.1]      | 13.0[1.5]    | 13.0[1.5]    |
| Motor Weight                           |          | LBS[Kg]                                      | 98[44.5]      | 160[72.6]    | 160[72.6]    |
| Line Voltage                           |          | VAC  | 230           | 230          | 230          |

**Brake Info:**

Min. Holding Torque: 90FT-LBS  
 Input Voltage: 24VDC  
 Current : 1.4AMPS  
 Inertia : .0085 IN-LB-SEC<sup>2</sup>  
 Weight Adder: 18 LBS

\*25° C Ambient with a maximum case temperature of 100° C on motor. Motor mounted on a 14" x 14" x 3/4" aluminum heatsink. Thermostat in stator windings will open if winding temperature exceeds 155° C. This allows for an approximate +10% headroom in the continuous torque rating before thermostat opens.

- Mechanical Notes:
1. Axial Load: 100 LBS. Max.
  2. Radial Load: 250 LBS. Max. @ 1" from face
  3. Motor Sealed to IP65

**Motor Data (Sine)**

| Motor Parameters                       |          | Units  | 1901CSJ****   | 1901DSJ****   | 1902CSJ****   |
|--|----------|--|---------------|---------------|---------------|
| Horsepower                             | Hp Rated | Hp   | 6.2           | 3.4           | 11.9          |
| Kilowatts                              | KW Rated | KW   | 4.6           | 2.6           | 8.9           |
| Max. Operating Speed                   | N Max    | RPM  | 2500          | 1300          | 2500          |
| Speed @ Rated Torque                   | N Rated  | RPM  | 1900          | 900           | 2000          |
| *Continuous Rated Torque @ Rated Speed |          | IN-LBS[Nm]                                   | 205 [23.2]    | 240 [27.1]    | 375 [42.4]    |
| *Continuous Stall Torque               |          | IN-LBS[Nm]                                   | 280 [31.6]    | 280 [31.6]    | 600 [67.8]    |
| Continuous Line Current                |          | AMPS   | 10.7          | 5.5           | 23.58         |
| Peak Torque                            | Tpk      | IN-LBS[Nm]                                   | 830 [93.8]    | 780 [88.1]    | 1800 [203.4]  |
| Peak Current                           |          | AMPS   | 31.7          | 15.4          | 70.4          |
| Max. Theoretical Accel.                |          | RAD/SEC <sup>2</sup>                         | 20,244        | 19,024        | 23,077        |
| Torque Sensitivity                     | Kt       | IN-LBS/AMP[Nm/AMP]                           | 26.21 [2.96]  | 50.52 [5.71]  | 25.58 [2.89]  |
| Back EMF (Line to Line)                | ±10%     | Vrms/Krpm                                    | 165           | 318           | 161           |
| D.C.Resistance (P-P)                   | ±10%     | OHMS   | 1.4           | 4.6           | .44           |
| Inductance (P-P)                       | ±10%     | MILLIHENRIES                                 | 15.5          | 60.2          | 6.8           |
| Rotor Inertia                          | Jm       | IN-LBS-SEC <sup>2</sup> [Kg-M <sup>2</sup> ] | .0411[.00464] | .0411[.00464] | .0714[.00807] |
| Static Friction                        | Tf       | IN-LBS[Nm]                                   | 8.2[.92]      | 8.2[.92]      | 9.8[1.1]      |
| Motor Weight                           |          | LBS[Kg]                                      | 67[30.4]      | 67[30.4]      | 98[44.5]      |
| Line Voltage                           |          | VAC  | 460           | 460           | 460           |

| Motor Parameters                       |          | Units  | 1902DSJ****   | 1904CSJ****  | 1904DSJ****  |
|--|----------|--|---------------|--------------|--------------|
| Horsepower                             | Hp Rated | Hp   | 6.4           | 18.1         | 11.2         |
| Kilowatts                              | KW Rated | KW   | 4.8           | 13.5         | 8.4          |
| Max. Operating Speed                   | N Max    | RPM  | 1230          | 2500         | 1250         |
| Speed @ Rated Torque                   | N Rated  | RPM  | 800           | 2150         | 1050         |
| *Continuous Rated Torque @ Rated Speed |          | IN-LBS[Nm]                                   | 505 [57.1]    | 530 [59.9]   | 675 [76.3]   |
| *Continuous Stall Torque               |          | IN-LBS[Nm]                                   | 600 [67.8]    | 820 [92.7]   | 820 [92.7]   |
| Continuous Line Current                |          | AMPS   | 11.5          | 32.1         | 16           |
| Peak Torque                            | Tpk      | IN-LBS[Nm]                                   | 1440 [162.7]  | 3000 [339]   | 3000 [339]   |
| Peak Current                           |          | AMPS   | 27.5          | 117          | 59           |
| Max. Theoretical Accel.                |          | RAD/SEC <sup>2</sup>                         | 18,462        | 22,556       | 22,556       |
| Torque Sensitivity                     | Kt       | IN-LBS/AMP[Nm/AMP]                           | 52.3 [5.91]   | 25.58 [2.89] | 51.16 [5.78] |
| Back EMF (Line to Line)                | ±10%     | Vrms/Krpm                                    | 329           | 161          | 322          |
| D.C.Resistance (P-P)                   | ±10%     | OHMS   | 2.0           | 19           | .72          |
| Inductance (P-P)                       | ±10%     | MILLIHENRIES                                 | 29.3          | 3.2          | 13.4         |
| Rotor Inertia                          | Jm       | IN-LBS-SEC <sup>2</sup> [Kg-M <sup>2</sup> ] | .0714[.00807] | .133[.0150]  | .133[.0150]  |
| Static Friction                        | Tf       | IN-LBS[Nm]                                   | 9.8[1.1]      | 13.0[1.5]    | 13.0[1.5]    |
| Motor Weight                           |          | LBS[Kg]                                      | 98[44.5]      | 160[72.6]    | 160[72.6]    |
| Line Voltage                           |          | VAC  | 460           | 460          | 460          |

**Brake Info:**

Min. Holding Torque: 90FT-LBS  
 Input Voltage: 24VDC  
 Current : 1.4AMPS  
 Inertia : .0085 IN-LB-SEC<sup>2</sup>  
 Weight Adder: 18LBS

\*25° C Ambient with a maximum case temperature of 100° C on motor. Motor mounted on a 14" x 14" x 3/4" aluminum heatsink. Thermostat in stator windings will open if winding temperature exceeds 155° C. This allows for an approximate +10% headroom in the continuous torque rating before thermostat opens.

- Mechanical Notes:
1. Axial Load: 100 LBS. Max.
  2. Radial Load: 250 LBS. Max. @ 1" from face
  3. Motor Sealed to IP65

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**Motor Data (Trap)**

| Motor Parameters                       |          |  | Units | 1901CTJ****   | 1901DTJ****   | 1902CTJ****   |
|--|----------|--|-------|---------------|---------------|---------------|
| Horsepower                             | Hp Rated | Hp   |       | 6.2           | 3.4           | 11.9          |
| Kilowatts                              | KW Rated | KW   |       | 4.6           | 2.6           | 8.9           |
| Max. Operating Speed                   | N Max    | RPM  |       | 2500          | 1300          | 2500          |
| Speed @ Rated Torque                   | N Rated  | RPM  |       | 1900          | 900           | 2000          |
| *Continuous Rated Torque @ Rated Speed |          | IN-LBS[Nm]                                   |       | 205 [23.2]    | 240 [27.1]    | 375 [42.4]    |
| *Continuous Stall Torque               |          | IN-LBS[Nm]                                   |       | 280 [31.6]    | 280 [31.6]    | 600 [67.8]    |
| Continuous Line Current                |          | AMPS   |       | 15.1          | 7.8           | 33.17         |
| Peak Torque                            | Tpk      | IN-LBS[Nm]                                   |       | 830 [93.8]    | 780 [88.1]    | 1800 [203.4]  |
| Peak Current                           |          | AMPS   |       | 44.8          | 21.8          | 99.5          |
| Max. Theoretical Accel.                |          | RAD/SEC <sup>2</sup>                         |       | 20,244        | 19,024        | 23,077        |
| Torque Sensitivity                     | Kt       | IN-LBS/AMP[Nm/AMP]                           |       | 18.53 [2.05]  | 35.73 [4.04]  | 18.09 [2.04]  |
| Back EMF (Line to Line)                | ±10%     | Vrms/Krpm                                    |       | 165           | 318           | 161           |
| D.C. Resistance (P-P)                  | ±10%     | OHMS   |       | 1.4           | 4.6           | .44           |
| Inductance (P-P)                       | ±10%     | MILLIHENRIES                                 |       | 15.5          | 60.2          | 6.8           |
| Rotor Inertia                          | Jm       | IN-LBS-SEC <sup>2</sup> [Kg-M <sup>2</sup> ] |       | .0411[.00464] | .0411[.00464] | .0714[.00807] |
| Static Friction                        | Tf       | IN-LBS[Nm]                                   |       | 8.2[.92]      | 8.2[.92]      | 9.8[1.1]      |
| Motor Weight                           |          | LBS[Kg]                                      |       | 67[30.4]      | 67[30.4]      | 98[44.5]      |
| Line Voltage                           |          | VAC  |       | 460           | 460           | 460           |

| Motor Parameters                       |          |  | Units | 1902DTJ****  | 1904CTJ****  | 1904DTJ****  |
|--|----------|--|-------|--------------|--------------|--------------|
| Horsepower                             | Hp Rated | Hp   |       | 6.4          | 18.1         | 11.2         |
| Kilowatts                              | KW Rated | KW   |       | 4.8          | 13.5         | 8.4          |
| Max. Operating Speed                   | N Max    | RPM  |       | 1230         | 2500         | 1250         |
| Speed @ Rated Torque                   | N Rated  | RPM  |       | 800          | 2150         | 1050         |
| *Continuous Rated Torque @ Rated Speed |          | IN-LBS[Nm]                                   |       | 505 [57.1]   | 530 [59.9]   | 675 [76.3]   |
| *Continuous Stall Torque               |          | IN-LBS[Nm]                                   |       | 600 [67.8]   | 820 [92.7]   | 820 [92.7]   |
| Continuous Line Current                |          | AMPS   |       | 16.2         | 45.4         | 22.7         |
| Peak Torque                            | Tpk      | IN-LBS[Nm]                                   |       | 1440 [162.7] | 3000 [339]   | 3000 [339]   |
| Peak Current                           |          | AMPS   |       | 38.9         | 166          | 83.0         |
| Max. Theoretical Accel.                |          | RAD/SEC <sup>2</sup>                         |       | 18,462       | 22,556       | 22,556       |
| Torque Sensitivity                     | Kt       | IN-LBS/AMP[Nm/AMP]                           |       | 37 [4.18]    | 18.09 [2.04] | 36.18 [4.09] |
| Back EMF (Line to Line)                | ±10%     | Vrms/Krpm                                    |       | 329          | 161          | 322          |
| D.C. Resistance (P-P)                  | ±10%     | OHMS   |       | 2.0          | 19           | .72          |
| Inductance (P-P)                       | ±10%     | MILLIHENRIES                                 |       | 29.3         | 3.2          | 13.4         |
| Rotor Inertia                          | Jm       | IN-LBS-SEC <sup>2</sup> [Kg-M <sup>2</sup> ] |       | .0714[.0807] | .133[.0150]  | .133[.0150]  |
| Static Friction                        | Tf       | IN-LBS[Nm]                                   |       | 9.8[1.1]     | 13.0[1.5]    | 13.0[1.5]    |
| Motor Weight                           |          | LBS[Kg]                                      |       | 98[44.5]     | 160[72.6]    | 160[72.6]    |
| Line Voltage                           |          | VAC  |       | 460          | 460          | 460          |

