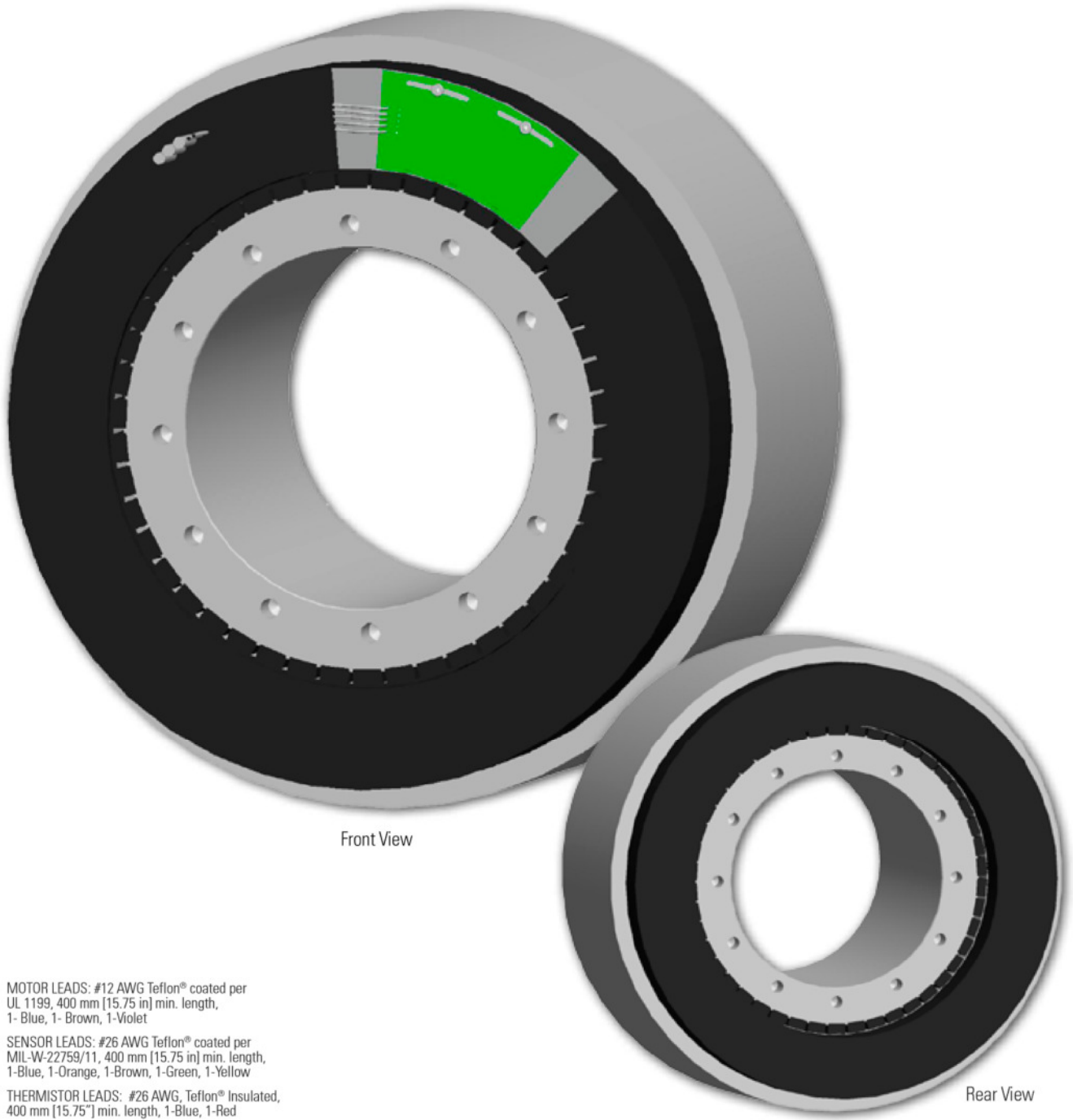


# KBM 88 Frameless Motors

The KBM(S)-88 series has a patented slot / pole combination offering extremely high continuous torque capability while still maintaining very low total harmonic distortion. The higher pole count and excellent torque / volume ratio makes the KBM(S)-88 an ideal fit for direct drive applications requiring high torque at low to moderate speeds.



