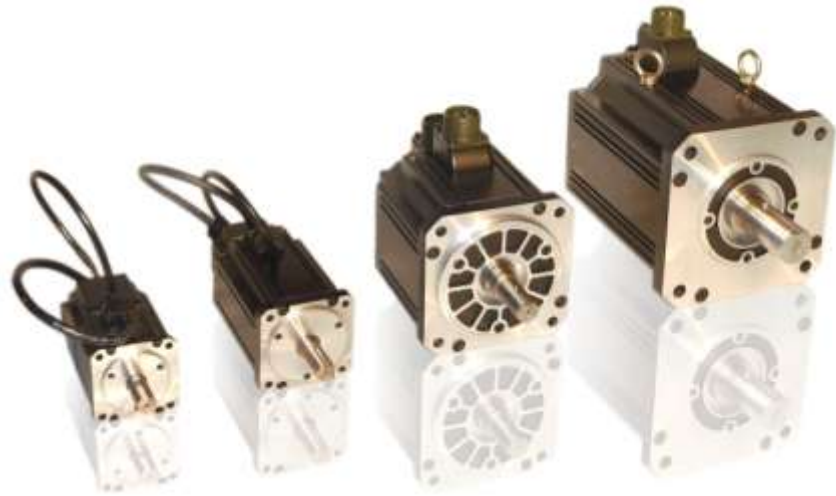


ORMEC's M-series AC brushless servo motors provide high torque-to-inertia ratios and excellent continuous torque and peak torque performance. With a compact design, these industrial-quality servo motors incorporate high performance neodymium magnets and a highly efficient stator winding design. This provides excellent power density.

The M-series servo motors completely eliminate brush wear maintenance problems and feature extremely durable construction. They include heavy duty bearings.

Rugged MS connectors provide reliable interconnections to motors and optical encoders.



ORMEC's M-series servo motors offer continuous stall torques from 1.4 to 845 in-lb (0.16 to 95 N-m)

Features

- Continuous stall torques from 1.4 to 845 in-lb (0.16 to 95 N-m)
- High peak torques from 4.4 to 2413 in-lb (0.5 to 273 N-m)
- Output power from 50 to 15,000 watts (0.07 to 20 HP)
- High maximum speeds from 2,000 to 5,000 RPM
- 200 VAC and 400 VAC operation
- UL approved and CE marked
- Incremental encoder resolutions up to 24,000 counts per revolution
- Class F insulation over Class B temperature rise provides additional thermal headroom for longer winding life under rated operating conditions
- Minimum torque ripple & cogging for smooth low-speed performance
- Totally Enclosed Non-ventilated (TENV) standard IP-65 (except shaft opening). Shaft oil seal is optional
- Optional fail-safe holding brakes

Motor/Drive Combinations

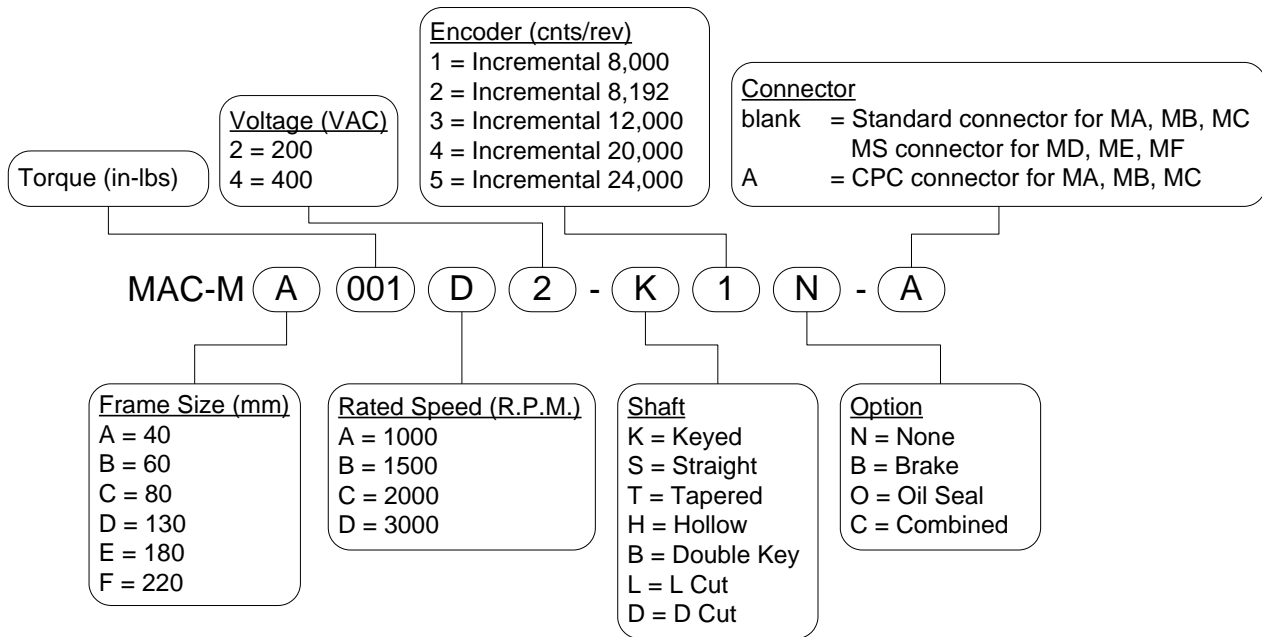
The performance of these servo motors is a direct function of the factory-matched servo motor/drive combination.

ORMEC's drives provide software controlled all-digital performance for consistent operation that totally eliminates analog potentiometer adjustments. High bandwidth operation and a quality high resolution encoder provide the response and accuracy for demanding applications. Peak torques up to three times the rated torque are available for a few seconds, allowing the motor/drive to handle high inertial loads and heavy duty cycle requirements. Each drive's motor parameters are software configurable for high performance and RMS current limiting.

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Motor Model Numbers



MAC-MA, MAC-MB, MAC-MC and MAC-MD motors are UL approved. All motors carry the CE mark and are RoHS compliant.

The available encoder resolutions [shown post quadrature] for each motor family are noted in this chart:

| MA | MB | MC | MD | ME | MF |
|-------|---------|---------|----------|----------|--------|
| | 4096 | | | | |
| 8,000 | 8,000 | 8,000 | 8,000 | 8,000 | 8,000 |
| 8,192 | 8,192 | 8,192 | 8,192 | 8,192 | 8,192 |
| | 10,000 | 10,000 | 10,000 | 10,000 | |
| | 12,000 | 12,000 | 12,000 | 12,000 | 12,000 |
| | 20,000* | 20,000* | 20,000* | 20,000* | |
| | | | 24,000*† | 24,000*† | |

* Additional cost

† Maximum speed of 3,000 RPM

Motor Power Ratings

| 200 VAC | | |
|-------------|------|-------------|
| Rated Power | | Motor Model |
| Watts | HP | |
| 50 | 0.07 | MAC-MA001D2 |
| 100 | 0.13 | MAC-MB003D2 |
| 200 | 0.27 | MAC-MB006D2 |
| 400 | 0.54 | MAC-MB011D2 |
| 450 | 0.60 | MAC-MD025B2 |
| 600 | 0.80 | MAC-MC016D2 |
| 800 | 1.07 | MAC-MC022D2 |
| 850 | 1.14 | MAC-MD050B2 |
| 900 | 1.21 | MAC-MD025D2 |
| 1000 | 1.34 | MAC-MC028D2 |
| 1300 | 1.74 | MAC-MD070B2 |
| 1500 | 2.01 | MAC-MD050D2 |
| 1700 | 2.28 | MAC-MD095B2 |
| 1800 | 2.41 | MAC-ME100B2 |
| 2200 | 2.95 | MAC-MD070D2 |
| 2900 | 3.89 | MAC-ME160B2 |
| 3000 | 4.02 | MAC-MD095D2 |
| 4400 | 5.90 | MAC-ME250B2 |
| 5710 | 7.66 | MAC-ME335B2 |
| 7500 | 10.1 | MAC-ME420B2 |
| 8500 | 11.4 | MAC-MF475B2 |
| 11000 | 14.8 | MAC-MF620B2 |

| 400 VAC | | |
|-------------|------|-------------|
| Rated Power | | Motor Model |
| Watts | HP | |
| 450 | 0.60 | MAC-MD025B4 |
| 850 | 1.14 | MAC-MD050B4 |
| 900 | 1.21 | MAC-MD025D4 |
| 1250 | 1.68 | MAC-MD070B4 |
| 1500 | 2.01 | MAC-MD050D4 |
| 1700 | 2.28 | MAC-MD095B4 |
| 1800 | 2.41 | MAC-ME100B4 |
| 2200 | 2.95 | MAC-MD070D4 |
| 2920 | 3.92 | MAC-ME160B4 |
| 3000 | 4.02 | MAC-MD095D4 |
| 4400 | 5.90 | MAC-ME250B4 |
| 6000 | 8.05 | MAC-ME335B4 |
| 7500 | 10.1 | MAC-ME420B4 |
| 8500 | 11.4 | MAC-MF475B4 |
| 11000 | 14.8 | MAC-MF620B4 |
| 15000 | 20.1 | MAC-MF845B4 |

200 VAC Motor Specifications

Specifications for Brake Models on page 18

| Performance Specifications | Units | MAC-MA001D2 | MAC-MB003D2 | MAC-MB006D2 |
|----------------------------|--------------------------|-------------|-------------|-------------|
| Servo Drive Model Number | | SAC-x203 | SAC-x203 | SAC-x203 |
| Rated Torque* | in-lb | 1.4 | 2.8 | 5.6 |
| | N-m | 0.16 | 0.32 | 0.64 |
| Rated Speed | RPM | 3000 | 3000 | 3000 |
| Peak Torque* | in-lb | 4.4 | 8.8 | 17.6 |
| | N-m | 0.50 | 1.00 | 1.99 |
| Maximum Speed | RPM | 5000 | 5000 | 5000 |
| Rated Power | Watts | 50 | 100 | 200 |
| | HP | 0.07 | 0.13 | 0.27 |
| Rated Torque/Inertia | radians/sec ² | 66307 | 27919 | 34975 |

| Mechanical Specifications | | | | |
|---------------------------|---|--------|--------|--------|
| Moment of Inertia | in-lb-sec ² x 10 ⁻³ | 0.0212 | 0.1009 | 0.1611 |
| | kg-m ² x 10 ⁻⁴ | 0.0240 | 0.1140 | 0.1820 |
| Servomotor Weight | lbs | 0.84 | 1.81 | 2.38 |
| | kg | 0.38 | 0.82 | 1.08 |
| Maximum Radial Shaft Load | lbs | 33 | 46 | 46 |
| | N | 148 | 206 | 206 |
| Maximum Axial Shaft Load | lbs | 9 | 16 | 16 |
| | N | 39 | 69 | 69 |

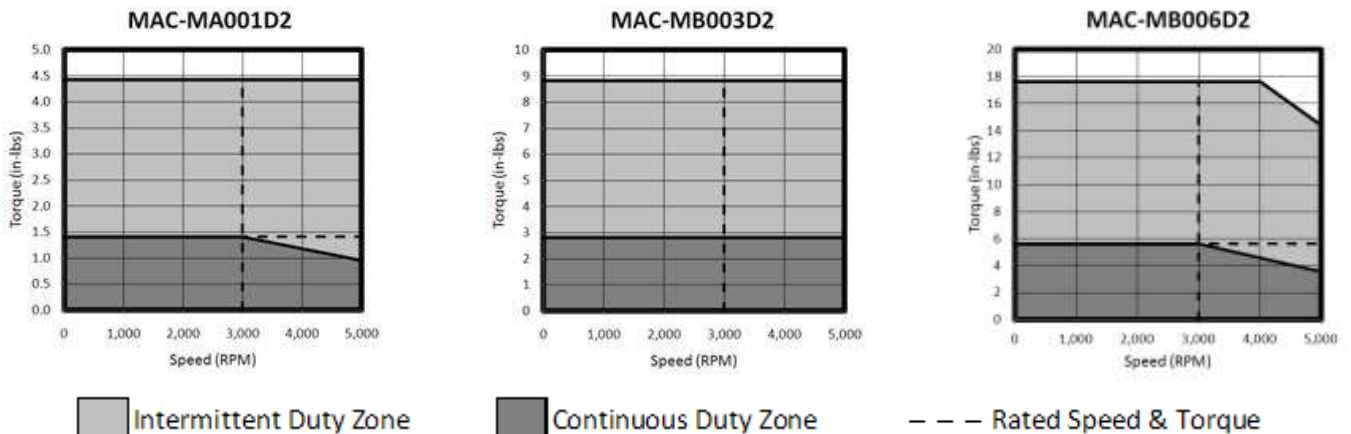
| Electrical Specifications | | | | |
|-----------------------------|----------------------------|-------|-------|-------|
| Torque Sensitivity | in-lb/Amp _{RMS/φ} | 1.26 | 1.82 | 3.68 |
| | N-m/Amp _{RMS/φ} | 0.142 | 0.205 | 0.416 |
| Servo Drive Input Power | volts AC | 230 | 230 | 230 |
| Continuous Motor Current | Amps _{RMS/φ} | 1.2 | 1.65 | 1.63 |
| Peak Motor Current | Amps _{RMS/φ} | 3.6 | 4.95 | 4.89 |
| Resistance (phase to phase) | Ohms | 11.15 | 2.50 | 4.15 |
| Inductance (phase to phase) | mH | 8.78 | 7.37 | 15.21 |
| Poles | | 8 | 8 | 8 |

| Thermal Specifications | | | | |
|------------------------|-----------|----|----|----|
| Thermal Time Constant | minutes | 7 | 14 | 15 |
| Ambient Temperature | degrees C | 40 | 40 | 40 |
| Insulation Class | | F† | F† | F† |

* Torques may be limited by the current limits of the servo drive. The next larger drive may be used to increase available torque. Consult an Ormec Applications Engineer for details.

† F-class insulation against B-class temperature rise

Torque vs. Speed Characteristics (at 230 VAC)



200 VAC Motor Specifications

Specifications for Brake Models on page 18

| Performance Specifications | Units | MAC-MB011D2 | MAC-MC016D2 | MAC-MC022D2 |
|----------------------------|--------------------------|-------------|-------------|-------------|
| Servo Drive Model Number | | SAC-x203 | SAC-x205 | SAC-x205 |
| Rated Torque* | in-lb | 11.3 | 16.9 | 22.5 |
| | N-m | 1.27 | 1.91 | 2.55 |
| Rated Speed | RPM | 3000 | 3000 | 3000 |
| Peak Torque* | in-lb | 34.8 | 52.0 | 69.3 |
| | N-m | 3.93 | 5.88 | 7.82 |
| Maximum Speed | RPM | 5000 | 5000 | 5000 |
| Rated Power | Watts | 400 | 600 | 800 |
| | HP | 0.54 | 0.80 | 1.1 |
| Rated Torque/Inertia | radians/sec ² | 39660 | 17488 | 16873 |

| Mechanical Specifications | | | | |
|---------------------------|---|--------|--------|--------|
| Moment of Inertia | in-lb-sec ² x 10 ⁻³ | 0.2841 | 0.9665 | 1.3356 |
| | kg-m ² x 10 ⁻⁴ | 0.3210 | 1.0920 | 1.5090 |
| Servomotor Weight | lbs | 3.48 | 5.56 | 7.01 |
| | kg | 1.58 | 2.52 | 3.18 |
| Maximum Radial Shaft Load | lbs | 46 | 57 | 57 |
| | N | 206 | 255 | 255 |
| Maximum Axial Shaft Load | lbs | 16 | 22 | 22 |
| | N | 69 | 98 | 98 |

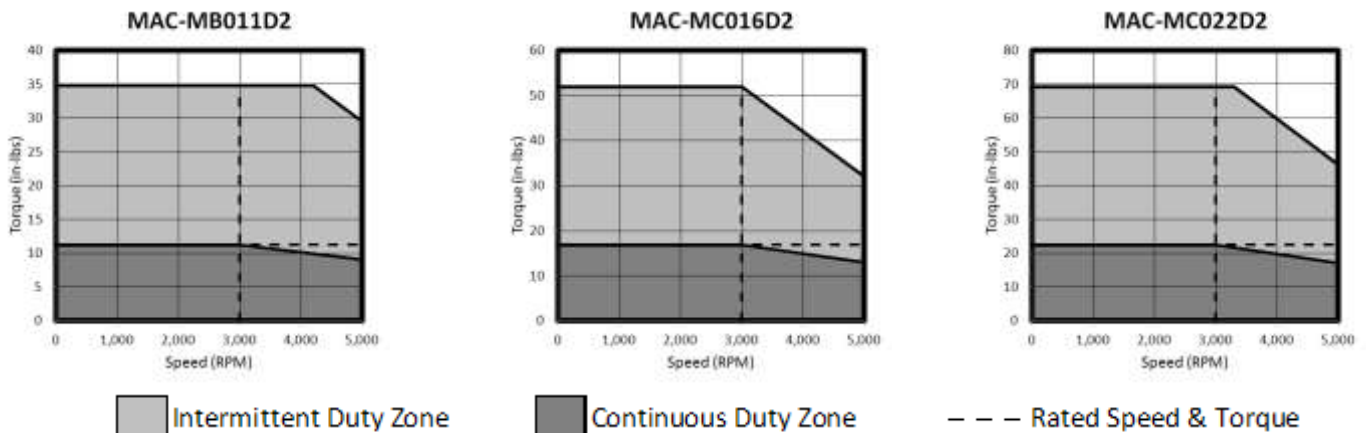
| Electrical Specifications | | | | |
|-----------------------------|----------------------------|-------|-------|-------|
| Torque Sensitivity | in-lb/Amp _{RMS/φ} | 4.07 | 4.90 | 4.84 |
| | N-m/Amp _{RMS/φ} | 0.460 | 0.554 | 0.546 |
| Servo Drive Input Power | volts AC | 230 | 230 | 230 |
| Continuous Motor Current | Amps _{RMS/φ} | 2.89 | 3.58 | 4.83 |
| Peak Motor Current | Amps _{RMS/φ} | 8.67 | 10.74 | 14.49 |
| Resistance (phase to phase) | Ohms | 1.64 | 1.43 | 0.87 |
| Inductance (phase to phase) | mH | 7.32 | 9.18 | 5.94 |
| Poles | | 8 | 8 | 8 |

| Thermal Specifications | | | | |
|------------------------|-----------|----|----|----|
| Thermal Time Constant | minutes | 7 | 14 | 15 |
| Ambient Temperature | degrees C | 40 | 40 | 40 |
| Insulation Class | | F† | F† | F† |

* Torques may be limited by the current limits of the servo drive. The next larger drive may be used to increase available torque. Consult an Ormec Applications Engineer for details.