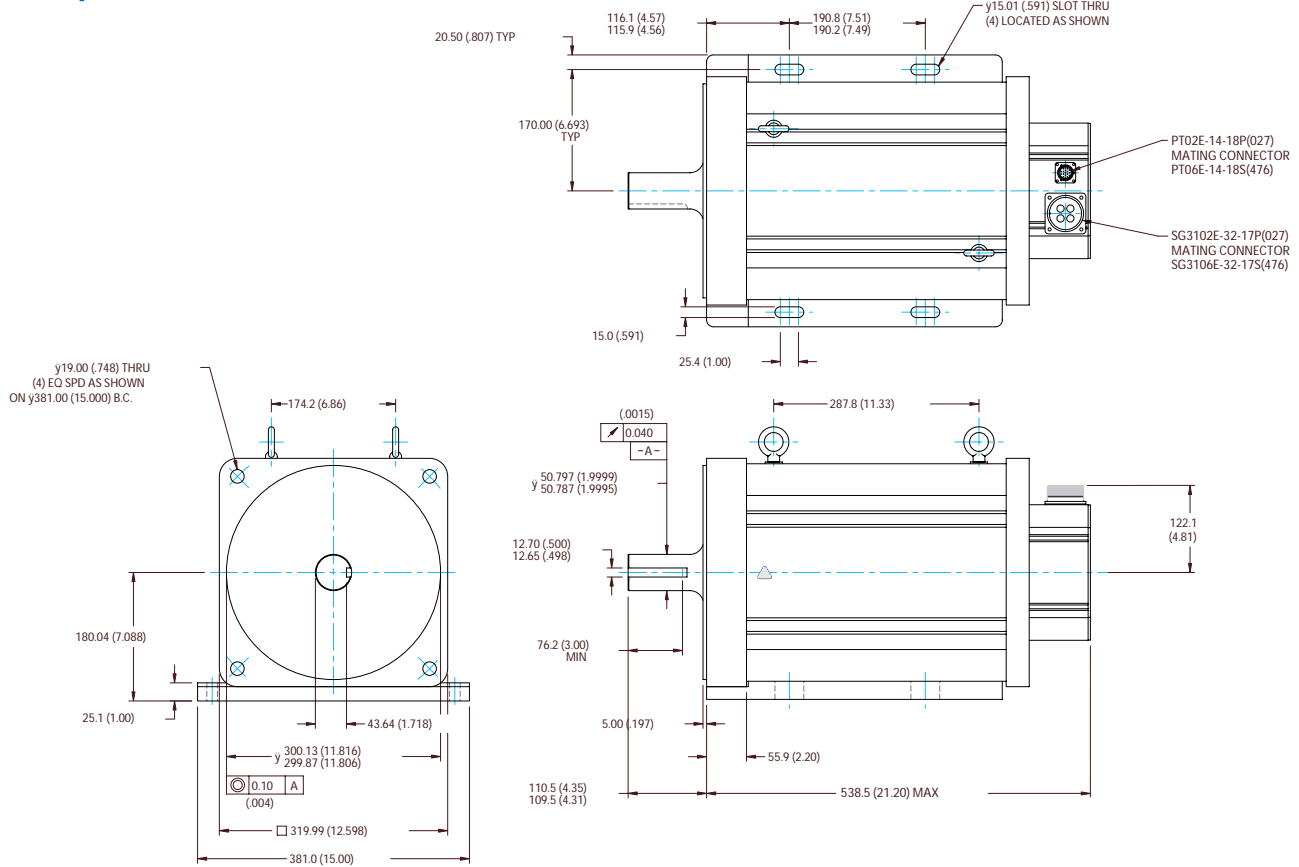
**Brake Info:**

Min. Holding Torque: 90FT-LBS  
 Input Voltage: 24VDC  
 Current : 1.4AMPS  
 Inertia : .0085 IN-LB-SEC<sup>2</sup>  
 Weight Adder: 18LBS

\*25° C Ambient with a maximum case temperature of 100° C on motor. Motor mounted on a 14" x 14" x 3/4" aluminum heatsink. Thermostat in stator windings will open if winding temperature exceeds 155° C. This allows for an approximate +10% headroom in the continuous torque rating before thermostat opens.

- Mechanical Notes:
1. Axial Load: 100 LBS. Max.
  2. Radial Load: 250 LBS. Max. @ 1" from face
  3. Motor Sealed to IP65

# 12" Custom Motors Example

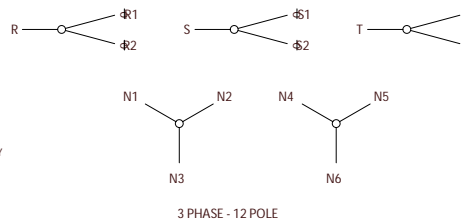
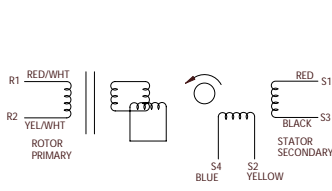


| MOTOR DATA @ 460 VAC (TRAP) |          |                                 |                |
|-----------------------------|----------|---------------------------------|----------------|
| MOTOR PARAMETERS            |          | UNITS                           | VALUE          |
| HORSEPOWER                  | HP RATED | Hp                              | 28.7           |
| KILOWATTS                   | KW RATED | KW                              | 21.4           |
| MAX. OPERATING SPEED        | N MAX    | RPM                             | 1523           |
| SPEED @ RATED TORQUE        | N RATED  | RPM                             | 1200           |
| * CONTINUOUS RATED TORQUE @ | 1200 RPM | IN-LBS[Nm]                      | 1508.0[169.8]  |
| * CONTINUOUS STALL TORQUE   |          | IN-LBS[Nm]                      | 1676.0[188.7]  |
| CONTINUOUS LINE CURRENT     |          | AMPS                            | 49.3           |
| PEAK TORQUE                 | Tpk      | IN-LBS[Nm]                      | 4190.0[471.8]  |
| PEAK CURRENT                |          | AMPS                            | 123.2          |
| MAX. THEORETICAL ACCEL.     |          | RAD/SEC <sup>2</sup>            | 5.053          |
| TORQUE SENSITIVITY          | Kt       | IN-LBS/AMP[Nm/AMP]              | 34.0[3.83]     |
| BACK EMF (LINE TO LINE)     | ±10%     | Vrms/Krpm                       | 302.4          |
| D.C. RESISTANCE (P-P)       | ±10%     | OHMS                            | .56            |
| INDUCTANCE (P-P)            | ±10%     | MILLIHENRIES                    | 7.4            |
| ROTOR INERTIA               | Jm       | IN-LBS-SEC [Kg-M <sup>2</sup> ] | 0.8292[0.0937] |
| STATIC FRICTION             | Tf       | IN-LBS[Nm]                      | 16.0[1.8]      |

\*25°C AMBIENT WITH A MAXIMUM CASE TEMPERATURE OF 100°C ON MOTOR. THERMOSTAT IN STATOR WINDINGS WILL OPEN IF WINDING EXCEEDS 155°C. THIS ALLOWS FOR AN APPROXIMATE +10% HEADROOM IN THE CONTINUOUS TORQUE RATING BEFORE THERMOSTAT OPENS.

**MECHANICAL NOTES:**

1. AXIAL LOAD: 400 LBS MAX
2. RADIAL LOAD: 1000 LBS MAX @ 1" FROM FACE
3. MOTOR SEALED TO IP65
4. MOTOR WEIGHT: -LBS. [- Kg]
5. MOTOR FINISH: BLACK EPOXY



| REVISIONS   |             |         |       |
|-------------|-------------|---------|-------|
| REV         | DESCRIPTION | DATE    | APPD. |
| PRELIMINARY |             | 6/16/00 | MVS   |

CONNECTION CHART  
MOTOR CONNECTOR:  
SG3102E-32-17P(027)  
(270-00066)

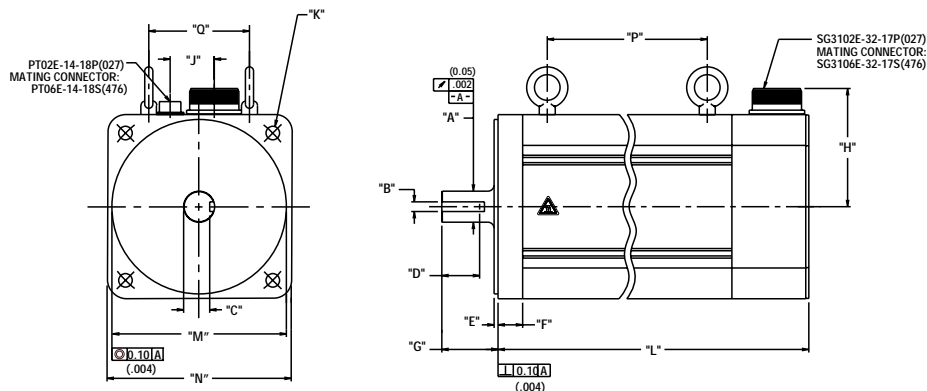
RESOLVER/THERM CONNECTOR:  
PT02E-14-18P(027)  
(270-00024)

| MOTOR WIRE LEADS |               |            |
|------------------|---------------|------------|
| PIN              | WIRE FUNCTION | WIRE COLOR |
| A                | ΦR            | RED        |
| B                | ΦS            | BLACK      |
| C                | ΦT            | BLUE       |
| D                | PE GND        | GRN/YEL    |

| RES/THERM WIRE LEADS |               |            |
|----------------------|---------------|------------|
| PIN                  | WIRE FUNCTION | WIRE COLOR |
| U                    | THERM         | BLACK      |
| N                    | THERM         | BLACK      |
| H                    | SIN           | YELLOW     |
| G                    | COS GND       | BLACK      |
| S                    | COS           | RED        |
| F                    | SIN GND       | BLUE       |
| R                    | REF GND       | YEL/WHT    |
| E                    | REF           | RED/WHT    |
| D                    | RES SHLD      | GRN/YEL    |
| P                    | GND           | GRN/YEL    |
| A                    | -             | -          |
| B                    | -             | -          |
| C                    | -             | -          |
| J                    | -             | -          |
| K                    | -             | -          |
| L                    | -             | -          |
| M                    | -             | -          |
| T                    | -             | -          |

| NO.   | PART NUMBER | DESCRIPTION | QTY. |
|---|-------------|-------------|------|
| TOLERANCES UNLESS SPECIFIED:<br>DECIMAL: .001<br>FRACTION: 1/32<br>HOLE DIA: .0015<br>ANGLE: 1/2° |             |             |      |
| <b>Parker Hannifin Automation Division</b>  |             |             |      |
| NO.   | DATE        | SCALE       | REV. |
| 1   | 6/16/00     | 1/4:1       | 1    |

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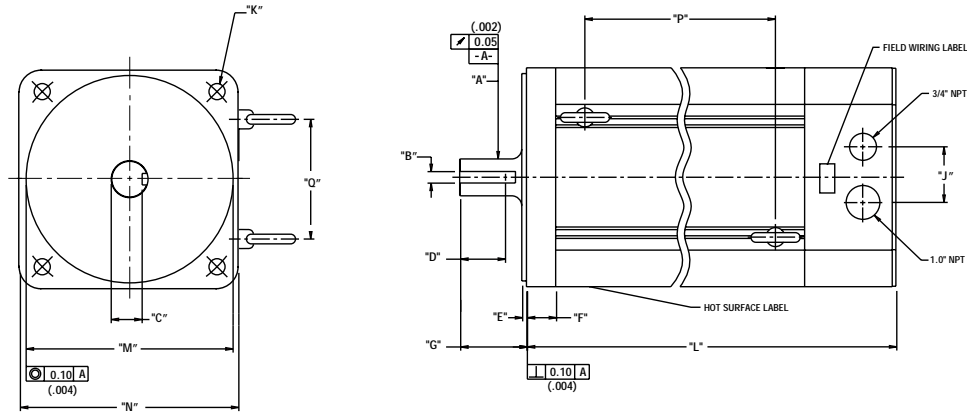
**8" (190) Metric Connectorized Termination-Option 1 Motors**

| Model          | "A"  | "B"                            | "C"          | "D"            | "E"       | "F"        | "G"                      | "H"         |
|----------------|--|--------------------------------|--------------|----------------|-----------|------------|--------------------------|-------------|
| MPM1901***7*** | $\emptyset$ 32.017(1.2605)<br>31.999(1.2598) | 10.000(.3937)<br>9.964(.3923)  | 26.90(1.059) | 39.0(1.54) Min | 4.0(0.16) | 25.4(1.00) | 58.5(2.30)<br>57.5(2.26) | 123.0(4.84) |
| MPM1902***7*** | $\emptyset$ 32.017(1.2605)<br>31.999(1.2598) | 10.000(.3937)<br>9.964(.3923)  | 26.90(1.059) | 39.0(1.54) Min | 4.0(0.16) | 25.4(1.00) | 58.5(2.30)<br>57.5(2.26) | 123.0(4.84) |
| MPM1904***7*** | $\emptyset$ 48.019(1.8905)<br>47.998(1.8897) | 14.000(.5512)<br>13.957(.5495) | 42.39(1.669) | 39.0(1.54) Min | 4.0(0.16) | 25.4(1.00) | 58.5(2.30)<br>57.5(2.26) | 123.0(4.84) |

| Model          | J"         | "K"   | "L"             | "L" w/ Brake    | "M"  | "N"                   | "P"          | "Q"         |
|----------------|------------|---|-----------------|-----------------|--|-----------------------|--------------|-------------|
| MPM1901***7*** | 45.5(1.79) | $\emptyset$ 14.00(.551)THRU (4)EQ SPD<br>AS SHOWN ON $\emptyset$ 215.00(8.464) B.C. | 321.2(12.65)Max | 397.5(15.65)Max | $\emptyset$ 180.01(7.087)<br>179.99(7.086) | $\square$ 190.0(7.48) | 165.1(6.50)  | 103.9(4.09) |
| MPM1902***7*** | 45.5(1.79) | $\emptyset$ 14.00(.551)THRU (4)EQ SPD<br>AS SHOWN ON $\emptyset$ 215.00(8.464) B.C. | 397.5(15.65)Max | 473.7(18.65)Max | $\emptyset$ 180.01(7.087)<br>179.99(7.086) | $\square$ 190.0(7.48) | 241.3(9.50)  | 103.9(4.09) |
| MPM1904***7*** | 45.5(1.79) | $\emptyset$ 14.00(.551)THRU (4)EQ SPD<br>AS SHOWN ON $\emptyset$ 215.00(8.464) B.C. | 549.9(21.65)Max | 626.1(24.65)Max | $\emptyset$ 180.01(7.087)<br>179.99(7.086) | $\square$ 190.0(7.48) | 393.7(15.50) | 103.9(4.09) |