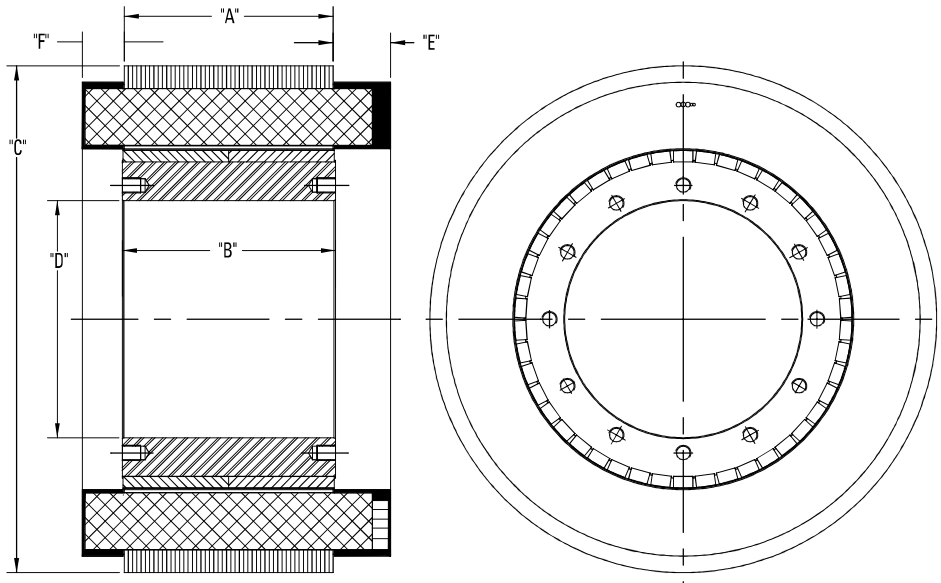
MOTOR LEADS: #12 AWG Teflon<sup>®</sup> coated per UL 1199, 400 mm [15.75 in] min. length, 1- Blue, 1- Brown, 1-Violet

SENSOR LEADS: #26 AWG Teflon<sup>®</sup> coated per MIL-W-22759/11, 400 mm [15.75 in] min. length, 1-Blue, 1-Orange, 1-Brown, 1-Green, 1-Yellow

THERMISTOR LEADS: #26 AWG, Teflon<sup>®</sup> Insulated, 400 mm [15.75"] min. length, 1-Blue, 1-Red