† F-class insulation against B-class temperature rise

Torque vs. Speed Characteristics (at 230 VAC)



200 VAC Motor Specifications

Specifications for Brake Models on page 18

| Performance Specifications | Units | MAC-MC028D2 | MAC-MD025B2 | MAC-MD025D2 |
|----------------------------|--------------------------|-------------|-------------|-------------|
| Servo Drive Model Number | | SAC-x210 | SAC-x205 | SAC-x205 |
| Rated Torque* | in-lb | 28.2 | 25.4 | 25.4 |
| | N-m | 3.18 | 2.86 | 2.86 |
| Rated Speed | RPM | 3000 | 1500 | 3000 |
| Peak Torque* | in-lb | 86.8 | 77.5 | 77.6 |
| | N-m | 9.81 | 8.76 | 8.77 |
| Maximum Speed | RPM | 5000 | 3000 | 5000 |
| Rated Power | Watts | 1000 | 450 | 900 |
| | HP | 1.3 | 0.60 | 1.2 |
| Rated Torque/Inertia | radians/sec ² | 16517 | 4302 | 4302 |

| Mechanical Specifications | | | | |
|---------------------------|---|--------|--------|--------|
| Moment of Inertia | in-lb-sec ² x 10 ⁻³ | 1.7055 | 5.8937 | 5.8937 |
| | kg-m ² x 10 ⁻⁴ | 1.9270 | 6.6590 | 6.6590 |
| Servomotor Weight | lbs | 8.60 | 12.13 | 12.13 |
| | kg | 3.9 | 5.5 | 5.5 |
| Maximum Radial Shaft Load | lbs | 57 | 163 | 163 |
| | N | 255 | 725 | 725 |
| Maximum Axial Shaft Load | lbs | 22 | 81 | 81 |
| | N | 98 | 362 | 362 |

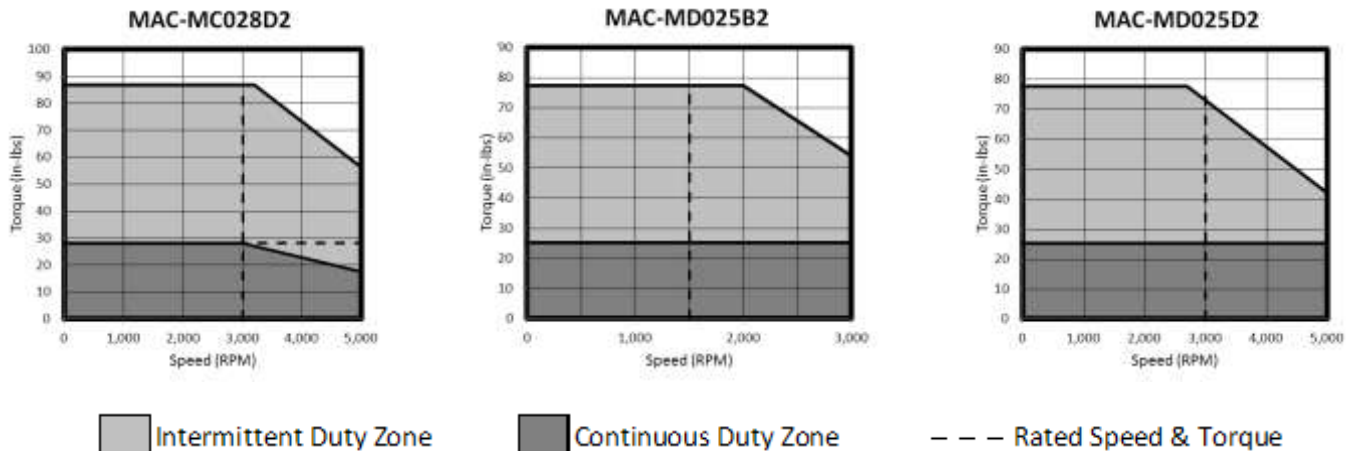
| Electrical Specifications | | | | |
|-----------------------------|----------------------------------|-------|-------|-------|
| Torque Sensitivity | in-lb/Amp _{RMS/φ} | 5.46 | 6.57 | 5.28 |
| | N-m/Amp _{RMS/φ} | 0.617 | 0.742 | 0.597 |
| Servo Drive Input Power | volts AC | 230 | 230 | 230 |
| Continuous Motor Current | Amp _{S_{RMS/φ}} | 5.37 | 3.97 | 4.95 |
| Peak Motor Current | Amp _{S_{RMS/φ}} | 16.11 | 11.91 | 14.85 |
| Resistance (phase to phase) | Ohms | 0.75 | 1.55 | 0.89 |
| Inductance (phase to phase) | mH | 5.04 | 12.98 | 7.87 |
| Poles | | 8 | 8 | 8 |

| Thermal Specifications | | | | |
|------------------------|-----------|----|----|----|
| Thermal Time Constant | minutes | 25 | 24 | 34 |
| Ambient Temperature | degrees C | 40 | 40 | 40 |
| Insulation Class | | F† | F† | F† |

* Torques may be limited by the current limits of the servo drive. The next larger drive may be used to increase available torque. Consult an Ormec Applications Engineer for details.

† F-class insulation against B-class temperature rise

Torque vs. Speed Characteristics (at 230 VAC)



200 VAC Motor Specifications

Specifications for Brake Models on page 18

| Performance Specifications | Units | MAC-MD050B2 | MAC-MD050D2 | MAC-MD070B2 |
|----------------------------|--------------------------|-------------|-------------|-------------|
| Servo Drive Model Number | | SAC-x210 | SAC-x210 | SAC-x210 |
| Rated Torque* | in-lb | 47.9 | 42.3 | 73.2 |
| | N-m | 5.41 | 4.77 | 8.28 |
| Rated Speed | RPM | 1500 | 3000 | 1500 |
| Peak Torque* | in-lb | 145.6 | 128.7 | 222.0 |
| | N-m | 16.45 | 14.54 | 25.08 |
| Maximum Speed | RPM | 3000 | 5000 | 3000 |
| Rated Power | Watts | 850 | 1500 | 1300 |
| | HP | 1.1 | 2.0 | 1.7 |
| Rated Torque/Inertia | radians/sec ² | 4509 | 3979 | 4773 |

| Mechanical Specifications | | | | |
|---------------------------|---|---------|---------|---------|
| Moment of Inertia | in-lb-sec ² x 10 ⁻³ | 10.6200 | 10.6200 | 15.3463 |
| | kg-m ² x 10 ⁻⁴ | 11.9990 | 11.9990 | 17.3390 |
| Servomotor Weight | lbs | 16.62 | 16.62 | 21.34 |
| | kg | 7.54 | 7.54 | 9.68 |
| Maximum Radial Shaft Load | lbs | 163 | 163 | 163 |
| | N | 725 | 725 | 725 |
| Maximum Axial Shaft Load | lbs | 81 | 81 | 81 |
| | N | 362 | 362 | 362 |

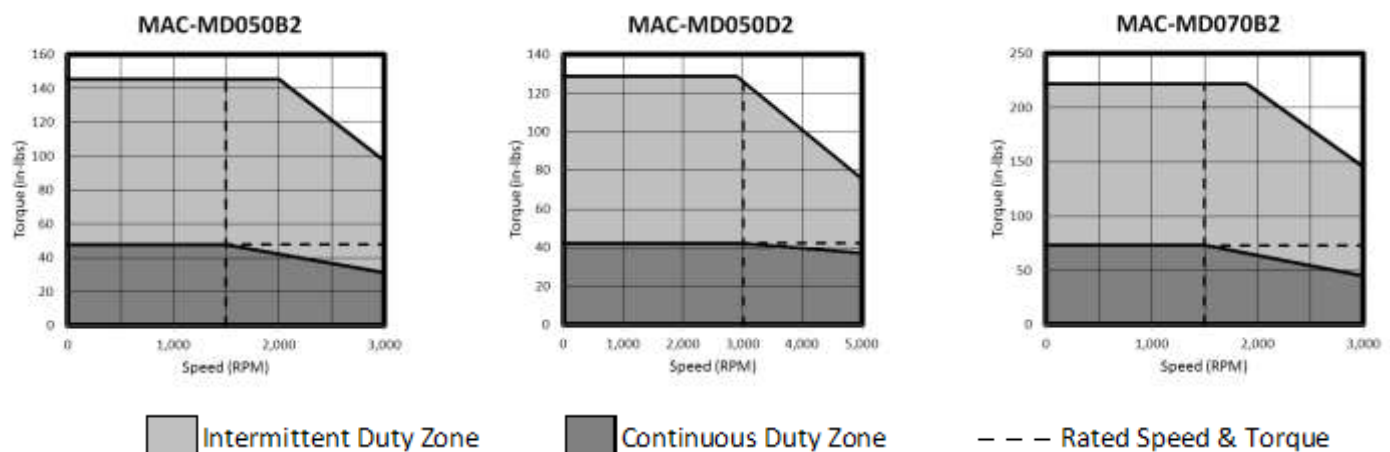
| Electrical Specifications | | | | |
|-----------------------------|----------------------------|-------|-------|-------|
| Torque Sensitivity | in-lb/Amp _{RMS/φ} | 7.55 | 5.25 | 7.44 |
| | N-m/Amp _{RMS/φ} | 0.853 | 0.593 | 0.840 |
| Servo Drive Input Power | volts AC | 230 | 230 | 230 |
| Continuous Motor Current | Amps _{RMS/φ} | 6.47 | 8.23 | 10 |
| Peak Motor Current | Amps _{RMS/φ} | 19.41 | 24.69 | 30 |
| Resistance (phase to phase) | Ohms | 0.77 | 0.41 | 0.47 |
| Inductance (phase to phase) | mH | 7.76 | 4.11 | 5.27 |
| Poles | | 8 | 8 | 8 |

| Thermal Specifications | | | | |
|------------------------|-----------|----|----|----|
| Thermal Time Constant | minutes | 28 | 37 | 32 |
| Ambient Temperature | degrees C | 40 | 40 | 40 |
| Insulation Class | | F† | F† | F† |

* Torques may be limited by the current limits of the servo drive. The next larger drive may be used to increase available torque. Consult an Ormec Applications Engineer for details.

† F-class insulation against B-class temperature rise

Torque vs. Speed Characteristics (at 230 VAC)



200 VAC Motor Specifications

Specifications for Brake Models on page 18

| Performance Specifications | Units | MAC-MD070D2 | MAC-MD095B2 | MAC-MD095D2 |
|----------------------------|--------------------------|-------------|-------------|-------------|
| Servo Drive Model Number | | SAC-x215 | SAC-x215 | SAC-x225 |
| Rated Torque* | in-lb | 62.0 | 95.8 | 84.5 |
| | N-m | 7.00 | 10.82 | 9.55 |
| Rated Speed | RPM | 3000 | 1500 | 3000 |
| Peak Torque* | in-lb | 188.1 | 290.4 | 248.6 |
| | N-m | 21.26 | 32.81 | 28.09 |
| Maximum Speed | RPM | 5000 | 3000 | 5000 |
| Rated Power | Watts | 2200 | 1700 | 3000 |
| | HP | 3.0 | 2.3 | 4.0 |
| Rated Torque/Inertia | radians/sec ² | 4038 | 4772 | 4210 |

| Mechanical Specifications | | | | |
|---------------------------|---|---------|---------|---------|
| Moment of Inertia | in-lb-sec ² x 10 ⁻³ | 15.3463 | 20.0726 | 20.0726 |
| | kg-m ² x 10 ⁻⁴ | 17.3390 | 22.6790 | 22.6790 |
| Servomotor Weight | lbs | 21.34 | 25.97 | 25.97 |
| | kg | 9.68 | 11.78 | 11.78 |
| Maximum Radial Shaft Load | lbs | 163 | 163 | 163 |
| | N | 725 | 725 | 725 |
| Maximum Axial Shaft Load | lbs | 81 | 81 | 81 |
| | N | 362 | 362 | 362 |

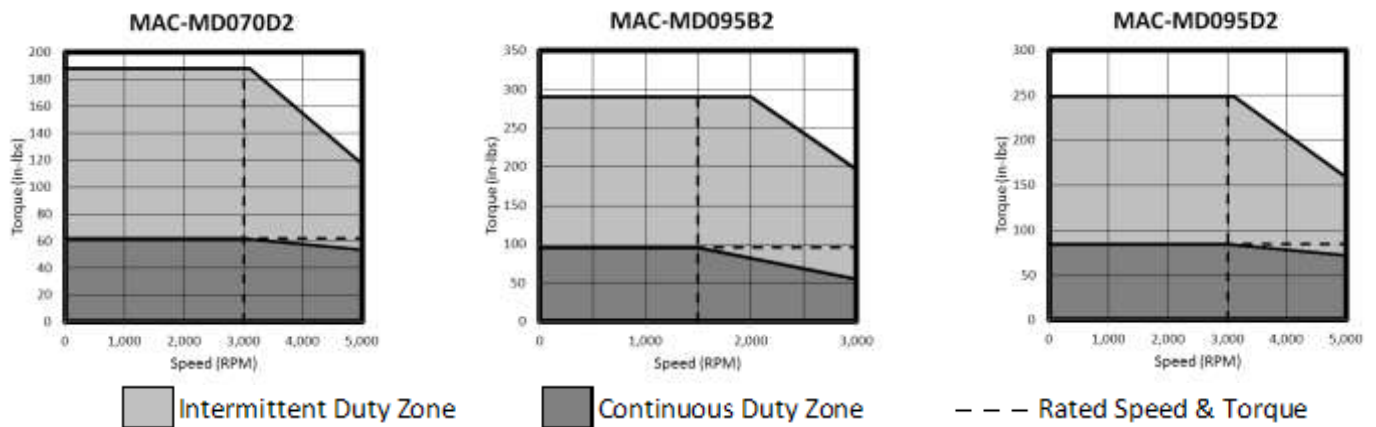
| Electrical Specifications | | | | |
|-----------------------------|----------------------------|-------|-------|-------|
| Torque Sensitivity | in-lb/Amp _{RMS/φ} | 5.27 | 7.63 | 5.00 |
| | N-m/Amp _{RMS/φ} | 0.595 | 0.862 | 0.565 |
| Servo Drive Input Power | volts AC | 230 | 230 | 230 |
| Continuous Motor Current | Amps _{RMS/φ} | 11.98 | 12.75 | 17.16 |
| Peak Motor Current | Amps _{RMS/φ} | 35.94 | 38.25 | 51.48 |
| Resistance (phase to phase) | Ohms | 0.23 | 0.30 | 0.15 |
| Inductance (phase to phase) | mH | 2.53 | 3.82 | 1.82 |
| Poles | | 8 | 8 | 8 |

| Thermal Specifications | | | | |
|------------------------|-----------|----|----|----|
| Thermal Time Constant | minutes | 41 | 37 | 45 |
| Ambient Temperature | degrees C | 40 | 40 | 40 |
| Insulation Class | | F† | F† | F† |

* Torques may be limited by the current limits of the servo drive. The next larger drive may be used to increase available torque. Consult an Ormec Applications Engineer for details.