Metric = 7 Units: mm (in) For Mechanical Dimensions on Termination Option 2 Consult Factory.  
 Option 6-Not Available  
 Custom Mounts-Consult Factory





**8" (190) Metric NPT Termination-Option 3 Motors**

| Model          | "A"                                  | "B"                              | "C"           | "D"            | "E"        | "F"         | "G"                        |
|----------------|--------------------------------------|----------------------------------|---------------|----------------|------------|-------------|----------------------------|
| MPM1901***7*** | ∅ 32.017 (1.2605)<br>31.999 (1.2598) | 10.000 (.3937)<br>9.964 (.3923)  | 26.90 (1.059) | 39.0 (1.54)Min | 4.0 (0.16) | 25.4 (1.00) | 58.5 (2.30)<br>57.5 (2.26) |
| MPM1902***7*** | ∅ 32.018 (1.2605)<br>31.998 (1.2598) | 10.000 (.3937)<br>9.964 (.3923)  | 26.90 (1.059) | 39.0 (1.54)Min | 4.0 (0.16) | 25.4 (1.00) | 58.5 (2.30)<br>57.5 (2.26) |
| MPM1904***7*** | ∅ 48.019 (1.8905)<br>47.998 (1.8897) | 14.000 (.5512)<br>13.957 (.5495) | 42.39 (1.669) | 39.0 (1.54)Min | 4.0 (0.16) | 25.4 (1.00) | 58.5 (2.30)<br>57.5 (2.26) |

| Model          | "J"         | "K"   | "L"              | "L" w/ Brake     | "M"                                | "N"            | "P"           | "Q"          |
|----------------|-------------|---|------------------|------------------|------------------------------------|----------------|---------------|--------------|
| MPM1901***7*** | 48.3 (1.90) | ∅14.00 (.551)THRU (4)EQ SPD<br>AS SHOWN ON ∅215.00 (8.464) B.C. | 321.2 (12.65)Max | 397.5 (15.65)Max | ∅ 180.01 (7.087)<br>179.99 (7.086) | □ 190.0 (7.48) | 165.1 (6.50)  | 103.9 (4.09) |
| MPM1902***7*** | 48.3 (1.90) | ∅14.00 (.551)THRU (4)EQ SPD<br>AS SHOWN ON ∅215.00 (8.464) B.C. | 397.5 (15.65)Max | 473.7 (18.65)Max | ∅ 180.01 (7.087)<br>179.99 (7.086) | □ 190.0 (7.48) | 241.3 (9.50)  | 103.9 (4.09) |
| MPM1904***7*** | 48.3 (1.90) | ∅14.00 (.551)THRU (4)EQ SPD<br>AS SHOWN ON ∅215.00 (8.464) B.C. | 549.9 (21.65)Max | 626.1 (24.65)Max | ∅ 180.01 (7.087)<br>179.99 (7.086) | □ 190.0 (7.48) | 393.7 (15.50) | 103.9 (4.09) |

Metric = 7 Units: mm (in) For Mechanical Dimensions on Termination Option 2 Consult Factory.  
 Option 6-Not Available  
 Custom Mounts-Consult Factory

**Custom Designed Servo Motors For Your Specific Application. Call 1-800-358-9070 Today.**

**8" Motor with Resolver Feedback**

**Option 1**

**Motor Connector 270-00066 (SG3102E-32-17P(027))**

| Pin | Function |
|-----|----------|
| A   | $\phi R$ |
| B   | $\phi S$ |
| C   | $\phi T$ |
| D   | PE GND   |

**Resolver Connector 270-00024(PT02E-14-18P(027))**

| Pin | Function |
|-----|----------|
| U   | THERM    |
| N   | THERM    |
| H   | SIN      |
| G   | COS GND  |
| S   | COS      |
| F   | SIN GND  |
| R   | REF GND  |
| E   | REF      |
| D   | RES SHLD |
| P   | GND      |
| *A  | BRK (+)  |
| *B  | BRK (-)  |
| *C  | BRK SHLD |
| J   | -        |
| K   | -        |
| L   | -        |
| M   | -        |
| T   | -        |

\*USE ONLY WITH BRAKE OPTION

**Option 2**

**Motor Connector 270-00352 (FECF08CMRAB000)**

| Pin | Function     |
|-----|--------------|
| U   | $\phi R(U1)$ |
| V   | $\phi S(V1)$ |
| W   | $\phi T(W1)$ |
| PE  | PE GND       |
| *+  | BRK (+)      |
| *-  | BRK (-)      |
| 1   | THERM        |
| 2   | THERM        |

\*USE ONLY WITH BRAKE OPTION

**Resolver Connector 270-00257 (AEGA052NN0000013000)**

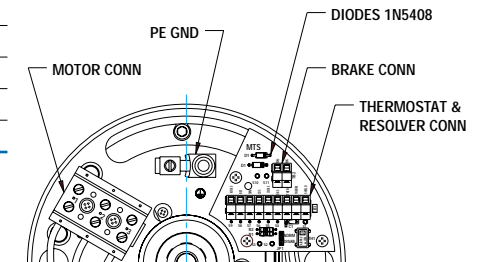
| Pin | Function     |
|-----|--------------|
| 1   | -            |
| 2   | REF (R1)     |
| 3   | REF GND (R2) |
| 4   | COS GND (S1) |
| 5   | COS (S3)     |
| 6   | SIN (S2)     |
| 7   | SIN GND (S4) |
| 8   | -            |
| 9   | -            |
| 10  | -            |
| 11  | -            |
| 12  | -            |

**Option 3**

**Connection Chart (NPT) Resolver**

| Terminal | Function |
|----------|----------|
| 1        | $\phi R$ |
| 2        | $\phi S$ |
| 3        | $\phi T$ |
| -        | PE GND   |
| *S11     | BRK (+)  |
| *S10     | BRK (-)  |
| S9       | REF GND  |
| S8       | REF      |
| S7       | SIN      |
| S6       | COS      |
| S5       | COS GND  |
| S4       | SIN GND  |
| S3       | THERM    |
| S2       | THERM    |
| S1       | RES SHLD |

\*USE ONLY WITH BRAKE OPTION



**8" Motor with Encoder Feedback**

**Option 1**

Motor Connector 270-00066 (SG3102E-32-17P(027))



| Pin | Function |
|-----|----------|
| A   | $\phi R$ |
| B   | $\phi S$ |
| C   | $\phi T$ |
| D   | PE GND   |

Encoder Connector 270-00024(PT02E-14-18P(027))

| Pin | Function  |
|-----|-----------|
| T   | GROUND    |
| K   | +5VDC     |
| B   | CH A      |
| C   | CH A\     |
| N   | CH B      |
| P   | CH B\     |
| M   | CH Z      |
| U   | CH Z\     |
| E   | CH U      |
| R   | CH U\     |
| F   | CH V      |
| S   | CH V\     |
| G   | CH W      |
| H   | CH W\     |
| D   | GND/CABLE |
| A   | THERM     |
| L   | THERM     |
| J   | GND       |

**Option 1 with brake**



Encoder Brake Connector 270-00219 (PT02E-16-23P(027))

| Pin | Function   |
|-----|--|
| T   | GROUND   |
| K   | +5VDC  |
| B   | CH A   |
| C   | CH A\  |
| N   | CH B   |
| P   | CH B\  |
| M   | CH Z   |
| U   | CH Z\  |
| E   | CH U   |
| R   | CH U\  |
| F   | CH V   |
| S   | CH V\  |
| G   | CH W   |
| H   | CH W\  |
| D   | GND/CABLE  |
| A   | THERM  |
| L   | THERM  |
| J   | GND  |
| V*  | BRK (+)   |
| W*  | BRK (-)  |
| X*  | BRK SHLD   |
| Y   | -  |
| Z   | -  |

\*USE ONLY WITH BRAKE OPTION

**Option 2**

Motor Connector 270-00352 (FECF08CMRAB000)

| Pin | Function  |
|-----|---|
| U   | $\phi R(U1)$  |
| PE  | PE GND  |
| W   | $\phi S(W1)$  |
| V   | $\phi T(V1)$  |
| *+  | BRK (+)  |
| *-  | BRK (-)  |
| 1   | THERM   |
| 2   | THERM   |

\* USE ONLY WITH BRAKE OPTION

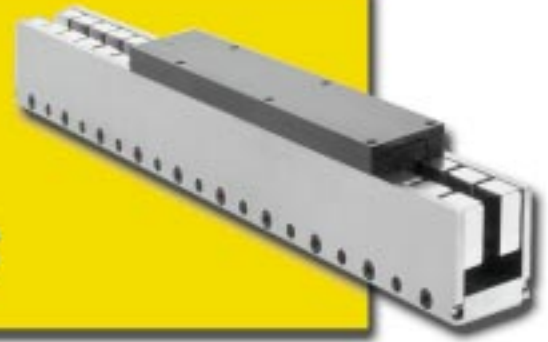
Motor Connector 270-00257 (AEGA052NN00000013000)

| Pin | Function    |
|-----|-------------|
| 1   | GND(OV)     |
| 2   | CH A(A)     |
| 3   | CH A(A\)    |
| 4   | CH B(B)     |
| 5   | CH B(B\)    |
| 6   | CH Z(Z)     |
| 7   | CH Z(Z\)    |
| 8   | +5V(+5V)    |
| 9   | -           |
| 10  | CH U(RL GU) |
| 11  | CH V(RL GV) |
| 12  | CH W(RL GW) |

**Option 3-Consult Factory**

Custom Designed Servo Motors For Your Specific Application. Call 1-800-358-9070 Today.

# MaxPlus® Series Linear Motors



## MaxPlus® Linear Servo Motors

The MaxPlus linear servo motors are revolutionizing the industry with its superior linear motion technology.

Available in both dual row and single row magnet configurations, MaxPlus linear motors are designed to exceed the rigorous demands required in advanced manufacturing, assembly, test and inspection environments. Our MaxPlus line of linear servo motors utilizes an ironless core design that provides high peak-to-continuous force ratios and extremely high acceleration in high-speed applications. MaxPlus linear motors have superior thermal properties and the highest force to coil weight available. All of which means you can expect exceptional performance, smooth motion, high accuracy, plus unparalleled acceleration and stiffness.

Compumotor is continually working with new and emerging technologies to improve our product offering. For example, MaxPlus linear servo motors utilize a patented, automated machine winding technology that results in excellent unit-to-unit consistency at a significantly lower cost.

### MaxPlus Linear Motor Features

- Continuous force up to 325 lbs./1446N
- Peak force up to 1620 lbs./7206N
- High force to coil mass ratio
- High accuracy/repeatability
- Efficient thermal performance
- Velocities > 10M/sec. Accelerations > 10G
- Zero magnetic preload
- Sinusoidal or hall effect commutation
- Thermistor
- Thermostat optional
- High-performance rare earth magnets
- Low inductance coil for fast response
- Non-contacting assemblies
- Continuous track to 72 in./1.8m\*
- Configurable connections/cable options
- Fully customizable design

\* 2000 Series available to 72 in./1.8m



## BEMF Constant

The BEMF constant is multiplied by the maximum motor speed to determine how much voltage is generated by the motor. The amplifier must be able to produce more voltage than the generated voltage to cause current to flow in the motor. The following formula is a good rule of thumb to determine the needed amplifier voltage:

Bus Voltage =  $1.25 * ((\text{BEMF} * \text{Max Speed}) + (\text{DC Resistance (hot)} * \text{Current}))$   
Remember to express speed in inches per second.

## Continuous Force

Continuous force is the largest force that the motor can exert on the system for an extended period of time. To use the motor at this power level, a suitable heat sink must be provided for all the power dissipated by the motor (see Heat Management).

## Force Constant

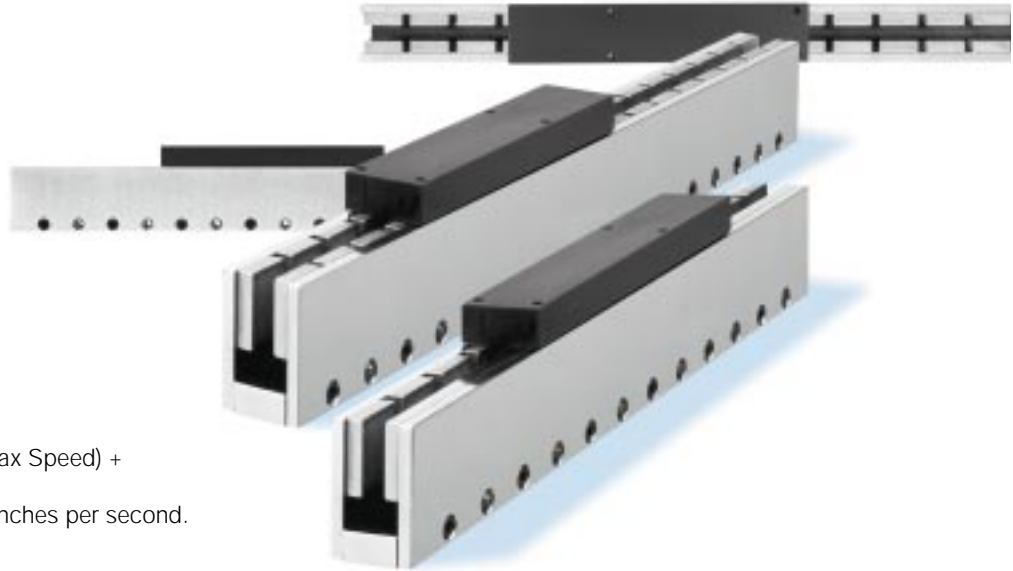
The force constant is the force produced by applying 1 amp DC to the motor and is specified in LBS/AMP (N/AMP).