# KBM 88 Outline Drawings

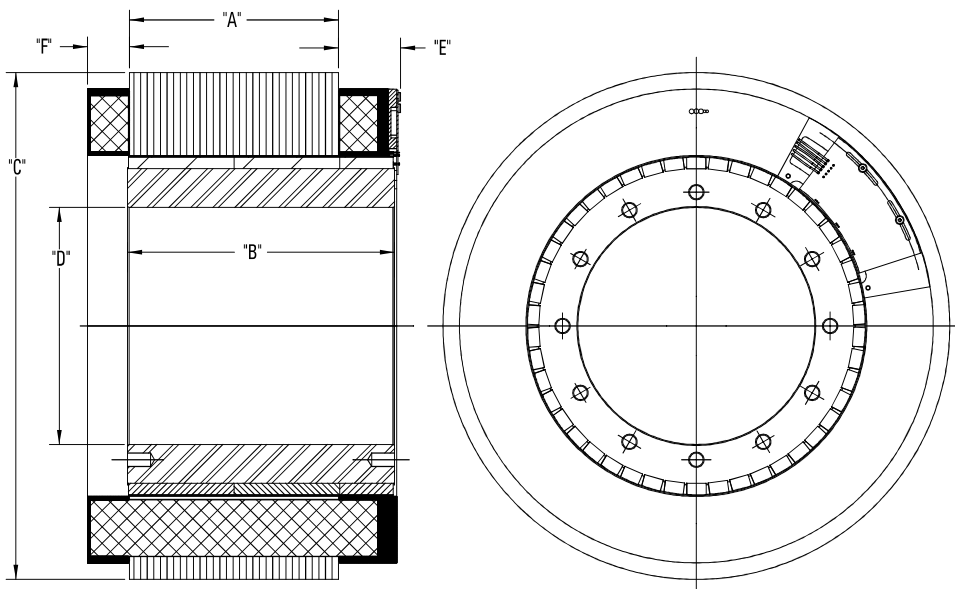
## KBM 88



| Model Number | "A" mm[inch]   | "B" mm[inch]   | Ø "C" mm[inch]  | Ø "D" mm[inch] | "E" MAX mm[inch] | "F" MAX mm[inch] |
|--------------|----------------|----------------|-----------------|----------------|------------------|------------------|
| KBM-88X00    | 33.66 [1.325]  | 36.37 [1.432]  | 331.46 [13.049] | 155.01 [6.103] | 37.59 [1.480]    | 27.43 [1.080]    |
| KBM-88X01    | 67.56 [2.660]  | 70.36 [2.770]  |                 |                |                  |                  |
| KBM-88X02    | 136.65 [5.380] | 139.44 [5.490] |                 |                |                  |                  |
| KBM-88X03    | 205.74 [8.100] | 208.53 [8.210] |                 |                |                  |                  |

All dimensions are nominal. For more detailed and interactive 3D models with 2D product views, visit [www.kollmorgen.com/kbm](http://www.kollmorgen.com/kbm)

## KBMS 88



| Model Number | "A" mm[inch]   | "B" mm[inch]   | Ø "C" mm[inch]  | Ø "D" mm[inch] | "E" MAX mm[inch] | "F" MAX mm[inch] |
|--------------|----------------|----------------|-----------------|----------------|------------------|------------------|
| KBMS-88X00   | 33.66 [1.325]  | 71.37 [2.810]  | 331.46 [13.049] | 155.01 [6.103] | 40.64 [1.600]    | 27.43 [1.080]    |
| KBMS-88X01   | 67.56 [2.660]  | 105.41 [4.150] |                 |                |                  |                  |
| KBMS-88X02   | 136.65 [5.380] | 174.63 [6.875] |                 |                |                  |                  |
| KBMS-88X03   | 205.74 [8.100] | 243.84 [9.600] |                 |                |                  |                  |

All dimensions are nominal. For more detailed and interactive 3D models with 2D product views, visit [www.kollmorgen.com/kbm](http://www.kollmorgen.com/kbm)