† F-class insulation against B-class temperature rise

Torque vs. Speed Characteristics (at 230 VAC)



200 VAC Motor Specifications

Specifications for Brake Models on page 18

| Performance Specifications | Units | MAC-ME100B2 | MAC-ME160B2 | MAC-ME250B2 |
|----------------------------|--------------------------|-------------|-------------|-------------|
| Servo Drive Model Number | | SAC-x215 | SAC-x225 | SAC-x235 |
| Rated Torque* | in-lb | 101.4 | 163.4 | 247.9 |
| | N-m | 11.46 | 18.46 | 28.01 |
| Rated Speed | RPM | 1500 | 1500 | 1500 |
| Peak Torque* | in-lb | 311.1 | 401.4 | 556.5 |
| | N-m | 35.15 | 45.35 | 62.88 |
| Maximum Speed | RPM | 3000 | 3000 | 3000 |
| Rated Power | Watts | 1800 | 2900 | 4400 |
| | HP | 2.4 | 3.9 | 5.9 |
| Rated Torque/Inertia | radians/sec ² | 3727 | 3541 | 3350 |

| Mechanical Specifications | | | | |
|---------------------------|---|---------|---------|---------|
| Moment of Inertia | in-lb-sec ² x 10 ⁻³ | 27.2072 | 46.1389 | 73.9922 |
| | kg-m ² x 10 ⁻⁴ | 30.7400 | 52.1300 | 83.6000 |
| Servomotor Weight | lbs | 27.34 | 39.02 | 57.98 |
| | kg | 12.4 | 17.7 | 26.3 |
| Maximum Radial Shaft Load | lbs | 348 | 348 | 348 |
| | N | 1548 | 1548 | 1548 |
| Maximum Axial Shaft Load | lbs | 117 | 117 | 117 |
| | N | 519 | 519 | 519 |

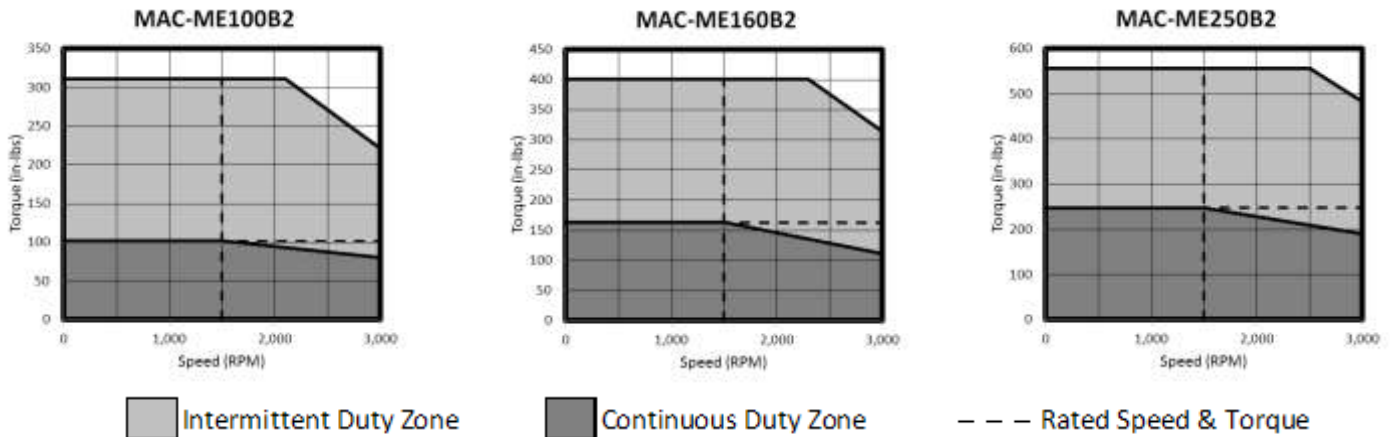
| Electrical Specifications | | | | |
|-----------------------------|----------------------------|-------|-------|-------|
| Torque Sensitivity | in-lb/Amp _{RMS/φ} | 7.13 | 8.10 | 8.07 |
| | N-m/Amp _{RMS/φ} | 0.806 | 0.915 | 0.912 |
| Servo Drive Input Power | volts AC | 230 | 230 | 230 |
| Continuous Motor Current | Amps _{RMS/φ} | 14.7 | 20.6 | 31.75 |
| Peak Motor Current | Amps _{RMS/φ} | 44.1 | 61.8 | 95.25 |
| Resistance (phase to phase) | Ohms | 0.22 | 0.11 | 0.06 |
| Inductance (phase to phase) | mH | 3.21 | 2.04 | 1.14 |
| Poles | | 8 | 8 | 8 |

| Thermal Specifications | | | | |
|------------------------|-----------|----|----|----|
| Thermal Time Constant | minutes | 29 | 31 | 35 |
| Ambient Temperature | degrees C | 40 | 40 | 40 |
| Insulation Class | | F† | F† | F† |

* Torques may be limited by the current limits of the servo drive. The next larger drive may be used to increase available torque. Consult an Ormec Applications Engineer for details.

† F-class insulation against B-class temperature rise

Torque vs. Speed Characteristics (at 230 VAC)



200 VAC Motor Specifications

Specifications for Brake Models on page 18

| Performance Specifications | Units | MAC-ME335B2 | MAC-ME420B2 |
|----------------------------|--------------------------|-------------|-------------|
| Servo Drive Model Number | | SAC-x235 | SAC-x260 |
| Rated Torque* | in-lb | 321.8 | 422.5 |
| | N-m | 36.36 | 47.74 |
| Rated Speed | RPM | 1500 | 1500 |
| Peak Torque* | in-lb | 655.1 | 1126.1 |
| | N-m | 74.02 | 127.24 |
| Maximum Speed | RPM | 2500 | 2500 |
| Rated Power | Watts | 5710 | 7500 |
| | HP | 7.7 | 10.1 |
| Rated Torque/Inertia | radians/sec ² | 2997 | 3319 |

| Mechanical Specifications | | | |
|---------------------------|---|----------|----------|
| Moment of Inertia | in-lb-sec ² x 10 ⁻³ | 107.4038 | 127.2914 |
| | kg-m ² x 10 ⁻⁴ | 121.3500 | 143.8200 |
| Servomotor Weight | lbs | 78.48 | 86.86 |
| | kg | 35.6 | 39.4 |
| Maximum Radial Shaft Load | lbs | 348 | 348 |
| | N | 1548 | 1548 |
| Maximum Axial Shaft Load | lbs | 117 | 117 |
| | N | 519 | 519 |

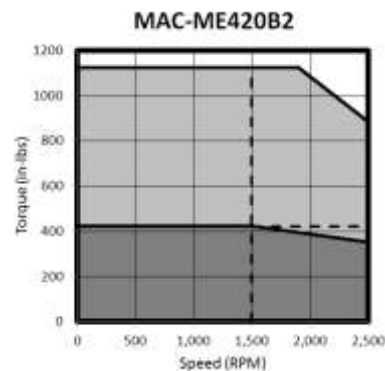
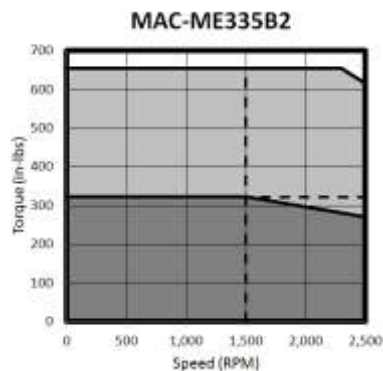
| Electrical Specifications | | | |
|-----------------------------|----------------------------|-------|-------|
| Torque Sensitivity | in-lb/Amp _{RMS/φ} | 9.52 | 9.46 |
| | N-m/Amp _{RMS/φ} | 1.076 | 1.069 |
| Servo Drive Input Power | volts AC | 230 | 230 |
| Continuous Motor Current | Amps _{RMS/φ} | 36.7 | 45.6 |
| Peak Motor Current | Amps _{RMS/φ} | 110.1 | 136.8 |
| Resistance (phase to phase) | Ohms | 0.05 | 0.05 |
| Inductance (phase to phase) | mH | 1.13 | 1.05 |
| Poles | | 8 | 8 |

| Thermal Specifications | | | |
|------------------------|-----------|----|----|
| Thermal Time Constant | minutes | 40 | 45 |
| Ambient Temperature | degrees C | 40 | 40 |
| Insulation Class | | F† | F† |

* Torques may be limited by the current limits of the servo drive. The next larger drive may be used to increase available torque. Consult an Ormec Applications Engineer for details.

† F-class insulation against B-class temperature rise

Torque vs. Speed Characteristics (at 230 VAC)



☐ Intermittent Duty Zone

■ Continuous Duty Zone

--- Rated Speed & Torque

200 VAC Motor Specifications

Specifications for Brake Models on page 18

| Performance Specifications | Units | MAC-MF475B2 | MAC-MF620B2 |
|----------------------------|--------------------------|-------------|-------------|
| Servo Drive Model Number | | SAC-x260 | SAC-x260 |
| Rated Torque* | in-lb | 478.9 | 619.7 |
| | N-m | 54.11 | 70.02 |
| Rated Speed | RPM | 1500 | 1500 |
| Peak Torque* | in-lb | 1109.8 | 1276.5 |
| | N-m | 125.39 | 144.22 |
| Maximum Speed | RPM | 2500 | 2000 |
| Rated Power | Watts | 8500 | 11000 |
| | HP | 11.4 | 14.8 |
| Rated Torque/Inertia | radians/sec ² | 1857 | 2403 |

| Mechanical Specifications | | | |
|---------------------------|---|----------|----------|
| Moment of Inertia | in-lb-sec ² x 10 ⁻³ | 257.8753 | 257.8753 |
| | kg-m ² x 10 ⁻⁴ | 291.3600 | 291.3600 |
| Servomotor Weight | lbs | 145.94 | 146.16 |
| | kg | 66.2 | 66.3 |
| Maximum Radial Shaft Load | lbs | 416 | 416 |
| | N | 1850 | 1850 |
| Maximum Axial Shaft Load | lbs | 176 | 176 |
| | N | 781 | 781 |

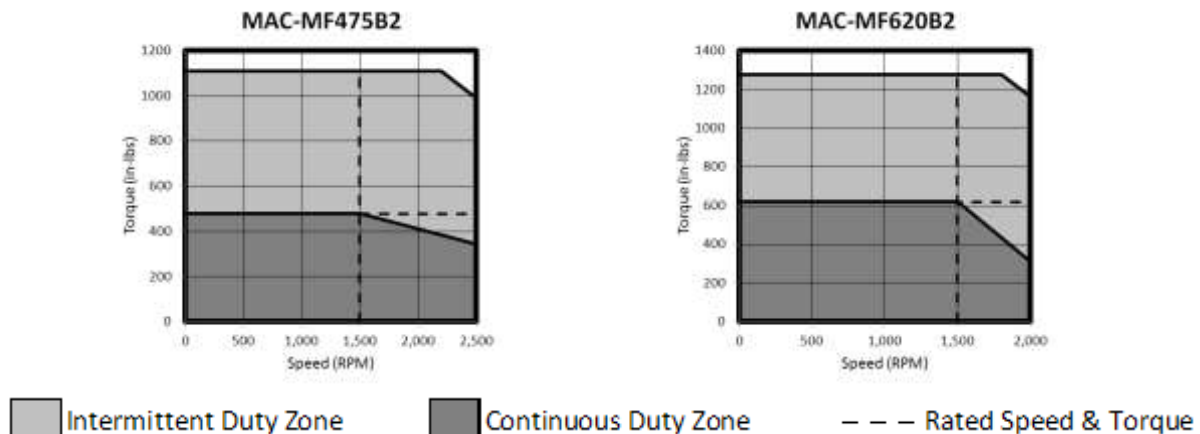
| Electrical Specifications | | | |
|-----------------------------|----------------------------|--------|-------|
| Torque Sensitivity | in-lb/Amp _{RMS/φ} | 9.41 | 10.82 |
| | N-m/Amp _{RMS/φ} | 1.063 | 1.222 |
| Servo Drive Input Power | volts AC | 230 | 230 |
| Continuous Motor Current | Amps _{RMS/φ} | 52.94 | 59.3 |
| Peak Motor Current | Amps _{RMS/φ} | 158.82 | 177.9 |
| Resistance (phase to phase) | Ohms | 0.03 | 0.03 |
| Inductance (phase to phase) | mH | 0.77 | 1.04 |
| Poles | | 8 | 8 |

| Thermal Specifications | | | |
|------------------------|-----------|----|----|
| Thermal Time Constant | minutes | 51 | 55 |
| Ambient Temperature | degrees C | 40 | 40 |
| Insulation Class | | F† | F† |

* Torques may be limited by the current limits of the servo drive. The next larger drive may be used to increase available torque. Consult an Ormec Applications Engineer for details.

† F-class insulation against B-class temperature rise

Torque vs. Speed Characteristics (at 230 VAC)



400 VAC Motor Specifications

Specifications for Brake Models on page 18

| Performance Specifications | Units | MAC-MD025B4 | MAC-MD025D4 | MAC-MD050B4 |
|----------------------------|--------------------------|-------------|-------------|-------------|
| Servo Drive Model Number | | SAC-x405 | SAC-x403 | SAC-x405 |
| Rated Torque* | in-lb | 25.4 | 25.4 | 47.9 |
| | N-m | 2.87 | 2.87 | 5.41 |
| Rated Speed | RPM | 1500 | 3000 | 1500 |
| Peak Torque* | in-lb | 78.6 | 78.7 | 148.4 |
| | N-m | 8.88 | 8.89 | 16.77 |
| Maximum Speed | RPM | 3000 | 5000 | 3000 |
| Rated Power | Watts | 450 | 900 | 850 |
| | HP | 0.60 | 1.2 | 1.1 |
| Rated Torque/Inertia | radians/sec ² | 4303 | 4308 | 4509 |

| Mechanical Specifications | | | | |
|---------------------------|---|--------|--------|---------|
| Moment of Inertia | in-lb-sec ² x 10 ⁻³ | 5.8937 | 5.8937 | 10.6200 |
| | kg-m ² x 10 ⁻⁴ | 6.6590 | 6.6590 | 11.9990 |
| Servomotor Weight | lbs | 12.13 | 12.13 | 16.62 |
| | kg | 5.5 | 5.5 | 7.54 |
| Maximum Radial Shaft Load | lbs | 163 | 163 | 163 |
| | N | 725 | 725 | 725 |
| Maximum Axial Shaft Load | lbs | 81 | 81 | 81 |
| | N | 362 | 362 | 362 |

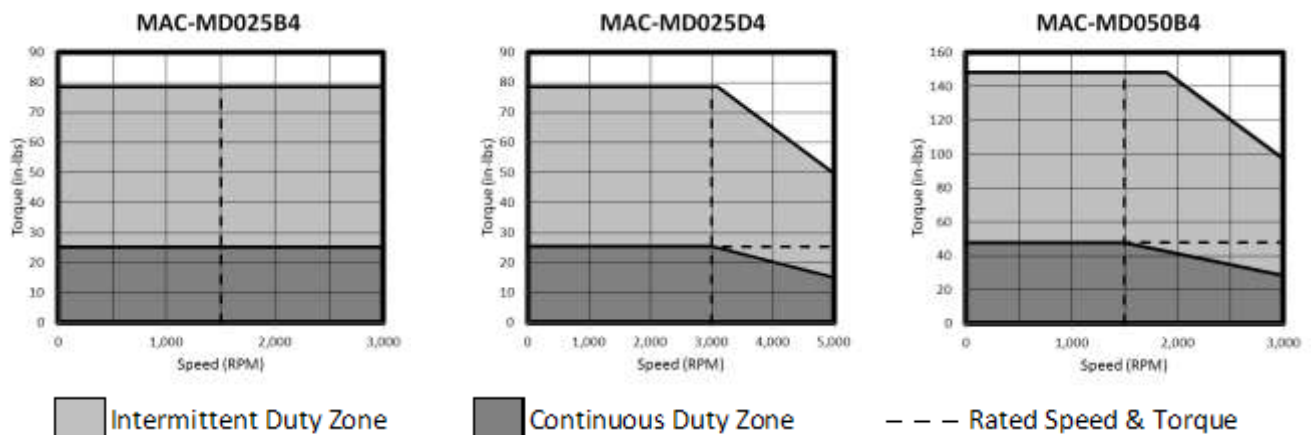
| Electrical Specifications | | | | |
|-----------------------------|----------------------------------|-------|-------|-------|
| Torque Sensitivity | in-lb/Amp _{RMS/φ} | 7.46 | 8.97 | 14.92 |
| | N-m/Amp _{RMS/φ} | 0.843 | 1.014 | 1.686 |
| Servo Drive Input Power | volts AC | 460 | 460 | 460 |
| Continuous Motor Current | Amp _{S_{RMS/φ}} | 3.57 | 2.97 | 3.37 |
| Peak Motor Current | Amp _{S_{RMS/φ}} | 10.71 | 8.91 | 10.11 |
| Resistance (phase to phase) | Ohms | 1.70 | 2.43 | 2.56 |
| Inductance (phase to phase) | mH | 15.63 | 22.61 | 31.27 |
| Poles | | 8 | 8 | 8 |

| Thermal Specifications | | | | |
|------------------------|-----------|----|----|----|
| Thermal Time Constant | minutes | 24 | 34 | 28 |
| Ambient Temperature | degrees C | 40 | 40 | 40 |
| Insulation Class | | F† | F† | F† |

* Torques may be limited by the current limits of the servo drive. The next larger drive may be used to increase available torque. Consult an Ormec Applications Engineer for details.