## Peak Force

Peak force is the largest force that the motor can exert on the system for a short period of time. It is specified for a 10% or shorter duty cycle. To use the motor at peak force, a suitable heat sink must be provided for all the power dissipated by the motor (see Heat Management).

## Electrical Time Constant

The electrical time constant is the motor inductance divided by the motor resistance. It is a measure of how quickly the motor current can be changed. The stated value is the time it takes for the current to arrive at the 63% point of the applied current. The MaxPlus Linear Motor is ironless and has a low inductance. This allows the motor response to be very quick.



## HED (Hall Effect Device)

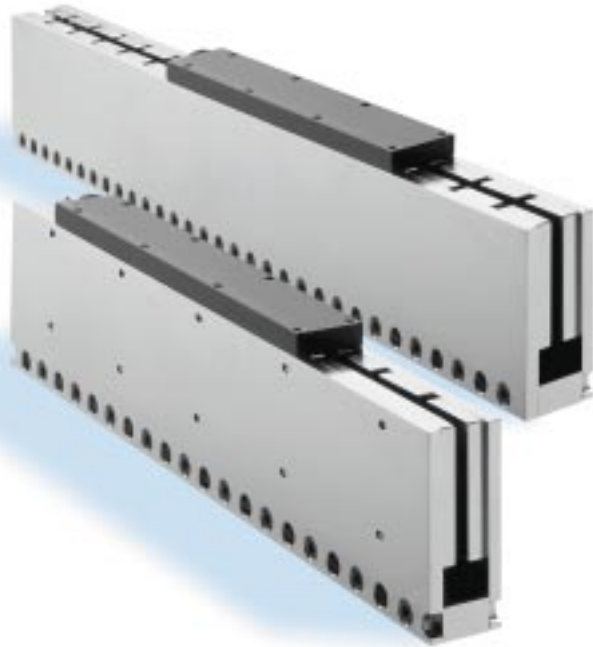
All servo amplifiers will require some type of commutation device. A Hall Device is available for commutation of trapezoidal type drives and for initial positioning for Sine type drives. The HED is positioned deep within the magnet track to prevent picking up external disturbances. It is built in to the coil as an option to minimize added length.

## Heat Management

All motor coils contain resistance. As current is driven through this resistance, heat is produced. The power lost (heat) is equal to the current squared times the resistance ( $P=I^2R$ ). The MaxPlus linear motor has been optimized such that resistance is minimized and the thermal path to remove heat from the motor is as efficient as possible. Heat management is the principal design criteria when applying this style of motor. Failure to observe and control heat can result in motor failure.

MaxPlus motors come with a thermistor to measure the motor temperature, and provides complete thermal protection, ensuring a long life for both the motor and the system. A thermostat type switch is available as an option to shut the system down if the motor temperature rating is exceeded.

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## Coil Length

The coil length is actually the length of the coil, excluding the mounting bracket. It does not include the bend radius of cable attached to the end of the motor bracket. The length of travel is normally described as the magnet track length minus the coil length. Remember to account for the length of the HED module when required.

## Coil Weight

The specified weight of the coil assembly includes approximately one foot of cable. This weight should be added to the stage and load weights to calculate the total moving mass.

## Inductance

The inductance of the winding and the resistance of the winding determine the electrical time constant of the motor. Lower inductance is desired for faster motor response but the amplifier may require a minimum inductance to drive the motor successfully. The option of coil connections in parallel reduces inductance, back EMF and resistance, but requires double the current to produce the same force.

## Resistance

Understanding the motor resistance is important to proper motor application. Motor resistance increases with temperature by 0.393% per degree C. Motor power is defined by the equation:  $P=I^2 * R$

Where: I=Current

P=Power

R=Resistance

As the motor warms up (keeping the current a constant) the power dissipated by the motor increases. This increase causes the motor to warm up even faster. The temperature reached by the winding is above the ambient temperature as a result of the power being dissipated by the motor.

## Heat Management, continued

When applications of the MaxPlus linear motor approach performance extremes, heat dissipation will be the principal limiting factor. Heat is removed from the motor by conduction into the attached mass (motor load), convection and radiation into the surrounding environment. Of these, conduction is the primary contributor. The motor load (stage, work-piece, table, etc.) must behave as a heat sink to conduct heat away from the motor. Heat must be conducted away fast enough to maintain a temperature below the maximum rating during motor "STALL" conditions. The motor temperature MUST NEVER be allowed to go higher than the maximum 125°C rating.

The power (P) into the motor during static conditions is determined by the equation  $P=I^2 R$  where I is the current being supplied to the motor and R is the resistance of the motor coils.

A current of 4 Amps through the resistance of 8 ohms will cause the motor to draw 128 watts. A rated motor resistance of 8 ohms at room temperature will become 11.3 ohms at 125°C. At this resistance the power draw becomes 180 watts. Heat must be withdrawn fast enough such that the motor does not exceed its maximum rated temperature.

The user must be aware of the system thermal dynamics, the heat removal process and the responsibility to design with one of the thermal protection devices active. Contact the factory for more information about the use of these devices in your system, or additional cooling options to extend the operating range of the motor.

**Coil Ordering Chart**

| LMC               | 12            | 4                                  | 1             | S          | 072                             | X                                 |
|-------------------|---------------|------------------------------------|---------------|------------|---------------------------------|-----------------------------------|
| LINEAR MOTOR COIL | FRAME SIZE    | COIL STATOR LENGTH                 | COIL TYPE     | CONFIG     | CABLE LENGTH                    | THERMAL DEVICE                    |
|                   |               |                                    |               |            | STANDARD                        |                                   |
|                   | 12=1200SERIES | 1                                  | 1=COIL ONLY   | S=SERIES   | 072=72"                         | L=NORMALLY CLOSED                 |
|                   | 15=1500SERIES | 2                                  | 3=COIL/120HED | P=PARALLEL | 180=180"                        | F=NORMALLY OPEN                   |
|                   | 20=2000SERIES | 3                                  |               |            |                                 |                                   |
|                   | 28=2800SERIES | 4                                  |               |            | *SPECIAL LENGTH CONSULT FACTORY | X=NEGATIVE TEMP. COEF. THERMISTOR |
|                   |               | 5* ONLY WITH 2000and 2800SERIES    |               |            |                                 |                                   |
|                   |               | 6, 7, and 8** ONLY WITH 2800SERIES |               |            |                                 |                                   |

The jacket strip length is 2.0" Standard. The lead strip length is .25" Standard.

If product cannot fall under this system, it will be processed as special. The special part number system will follow as the above example except after coil there will be a "-" and a 5 digit number, i.e., LMC1241-20000 (Thru 49999)

**Magnet Track Ordering Chart**

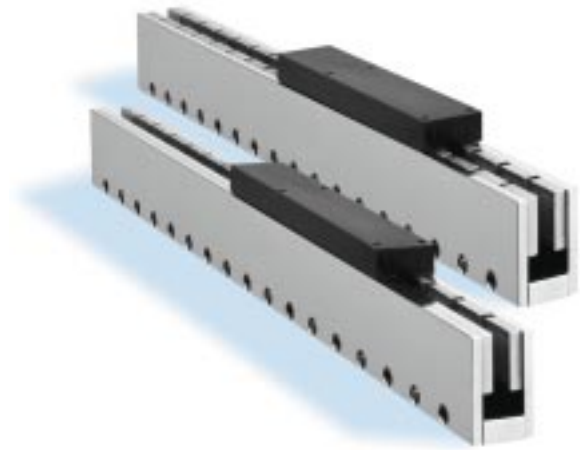
| LM           | D            | T     | 12             | 25.2   | F                               | S          | S          |
|--------------|--------------|-------|----------------|--|---------------------------------|------------|------------|
| LINEAR MOTOR | OPTION       | TRACK | SIZE           | TRACK LENGTH                                 | MAGNET                          | PROFILE    | STANDARD   |
|              |              |       |                |  |                                 |            |            |
|              | D=DOUBLE ROW |       | 12=1200 SERIES | 25.2=25.2"                                   | F=1200,1500 and 2800 (STANDARD) | S=STANDARD | S=STANDARD |
|              | S=SINGLE ROW |       | 15=1500 SERIES | *1200and 1500 SERIES SOLD IN 1.2" INCREMENTS | B=2000 (STANDARD)               |            |            |
|              |              |       | 20=2000 SERIES | *2000and 2800 SERIES SOLD IN 2.4" INCREMENTS |                                 |            |            |
|              |              |       | 28=2800 SERIES |  |                                 |            |            |

If product cannot fall under this system, it will be processed as special. The special part number system will follow as the above example except after track length there will be a "-" and a 5 digit number, i.e., LMD1225.2-50000 (thru 99999)

Note: For Metric Mounting, Consult Factory.

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# 1200 Series Brushless Linear Servo Motor



## 1200 LMST Motor Data

|                        | Units         | 1200-1      | 1200-2      | 1200-3      | 1200-4       |
|------------------------|---------------|-------------|-------------|-------------|--------------|
| Coil Length            | IN[mm]        | 2.4[60.96]  | 4.8[121.92] | 7.2[182.88] | 9.6[243.84]  |
| Bracket Length****     | IN[mm]        | 3.6[91.44]  | 6.0[152.40] | 8.4[213.36] | 10.8[274.32] |
| Coil Weight            | LBS[Kg]       | 0.22[0.099] | 0.44[0.199] | 0.66[0.299] | 0.88[0.399]  |
| Magnet Track Weight*** | LBS/FT[gr/mm] | 2.0[2.98]   | 2.0[2.98]   | 2.0[2.98]   | 2.0[2.98]    |
| Max. Operating Temp    | °C            | 125         | 125         | 125         | 125          |

| Series Connected Coils                           | Units        | 1200-1       | 1200-2       | 1200-3        | 1200-4        |
|--|--------------|--------------|--------------|---------------|---------------|
| Force Constant                                   | LBS[N]/AMP   | 1.12[4.98]   | 2.24[9.96]   | 3.36[14.95]   | 4.48[19.93]   |
| Continuous Force                                 | LBS[N]       | 3.36[14.95]  | 6.72[29.89]  | 10.08[44.84]  | 13.44[59.78]  |
| Continuous Current**                             | AMPS         | 3.0          | 3.0          | 3.0           | 3.0           |
| Continuous Power at 125°C                        | WATTS        | 98.19        | 193.83       | 290.74        | 387.66        |
| Peak Force                                       | LBS[N]       | 10.62[47.24] | 21.25[94.52] | 31.88[141.81] | 42.50[189.05] |
| Peak Current                                     | AMPS         | 9.49         | 9.49         | 9.49          | 9.49          |
| Peak Power at 125°C                              | WATTS        | 982.0        | 1938.0       | 2907.0        | 3877.0        |
| Coil Resistance* at 25°C at Coil                 | OHMS         | 10.86        | 21.72        | 32.58         | 43.44         |
| Phase Resistance* at 25°C in Delta               | OHMS         | 7.24         | 14.48        | 21.72         | 28.96         |
| Coil Resistance* at max operating temp at Coil   | OHMS         | 16.37        | 32.30        | 48.46         | 64.61         |
| Phase Resistance* at max operating temp in Delta | OHMS         | 10.91        | 21.54        | 32.30         | 43.07         |
| Inductance at 1kHz                               | mH           | 1.98         | 3.96         | 5.94          | 7.92          |
| Back EMF Constant                                | V/IPS[V/MPS] | 0.13[5.12]   | 0.26[10.23]  | 0.39[15.35]   | 0.52[20.47]   |
| Electrical Time Constant*                        | MSEC         | 0.10         | 0.10         | 0.10          | 0.10          |

| Parallel Connected Coils                         | Units        | 1200-1       | 1200-2       | 1200-3        | 1200-4        |
|--|--------------|--------------|--------------|---------------|---------------|
| Force Constant                                   | LBS[N]/AMP   | 0.56[2.49]   | 1.12[4.98]   | 2.24[9.96]    | 3.36[14.95]   |
| Continuous Force                                 | LBS[N]       | 3.36[14.95]  | 6.72[29.89]  | 10.08[44.84]  | 13.44[59.78]  |
| Continuous Current**                             | AMPS         | 6.0          | 6.0          | 6.0           | 6.0           |
| Continuous Power at 125°C                        | WATTS        | 98.19        | 193.83       | 290.74        | 387.66        |
| Peak Force                                       | LBS[N]       | 10.62[47.24] | 21.25[94.52] | 31.88[141.81] | 42.50[189.05] |
| Peak Current                                     | AMPS         | 18.97        | 18.97        | 18.97         | 18.97         |
| Peak Power at 125°C                              | WATTS        | 982.0        | 1938.0       | 2907.0        | 3877.0        |
| Coil Resistance* at 25°C at Coil                 | OHMS         | 2.72         | 5.43         | 8.15          | 10.86         |
| Phase Resistance* at 25°C in Delta               | OHMS         | 1.81         | 3.62         | 5.43          | 7.24          |
| Coil Resistance* at max operating temp at Coil   | OHMS         | 4.09         | 8.08         | 12.11         | 16.15         |
| Phase Resistance* at max operating temp in Delta | OHMS         | 2.73         | 5.38         | 8.08          | 10.77         |
| Inductance at 1kHz                               | mH           | 0.50         | 0.99         | 1.49          | 1.98          |
| Back EMF Constant                                | V/IPS[V/MPS] | 0.06[2.36]   | 0.13[5.12]   | 0.20[7.87]    | 0.26[10.23]   |
| Electrical Time Constant*                        | MSEC         | 0.10         | 0.10         | 0.10          | 0.10          |

\*These specifications reflect a 6-lead or delta connection coil with 1 foot of cable. A 6-lead motor has starts/finishes available at the cable end for control of each individual phase. Additional cable will increase resistance values.

