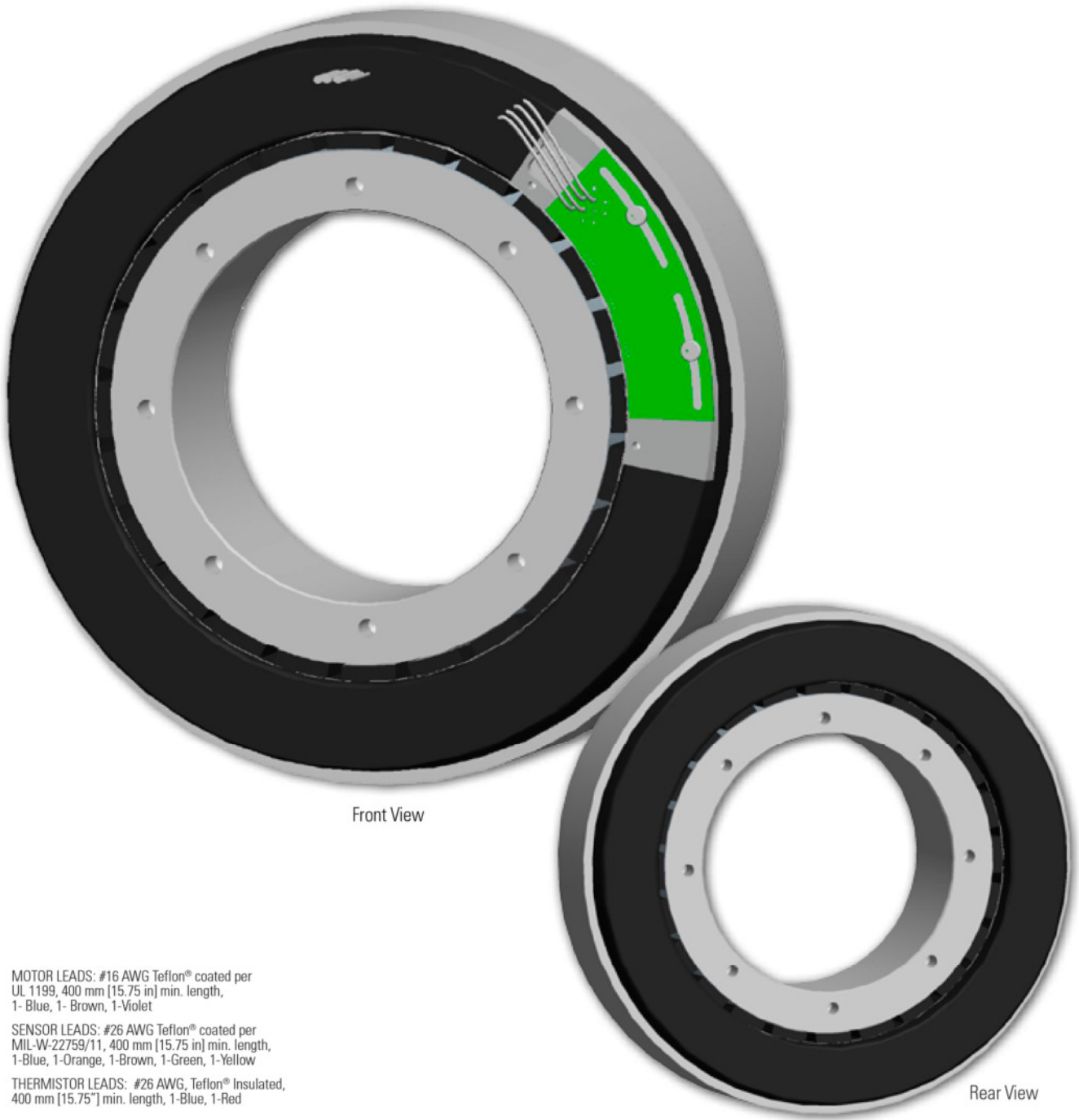


KBM 57 Frameless Motors

K B M 5 7

The KBM(S)-57 series provides a classic torque motor footprint - large diameter with a short axial length. With a skewed stator, low cogging, and low harmonic distortion these motors produce extremely smooth rotation. In addition, the high pole count and excellent torque / volume ratio makes the KBM(S)-57 an ideal fit for direct drive applications requiring high torque at low to moderate speeds.