† F-class insulation against B-class temperature rise

Torque vs. Speed Characteristics (at 460 VAC)



400 VAC Motor Specifications

Specifications for Brake Models on page 18

| Performance Specifications | Units | MAC-MD050D4 | MAC-MD070B4 | MAC-MD070D4 |
|----------------------------|--------------------------|-------------|-------------|-------------|
| Servo Drive Model Number | | SAC-x405 | SAC-x405 | SAC-x410 |
| Rated Torque* | in-lb | 42.3 | 70.4 | 62.0 |
| | N-m | 4.78 | 7.95 | 7.00 |
| Rated Speed | RPM | 3000 | 1500 | 3000 |
| Peak Torque* | in-lb | 131.0 | 218.6 | 192.1 |
| | N-m | 14.80 | 24.69 | 21.70 |
| Maximum Speed | RPM | 5000 | 3000 | 5000 |
| Rated Power | Watts | 1500 | 1250 | 2200 |
| | HP | 2.0 | 1.7 | 3.0 |
| Rated Torque/Inertia | radians/sec ² | 3981 | 4587 | 4038 |

| Mechanical Specifications | | | | |
|---------------------------|---|---------|---------|---------|
| Moment of Inertia | in-lb-sec ² x 10 ⁻³ | 10.6200 | 15.3463 | 15.3463 |
| | kg-m ² x 10 ⁻⁴ | 11.9990 | 17.3390 | 17.3390 |
| Servomotor Weight | lbs | 16.62 | 21.34 | 21.34 |
| | kg | 7.54 | 9.68 | 9.68 |
| Maximum Radial Shaft Load | lbs | 163 | 163 | 163 |
| | N | 725 | 725 | 725 |
| Maximum Axial Shaft Load | lbs | 81 | 81 | 81 |
| | N | 362 | 362 | 362 |

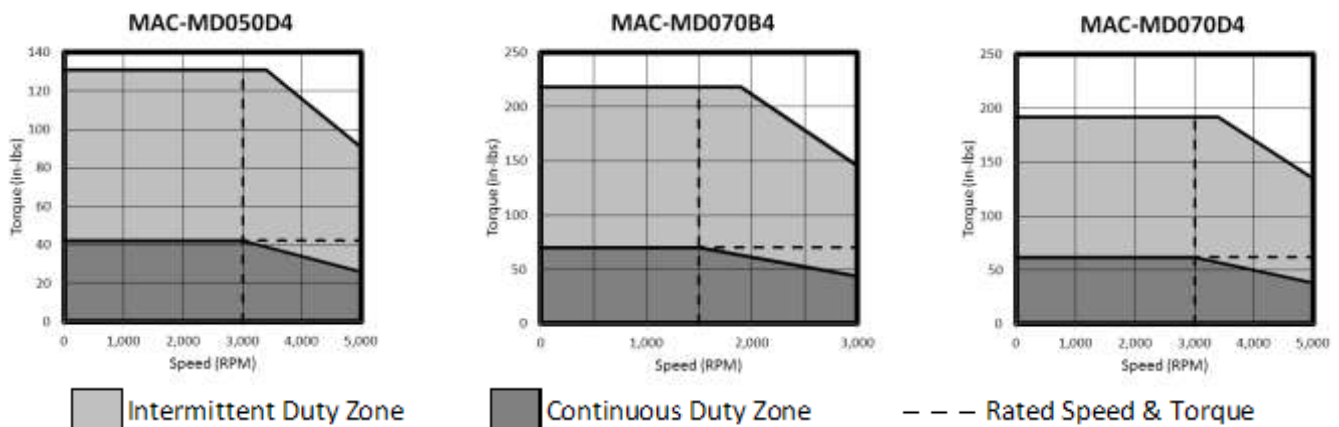
| Electrical Specifications | | | | |
|-----------------------------|----------------------------|-------|-------|-------|
| Torque Sensitivity | in-lb/Amp _{RMS/φ} | 9.07 | 14.82 | 9.07 |
| | N-m/Amp _{RMS/φ} | 1.025 | 1.674 | 1.025 |
| Servo Drive Input Power | volts AC | 460 | 460 | 460 |
| Continuous Motor Current | Amps _{RMS/φ} | 4.89 | 5.19 | 7.17 |
| Peak Motor Current | Amps _{RMS/φ} | 14.67 | 15.57 | 21.51 |
| Resistance (phase to phase) | Ohms | 1.00 | 1.45 | 0.55 |
| Inductance (phase to phase) | mH | 11.56 | 20.56 | 7.71 |
| Poles | | 8 | 8 | 8 |

| Thermal Specifications | | | | |
|------------------------|-----------|----|----|----|
| Thermal Time Constant | minutes | 37 | 32 | 41 |
| Ambient Temperature | degrees C | 40 | 40 | 40 |
| Insulation Class | | F† | F† | F† |

* Torques may be limited by the current limits of the servo drive. The next larger drive may be used to increase available torque. Consult an Ormec Applications Engineer for details.

† F-class insulation against B-class temperature rise

Torque vs. Speed Characteristics (at 460 VAC)



400 VAC Motor Specifications

Specifications for Brake Models on page 18

| Performance Specifications | Units | MAC-MD095B4 | MAC-MD095D4 | MAC-ME100B4 |
|----------------------------|--------------------------|-------------|-------------|-------------|
| Servo Drive Model Number | | SAC-x410 | SAC-x410 | SAC-x410 |
| Rated Torque* | in-lb | 95.8 | 84.5 | 101.3 |
| | N-m | 10.82 | 9.54 | 11.44 |
| Rated Speed | RPM | 1500 | 3000 | 1500 |
| Peak Torque* | in-lb | 296.9 | 261.9 | 312.1 |
| | N-m | 33.54 | 29.59 | 35.27 |
| Maximum Speed | RPM | 3000 | 5000 | 3000 |
| Rated Power | Watts | 1700 | 3000 | 1800 |
| | HP | 2.3 | 4.0 | 2.4 |
| Rated Torque/Inertia | radians/sec ² | 4772 | 4208 | 3723 |

| Mechanical Specifications | | | | |
|---------------------------|---|---------|---------|---------|
| Moment of Inertia | in-lb-sec ² x 10 ⁻³ | 20.0726 | 20.0726 | 27.2072 |
| | kg-m ² x 10 ⁻⁴ | 22.6790 | 22.6790 | 30.7400 |
| Servomotor Weight | lbs | 25.97 | 25.97 | 27.34 |
| | kg | 11.78 | 11.78 | 12.4 |
| Maximum Radial Shaft Load | lbs | 163 | 163 | 348 |
| | N | 725 | 725 | 1548 |
| Maximum Axial Shaft Load | lbs | 81 | 81 | 117 |
| | N | 362 | 362 | 519 |

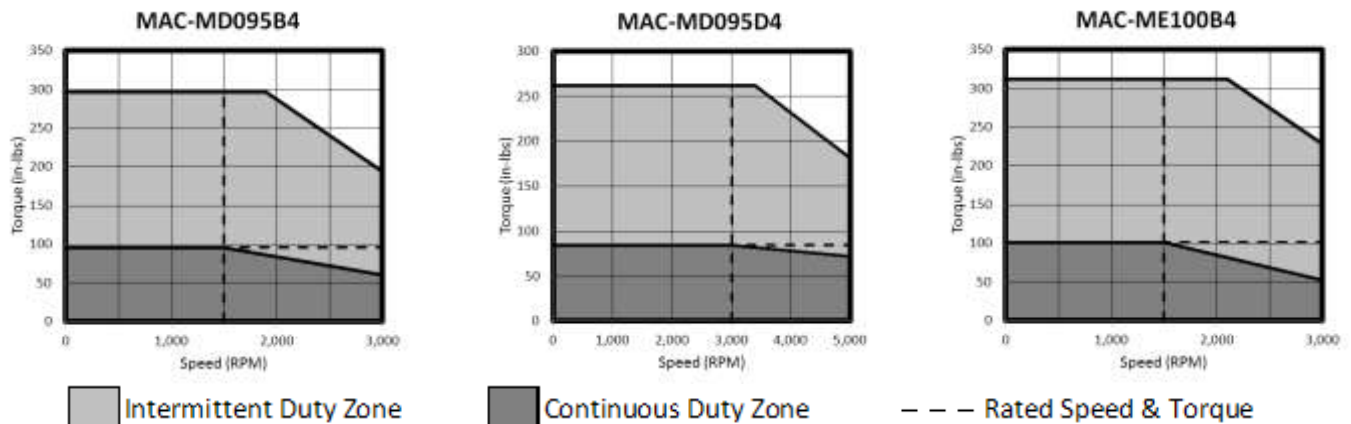
| Electrical Specifications | | | | |
|-----------------------------|----------------------------|-------|-------|-------|
| Torque Sensitivity | in-lb/Amp _{RMS/φ} | 14.92 | 9.07 | 14.74 |
| | N-m/Amp _{RMS/φ} | 1.686 | 1.025 | 1.666 |
| Servo Drive Input Power | volts AC | 460 | 460 | 460 |
| Continuous Motor Current | Amps _{RMS/φ} | 6.74 | 9.78 | 7.15 |
| Peak Motor Current | Amps _{RMS/φ} | 20.22 | 29.34 | 21.45 |
| Resistance (phase to phase) | Ohms | 1.07 | 0.39 | 0.92 |
| Inductance (phase to phase) | mH | 15.63 | 5.78 | 12.15 |
| Poles | | 8 | 8 | 8 |

| Thermal Specifications | | | | |
|------------------------|-----------|----|----|----|
| Thermal Time Constant | minutes | 37 | 45 | 29 |
| Ambient Temperature | degrees C | 40 | 40 | 40 |
| Insulation Class | | F† | F† | F† |

* Torques may be limited by the current limits of the servo drive. The next larger drive may be used to increase available torque. Consult an Ormec Applications Engineer for details.

† F-class insulation against B-class temperature rise

Torque vs. Speed Characteristics (at 460 VAC)



400 VAC Motor Specifications

Specifications for Brake Models on page 18

| Performance Specifications | Units | MAC-ME160B4 | MAC-ME250B4 | MAC-ME335B4 |
|----------------------------|--------------------------|-------------|-------------|-------------|
| Servo Drive Model Number | | SAC-x417 | SAC-x425 | SAC-x425 |
| Rated Torque* | in-lb | 164.6 | 247.8 | 338.0 |
| | N-m | 18.59 | 28.00 | 38.19 |
| Rated Speed | RPM | 1500 | 1500 | 1500 |
| Peak Torque* | in-lb | 506.9 | 754.1 | 758.1 |
| | N-m | 57.27 | 85.20 | 85.66 |
| Maximum Speed | RPM | 3000 | 3000 | 3000 |
| Rated Power | Watts | 2920 | 4400 | 6000 |
| | HP | 3.9 | 5.9 | 8.0 |
| Rated Torque/Inertia | radians/sec ² | 3567 | 3350 | 3147 |

| Mechanical Specifications | | | | |
|---------------------------|---|---------|---------|----------|
| Moment of Inertia | in-lb-sec ² x 10 ⁻³ | 46.1389 | 73.9922 | 107.4038 |
| | kg-m ² x 10 ⁻⁴ | 52.1300 | 83.6000 | 121.3500 |
| Servomotor Weight | lbs | 39.02 | 57.98 | 78.48 |
| | kg | 17.7 | 26.3 | 35.6 |
| Maximum Radial Shaft Load | lbs | 348 | 348 | 348 |
| | N | 1548 | 1548 | 1548 |
| Maximum Axial Shaft Load | lbs | 117 | 117 | 117 |
| | N | 519 | 519 | 519 |

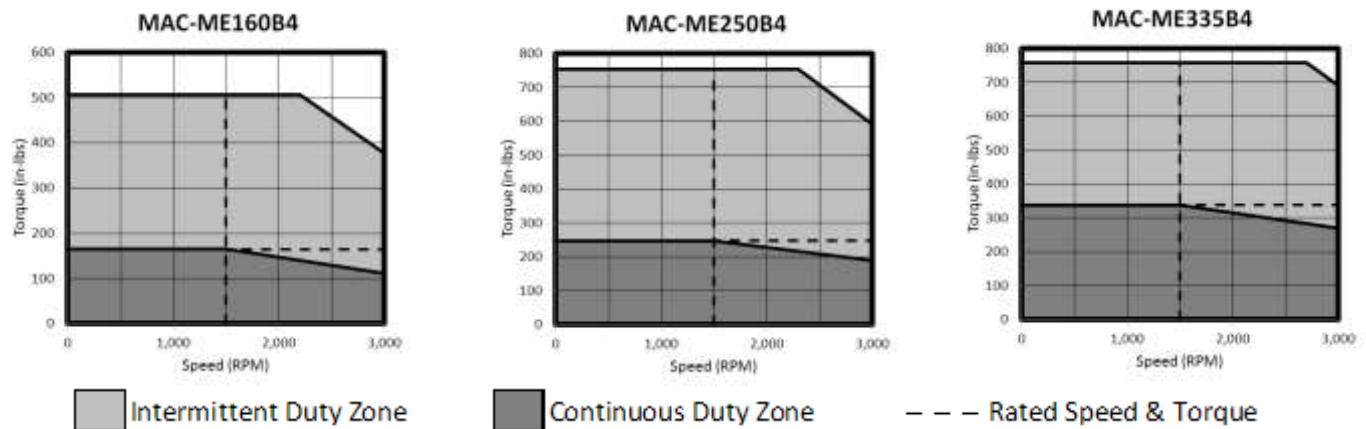
| Electrical Specifications | | | | |
|-----------------------------|----------------------------|-------|-------|-------|
| Torque Sensitivity | in-lb/Amp _{RMS/φ} | 15.28 | 15.28 | 15.43 |
| | N-m/Amp _{RMS/φ} | 1.726 | 1.726 | 1.744 |
| Servo Drive Input Power | volts AC | 460 | 460 | 460 |
| Continuous Motor Current | Amps _{RMS/φ} | 11.2 | 16.87 | 22.78 |
| Peak Motor Current | Amps _{RMS/φ} | 33.6 | 50.61 | 68.34 |
| Resistance (phase to phase) | Ohms | 0.36 | 0.21 | 0.13 |
| Inductance (phase to phase) | mH | 7.21 | 4.35 | 3.01 |
| Poles | | 8 | 8 | 8 |

| Thermal Specifications | | | | |
|------------------------|-----------|----|----|----|
| Thermal Time Constant | minutes | 31 | 35 | 40 |
| Ambient Temperature | degrees C | 40 | 40 | 40 |
| Insulation Class | | F† | F† | F† |

* Torques may be limited by the current limits of the servo drive. The next larger drive may be used to increase available torque. Consult an Ormec Applications Engineer for details.

† F-class insulation against B-class temperature rise

Torque vs. Speed Characteristics (at 460 VAC)



400 VAC Motor Specifications

Specifications for Brake Models on page 18

| Performance Specifications | Units | MAC-ME420B4 | MAC-MF475B4 |
|----------------------------|--------------------------|-------------|-------------|
| Servo Drive Model Number | | SAC-x435 | SAC-x435 |
| Rated Torque* | in-lb | 422.5 | 478.9 |
| | N-m | 47.74 | 54.11 |
| Rated Speed | RPM | 1500 | 1500 |
| Peak Torque* | in-lb | 1168.0 | 1208.4 |
| | N-m | 131.97 | 136.53 |
| Maximum Speed | RPM | 3000 | 2500 |
| Rated Power | Watts | 7500 | 8500 |
| | HP | 10.1 | 11.4 |
| Rated Torque/Inertia | radians/sec ² | 3319 | 1857 |

| Mechanical Specifications | | | |
|---------------------------|---|----------|----------|
| Moment of Inertia | in-lb-sec ² x 10 ⁻³ | 127.2914 | 257.8753 |
| | kg-m ² x 10 ⁻⁴ | 143.8200 | 291.3600 |
| Servomotor Weight | lbs | 86.86 | 145.94 |
| | kg | 39.4 | 66.2 |
| Maximum Radial Shaft Load | lbs | 348 | 416 |
| | N | 1548 | 1850 |
| Maximum Axial Shaft Load | lbs | 117 | 176 |
| | N | 519 | 781 |

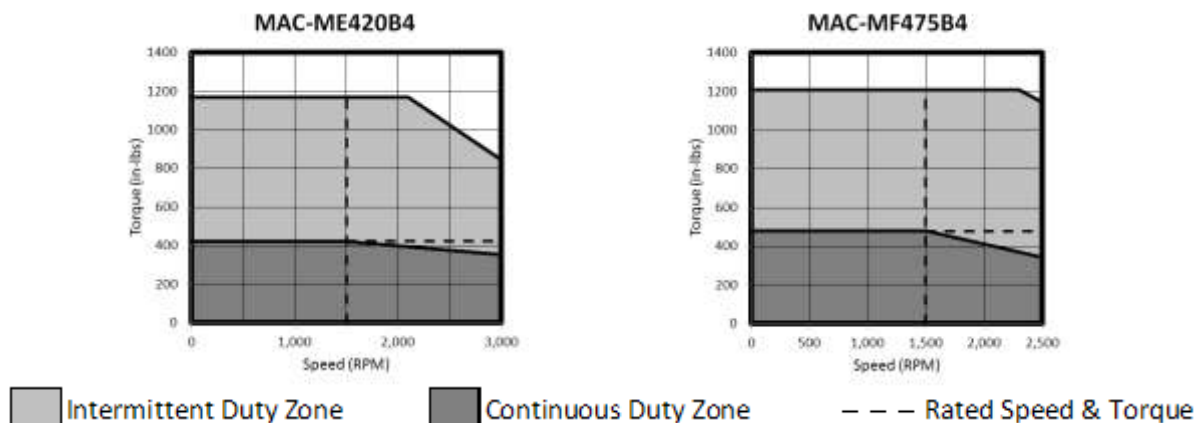
| Electrical Specifications | | | |
|-----------------------------|----------------------------------|-------|-------|
| Torque Sensitivity | in-lb/Amp _{RMS/φ} | 16.93 | 17.47 |
| | N-m/Amp _{RMS/φ} | 1.913 | 1.974 |
| Servo Drive Input Power | volts AC | 460 | 460 |
| Continuous Motor Current | Amp _{S_{RMS/φ}} | 25.96 | 28.24 |
| Peak Motor Current | Amp _{S_{RMS/φ}} | 77.88 | 84.72 |
| Resistance (phase to phase) | Ohms | 0.14 | 0.08 |
| Inductance (phase to phase) | mH | 3.30 | 2.56 |
| Poles | | 8 | 8 |

| Thermal Specifications | | | |
|------------------------|-----------|----|----|
| Thermal Time Constant | minutes | 45 | 51 |
| Ambient Temperature | degrees C | 40 | 40 |
| Insulation Class | | F† | F† |

* Torques may be limited by the current limits of the servo drive. The next larger drive may be used to increase available torque. Consult an Ormec Applications Engineer for details.

