

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-LMSTmodel. 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 |

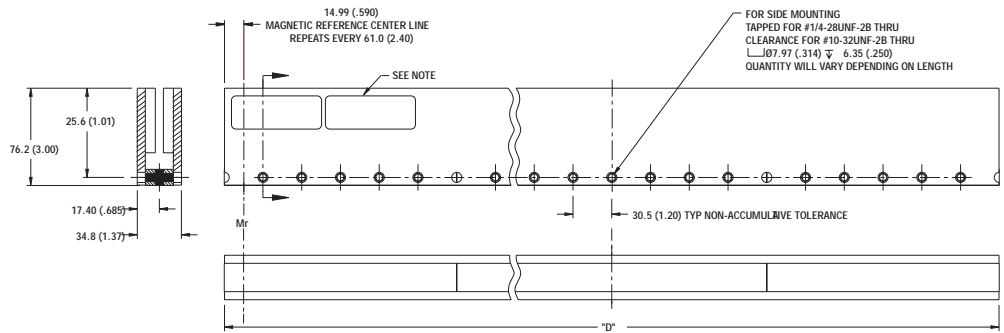
*These specifications reflect a 6-lead or delta connection coil with 1 foot of cable. A 6-lead motor has starts/finishes available at the cable end for control of each individual phase. Additional cable will increase resistance values.
 **An appropriate heatsink is required to dissipate the continuous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

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.

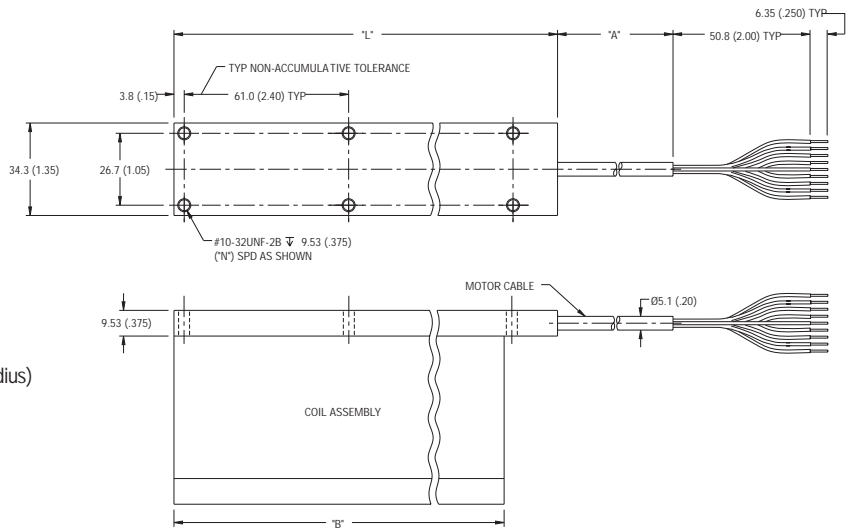


2000 Series Coil

| 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)

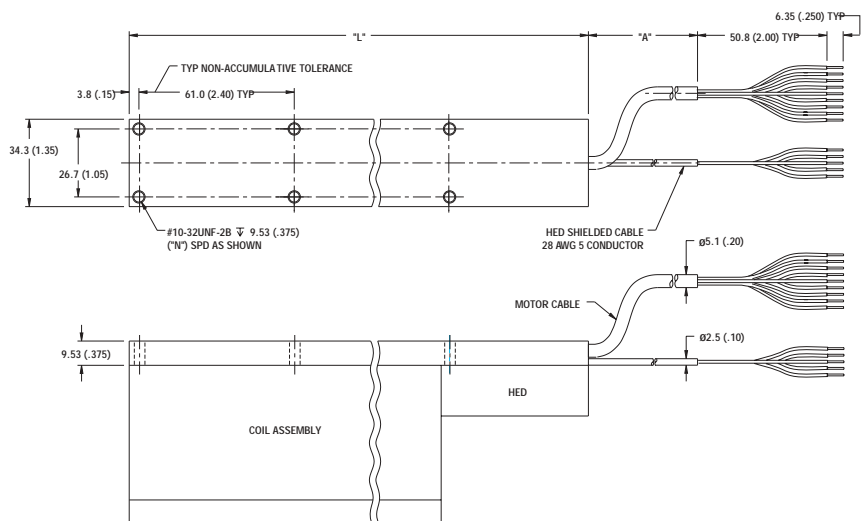


2000 Series Coil/120° HED

| 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)

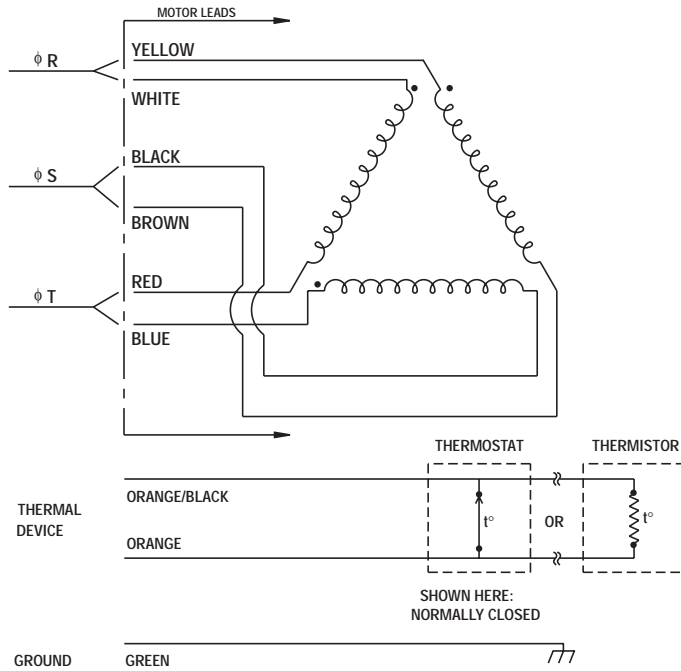


Motor/Hall Wiring

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:

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