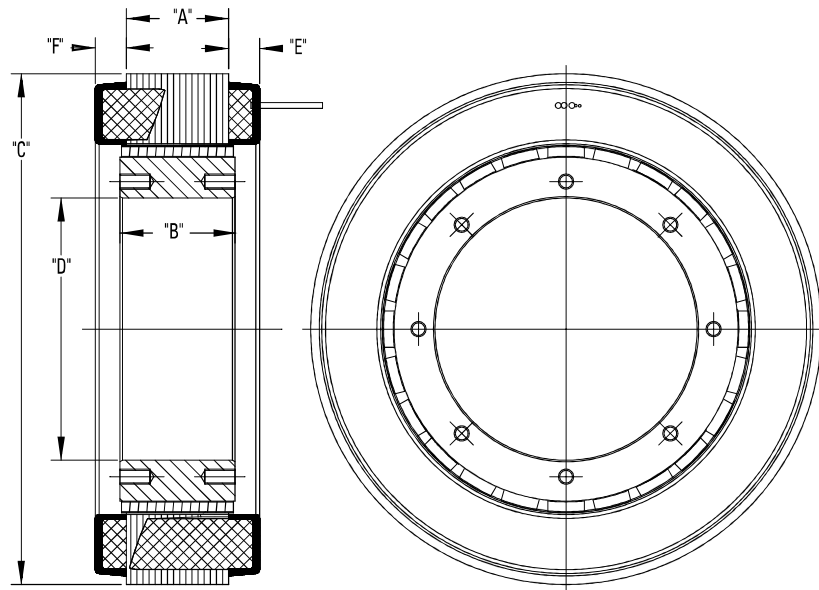
MOTOR LEADS: #16 AWG Teflon® coated per UL 1199, 400 mm [15.75 in] min. length, 1- Blue, 1- Brown, 1- Violet

SENSOR LEADS: #26 AWG Teflon® 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® Insulated, 400 mm [15.75"] min. length, 1-Blue, 1-Red

KBM 57 Outline Drawings

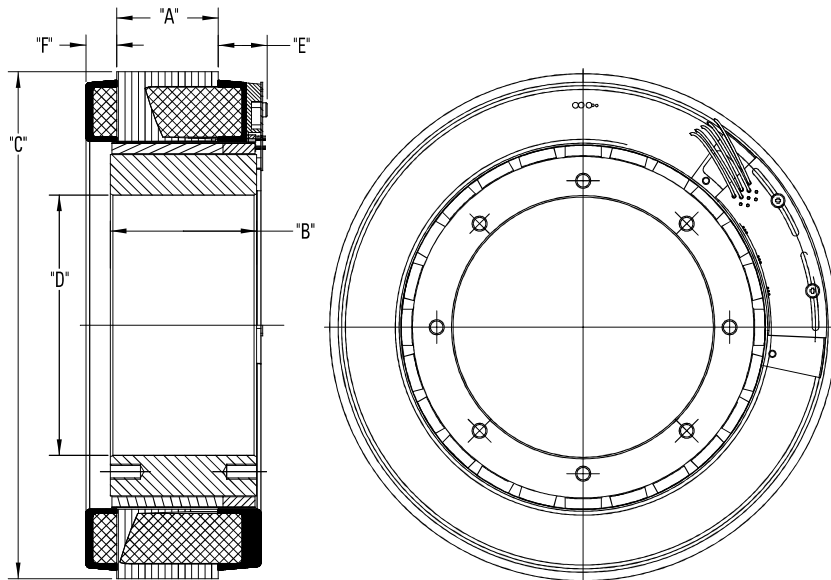
KBM 57



| 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-57X01 | 20.32 [.800] | 25.40 [1.000] | 202.90 [7.988] | 104.17 [4.101] | 12.32 [.485] | 12.32 [.485] |
| KBM-57X02 | 40.64 [1.600] | 45.72 [1.800] | | | | |
| KBM-57X03 | 81.79 [3.220] | 86.36 [3.400] | | | | |
| KBM-57X04 | 123.82 [4.875] | 129.16 [5.085] | | | | |
| KBM-57X05 | 166.37 [6.550] | 171.70 [6.760] | | | | |

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

KBMS 57



| 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-57X01 | 20.32 [.800] | 38.23 [1.505] | 202.90 [7.988] | 104.17 [4.101] | 20.32 [.800] | 12.32 [.485] |
| KBMS-57X02 | 40.64 [1.600] | 58.54 [2.305] | | | | |
| KBMS-57X03 | 81.79 [3.220] | 99.44 [3.915] | | | | |
| KBMS-57X04 | 123.82 [4.875] | 141.98 [5.590] | | | | |
| KBMS-57X05 | 166.37 [6.550] | 184.53 [7.265] | | | | |