# KBM 88 Performance Data

| KBM(S)-88XXX PERFORMANCE DATA & MOTOR PARAMETERS |           |                      |         |                |       |       |                |       |       |       |
|--|-----------|----------------------|---------|----------------|-------|-------|----------------|-------|-------|-------|
| Motor Parameter                                  | Symbol    | Units                | TOL     | KBM(S)-88X00-X |       |       | KBM(S)-88X01-X |       |       |       |
|  |           |                      |         | A              | B     | C     | A              | B     | C     | D     |
| Continuous Stall Torque at 25°C Amb. (1)         | Tc        | Nm                   | NOM     | 102            | 102   | 102   | 205            | 209   | 205   | 207   |
|  |           | lb-ft                |         | 75.1           | 75.1  | 75.1  | 151            | 154   | 151   | 153   |
| Continuous Current                               | Ic        | Arms                 | NOM     | 17.0           | 20.5  | 34.0  | 17.1           | 32.1  | 7.50  | 40.2  |
| Peak Stall Torque (25°C winding temp)            | Tp        | Nm                   | NOM     | 197            | 197   | 197   | 390            | 390   | 390   | 390   |
|  |           | lb-ft                |         | 145            | 145   | 145   | 288            | 288   | 288   | 288   |
| Peak Current                                     | Ip        | Arms                 | NOM     | 40.0           | 48.3  | 80.2  | 40.0           | 75.4  | 17.8  | 94.7  |
| Rated Continuous Output Power at 25°C Amb. (1)   | P Rated   | Watts                |         | 5460           | 5460  | 5460  | 8250           | 6600  | 3870  | 6600  |
|  | HP Rated  | HP                   |         | 7.32           | 7.32  | 7.32  | 11.1           | 8.85  | 5.19  | 8.85  |
| Speed at Rated Power                             | N Rated   | RPM                  |         | 1000           | 1000  | 1000  | 520            | 940   | 205   | 940   |
| Torque Sensitivity (2)                           | Kt        | Nm / Arms            | +/-10%  | 6.08           | 5.06  | 3.04  | 12.2           | 6.57  | 27.7  | 5.18  |
|  |           | lb-ft / Arms         |         | 4.48           | 3.74  | 2.24  | 9.00           | 4.85  | 20.5  | 3.82  |
| Back EMF Constant                                | Kb        | Vrms/kRPM            | +/- 10% | 368            | 306   | 184   | 738            | 397   | 1677  | 313   |
| Motor Constant                                   | Km        | Nm/√watt             | +/-10%  | 6.10           | 6.10  | 6.10  | 10.3           | 10.5  | 10.2  | 10.4  |
|  |           | lb-ft /√watt         |         | 4.50           | 4.50  | 4.50  | 7.62           | 7.75  | 7.60  | 7.70  |
| Resistance (line to line)                        | Rm        | Ohms                 | +/- 10% | 0.660          | 0.460 | 0.165 | 0.930          | 0.261 | 4.90  | 0.164 |
| Inductance                                       | Lm        | mH                   |         | 6.5            | 4.5   | 1.6   | 13             | 3.7   | 67    | 2.3   |
| Inertia (KBM)                                    | Jm        | Kg-m <sup>2</sup>    |         | 5.26E-02       |       |       | 9.84E-2        |       |       |       |
|  |           | lb-ft-s <sup>2</sup> |         | 3.88E-02       |       |       | 7.26E-2        |       |       |       |
| Weight (KBM)                                     | Wt        | Kg                   |         | 15.7           |       |       | 37.6           |       |       |       |
|  |           | lb                   |         | 34.6           |       |       | 83.0           |       |       |       |
| Inertia (KBMS)                                   | Jm        | Kg-m <sup>2</sup>    |         | 0.103          |       |       | 0.146          |       |       |       |
|  |           | lb-ft-s <sup>2</sup> |         | 7.62E-02       |       |       | 0.108          |       |       |       |
| Weight (KBMS)                                    | Wt        | Kg                   |         | 21.0           |       |       | 42.6           |       |       |       |
|  |           | lb                   |         | 46.4           |       |       | 94.0           |       |       |       |
| Max Static Friction                              | Tf        | Nm                   |         | 1.08           |       |       | 2.17           |       |       |       |
|  |           | lb-ft                |         | 0.800          |       |       | 1.60           |       |       |       |
| Cogging Friction (Peak-to-Peak)                  | Tcog      | Nm                   |         | 0.810          |       |       | 1.63           |       |       |       |
|  |           | lb-ft                |         | 0.600          |       |       | 1.20           |       |       |       |
| Viscous Damping                                  | Fi        | Nm/ kRPM             |         | 0.385          |       |       | 0.773          |       |       |       |
|  |           | lb-ft / kRPM         |         | 0.284          |       |       | 0.570          |       |       |       |
| Thermal Resistance (3)                           | TPR       | °C / watt            |         | 0.305          |       |       | 0.215          |       |       |       |
| Number of Poles                                  | P         | -                    |         | 46             |       |       | 46             |       |       |       |
| Recommended Kollmorgen AKD Drive                 |           |                      |         | 02407          | 02407 |       | 02407          |       | 01207 |       |
| Recommended Kollmorgen S700 Drive                |           |                      |         |                |       | S748  |                | S748  |       | S748  |
| Voltage Req'd at Rated Output                    | Vac Input | Vac                  |         | 480            | 400   | 240   | 480            | 480   | 480   | 400   |
| Peak Stall Torque (4) (Motor with Drive)         | Tp Drive  | Nm                   | +/-10%  | 197            | 197   | 197   | 390            | 390   | 390   | 390   |
|  |           | lb-ft                |         | 145            | 145   | 145   | 288            | 288   | 288   | 288   |
| Cont. Stall Torque (4) (Motor with Drive)        | Tc Drive  | Nm                   | +/-10%  | 102            | 102   | 102   | 205            | 209   | 205   | 207   |
|  |           | lb-ft                |         | 75.1           | 75.1  | 75.1  | 151            | 154   | 151   | 153   |