\*\*An appropriate heatsink is required to dissipate the continuous power generated by the motor coil, thus maintaining the coil assembly at or below the maximum specified operating temperature. Consult the Compumotor applications manual for more detail on thermal management.

\*\*\*Magnet track weight specified for 1200-LMST model. Lightweight magnet tracks are available. Please consult with your local representative or Compumotor for more information.

\*\*\*\*Without Hall Effect Device



**1200 LMDT Motor Data**

|                        | Units         | 1200-1      | 1200-2      | 1200-3      | 1200-4       |
|------------------------|---------------|-------------|-------------|-------------|--------------|
| Coil Length            | IN[mm]        | 2.4[60.96]  | 4.8[121.92] | 7.2[182.88] | 9.6[243.84]  |
| Bracket Length****     | IN[mm]        | 3.6[91.44]  | 6.0[152.40] | 8.4[213.36] | 10.8[274.32] |
| Coil Weight            | LBS[Kg]       | 0.22[0.099] | 0.44[0.199] | 0.66[0.299] | 0.88[0.399]  |
| Magnet Track Weight*** | LBS/FT[gr/mm] | 2.0[2.98]   | 2.0[2.98]   | 2.0[2.98]   | 2.0[2.98]    |
| Max. Operating Temp    | °C            | 125         | 125         | 125         | 125          |

| Series Connected Coils                           | Units        | 1200-1       | 1200-2        | 1200-3        | 1200-4        |
|--|--------------|--------------|---------------|---------------|---------------|
| Force Constant                                   | LBS[N]/AMP   | 2.0[8.90]    | 4.0[17.79]    | 6.0[26.69]    | 8.0[35.59]    |
| Continuous Force                                 | LBS[N]       | 6.0[26.69]   | 12.0[53.38]   | 18.0[80.07]   | 24.0[106.76]  |
| Continuous Current**                             | AMPS         | 3.0          | 3.0           | 3.0           | 3.0           |
| Continuous Power at 125°C                        | WATTS        | 98.19        | 193.83        | 290.74        | 387.66        |
| Peak Force                                       | LBS[N]       | 18.97[84.38] | 37.95[168.81] | 56.94[253.26] | 75.89[337.58] |
| Peak Current                                     | AMPS         | 9.49         | 9.49          | 9.49          | 9.49          |
| Peak Power at 125°C                              | WATTS        | 982.0        | 1938.0        | 2907.0        | 3877.0        |
| Coil Resistance* at 25°C at Motor                | OHMS         | 10.86        | 21.72         | 32.58         | 43.44         |
| Phase Resistance* at 25°C in Delta               | OHMS         | 7.24         | 14.48         | 21.72         | 28.96         |
| Coil Resistance* at max operating temp at Coil   | OHMS         | 16.37        | 32.30         | 48.46         | 64.61         |
| Phase Resistance* at max operating temp in Delta | OHMS         | 10.91        | 21.54         | 32.30         | 43.07         |
| Inductance at 1kHz                               | mH           | 1.98         | 3.96          | 5.94          | 7.92          |
| Back EMF Constant                                | V/IPS[V/MPS] | 0.23[9.06]   | 0.47[18.50]   | 0.70[27.56]   | 0.93[36.61]   |
| Electrical Time Constant*                        | MSEC         | 0.18         | 0.18          | 0.18          | 0.18          |

| Parallel Connected Coils                         | Units        | 1200-1       | 1200-2        | 1200-3        | 1200-4        |
|--|--------------|--------------|---------------|---------------|---------------|
| Force Constant                                   | LBS[N]/AMP   | 1.0[4.45]    | 2.0[8.90]     | 3.0[13.34]    | 4.0[17.79]    |
| Continuous Force                                 | LBS[N]       | 6.0[26.69]   | 12.0[53.38]   | 18.0[80.07]   | 24.0[106.76]  |
| Continuous Current**                             | AMPS         | 6.0          | 6.0           | 6.0           | 6.0           |
| Continuous Power at 125°C                        | WATTS        | 98.19        | 193.83        | 290.74        | 387.66        |
| Peak Force                                       | LBS[N]       | 18.97[84.38] | 37.95[168.81] | 56.94[253.26] | 75.89[337.58] |
| Peak Current                                     | AMPS         | 18.97        | 18.97         | 18.97         | 18.97         |
| Peak Power at 125°C                              | WATTS        | 982.0        | 1938.0        | 2907.0        | 3877.0        |
| Coil Resistance* at 25°C at Motor                | OHMS         | 2.72         | 5.43          | 8.15          | 10.86         |
| Phase Resistance* at 25°C in Delta               | OHMS         | 1.81         | 3.62          | 5.43          | 7.24          |
| Coil Resistance* at max operating temp at Coil   | OHMS         | 4.09         | 8.08          | 12.11         | 16.15         |
| Phase Resistance* at max operating temp in Delta | OHMS         | 2.73         | 5.38          | 8.08          | 10.77         |
| Inductance at 1kHz                               | mH           | 0.50         | 0.99          | 1.49          | 1.98          |
| Back EMF Constant                                | V/IPS[V/MPS] | 0.12[4.53]   | 0.24[9.25]    | 0.35[13.78]   | 0.47[18.31]   |
| Electrical Time Constant*                        | MSEC         | 0.18         | 0.18          | 0.18          | 0.18          |

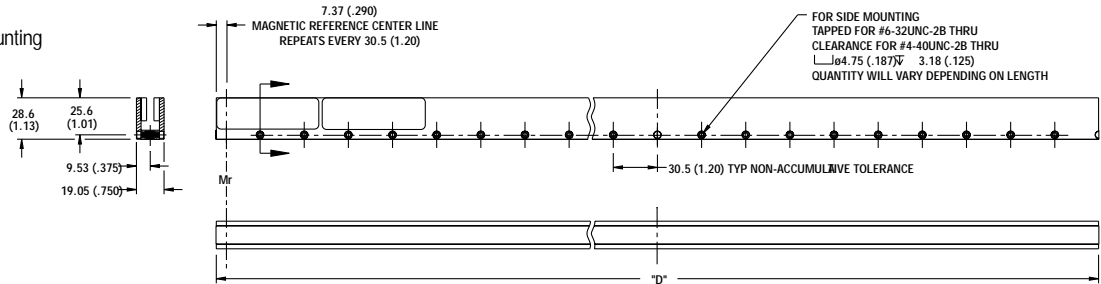
\*These specifications reflect a 6-lead or delta connection coil with 1 foot of cable. A 6-lead motor has starts/finishes available at the cable end for control of each individual phase. Additional cable will increase resistance values.  
 \*\*An appropriate heatsink is required to dissipate the continuous power generated by the motor coil, thus maintaining the coil assembly at or below the maximum specified operating temperature. Consult the Compumotor applications manual for more detail on thermal management.  
 \*\*\*Magnet track weight specified for 1200-LMDT model. Lightweight magnet tracks are available. Please consult with your local representative or Compumotor for more information.  
 \*\*\*\*Without Hall Effect Device

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**1200 Series Magnet Track**

Customer will also have 1/4-28UNF-2B holes in the bottom for mounting.

Consult factory for specific mounting patterns for different magnet track lengths.

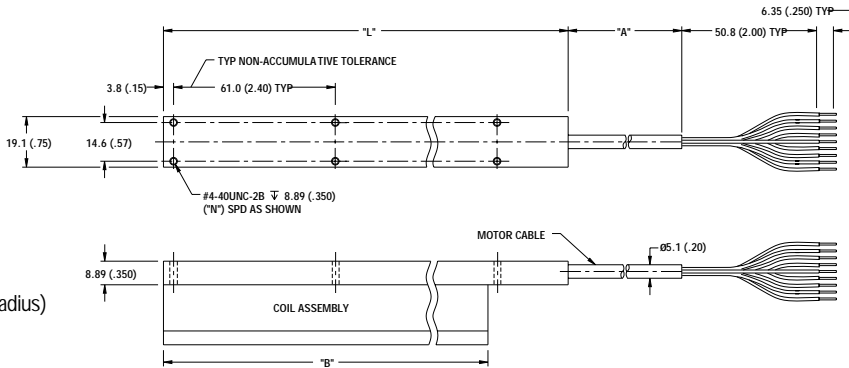


**1200 Series Coil**

| Coil Length | "L" in / mm  | "N" # of Holes | "B" in / mm  |
|-------------|--------------|----------------|--------------|
| 1           | 3.6 / 91.4   | 4              | 2.41 / 61.2  |
| 2           | 6.0 / 152.4  | 6              | 4.81 / 122.2 |
| 3           | 8.4 / 213.4  | 8              | 7.21 / 183.1 |
| 4           | 10.8 / 274.3 | 10             | 9.61 / 244.1 |

Travel distance (no vertical obstruction) = Magnet track length ("D") – Coil length ("B")

Travel distance (with vertical obstruction) = Magnet track length ("D") – (Coil length ("L") + 2.0" Cable bend radius)

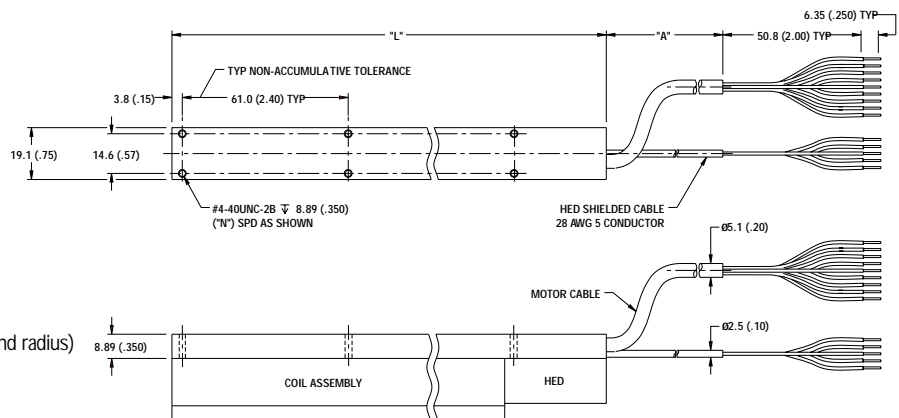


**1200 Series Coil/120° HED**

| Coil Length | "L" in / mm  | "N" # of Holes |
|-------------|--------------|----------------|
| 1           | 3.9 / 99.1   | 4              |
| 2           | 6.3 / 160.0  | 6              |
| 3           | 8.7 / 221.0  | 8              |
| 4           | 11.1 / 281.9 | 10             |

Travel distance (no vertical obstruction) = Magnet track length ("D") – Coil length ("L")

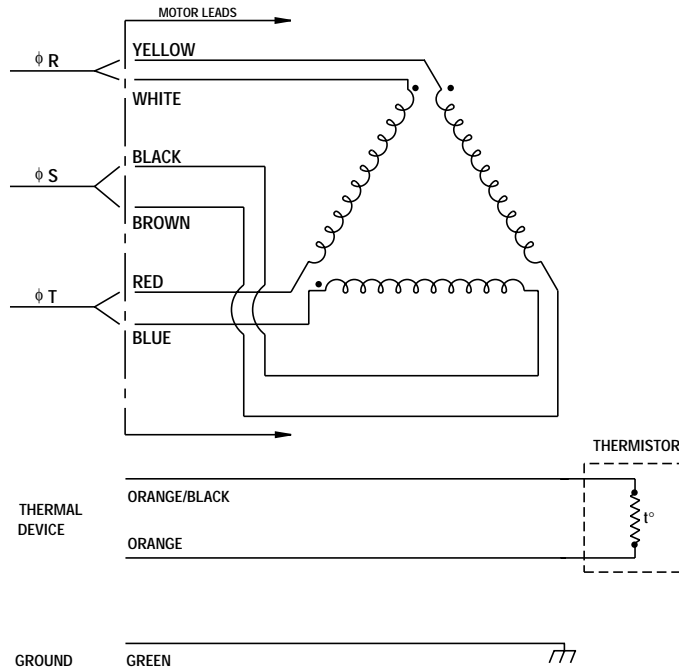
Travel distance (with vertical obstruction) = Magnet track length ("D") – (Coil length ("L") + 2.0" Cable bend radius)



**Motor/Hall Wiring**

| Hall Commutation |       |
|------------------|-------|
| SHLD             | SHLD  |
| BLK              | GND   |
| RED              | +5VDC |
| GRN              | W     |
| BLUE             | V     |
| WHT              | U     |

Care should be taken to center coil within the track as evenly as possible in all directions when mounting the magnet track and coil.