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

KBM 57 Performance Data

| KBM(S)-57XXX PERFORMANCE DATA & MOTOR PARAMETERS | | | | | | | | | | | | |
|--|-----------|----------------------|---------|----------------|-------|-------|----------------|-------|-------|----------------|-------|-------|
| Motor Parameter | Symbol | Units | TOL | KBM(S)-57X01-X | | | KBM(S)-57X02-X | | | KBM(S)-57X03-X | | |
| | | | | A | B | C | A | B | C | A | B | C |
| Continuous Stall Torque at 25°C Amb. (1) | Tc | Nm | NOM | 18.8 | 18.8 | 18.8 | 33.5 | 33.5 | 33.5 | 60.0 | 60.0 | 60.0 |
| | | lb-ft | | 13.9 | 13.9 | 13.9 | 24.7 | 24.7 | 24.7 | 44.2 | 44.2 | 44.2 |
| Continuous Current | lc | Arms | NOM | 5.68 | 6.90 | 11.4 | 5.23 | 6.24 | 11.0 | 5.47 | 6.70 | 11.0 |
| Peak Stall Torque (25°C winding temp) | Tp | Nm | NOM | 60.0 | 60.0 | 60.0 | 115 | 115 | 115 | 218 | 218 | 218 |
| | | lb-ft | | 44.2 | 44.2 | 44.2 | 85.0 | 85.0 | 85.0 | 161 | 161 | 161 |
| Peak Current | lp | Arms | NOM | 23.4 | 27.9 | 47.0 | 23.4 | 27.9 | 47.0 | 26.1 | 32.9 | 52.4 |
| Rated Continuous Output Power at 25°C Amb. (1) | P Rated | Watts | | 2310 | 2310 | 2310 | 2660 | 2660 | 2660 | 3000 | 3000 | 3000 |
| | HP Rated | HP | | 3.10 | 3.10 | 3.10 | 3.57 | 3.57 | 3.57 | 4.02 | 4.02 | 4.00 |
| Speed at Rated Power | N Rated | RPM | | 2050 | 2050 | 2050 | 1015 | 1015 | 1015 | 580 | 580 | 580 |
| Torque Sensitivity (2) | Kt | Nm / Arms | +/-10% | 3.35 | 2.76 | 1.68 | 6.46 | 5.42 | 3.23 | 11.1 | 9.08 | 5.53 |
| | | lb-ft / Arms | | 2.47 | 2.04 | 1.24 | 4.76 | 4.00 | 2.38 | 8.16 | 6.70 | 4.08 |
| Back EMF Constant | Kb | Vrms/kRPM | +/- 10% | 203 | 167 | 101 | 390 | 327 | 195 | 669 | 549 | 334 |
| Motor Constant | Km | Nm/√watt | +/-10% | 1.49 | 1.49 | 1.49 | 2.51 | 2.51 | 2.51 | 3.71 | 3.71 | 3.71 |
| | | lb-ft /√watt | | 1.10 | 1.10 | 1.10 | 1.85 | 1.85 | 1.85 | 2.74 | 2.74 | 2.74 |
| Resistance (line to line) | Rm | Ohms | +/- 10% | 3.39 | 2.21 | 0.845 | 4.40 | 2.93 | 1.10 | 5.92 | 3.86 | 1.48 |
| Inductance | Lm | mH | | 13 | 9.1 | 3.4 | 22 | 15 | 5.4 | 35 | 23 | 8.6 |
| Inertia (KBM) | Jm | Kg-m ² | | 6.56E-3 | | | 1.18E-2 | | | 2.21E-2 | | |
| | | lb-ft-s ² | | 4.84E-3 | | | 8.70E-3 | | | 1.63E-2 | | |
| Weight (KBM) | Wt | Kg | | 4.54 | | | 7.89 | | | 14.5 | | |
| | | lb | | 10.0 | | | 17.4 | | | 32.0 | | |
| Inertia (KBMS) | Jm | Kg-m ² | | 9.49E-3 | | | 1.49E-2 | | | 2.52E-2 | | |
| | | lb-ft-s ² | | 7.00E-3 | | | 1.10E-2 | | | 1.86E-2 | | |
| Weight (KBMS) | Wt | Kg | | 5.31 | | | 8.62 | | | 15.4 | | |
| | | lb | | 11.7 | | | 19.0 | | | 34.0 | | |
| Max Static Friction | Tf | Nm | | 0.176 | | | 0.285 | | | 0.556 | | |
| | | lb-ft | | 0.130 | | | 0.210 | | | 0.410 | | |
| Cogging Friction (peak-to-peak) | Tcog | Nm | | 0.088 | | | 0.149 | | | 0.285 | | |
| | | lb-ft | | 0.065 | | | 0.110 | | | 0.210 | | |
| Viscous Damping | Fi | Nm/ kRPM | | 6.51 | | | 3.97 | | | 3.99 | | |
| | | lb-ft / kRPM | | 4.80 | | | 2.93 | | | 2.94 | | |
| Thermal Resistance (3) | TPR | °C / watt | | 0.530 | | | 0.480 | | | 0.326 | | |
| Number of Poles | P | - | | 24 | | | 24 | | | 24 | | |
| Recommended Kollmorgen AKD Drive | | | | 00607 | 01207 | 02406 | 00607 | 01207 | 02406 | 00607 | 01207 | 02406 |
| Voltage Req'd at Rated Output | Vac Input | Vac | | 480 | 400 | 240 | 480 | 400 | 240 | 480 | 400 | 240 |
| Peak Stall Torque (4) (Motor with Drive) | Tp Drive | Nm | +/-10% | 46.1 | 60.0 | 60.0 | 90.5 | 115 | 115 | 173 | 205 | 198 |
| | | lb-ft | | 34.0 | 44.2 | 44.2 | 66.8 | 85.0 | 85.0 | 128 | 151 | 146 |
| Cont. Stall Torque (4) (Motor with Drive) | Tc Drive | Nm | +/-10% | 18.8 | 18.8 | 18.8 | 33.5 | 33.5 | 33.5 | 60.0 | 60.0 | 60.0 |
| | | lb-ft | | 13.87 | 13.9 | 13.9 | 24.7 | 24.7 | 24.7 | 44.3 | 44.3 | 44.3 |