- Notes
- 1) Winding temperature = 155°C at continuous stall, at rated output, and for performance curves.
  - 2) To calculate no-load Kt and Kb at 25°C, multiply by 1.064.
  - 3) TPR assumes motor is housed and mounted to a 20" x 20" x 3/4" heat sink or equivalent.
  - 4) Peak & Continuous Torques may be limited by drive current, see [www.kollmorgen.com](http://www.kollmorgen.com) for complete drive ratings.

| KBM(S)-88XXX PERFORMANCE DATA & MOTOR PARAMETERS |           |                      |         |                |       |       |                |       |       |
|--|-----------|----------------------|---------|----------------|-------|-------|----------------|-------|-------|
| Motor Parameter                                  | Symbol    | Units                | TOL     | KBM(S)-88X02-X |       |       | KBM(S)-88X03-X |       |       |
|  |           |                      |         | A              | B     | C     | A              | B     | C     |
| Continuous Stall Torque at 25°C Amb. (1)         | Tc        | Nm                   | NOM     | 385            | 385   | 385   | 538            | 545   | 545   |
|  |           | lb-ft                |         | 284            | 284   | 284   | 397            | 402   | 402   |
| Continuous Current                               | Ic        | Arms                 | NOM     | 15.1           | 32.1  | 37.9  | 18.2           | 35.5  | 45.2  |
| Peak Stall Torque (25°C winding temp)            | Tp        | Nm                   | NOM     | 789            | 789   | 789   | 1200           | 1200  | 1200  |
|  |           | lb-ft                |         | 582            | 582   | 582   | 885            | 885   | 885   |
| Peak Current                                     | Ip        | Arms                 | NOM     | 40.0           | 75.4  | 89.0  | 53.1           | 106   | 134   |
| Rated Continuous Output Power at 25°C Amb. (1)   | P Rated   | Watts                |         | 7950           | 13430 | 13430 | 10450          | 16000 | 16000 |
|  | HP Rated  | HP                   |         | 10.7           | 18.0  | 18.0  | 14.0           | 21.4  | 21.4  |
| Speed at Rated Power                             | N Rated   | RPM                  |         | 235            | 550   | 550   | 225            | 425   | 425   |
| Torque Sensitivity (2)                           | Kt        | Nm / Arms            | +/-10%  | 25.7           | 12.1  | 10.3  | 30.0           | 15.5  | 12.8  |
|  |           | lb-ft / Arms         |         | 19.0           | 8.95  | 7.59  | 22.1           | 11.5  | 9.4   |
| Back EMF Constant                                | Kb        | Vrms/kRPM            | +/- 10% | 1556           | 734   | 622   | 1812           | 940   | 772   |
| Motor Constant                                   | Km        | Nm/√watt             | +/-10%  | 16.3           | 16.3  | 16.3  | 20.6           | 20.9  | 20.9  |
|  |           | lb-ft /√watt         |         | 12.0           | 12.0  | 12.0  | 15.2           | 15.4  | 15.4  |
| Resistance (line to line)                        | Rm        | Ohms                 | +/- 10% | 1.66           | 0.369 | 0.262 | 1.41           | 0.370 | 0.250 |
| Inductance                                       | Lm        | mH                   |         | 29             | 6.4   | 4.6   | 26             | 7.0   | 4.7   |
| Inertia (KBM)                                    | Jm        | Kg-m <sup>2</sup>    |         | 0.198          |       |       | 0.298          |       |       |
|  |           | lb-ft-s <sup>2</sup> |         | 0.146          |       |       | 0.220          |       |       |
| Weight (KBM)                                     | Wt        | Kg                   |         | 72.6           |       |       | 106            |       |       |
|  |           | lb                   |         | 160            |       |       | 234            |       |       |
| Inertia (KBMS)                                   | Jm        | Kg-m <sup>2</sup>    |         | 0.247          |       |       | 0.315          |       |       |
|  |           | lb-ft-s <sup>2</sup> |         | 0.182          |       |       | 0.232          |       |       |
| Weight (KBMS)                                    | Wt        | Kg                   |         | 77.6           |       |       | 111            |       |       |
|  |           | lb                   |         | 171            |       |       | 245            |       |       |
| Max Static Friction                              | Tf        | Nm                   |         | 4.34           |       |       | 6.51           |       |       |
|  |           | lb-ft                |         | 3.20           |       |       | 4.80           |       |       |
| Cogging Friction (Peak-to-Peak)                  | Tcog      | Nm                   |         | 3.25           |       |       | 4.88           |       |       |
|  |           | lb-ft                |         | 2.40           |       |       | 3.60           |       |       |
| Viscous Damping                                  | Fi        | Nm/ kRPM             |         | 1.53           |       |       | 2.30           |       |       |
|  |           | lb-ft / kRPM         |         | 1.13           |       |       | 1.70           |       |       |
| Thermal Resistance (3)                           | TPR       | °C / watt            |         | 0.152          |       |       | 0.124          |       |       |
| Number of Poles                                  | P         | -                    |         | 46             |       |       | 46             |       |       |
| Recommended Kollmorgen AKD Drive                 |           |                      |         | 02407          |       |       | 02407          |       |       |
| Recommended Kollmorgen S700 Drive                |           |                      |         |                | S748  | S748  |                | S748  | S748  |
| Voltage Req'd at Rated Output                    | Vac Input | Vac                  |         | 480            | 480   | 400   | 480            | 480   | 400   |
| Peak Stall Torque (4)<br>(Motor with Drive)      | Tp Drive  | Nm                   | +/-10%  | 789            | 789   | 789   | 1153           | 1160  | 1050  |
|  |           | lb-ft                |         | 582            | 582   | 582   | 850            | 856   | 774   |
| Cont. Stall Torque (4)<br>(Motor with Drive)     | Tc Drive  | Nm                   | +/-10%  | 385            | 385   | 385   | 538            | 545   | 545   |
|  |           | lb-ft                |         | 284            | 284   | 284   | 397            | 402   | 402   |