† F-class insulation against B-class temperature rise

Torque vs. Speed Characteristics (at 460 VAC)



400 VAC Motor Specifications

Specifications for Brake Models on page 18

| Performance Specifications | Units | MAC-MF620B4 | MAC-MF845B4 |
|----------------------------|--------------------------|------------------|------------------|
| Servo Drive Model Number | | SAC-x435 | SAC-x450 |
| Rated Torque* | in-lb N-m | 619.7 70.02 | 845.1 95.48 |
| Rated Speed | RPM | 1500 | 1500 |
| Peak Torque* | in-lb N-m | 1576.1 178.08 | 2412.8 272.61 |
| Maximum Speed | RPM | 2000 | 2000 |
| Rated Power | Watts HP | 11000 14.8 | 15000 20.1 |
| Rated Torque/Inertia | radians/sec ² | 2403 | 2477 |

| Mechanical Specifications | | | |
|---------------------------|---|----------|----------|
| Moment of Inertia | in-lb-sec ² x 10 ⁻³ | 257.8753 | 341.2316 |
| | kg-m ² x 10 ⁻⁴ | 291.3600 | 385.5400 |
| Servomotor Weight | lbs | 146.16 | 203.26 |
| | kg | 66.3 | 92.2 |
| Maximum Radial Shaft Load | lbs | 416 | 416 |
| | N | 1850 | 1850 |
| Maximum Axial Shaft Load | lbs | 176 | 176 |
| | N | 781 | 781 |

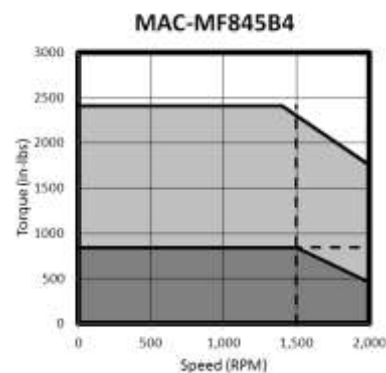
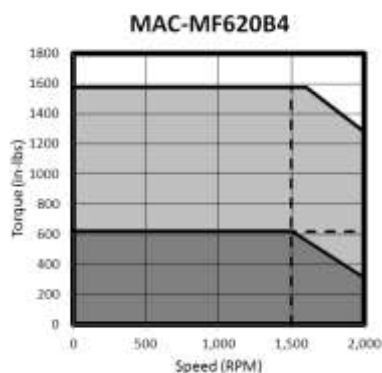
| Electrical Specifications | | | |
|-----------------------------|----------------------------|-------|-------|
| Torque Sensitivity | in-lb/Amp _{RMS/φ} | 22.78 | 24.38 |
| | N-m/Amp _{RMS/φ} | 2.574 | 2.755 |
| Servo Drive Input Power | volts AC | 460 | 460 |
| Continuous Motor Current | Amps _{RMS/φ} | 28.02 | 35.7 |
| Peak Motor Current | Amps _{RMS/φ} | 84.06 | 107.1 |
| Resistance (phase to phase) | Ohms | 0.13 | 0.10 |
| Inductance (phase to phase) | mH | 4.35 | 3.57 |
| Poles | | 8 | 8 |

| Thermal Specifications | | | |
|------------------------|-----------|----|----|
| Thermal Time Constant | minutes | 55 | 60 |
| Ambient Temperature | degrees C | 40 | 40 |
| Insulation Class | | F† | F† |

* Torques may be limited by the current limits of the servo drive. The next larger drive may be used to increase available torque. Consult an Ormec Applications Engineer for details.

† F-class insulation against B-class temperature rise

Torque vs. Speed Characteristics (at 460 VAC)



Intermittent Duty Zone
 Continuous Duty Zone
 Rated Speed & Torque

Motors with Fail-Safe Brake Specifications

| 200 VAC | | | | | | |
|-------------------|----------------------|----------------------|----------------------|-----------------|-------------------|---------------|
| Servo Motor Model | Brake Holding Torque | Motor Length w/brake | Motor Weight w/brake | Brake Coil Res. | Brake Rated Curr. | Brake Voltage |
| | in-lb / N-m | in / mm | lb / kg | Ohms | Amps | VDC |
| MAC-MA001D2 | 2.8 0.32 | 5.7 144 | 1.6 0.73 | 96 | 0.25 | 24 |
| MAC-MB003D2 | 13.0 1.47 | 6.4 162 | 3.1 1.4 | 89 | 0.27 | 24 |
| MAC-MB006D2 | 13.0 1.47 | 7.0 176 | 3.7 1.66 | 89 | 0.27 | 24 |
| MAC-MB011D2 | 13.0 1.47 | 8.1 204 | 4.8 2.16 | 89 | 0.27 | 24 |
| MAC-MC016D2 | 28.6 3.23 | 8.6 218 | 7.9 3.56 | 64 | 0.38 | 24 |
| MAC-MC022D2 | 28.6 3.23 | 9.4 238 | 9.3 4.22 | 64 | 0.38 | 24 |
| MAC-MC028D2 | 28.6 3.23 | 10.2 258 | 10.9 4.94 | 64 | 0.38 | 24 |
| MAC-MD025B2 | 92.0 10.4 | 9.5 240 | 15.5 7.04 | 29.6 | 0.81 | 24 |
| MAC-MD025D2 | 92 10.4 | 9.5 240 | 15.5 7.04 | 29.6 | 0.81 | 24 |
| MAC-MD050B2 | 92 10.4 | 10.4 264 | 20.0 9.08 | 29.6 | 0.81 | 24 |
| MAC-MD050D2 | 92 10.4 | 10.4 264 | 20.0 9.08 | 29.6 | 0.81 | 24 |
| MAC-MD070B2 | 92 10.4 | 11.4 288 | 24.7 11.2 | 29.6 | 0.81 | 24 |
| MAC-MD070D2 | 92 10.4 | 11.4 288 | 24.7 11.2 | 29.6 | 0.81 | 24 |
| MAC-MD095B2 | 92 10.4 | 12.3 312 | 29.4 13.3 | 29.6 | 0.81 | 24 |
| MAC-MD095D2 | 92 10.4 | 12.3 312 | 29.4 13.3 | 29.6 | 0.81 | 24 |
| MAC-ME100B2 | 354 40 | 12.7 322 | 42.3 19.2 | 23 | 1.04 | 24 |
| MAC-ME160B2 | 354 40 | 14.1 356 | 54.0 24.5 | 23 | 1.04 | 24 |
| MAC-ME250B2 | 354 40 | 16.0 406 | 73.0 33.1 | 23 | 1.04 | 24 |
| MAC-ME335B2 | 354 40 | 18.0 457 | 94.4 42.8 | 23 | 1.04 | 24 |

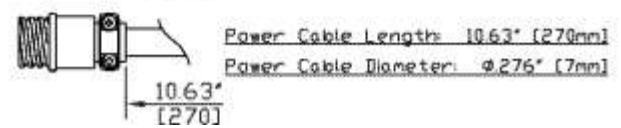
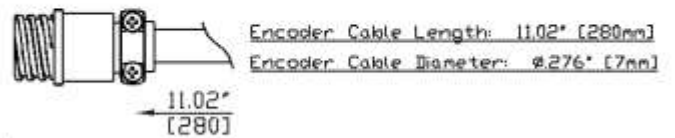
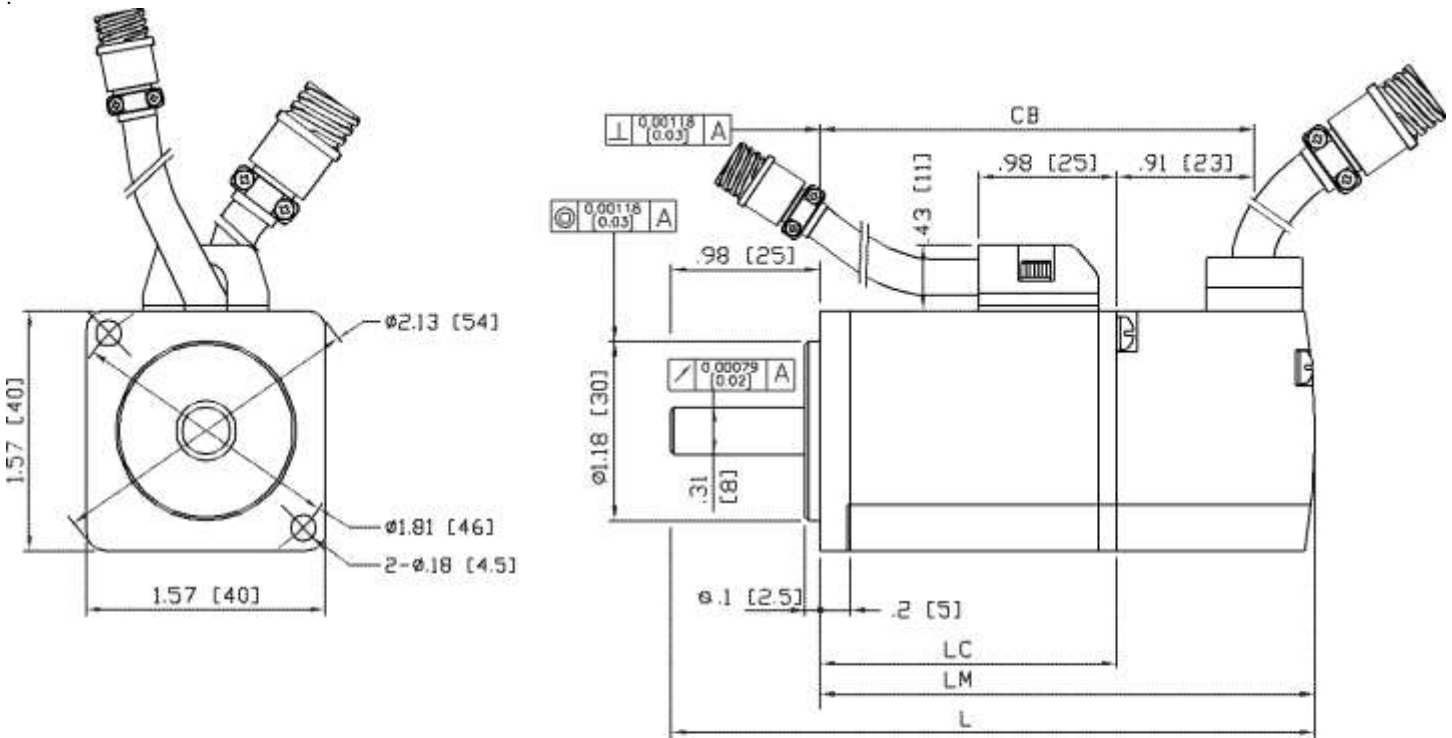
| 400 VAC | | | | | | |
|-------------------|----------------------|----------------------|----------------------|-----------------|-------------------|---------------|
| Servo Motor Model | Brake Holding Torque | Motor Length w/brake | Motor Weight w/brake | Brake Coil Res. | Brake Rated Curr. | Brake Voltage |
| | in-lb / N-m | in / mm | lb / kg | Ohms | Amps | VDC |
| MAC-MD025B4 | 92.0 10.4 | 9.5 240 | 15.5 7.04 | 29.6 | 0.81 | 24 |
| MAC-MD025D4 | 92 10.4 | 9.5 240 | 15.5 7.04 | 29.6 | 0.81 | 24 |
| MAC-MD050B4 | 92 10.4 | 10.4 264 | 20.0 9.08 | 29.6 | 0.81 | 24 |
| MAC-MD050D4 | 92 10.4 | 10.4 264 | 20.0 9.08 | 29.6 | 0.81 | 24 |
| MAC-MD070B4 | 92 10.4 | 11.4 288 | 24.7 11.2 | 29.6 | 0.81 | 24 |
| MAC-MD070D4 | 92 10.4 | 11.4 288 | 24.7 11.2 | 29.6 | 0.81 | 24 |
| MAC-MD095B4 | 92 10.4 | 12.3 312 | 29.4 13.3 | 29.6 | 0.81 | 24 |
| MAC-MD095D4 | 92 10.4 | 12.3 312 | 29.4 13.3 | 29.6 | 0.81 | 24 |
| MAC-ME100B4 | 354 40 | 12.7 322 | 42.3 19.2 | 23 | 1.04 | 24 |
| MAC-ME160B4 | 354 40 | 14.1 356 | 54.0 24.5 | 23 | 1.04 | 24 |
| MAC-ME250B4 | 354 40 | 16.0 406 | 73.0 33.1 | 23 | 1.04 | 24 |
| MAC-ME335B4 | 354 40 | 18.0 457 | 94.4 42.8 | 23 | 1.04 | 24 |

Note: MAC-ME420, MAC-MF475, MAC-MF620 & MAC-MF845 do not support the brake option.

Motor Outline Drawings

For length of models with failsafe brake option, see page 18. Contact ORMEC Application Engineer for design details.

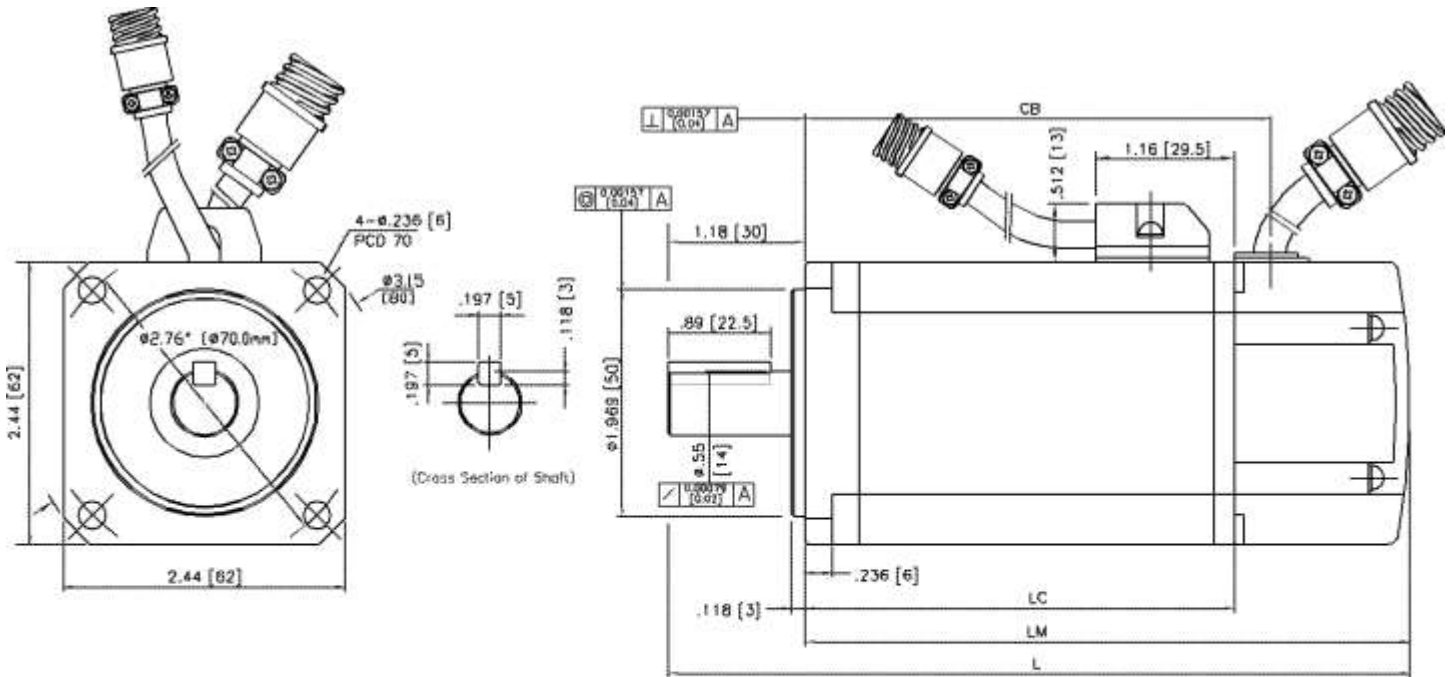
MA001



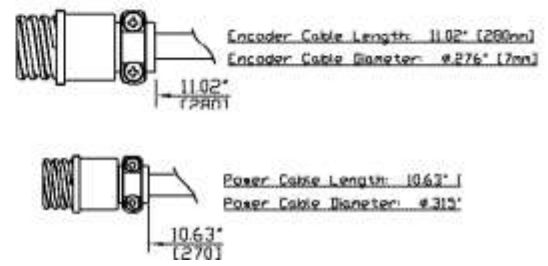
| Model | External Dimensions (in [mm]) | | | | Weight (Lb [Kg]) |
|-----------|-------------------------------|----------|------------|----------|---------------------|
| | L | LM | LC | CB | |
| MAC-MA001 | 4.3 [108] | 3.3 [83] | 1.9 [49.5] | 2.9 [73] | .88 [0.4] |