For Detailed Commutation, Consult Factory .

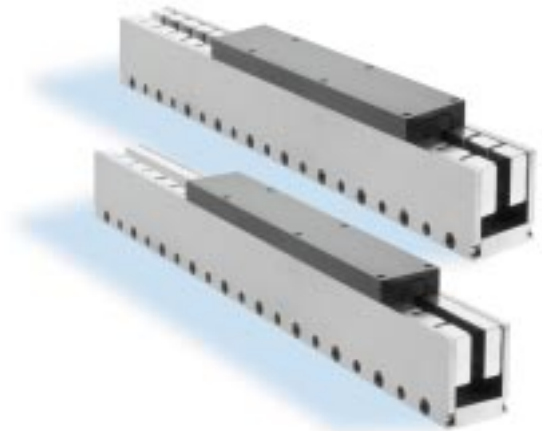
**Additional Products**

To meet all of your linear motion requirements, these additional products and linear system capabilities are available:

- Custom Mounting Holes/Brackets
- Clean Room Compatibility
- Cable/Connector Options
- Air Cooling
- Water Cooling

Custom Designed Servo Motors For Your Specific Application. Call 1-800-358-9070 Today.

# 1500 Series Brushless Linear Servo Motor



## 1500 LMST Motor Data

|                        | Units         | 1500-1      | 1500-2      | 1500-3      | 1500-4       |
|------------------------|---------------|-------------|-------------|-------------|--------------|
| Coil Length            | IN[mm]        | 2.4[60.96]  | 4.8[121.92] | 7.2[182.88] | 9.6[243.84]  |
| Bracket Length****     | IN[mm]        | 3.6[91.44]  | 6.0[152.40] | 8.4[213.36] | 10.8[274.32] |
| Coil Weight            | LBS[Kg]       | 0.23[0.104] | 0.55[0.249] | 0.78[0.353] | 1.10[0.498]  |
| Magnet Track Weight*** | LBS/FT[gr/mm] | 3.7[5.51]   | 3.7[5.51]   | 3.7[5.51]   | 3.7[5.51]    |
| Max. Operating Temp    | °C            | 125         | 125         | 125         | 125          |

| Series Connected Coils                           | Units        | 1500-1       | 1500-2        | 1500-3        | 1500-4        |
|--|--------------|--------------|---------------|---------------|---------------|
| Force Constant                                   | LBS[N]/AMP   | 1.58[7.03]   | 3.15[14.01]   | 4.73[21.04]   | 6.30[28.02]   |
| Continuous Force                                 | LBS[N]       | 5.04[22.42]  | 10.14[45.01]  | 15.17[67.76]  | 20.16[89.68]  |
| Continuous Current**                             | AMPS         | 3.3          | 3.3           | 3.3           | 3.3           |
| Continuous Power at 125°C                        | WATTS        | 103.0        | 206.3         | 310.0         | 413.0         |
| Peak Force                                       | LBS[N]       | 16.07[71.48] | 32.14[142.97] | 48.16[214.23] | 63.84[283.97] |
| Peak Current                                     | AMPS         | 10.44        | 10.44         | 10.44         | 10.44         |
| Peak Power at 125°C                              | WATTS        | 1032.0       | 2063.0        | 3095.0        | 4126.0        |
| Coil Resistance* at 25°C at Motor                | OHMS         | 10.20        | 20.40         | 30.60         | 40.80         |
| Phase Resistance* at 25°C in Delta               | OHMS         | 6.80         | 13.60         | 20.40         | 27.20         |
| Coil Resistance* at max operating temp at Coil   | OHMS         | 14.21        | 28.42         | 42.63         | 56.83         |
| Phase Resistance* at max operating temp in Delta | OHMS         | 9.47         | 18.94         | 28.42         | 37.89         |
| Inductance at 1KHZ                               | mH           | 2.02         | 4.04          | 6.06          | 8.08          |
| Back EMF Constant                                | V/IPS[V/MPS] | 0.16[6.30]   | 0.31[12.20]   | 0.47[18.50]   | 0.62[24.41]   |
| Electrical Time Constant*                        | MSEC         | 0.17         | 0.17          | 0.17          | 0.17          |

| Parallel Connected Coils                         | Units        | 1500-1       | 1500-2        | 1500-3        | 1500-4        |
|--|--------------|--------------|---------------|---------------|---------------|
| Force Constant                                   | LBS[N]/AMP   | 0.79[3.51]   | 1.57[6.98]    | 2.35[10.45]   | 3.08[13.70]   |
| Continuous Force                                 | LBS[N]       | 5.04[22.42]  | 10.14[45.10]  | 15.12[67.26]  | 20.16[89.68]  |
| Continuous Current**                             | AMPS         | 6.6          | 6.6           | 6.6           | 6.6           |
| Continuous Power at 125°C                        | WATTS        | 103.0        | 206.3         | 310.0         | 413.0         |
| Peak Force                                       | LBS[N]       | 16.07[71.48] | 32.14[142.97] | 48.16[214.23] | 63.84[283.97] |
| Peak Current                                     | AMPS         | 20.87        | 20.87         | 20.87         | 20.87         |
| Peak Power at 125°C                              | WATTS        | 1032.0       | 2063.0        | 3100.0        | 4126.0        |
| Coil Resistance* at 25°C at Motor                | OHMS         | 2.55         | 5.10          | 7.65          | 10.20         |
| Phase Resistance* at 25°C in Delta               | OHMS         | 1.70         | 3.40          | 5.10          | 6.80          |
| Coil Resistance* at max operating temp at Coil   | OHMS         | 3.55         | 7.10          | 10.66         | 14.21         |
| Phase Resistance* at max operating temp in Delta | OHMS         | 2.37         | 4.74          | 7.10          | 9.47          |
| Inductance at 1KHZ                               | mH           | 0.51         | 1.01          | 1.52          | 2.02          |
| Back EMF Constant                                | V/IPS[V/MPS] | 0.08[3.15]   | 0.16[6.30]    | 0.23[9.06]    | 0.31[12.20]   |
| Electrical Time Constant*                        | MSEC         | 0.08         | 0.08          | 0.08          | 0.08          |

\*These specifications reflect a 6-lead or delta connection coil with 1 foot of cable. A 6-lead motor has starts/finishes available at the cable end for control of each individual phase. Additional cable will increase resistance values.  
 \*\*An appropriate heatsink is required to dissipate the continuous power generated by the motor coil, thus maintaining the coil assembly at or below the maximum specified operating temperature. Consult the Compumotor applications manual for more detail on thermal management.  
 \*\*\*Magnet track weight specified for 1500-LMSTmodel. Lightweight magnet tracks are available. Please consult with your local representative or Compumotor for more information.  
 \*\*\*\*Without Hall Effect Device

**1500 LMDT Motor Data**

|                        | Units         | 1500-1      | 1500-2      | 1500-3      | 1500-4       |
|------------------------|---------------|-------------|-------------|-------------|--------------|
| Coil Length            | IN[mm]        | 2.4[60.96]  | 4.8[121.92] | 7.2[182.88] | 9.6[243.84]  |
| Bracket Length****     | IN[mm]        | 3.6[91.44]  | 6.0[152.40] | 8.4[213.36] | 10.8[274.32] |
| Coil Weight            | LBS[Kg]       | 0.23[0.104] | 0.55[0.249] | 0.78[0.353] | 1.1[0.498]   |
| Magnet Track Weight*** | LBS/FT[gr/mm] | 3.7[5.51]   | 3.7[5.51]   | 3.7[5.51]   | 3.7[5.51]    |
| Max. Operating Temp    | °C            | 125         | 125         | 125         | 125          |

| Series Connected Coils                           | Units        | 1500-1       | 1500-2       | 1500-3       | 1500-4        |
|--|--------------|--------------|--------------|--------------|---------------|
| Force Constant                                   | LBS[N]/AMP   | 2.8[12.46]   | 5.5[24.47]   | 8.3[36.92]   | 11.0[48.93]   |
| Continuous Force                                 | LBS[N]       | 9.0[40.03]   | 18.1[80.51]  | 27.0[120.10] | 36.0[160.14]  |
| Continuous Current**                             | AMPS         | 3.3          | 3.3          | 3.3          | 3.3           |
| Continuous Power at 125°C                        | WATTS        | 103.0        | 206.3        | 310.0        | 413.0         |
| Peak Force                                       | LBS[N]       | 28.7[127.66] | 57.4[255.33] | 86.0[382.55] | 114.0[507.10] |
| Peak Current                                     | AMPS         | 10.44        | 10.44        | 10.44        | 10.44         |
| Peak Power at 125°C                              | WATTS        | 1032.0       | 2063.0       | 3095.0       | 4126.0        |
| Coil Resistance* at 25°C at Motor                | OHMS         | 10.20        | 20.40        | 30.60        | 40.80         |
| Phase Resistance* at 25°C in Delta               | OHMS         | 6.80         | 13.60        | 20.40        | 27.20         |
| Coil Resistance* at max operating temp at Coil   | OHMS         | 14.21        | 28.42        | 42.63        | 56.83         |
| Phase Resistance* at max operating temp in Delta | OHMS         | 9.47         | 18.94        | 28.42        | 37.89         |
| Inductance at 1KHZ                               | mH           | 2.02         | 4.04         | 6.06         | 8.08          |
| Back EMF Constant                                | V/IPS[V/MPS] | 0.28[11.02]  | 0.55[21.65]  | 0.83[32.68]  | 1.10[43.31]   |
| Electrical Time Constant*                        | MSEC         | 0.30         | 0.30         | 0.30         | 0.30          |

| Parallel Connected Coils                         | Units        | 1500-1       | 1500-2       | 1500-3       | 1500-4        |
|--|--------------|--------------|--------------|--------------|---------------|
| Force Constant                                   | LBS[N]/AMP   | 1.4[6.23]    | 2.8[12.46]   | 4.2[18.68]   | 5.5[24.47]    |
| Continuous Force                                 | LBS[N]       | 9.0[40.03]   | 18.1[80.51]  | 27.0[120.10] | 36.0[160.14]  |
| Continuous Current**                             | AMPS         | 6.6          | 6.6          | 6.6          | 6.6           |
| Continuous Power at 125°C                        | WATTS        | 103.0        | 206.3        | 310.0        | 413.0         |
| Peak Force                                       | LBS[N]       | 28.7[127.66] | 57.4[255.33] | 86.0[382.55] | 114.0[507.10] |
| Peak Current                                     | AMPS         | 20.87        | 20.87        | 20.87        | 20.87         |
| Peak Power at 125°C                              | WATTS        | 1032.0       | 2063.0       | 3100.0       | 4126.0        |
| Coil Resistance* at 25°C at Motor                | OHMS         | 2.55         | 5.10         | 7.65         | 10.20         |
| Phase Resistance* at 25°C in Delta               | OHMS         | 1.70         | 3.40         | 5.10         | 6.80          |
| Coil Resistance* at max operating temp at Coil   | OHMS         | 3.55         | 7.10         | 10.66        | 14.21         |
| Phase Resistance* at max operating temp in Delta | OHMS         | 2.37         | 4.74         | 7.10         | 9.47          |
| Inductance at 1KHZ                               | mH           | 0.51         | 1.01         | 1.52         | 2.02          |
| Back EMF Constant                                | V/IPS[V/MPS] | 0.14[5.51]   | 0.28[11.02]  | 0.41[16.14]  | 0.55[21.65]   |
| Electrical Time Constant*                        | MSEC         | 0.14         | 0.14         | 0.14         | 0.14          |

\*These specifications reflect a 6-lead or delta connection coil with 1 foot of cable. A 6-lead motor has starts/finishes available at the cable end for control of each individual phase. Additional cable will increase resistance values.  
 \*\*An appropriate heatsink is required to dissipate the continuous power generated by the motor coil, thus maintaining the coil assembly at or below the maximum specified operating temperature. Consult the Compumotor applications manual for more detail on thermal management.  
 \*\*\*Magnet track weight specified for 1500-LMDT model. Lightweight magnet tracks are available. Please consult with your local representative or Compumotor for more information.  
 \*\*\*\*Without Hall Effect Device

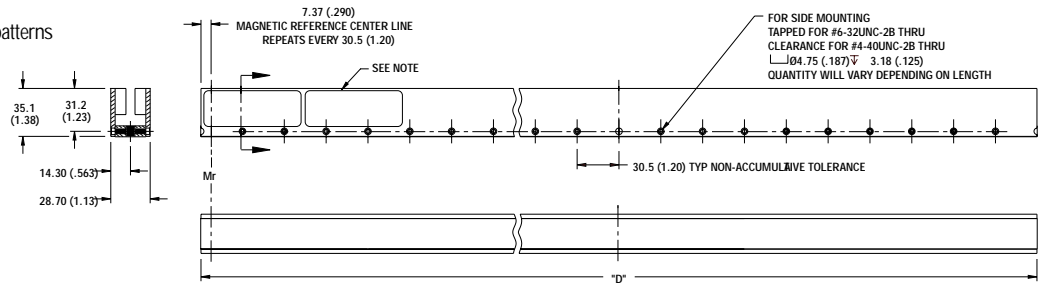
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**1500 Series Magnet Track**

Customer will also have 1/4-28UNF-2Bholes in the bottom for mounting.