Notes 1) Winding temperature = 155°C at continuous stall, at rated output, and for performance curves.

2) To calculate no-load Kt and Kb at 25°C, multiply by 1.064.

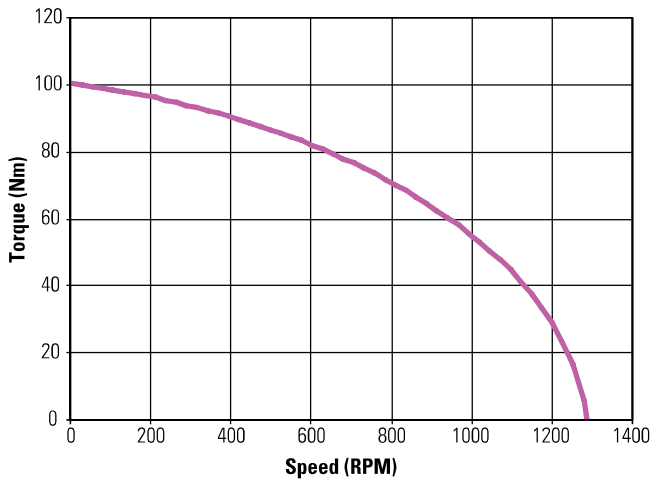
3) TPR assumes motor is housed and mounted to a 20" x 20" x 3/4" heat sink or equivalent.

4) Peak & Continuous Torques may be limited by drive current, see www.kollmorgen.com for complete drive ratings.