Motor Outline Drawings

MB003, MB006, & MB011

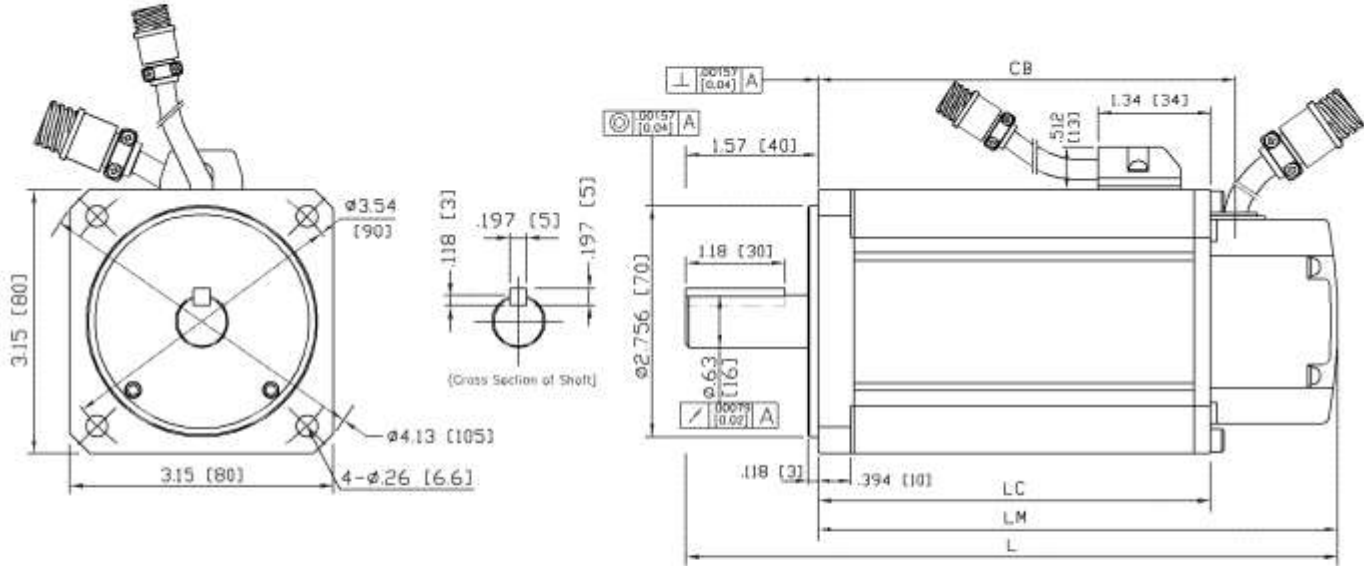


| Model | External Dimensions (in [mm]) | | | | Weight (Lb [Kg]) |
|-----------|-------------------------------|------------|-------------|--------------|------------------|
| | L | LN | LC | CB | |
| NAC-MB003 | 4.8 [122] | 3.6 [92] | 2.1 [52.5] | 2.3 [59.5] | 1.85 [0.84] |
| NAC-MB006 | 5.35 [136] | 4.17 [106] | 2.62 [66.3] | 2.89 [73.5] | 2.45 [1.11] |
| NAC-MB011 | 6.46 [164] | 5.28 [134] | 3.72 [94.5] | 4.00 [101.5] | 3.62 [1.64] |

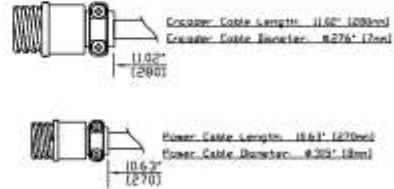


Motor Outline Drawings

MC016, MC022 & MC028

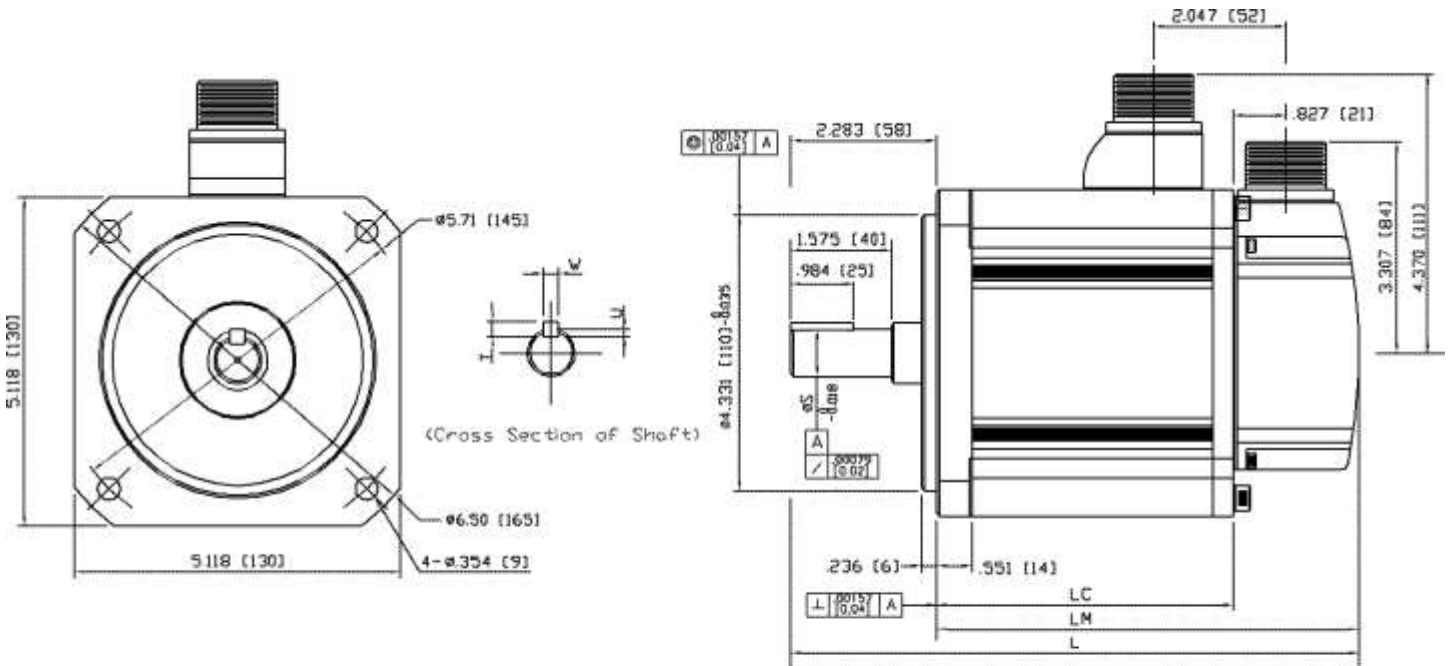


| Model | External Dimensions (in [mm]) | | | | Weight G,b [Kg] |
|-----------|-------------------------------|--------------|------------|------------|--------------------|
| | L | LM | LC | CB | |
| NAC-MC016 | 7.03 [178.5] | 5.45 [138.5] | 3.90 [99] | 4.17 [106] | 5.49 [2.43] |
| NAC-MC022 | 7.81 [198.5] | 6.24 [158.5] | 4.69 [119] | 4.96 [126] | 6.94 [3.15] |
| NAC-MC028 | 8.58 [218] | 7.01 [178] | 5.47 [139] | 5.77 [147] | 8.6 [3.9] |



Motor Outline Drawings

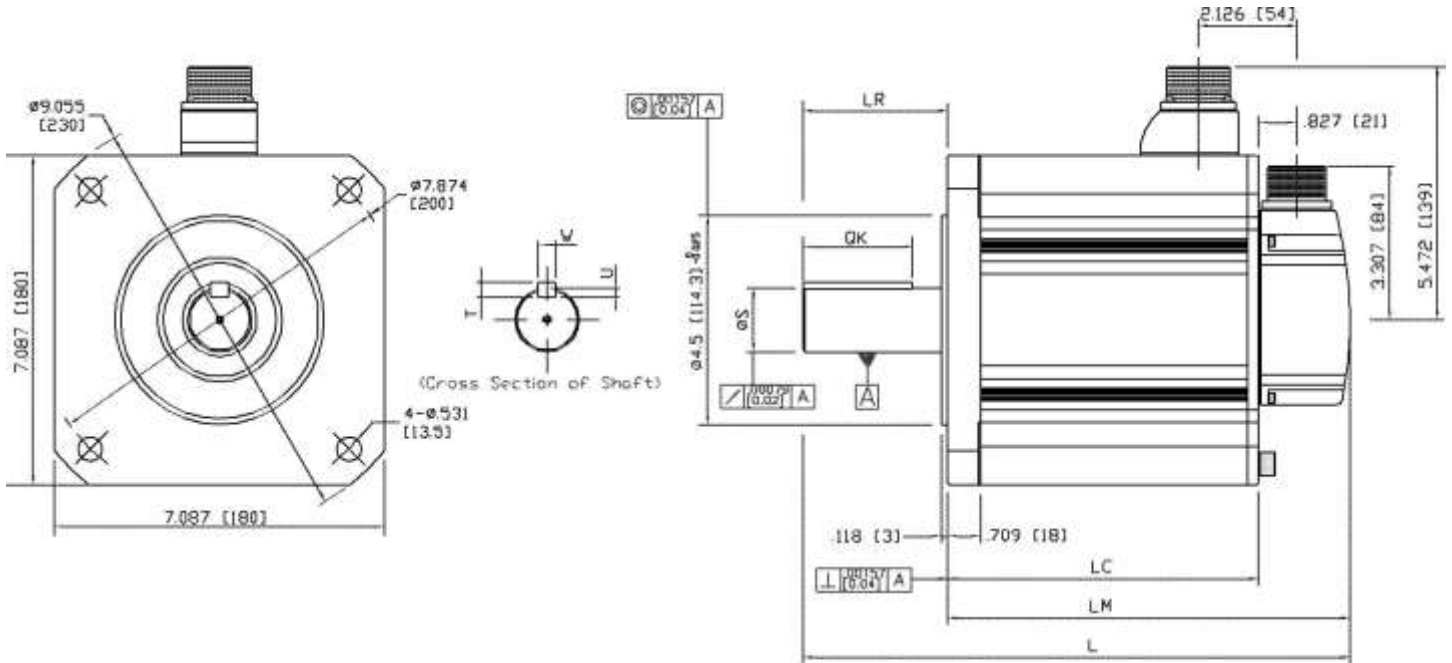
MD025, MD050, MD070 & MD095



| Model | External Dimensions (in [mm]) | | | Key | | | | Weight Lb (Kg) |
|-----------|-------------------------------|------------|------------|-----------|----------|----------|------------|-------------------|
| | L | LM | LC | S | T | W | U | |
| MAC-MD025 | 7.95 [202] | 5.67 [144] | 3.70 [94] | | | | | 12.35 [5.6] |
| MAC-MD050 | 8.90 [226] | 6.61 [168] | 4.65 [118] | .748 [19] | .197 [5] | .197 [5] | .118 [3] | 15.87 [7.2] |
| MAC-MD070 | 9.84 [250] | 7.56 [192] | 5.59 [142] | | | | | 19.18 [8.7] |
| MAC-MD095 | 10.79 [274] | 8.50 [216] | 6.54 [166] | .866 [22] | .236 [6] | .236 [6] | .138 [3.5] | 22.49 [10.2] |

Motor Outline Drawings

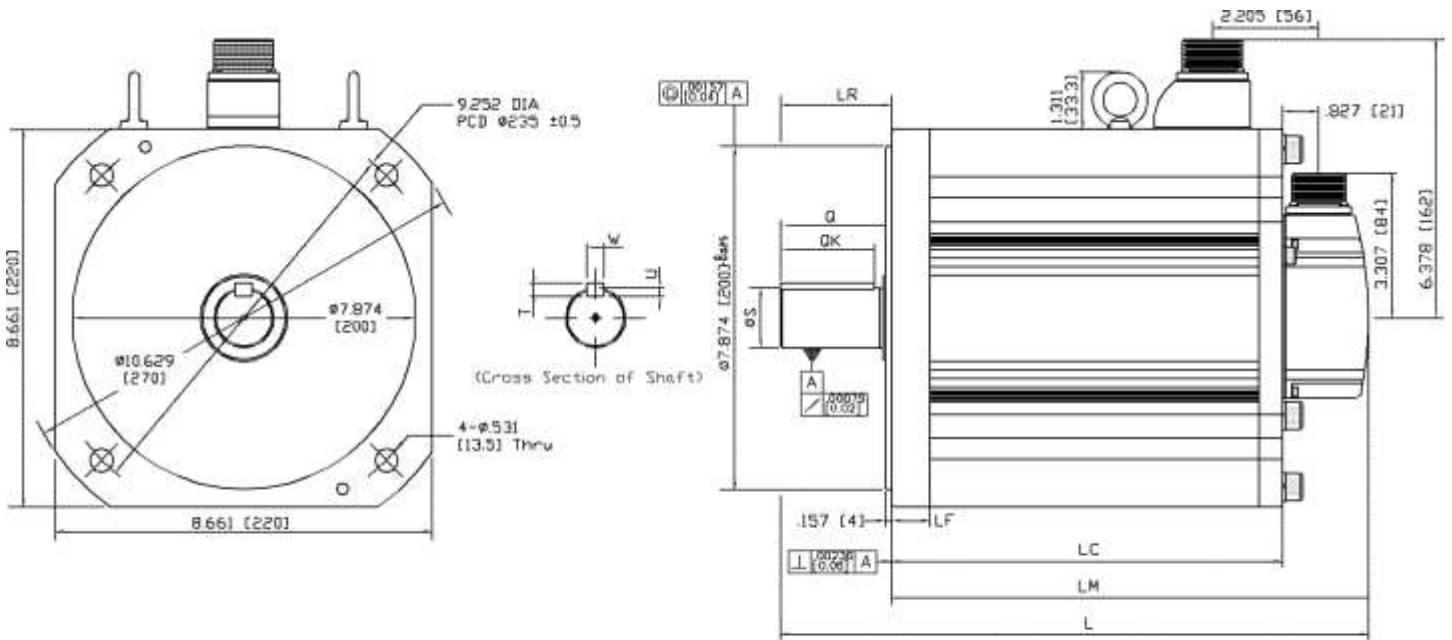
ME100, ME160, ME250, ME335 & ME420



| Model | External Dimensions (in mm) | | | Key | | | | | | Weight Lb (Kg) |
|-----------|-----------------------------|-------------|-------------|-------------|------------|------------|----------|-----------|----------|-------------------|
| | L | LM | LC | LR | S | QK | T | W | U | |
| MAC-ME100 | 10.63 [270] | 7.52 [191] | 5.24 [133] | | | | | | | 27.34 [12.4] |
| MAC-ME160 | 11.97 [304] | 8.86 [225] | 6.57 [167] | 3.110 [79] | 1.378 [35] | 2.362 [60] | .315 [8] | .394 [10] | .197 [5] | 39.02 [17.7] |
| MAC-ME250 | 13.94 [354] | 10.83 [275] | 8.54 [217] | | | | | | | 57.98 [26.3] |
| MAC-ME335 | 15.94 [405] | 12.83 [326] | 10.86 [276] | | | | | | | 78.48 [35.6] |
| MAC-ME420 | 18.07 [459] | 13.61 [346] | 11.65 [296] | 4.449 [113] | 1.634 [42] | 3.780 [96] | | .472 [12] | | 86.86 [39.4] |

Motor Outline Drawings

MF475, MF620 & MF845

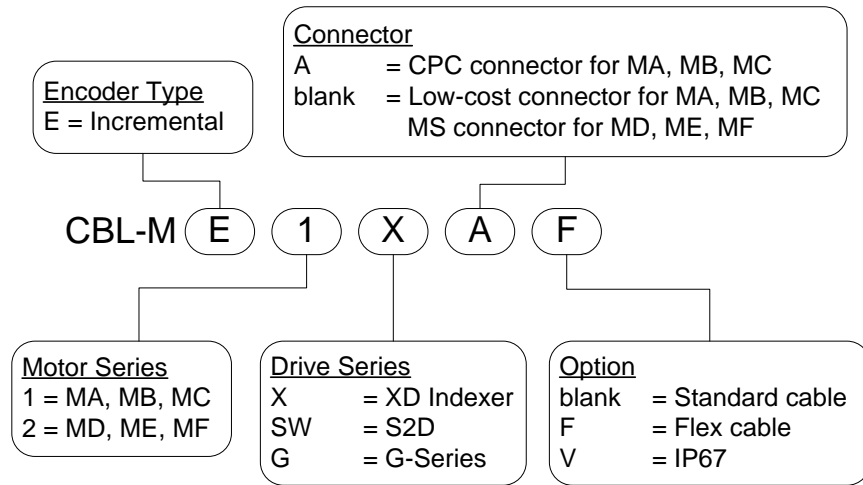


| Model | External Dimensions (In mm) | | | | | | | | | | Weight Lbs (Kg) | |
|-----------|-----------------------------|----------------|----------------|---------------|---------------|---------------|----------------|---------------|---------------|---------------|--------------------|---------------|
| | L | LM | LC | LR | LF | S | q | qk | t | u | | |
| MAC-NF475 | 16.57 (421) | 14.02 (356) | 12.05 (306) | 2.96 (65) | 0.866 (22) | 1.772 (45) | 2.362 (60) | 2.165 (55) | 0.315 (8) | 0.394 (10) | 0.197 (5) | 145.95 (66.2) |
| MAC-NF620 | 18.46 (469) | 13.94 (354) | 11.97 (304) | 4.53 (115) | 0.866 (22) | 1.654 (42) | 4.231 (107) | 3.700 (96) | 0.394 (10) | 0.472 (12) | 0.197 (5) | 146.17 (66.3) |
| MAC-NF845 | 22.64 (575) | 18.07 (459) | 16.1 (409) | 4.57 (116) | 1.378 (35) | 2.165 (55) | 4.331 (110) | 3.700 (96) | 0.394 (10) | 0.630 (16) | 0.236 (6) | 203.27 (92.2) |