Consult factory for specific mounting patterns for different magnet track lengths.

Note: Labels are placed on non-flat side of track.

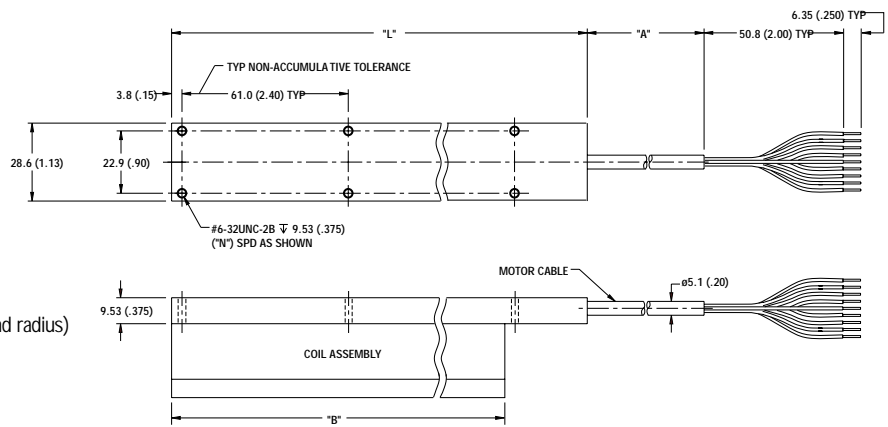


**1500 Series Coil**

| Coil Length | "L" in / mm  | "N" # of Holes | "B" in / mm  |
|-------------|--------------|----------------|--------------|
| 1           | 3.6 / 91.4   | 4              | 2.41 / 61.2  |
| 2           | 6.0 / 152.4  | 6              | 4.81 / 122.2 |
| 3           | 8.4 / 213.4  | 8              | 7.21 / 183.1 |
| 4           | 10.8 / 274.3 | 10             | 9.61 / 244.1 |

Travel distance (no vertical obstruction) = Magnet track length ("D") – Coil length ("B")

Travel distance (with vertical obstruction) = Magnet track length ("D") – (Coil length ("L") + 2.0" Cable bend radius)

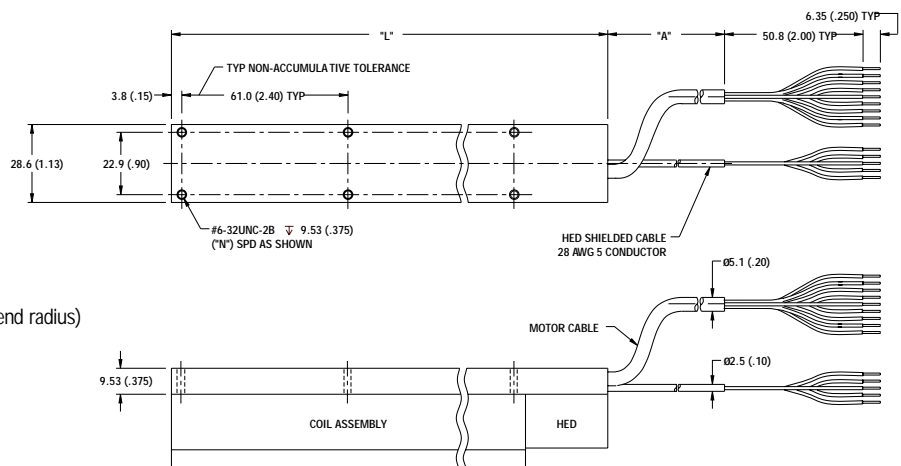


**1500 Series Coil/120° HED**

| Coil Length | "L" in / mm  | "N" # of Holes |
|-------------|--------------|----------------|
| 1           | 3.9 / 99.1   | 4              |
| 2           | 6.3 / 160.0  | 6              |
| 3           | 8.7 / 221.0  | 8              |
| 4           | 11.1 / 281.9 | 10             |

Travel distance (no vertical obstruction) = Magnet track length ("D") – Coil length ("L")

Travel distance (with vertical obstruction) = Magnet track length ("D") – (Coil length ("L") + 2.0" Cable bend radius)

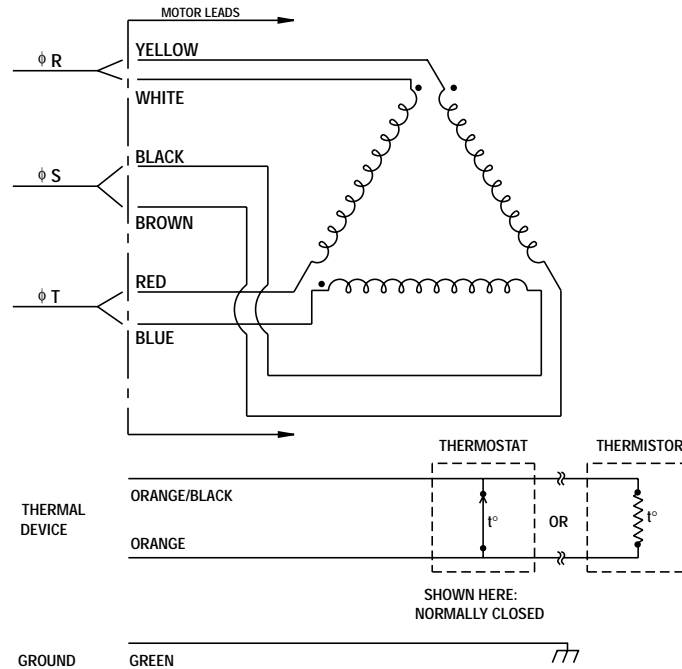


**Motor/Hall Wiring**

**Hall Commutation**

|      |       |
|------|-------|
| SHLD | SHLD  |
| BLK  | GND   |
| RED  | +5VDC |
| GRN  | W     |
| BLUE | V     |
| WHT  | U     |

Care should be taken to center coil within the track as evenly as possible in all directions when mounting the magnet track and coil.



For Detailed Commutation, Consult Factory.

**Additional Products**

To meet all of your linear motion requirements, these additional products and linear system capabilities are available:

- Custom Mounting Holes/Brackets
- Clean Room Compatibility
- Cable/Connector Options
- Air Cooling
- Water Cooling

**Custom Designed Servo Motors For Your Specific Application. Call 1-800-358-9070 Today.**

# 2000 Series Brushless Linear Servo Motor



## 2000 LMST Motor Data

|                        | Units        | 2000-1      | 2000-2      | 2000-3      | 2000-4      | 2000-5      |
|------------------------|--------------|-------------|-------------|-------------|-------------|-------------|
| Coil Length            | IN[mm]       | 2.4[61.0]   | 4.8[122.0]  | 7.2[182.9]  | 9.6[243.8]  | 12.0[305.0] |
| Bracket Length****     | IN[mm]       | 3.2[81.3]   | 5.6[142.2]  | 8.0[203.2]  | 10.4[264.2] | 12.8[325.1] |
| Coil Weight            | LBS[Kg]      | 0.45[0.204] | 0.85[0.386] | 1.25[0.567] | 1.65[0.748] | 2.05[0.930] |
| Magnet Track Weight*** | LBS/FT[N/cm] | 11.0[1.61]  | 11.0[1.61]  | 11.0[1.61]  | 11.0[1.61]  | 11.0[1.61]  |
| Max. Operating Temp    | °C           | 125         | 125         | 125         | 125         | 125         |

| Series Connected Coils                           | Units        | 2000-1        | 2000-2        | 2000-3         | 2000-4         | 2000-5         |
|--|--------------|---------------|---------------|----------------|----------------|----------------|
| Force Constant                                   | LBS[N]/AMP   | 2.8[12.45]    | 5.6[24.91]    | 8.4[37.36]     | 11.2[49.82]    | 14.0[62.27]    |
| Continuous Force                                 | LBS[N]       | 11.2[49.82]   | 22.4[96.64]   | 33.6[149.46]   | 44.8[199.28]   | 56.0[249.10]   |
| Continuous Current**                             | AMPS         | 4.0           | 4.0           | 4.0            | 4.0            | 4.0            |
| Continuous Power at 125°C                        | WATTS        | 84.40         | 168.79        | 253.19         | 337.59         | 421.99         |
| Peak Force                                       | LBS[N]       | 35.42[157.56] | 70.84[315.11] | 106.25[472.62] | 144.67[643.52] | 177.09[787.73] |
| Peak Current                                     | AMPS         | 12.65         | 12.65         | 12.65          | 12.65          | 12.65          |
| Peak Power at 125°C                              | WATTS        | 843.97        | 1687.94       | 2531.92        | 3375.89        | 4219.86        |
| Coil Resistance* at 25°C at Motor                | OHMS         | 5.68          | 11.36         | 17.04          | 22.72          | 28.40          |
| Phase Resistance* at 25°C in Delta               | OHMS         | 3.79          | 7.57          | 11.36          | 15.15          | 18.93          |
| Coil Resistance* at max operating temp at Coil   | OHMS         | 7.91          | 15.82         | 23.74          | 31.65          | 39.56          |
| Phase Resistance* at max operating temp in Delta | OHMS         | 5.27          | 10.55         | 15.82          | 21.10          | 26.37          |
| Inductance at 1kHz                               | mH           | 1.19          | 2.38          | 3.57           | 4.76           | 5.95           |
| Back EMF Constant                                | V/IPS[V/MPS] | 0.32[12.60]   | 0.64[25.20]   | 0.97[38.19]    | 1.29[50.79]    | 1.61[63.39]    |
| Electrical Time Constant*                        | MSEC         | 0.31          | 0.31          | 0.31           | 0.31           | 0.31           |

| Parallel Connected Coils                         | Units        | 2000-1        | 2000-2        | 2000-3         | 2000-4         | 2000-5         |
|--|--------------|---------------|---------------|----------------|----------------|----------------|
| Force Constant                                   | LBS[N]/AMP   | 1.4[6.23]     | 2.8[12.45]    | 4.2[18.68]     | 5.6[24.91]     | 7.0[31.14]     |
| Continuous Force                                 | LBS[N]       | 11.2[49.82]   | 22.4[96.64]   | 33.6[149.46]   | 44.8[199.28]   | 56.0[249.10]   |
| Continuous Current**                             | AMPS         | 8.0           | 8.0           | 8.0            | 8.0            | 8.0            |
| Continuous Power at 125°C                        | WATTS        | 84.40         | 168.79        | 253.19         | 337.59         | 421.99         |
| Peak Force                                       | LBS[N]       | 35.42[157.56] | 70.84[315.11] | 106.25[472.62] | 144.67[643.52] | 177.09[787.73] |
| Peak Current                                     | AMPS         | 25.3          | 25.3          | 25.3           | 25.3           | 25.3           |
| Peak Power at 125°C                              | WATTS        | 843.97        | 1687.94       | 2531.92        | 3375.89        | 4219.86        |
| Coil Resistance* at 25°C at Motor                | OHMS         | 1.42          | 2.84          | 4.26           | 5.68           | 7.10           |
| Phase Resistance* at 25°C in Delta               | OHMS         | 0.95          | 1.89          | 2.84           | 3.79           | 4.73           |
| Coil Resistance* at max operating temp at Coil   | OHMS         | 1.98          | 3.96          | 5.93           | 7.91           | 9.89           |
| Phase Resistance* at max operating temp in Delta | OHMS         | 1.32          | 2.64          | 3.96           | 5.27           | 6.59           |
| Inductance at 1kHz                               | mH           | 0.30          | 0.60          | 0.89           | 1.19           | 1.49           |
| Back EMF Constant                                | V/IPS[V/MPS] | 0.16[6.30]    | 0.32[12.60]   | 0.48[18.90]    | 0.64[25.20]    | 0.81[31.89]    |
| Electrical Time Constant*                        | MSEC         | 0.15          | 0.15          | 0.15           | 0.15           | 0.15           |

\*These specifications reflect a 6-lead or delta connection coil with 1 foot of cable. A 6-lead motor has starts/finishes available at the cable end for control of each individual phase. Additional cable will increase resistance values.  
 \*\*An appropriate heatsink is required to dissipate the continuous power generated by the motor coil, thus maintaining the coil assembly at or below the maximum specified operating temperature. Consult the Compumotor applications manual for more detail on thermal management.  
 \*\*\*Magnet track weight specified for 2000-LMST model. Lightweight magnet tracks are available. Please consult with your local representative or Compumotor for more information.  
 \*\*\*\*Without Hall Effect Device