# KBM 88 Performance Curves

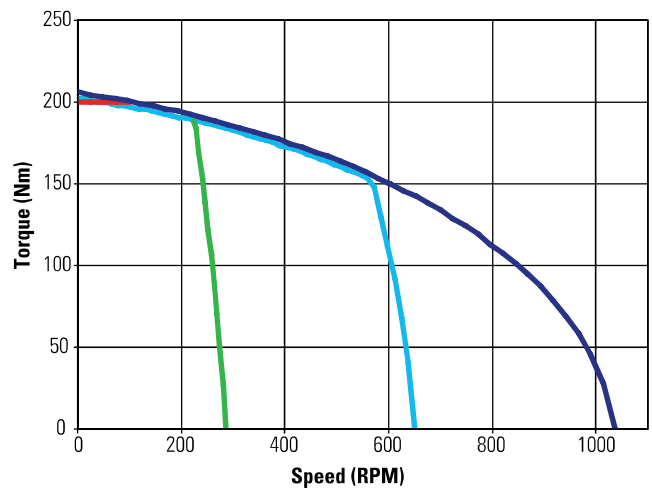
Continuous duty capability for 130°C rise in a 25°C ambient using recommended AKD, or S700, servo drive and sinusoidal commutation.

**KBM(S)-88X00  
ContinuousTorque**



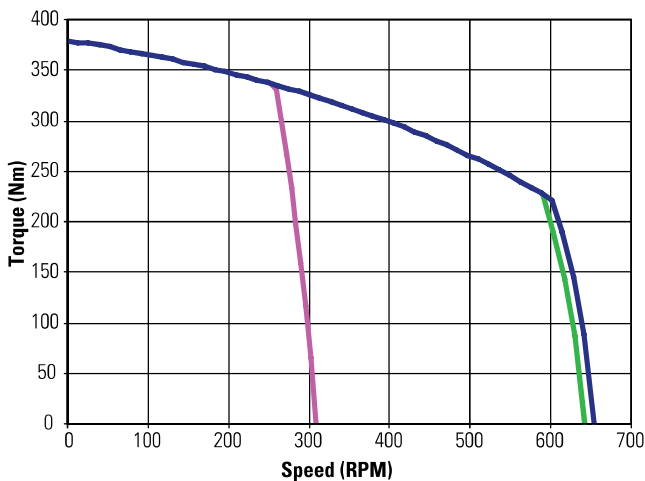
— A Winding-480 Vac / B Winding-400 Vac / C Winding-240 Vac

**KBM(S)-88X01  
ContinuousTorque**



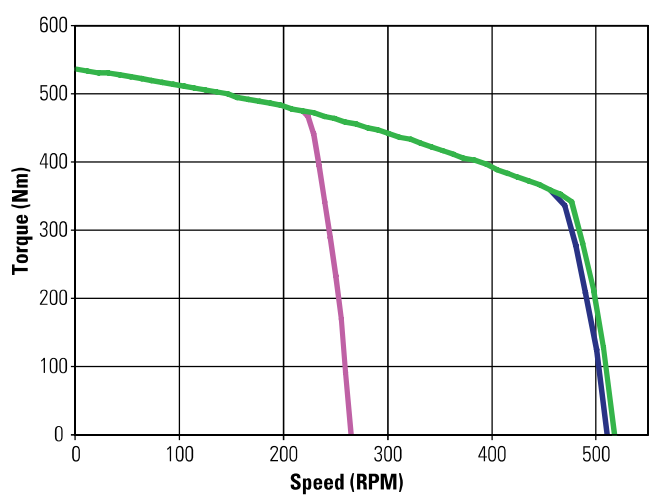
— A Winding-480 Vac — B Winding-480 Vac — C Winding-480 Vac — D Winding-400 Vac

**KBM(S)-88X02  
ContinuousTorque**



— A Winding-400 Vac — B Winding-480 Vac — C Winding-400 Vac

**KBM(S)-88X03  
ContinuousTorque**



— A Winding-480 Vac — B Winding-480 Vac — C Winding-400 Vac

Low Voltage optimized windings available.