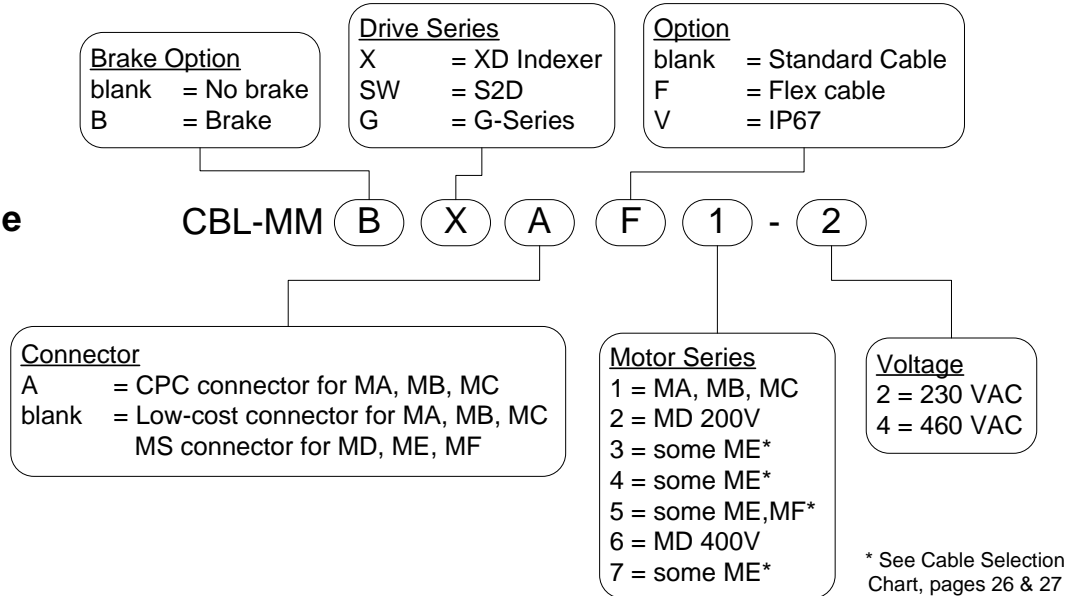
Encoder, Motor and Brake Cable Model Numbers

M-Series Cables

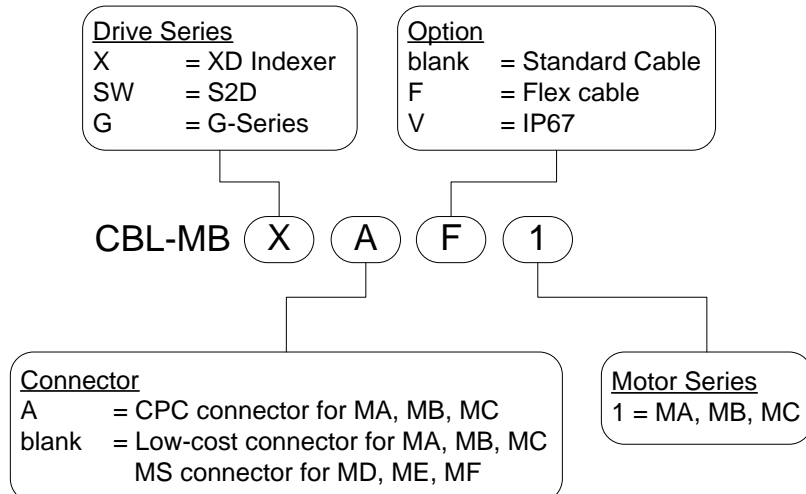
Encoder Cable



Motor Cable



Brake Cable



Encoder, Motor and Brake Cables for XD Indexer Drives

| | Motor Series | Model Number | Encoder Cable | Motor Cable (no brake) | Motor/Brake Cable |
|----------------|------------------------------|--|-----------------|------------------------|---|
| 200 VAC | MAC-MA, MB & MC | MAC-MA001D2 MAC-MB003D2 MAC-MB006D2 MAC-MB011D2 MAC-MC016D2 MAC-MC022D2 MAC-MC028D2 | CBL-ME1XA/len † | CBL-MMXA1-2/len † | CBL-MMXA1-2/len † and CBL-MBXA1/len † |
| | MAC-MD | MAC-MD025B2 MAC-MD025D2 MAC-MD050B2 MAC-MD050D2 MAC-MD070B2 MAC-MD070D2 MAC-MD095B2 MAC-MD095D2 | CBL-ME2X/len | CBL-MMX2-2/len | CBL-MMBX2-2/len |
| | MAC-ME | MAC-ME100B2 MAC-ME160B2 | CBL-ME2X/len | CBL-MMX3-2/len | CBL-MMBX3-2/len |
| | | MAC-ME250B2 MAC-ME335B2 | | CBL-MMX4-2/len | CBL-MMBX4-2/len |
| | | MAC-ME420B2* | | CBL-MMX5-2/len | N/A* |
| MAC-MF | MAC-MF475B2* MAC-MF620B2* | CBL-ME2X/len | CBL-MMX5-2/len | N/A* | |
| 400 VAC | MAC-MD | MAC-MD025B4 MAC-MD025D4 MAC-MD050B4 MAC-MD050D4 MAC-MD070B4 MAC-MD070D4 MAC-MD095B4 MAC-MD095D4 | CBL-ME2X/len | CBL-MMX6-4/len | CBL-MMBX6-4/len |
| | MAC-ME | MAC-ME100B4 MAC-ME160B4 MAC-ME250B4 | CBL-ME2X/len | CBL-MMX7-4/len | CBL-MMBX7-4/len |
| | | MAC-ME335B4 | | CBL-MMX3-4/len | CBL-MMX3-4/len |
| | | MAC-ME420B4* | | CBL-MMX5-4/len | N/A* |
| | MAC-MF | MAC-MF475B4* MAC-MF620B4* MAC-MF845B4* | CBL-ME2X/len | CBL-MMX5-4/len | N/A* |

† All MAC-MA, MB & MC cables can be ordered with low-cost connectors by removing the "A" in the model number.

* N/A – These motors do not support the brake option.

All cables can be ordered with the IP67 or flex option by adding a "V" or "F" in the part number.

For all cables the length of the cable is specified by adding the numerical length (in feet) in the "len" place holder in the part number. Consult ORMEC Sales for cables greater than 100 feet.

See page 255 for model numbering details.

Encoder, Motor and Brake Cables for S2D drives

| | Motor Series | Model Number | Encoder Cable | Motor Cable (no brake) | Motor/Brake Cable |
|----------------|------------------------------|--|------------------|------------------------------------|---|
| 200 VAC | MAC-MA, MB & MC | MAC-MA001D2 MAC-MB003D2 MAC-MB006D2 MAC-MB011D2 MAC-MC016D2 MAC-MC022D2 MAC-MC028D2 | CBL-ME1SWA/len † | CBL-MMSWA1-2/len † | CBL-MMSWA1-2/len † and CBL-MBSWA1/len † |
| | MAC-MD | MAC-MD025B2 MAC-MD025D2 MAC-MD050B2 MAC-MD050D2 MAC-MD070B2 MAC-MD070D2 MAC-MD095B2 MAC-MD095D2 | CBL-ME2SW/len | CBL-MMSW2-2/len | CBL-MMBSW2-2/len |
| | MAC-ME | MAC-ME100B2 MAC-ME160B2 | CBL-ME2SW/len | CBL-MMSW3-2/len | CBL-MMBSW3-2/len |
| | | MAC-ME250B2 MAC-ME335B2 | | CBL-MMSW4-2/len | CBL-MMBSW4-2/len |
| | | MAC-ME420B2* | | CBL-MMSW5-2/len | N/A* |
| MAC-MF | MAC-MF475B2* MAC-MF620B2* | CBL-ME2SW/len | CBL-MMSW5-2/len | N/A* | |
| 400 VAC | MAC-MD | MAC-MD025B4 MAC-MD025D4 MAC-MD050B4 MAC-MD050D4 MAC-MD070B4 MAC-MD070D4 MAC-MD095B4 MAC-MD095D4 | CBL-ME2SW/len | CBL-MMSW6-4/len | CBL-MMBSW6-4/len |
| | MAC-ME | MAC-ME100B4 MAC-ME160B4 MAC-ME250B4 | CBL-ME2SW/len | CBL-MMSW7-4/len | CBL-MMBSW7-4/len |
| | | MAC-ME335B4 MAC-ME420B4* | | CBL-MMSW3-4/len CBL-MMSW5-4/len | CBL-MMSW3-4/len N/A* |
| | | MAC-MF475B4* MAC-MF620B4* MAC-MF845B4* | | CBL-ME2SW/len | CBL-MMSW5-4/len |

† All MAC-MA, MB & MC cables can be ordered with low-cost connectors by removing the "A" in the model number.

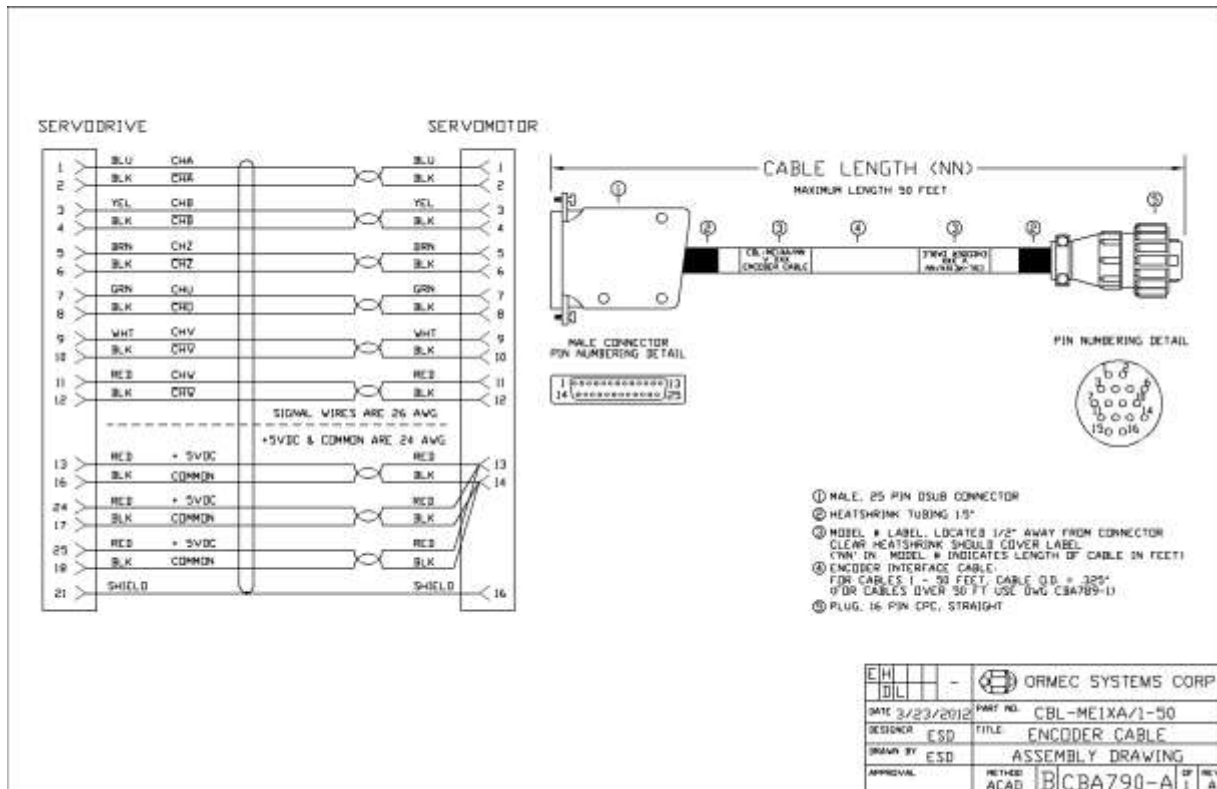
* N/A – These motors do not support the brake option.

All cables can be ordered with the IP67 or flex option by adding a "V" or "F" in the part number.

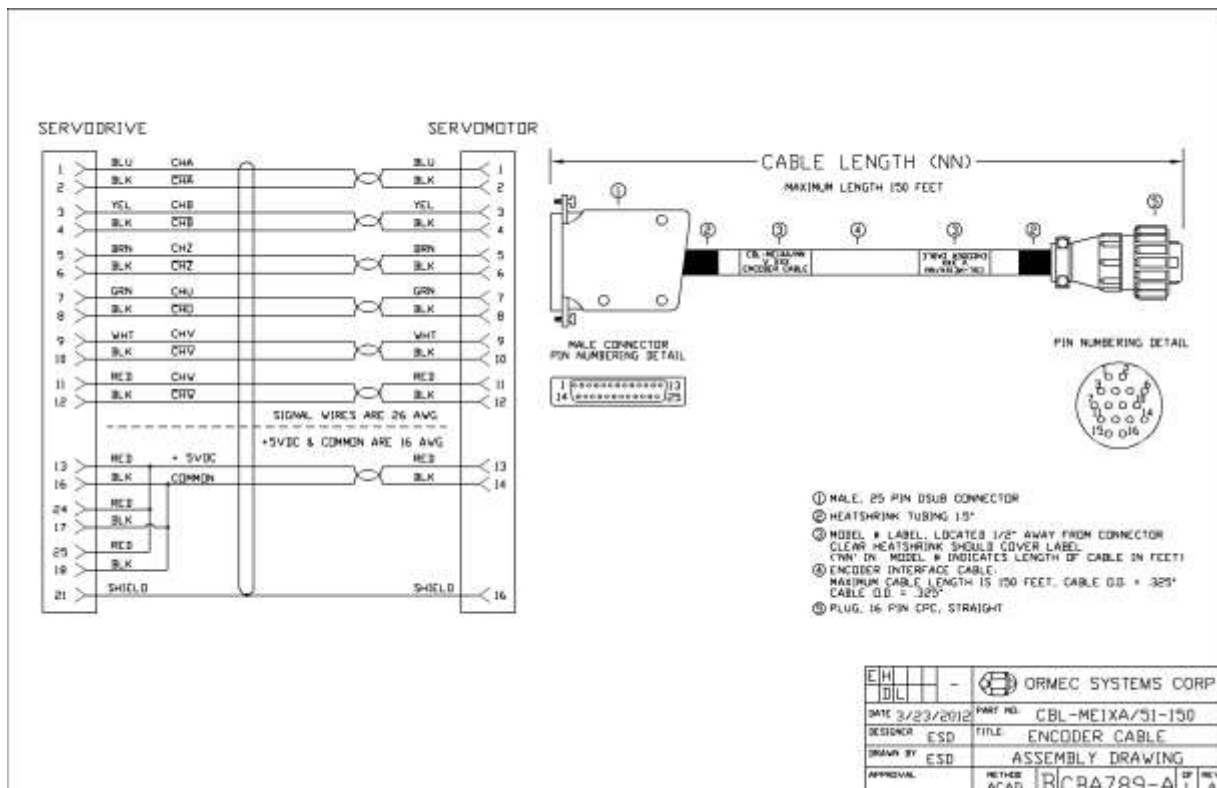
For all cables the length of the cable is specified by adding the numerical length (in feet) in the "len" place holder in the part number. Consult ORMEC Sales for cables greater than 100 feet.

See page 255 for model numbering details.