**2000 LMDT Motor Data**

|                        | Units        | 2000-1      | 2000-2      | 2000-3      | 2000-4      | 2000-5      |
|------------------------|--------------|-------------|-------------|-------------|-------------|-------------|
| Coil Length            | IN[mm]       | 2.4[61.0]   | 4.8[122.0]  | 7.2[182.9]  | 9.6[243.8]  | 12.0[305.0] |
| Bracket Length****     | IN[mm]       | 3.2[81.3]   | 5.6[142.2]  | 8.0[203.2]  | 10.4[264.2] | 12.8[325.1] |
| Coil Weight            | LBS[Kg]      | 0.45[0.204] | 0.85[0.386] | 1.25[0.567] | 1.65[0.748] | 2.05[0.930] |
| Magnet Track Weight*** | LBS/FT[N/cm] | 11.0[1.61]  | 11.0[1.61]  | 11.0[1.61]  | 11.0[1.61]  | 11.0[1.61]  |
| Max. Operating Temp    | °C           | 125         | 125         | 125         | 125         | 125         |

| Series Connected Coils                           | Units         | 2000-1       | 2000-2        | 2000-3        | 2000-4        | 2000-5         |
|--|---------------|--------------|---------------|---------------|---------------|----------------|
| Force Constant                                   | LBS[N]/AMP    | 4.0[17.79]   | 8.0[35.59]    | 12.0[53.38]   | 16.0[71.17]   | 20.0[88.96]    |
| Continuous Force                                 | LBS[N]        | 16.0[71.17]  | 32.0[142.34]  | 48.0[213.51]  | 64.0[284.68]  | 80.0[355.86]   |
| Continuous Current**                             | AMPS          | 4.0          | 4.0           | 4.0           | 4.0           | 4.0            |
| Continuous Power at 125°C                        | WATTS         | 84.40        | 168.79        | 253.19        | 337.59        | 421.99         |
| Peak Force                                       | LBS[N]        | 50.0[222.41] | 101.0[449.27] | 152.0[676.13] | 202.0[898.54] | 253.0[1125.39] |
| Peak Current                                     | AMPS          | 12.65        | 12.65         | 12.65         | 12.65         | 12.65          |
| Peak Power at 125°C                              | WATTS         | 843.97       | 1687.94       | 2531.92       | 3375.89       | 4219.86        |
| Coil Resistance* at 25°C at Motor                | OHMS          | 5.68         | 11.36         | 17.04         | 22.72         | 28.40          |
| Phase Resistance* at 25°C in Delta               | OHMS          | 3.79         | 7.57          | 11.36         | 15.15         | 18.93          |
| Coil Resistance* at max operating temp at Coil   | OHMS          | 7.91         | 15.82         | 23.74         | 31.65         | 39.56          |
| Phase Resistance* at max operating temp in Delta | OHMS          | 5.27         | 10.55         | 15.82         | 21.10         | 26.37          |
| Inductance at 1kHz                               | mH            | 1.70         | 3.40          | 5.10          | 6.80          | 8.50           |
| Back EMF Constant                                | V/IPS [V/MPS] | 0.46[18.11]  | 0.92[36.22]   | 1.38[54.33]   | 1.84[72.44]   | 2.30[90.55]    |
| Electrical Time Constant*                        | MSEC          | 0.45         | 0.45          | 0.45          | 0.45          | 0.45           |

| Parallel Connected Coils                         | Units         | 2000-1       | 2000-2        | 2000-3        | 2000-4        | 2000-5         |
|--|---------------|--------------|---------------|---------------|---------------|----------------|
| Force Constant                                   | LBS[N]/AMP    | 2.0[8.90]    | 4.0[17.79]    | 6.0[26.69]    | 8.0[35.59]    | 10.0[44.48]    |
| Continuous Force                                 | LBS[N]        | 16.0[71.17]  | 32.0[142.34]  | 48.0[213.51]  | 64.0[284.68]  | 80.0[355.86]   |
| Continuous Current**                             | AMPS          | 8.0          | 8.0           | 8.0           | 8.0           | 8.0            |
| Continuous Power at 125°C                        | WATTS         | 84.40        | 168.79        | 253.19        | 337.59        | 421.99         |
| Peak Force                                       | LBS[N]        | 50.0[222.41] | 101.0[449.27] | 152.0[676.13] | 202.0[898.54] | 253.0[1125.39] |
| Peak Current                                     | AMPS          | 25.3         | 25.3          | 25.3          | 25.3          | 25.3           |
| Peak Power at 125°C                              | WATTS         | 843.97       | 1687.94       | 2531.92       | 3375.89       | 4219.86        |
| Coil Resistance* at 25°C at Motor                | OHMS          | 1.42         | 2.84          | 4.26          | 5.68          | 7.10           |
| Phase Resistance* at 25°C in Delta               | OHMS          | 0.95         | 1.89          | 2.84          | 3.79          | 4.73           |
| Coil Resistance* at max operating temp at Coil   | OHMS          | 1.98         | 3.96          | 5.93          | 7.91          | 9.89           |
| Phase Resistance* at max operating temp in Delta | OHMS          | 1.32         | 2.64          | 3.96          | 5.27          | 6.59           |
| Inductance at 1kHz                               | mH            | 0.43         | 0.85          | 1.28          | 1.70          | 2.13           |
| Back EMF Constant                                | V/IPS [V/MPS] | 0.23[9.06]   | 0.46[18.11]   | 0.69[27.17]   | 0.92[36.22]   | 1.15[45.28]    |
| Electrical Time Constant*                        | MSEC          | 0.21         | 0.21          | 0.21          | 0.21          | 0.21           |

\*These specifications reflect a 6-lead or delta connection coil with 1 foot of cable. A 6-lead motor has starts/finishes available at the cable end for control of each individual phase. Additional cable will increase resistance values.  
 \*\*An appropriate heatsink is required to dissipate the continuous power generated by the motor coil, thus maintaining the coil assembly at or below the maximum specified operating temperature. Consult the Compumotor applications manual for more detail on thermal management.  
 \*\*\*Magnet track weight specified for 2000-LMDT model. Lightweight magnet tracks are available. Please consult with your local representative or Compumotor for more information.  
 \*\*\*\*Without Hall Effect Device

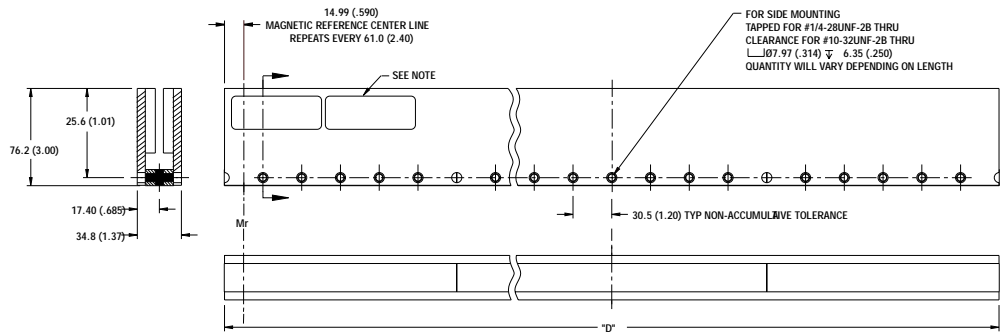
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**2000 Series Magnet Track**

Customer will also have 1/4-28UNF-2B holes in the bottom for mounting.

Consult factory for specific mounting patterns for different magnet track lengths.

Note: Labels are placed on non-flat side of track.

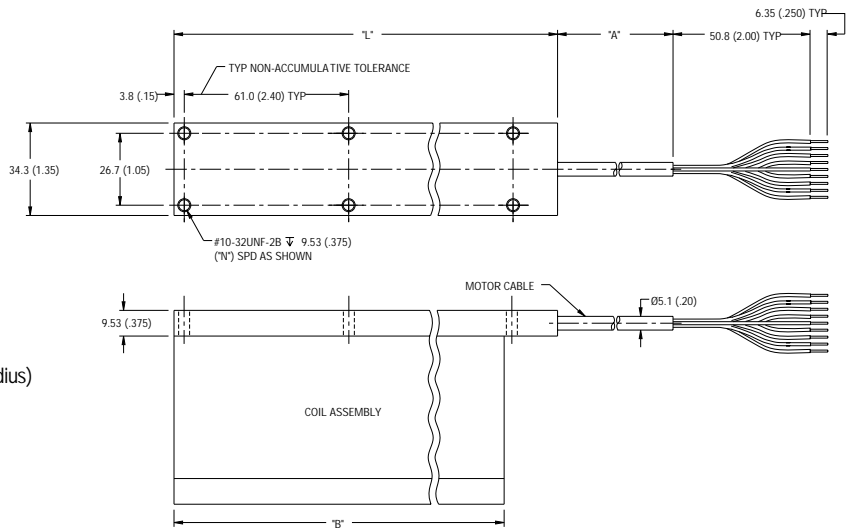


**2000 Series Coil**

| Coil Length | "L" in / mm  | "N" # of Holes | "B" in / mm   |
|-------------|--------------|----------------|---------------|
| 1           | 3.2 / 81.3   | 4              | 2.41 / 61.2   |
| 2           | 5.6 / 142.2  | 6              | 4.81 / 122.2  |
| 3           | 8.0 / 203.2  | 8              | 7.21 / 183.1  |
| 4           | 10.4 / 264.2 | 10             | 9.61 / 244.1  |
| 5           | 12.8 / 325.1 | 12             | 12.01 / 305.1 |

Travel distance (no vertical obstruction) = Magnet track length ("D") – Coil length ("B")

Travel distance (with vertical obstruction) = Magnet track length ("D") – (Coil length ("L") + 2.0" Cable bend radius)

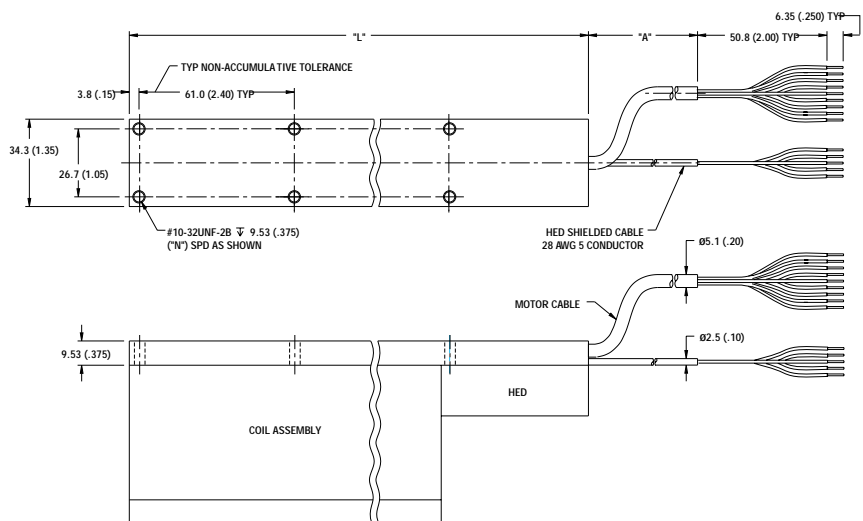


**2000 Series Coil/120° HED**

| Coil Length | "L" in / mm   | "N" # of Holes |
|-------------|---------------|----------------|
| 1           | 4.69 / 119.1  | 4              |
| 2           | 7.09 / 180.1  | 6              |
| 3           | 9.49 / 241.0  | 8              |
| 4           | 11.89 / 302.0 | 10             |
| 5           | 14.29 / 363.0 | 12             |

Travel distance (no vertical obstruction) = Magnet track length ("D") – Coil length ("L")

Travel distance (with vertical obstruction) = Magnet track length ("D") – (Coil length ("L") + 2.0" Cable bend radius)

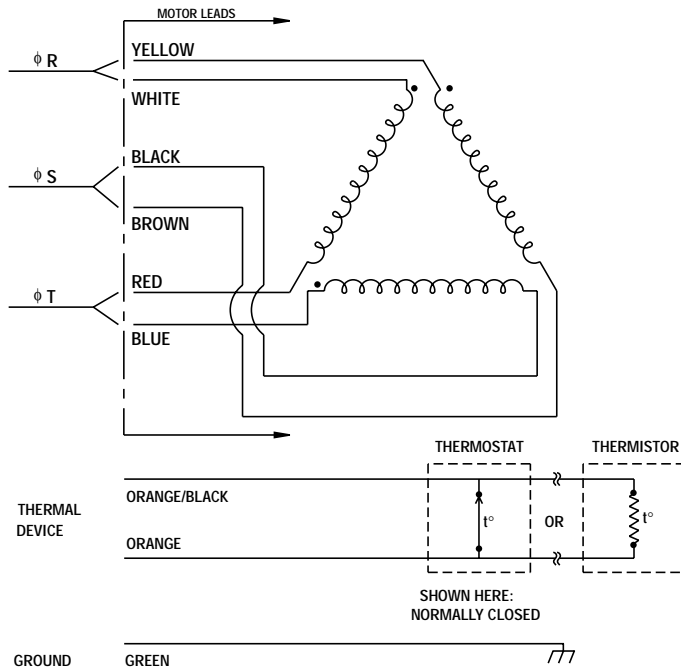


**Motor/Hall Wiring**

**Hall Commutation**

|      |       |
|------|-------|
| SHLD | SHLD  |
| BLK  | GND   |
| RED  | +5VDC |
| GRN  | W     |
| BLUE | V     |
| WHT  | U     |

Care should be taken to center coil within the track as evenly as possible in all directions when mounting the magnet track and coil.



For Detailed Commutation, Consult Factory .

**Additional Products**

To meet all of your linear motion requirements, these additional products and linear system capabilities are available:

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- Cable/Connector Options
- Air Cooling
- Water Cooling

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