Encoder, Motor and Brake Cable Drawings

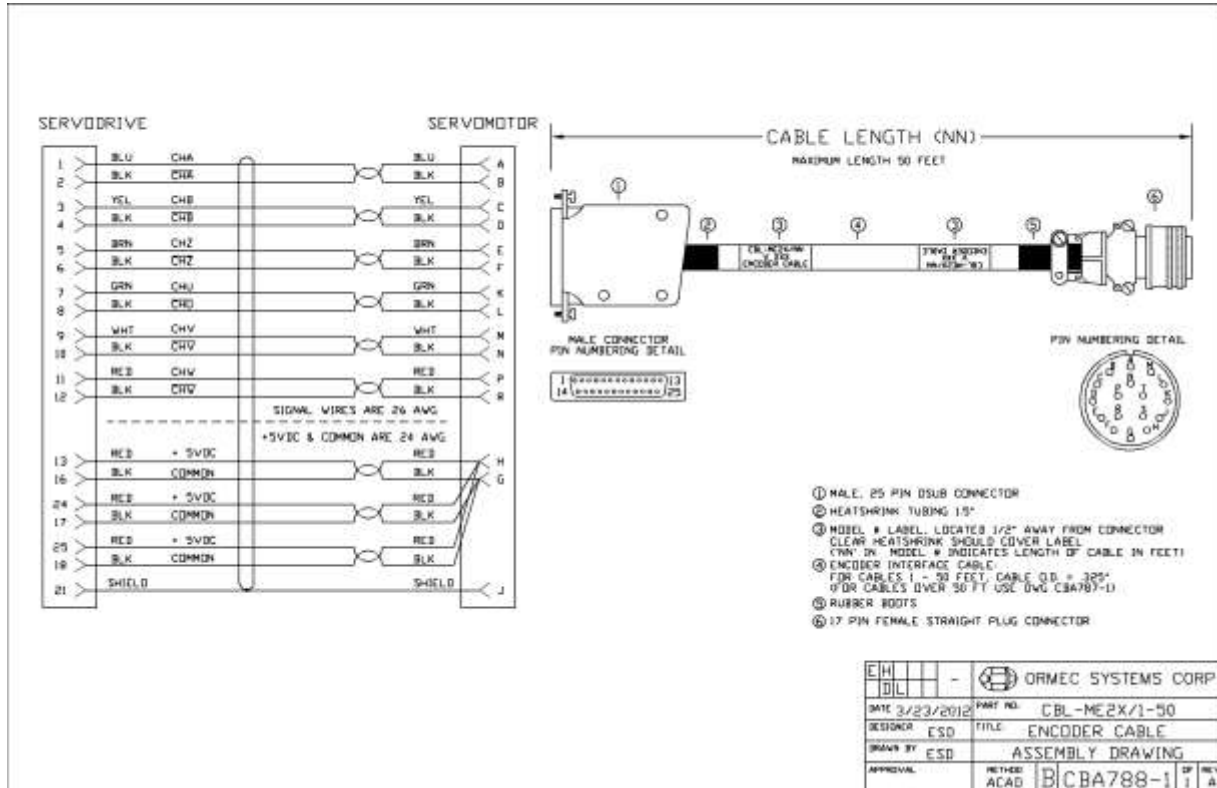


CBL-ME1XA/1-50

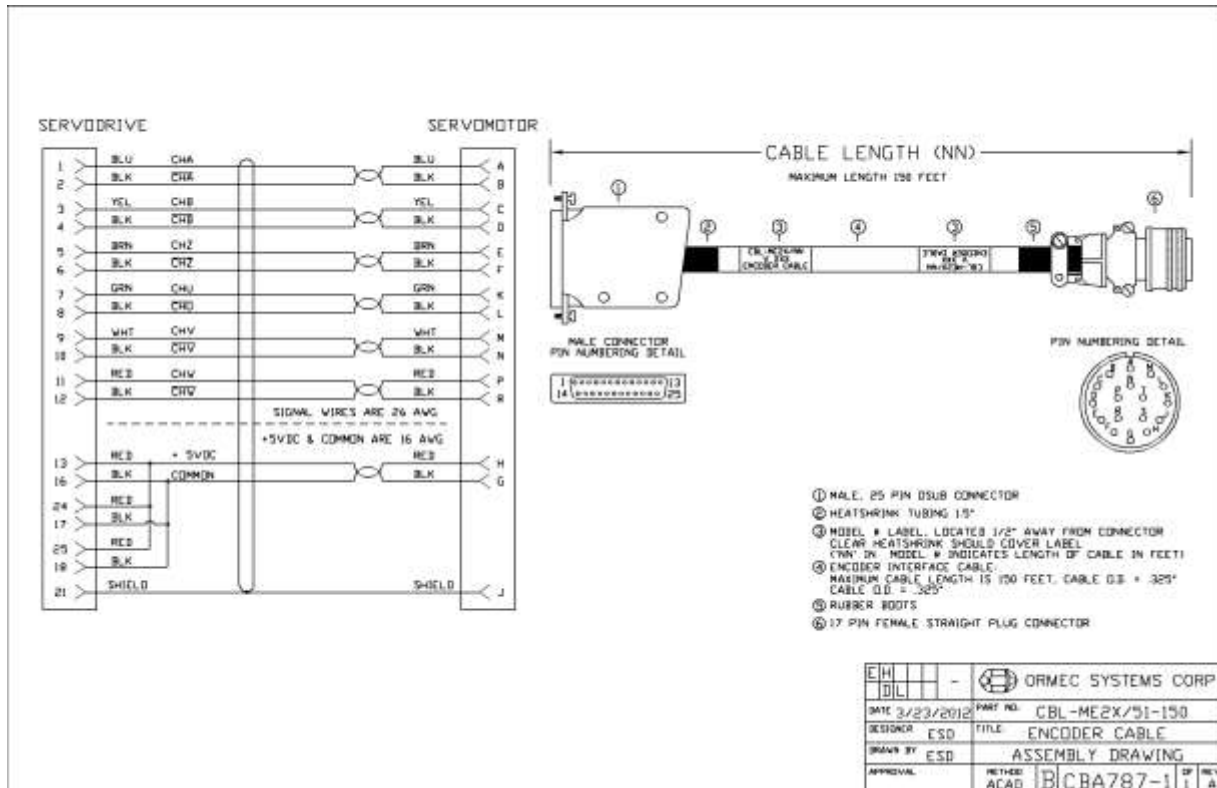


CBL-ME1XA/51-150

Encoder, Motor and Brake Cable Drawings

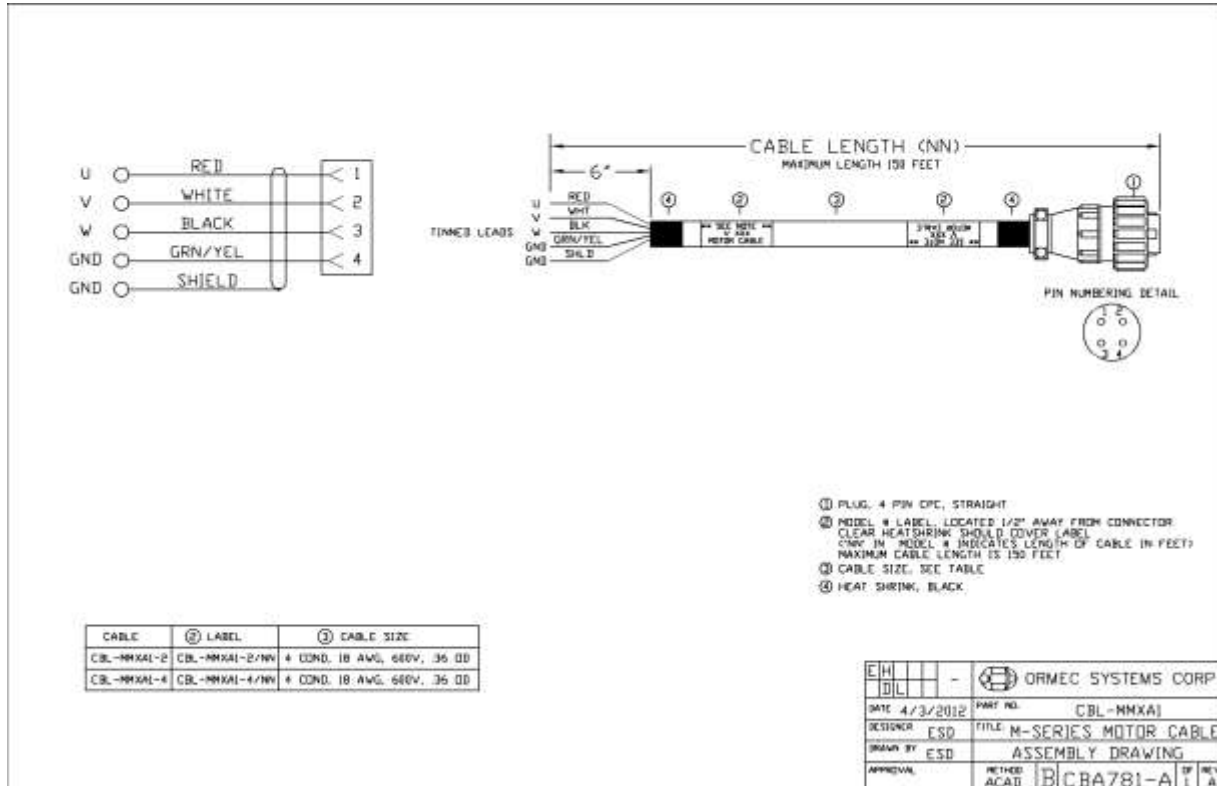


CBL-ME2X/1-50

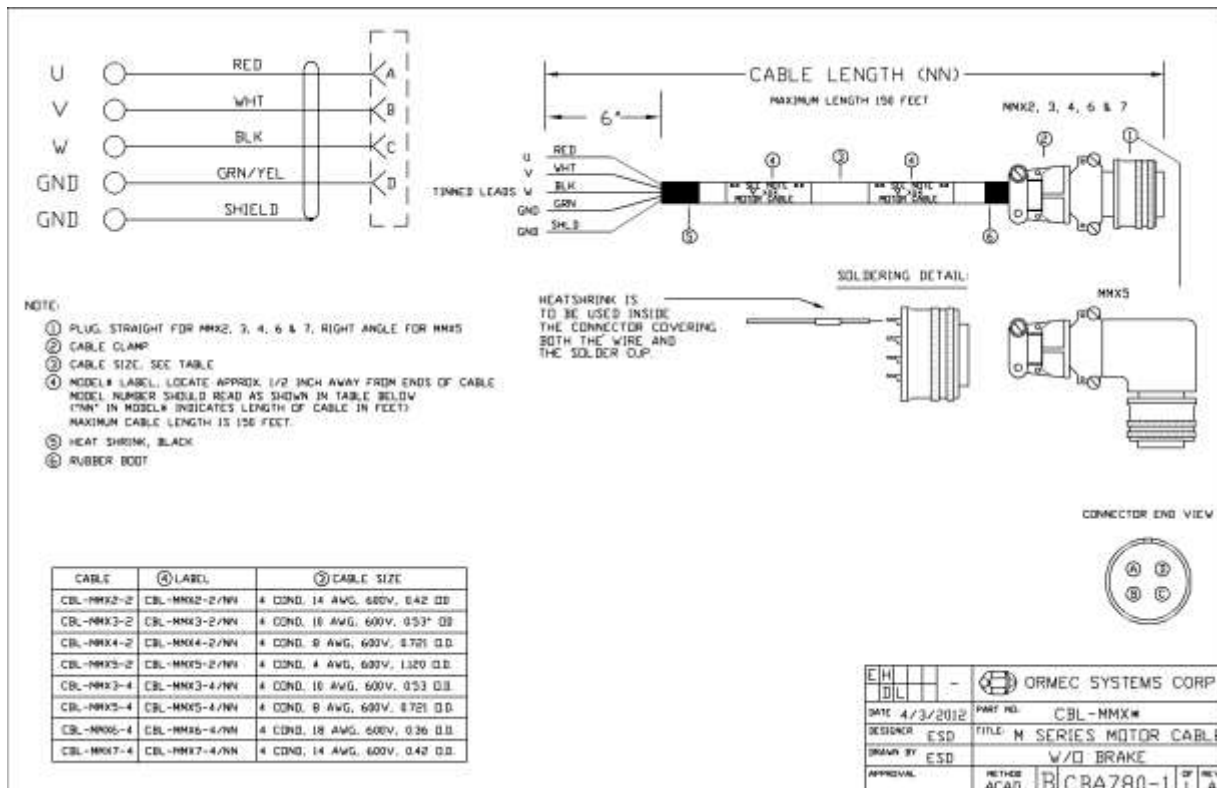


CBL-ME2X/51-150

Encoder, Motor and Brake Cable Drawings

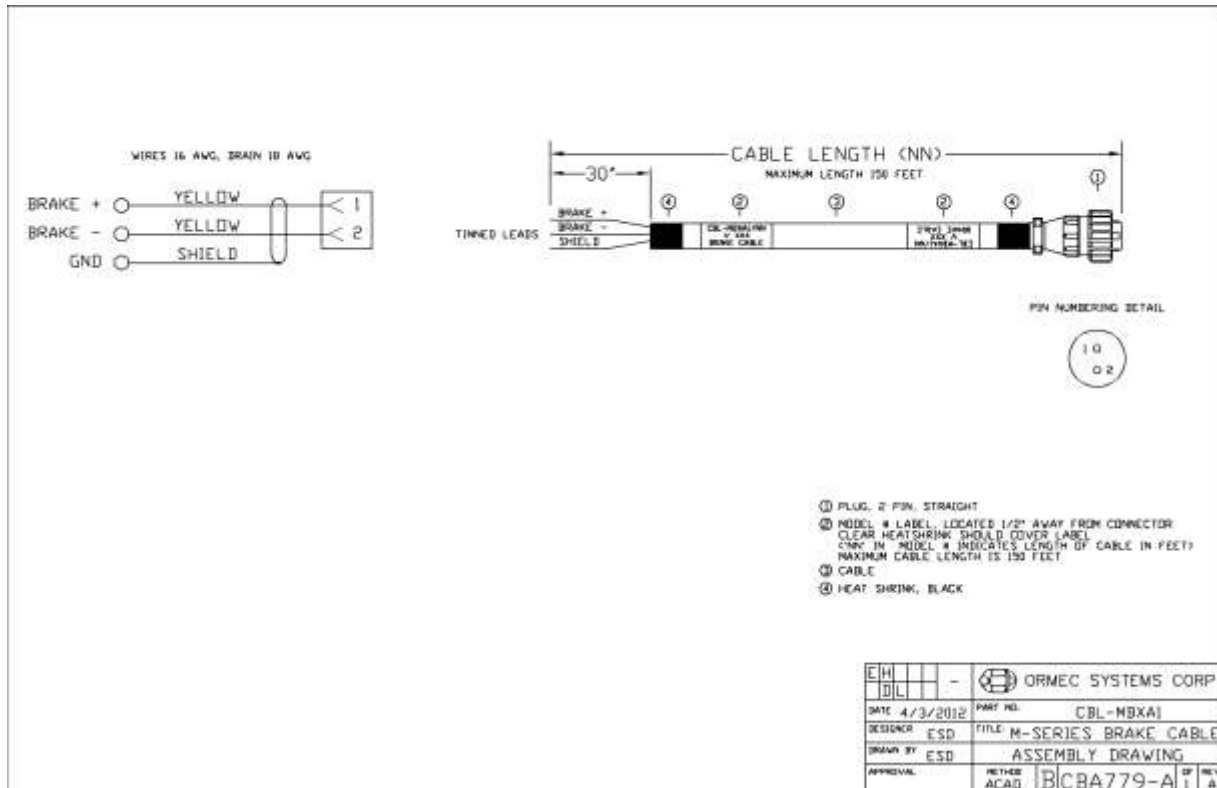


CBL-MMXAI

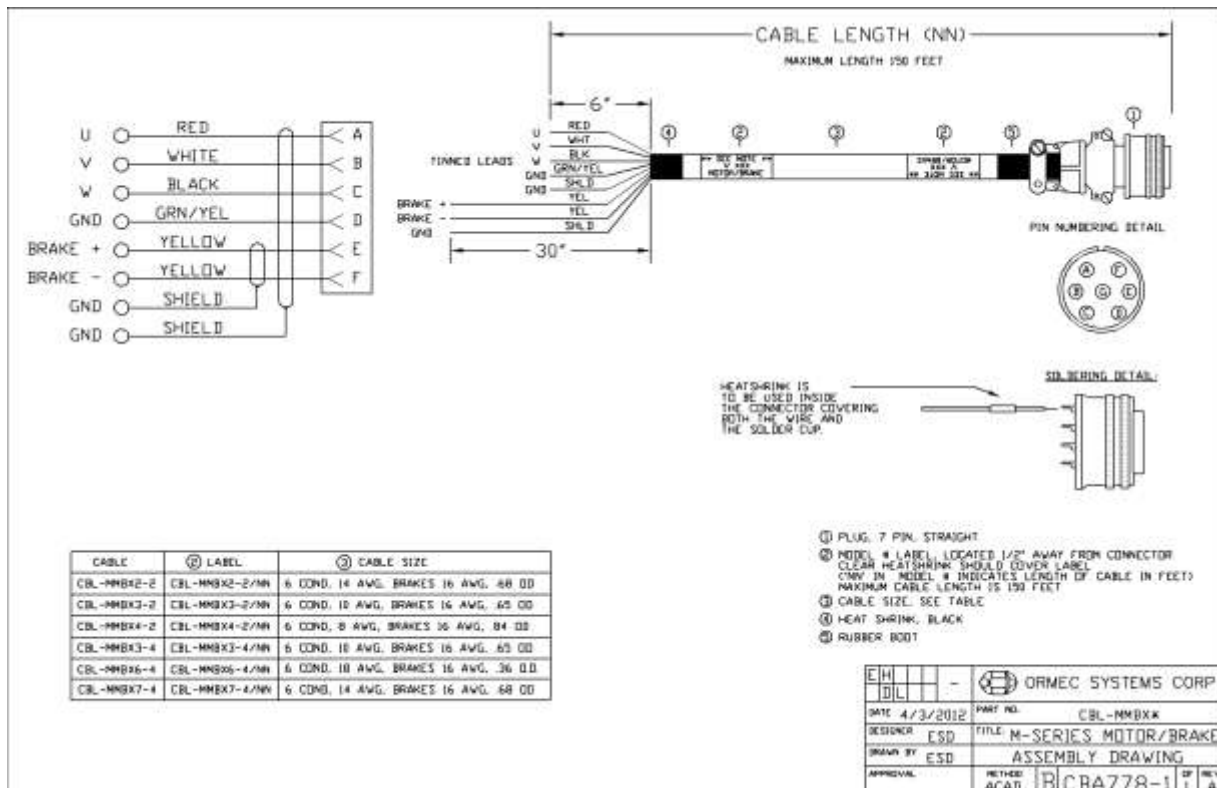


CBL-MMX*

Encoder, Motor and Brake Cable Drawings



CBL-MBXA1



CBL-MMBX*

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