- 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 12" x 12" 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.

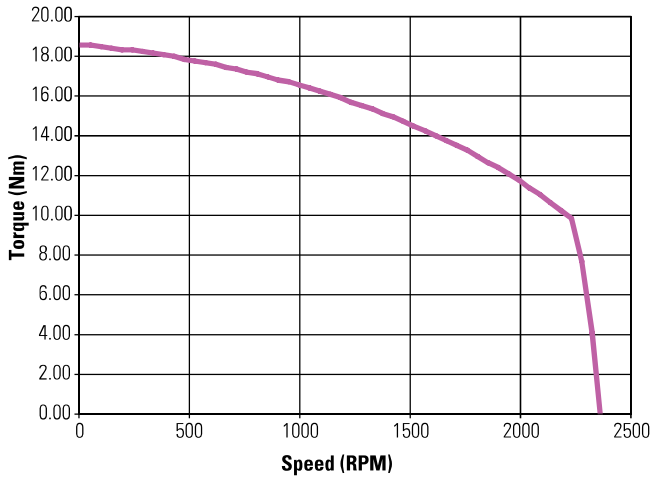
| KBM(S)-57XXX PERFORMANCE DATA & MOTOR PARAMETERS | | | | | | | | | |
|--|-----------|----------------------|---------|----------------|-------|-------|----------------|-------|-------|
| Motor Parameter | Symbol | Units | TOL | KBM(S)-57X04-X | | | KBM(S)-57X05-X | | |
| | | | | A | B | C | A | B | C |
| Continuous Stall Torque at 25°C Amb. (1) | Tc | Nm | NOM | 85.3 | 85.3 | 85.3 | 109 | 109 | 109 |
| | | lb-ft | | 62.9 | 62.9 | 62.9 | 80.1 | 80.1 | 80.1 |
| Continuous Current | Ic | Arms | NOM | 5.20 | 6.50 | 10.6 | 5.00 | 6.20 | 10.0 |
| Peak Stall Torque (25°C winding temp) | Tp | Nm | NOM | 332 | 332 | 332 | 441 | 441 | 441 |
| | | lb-ft | | 245 | 245 | 245 | 325 | 325 | 325 |
| Peak Current | Ip | Arms | NOM | 26.1 | 32.9 | 52.4 | 26.1 | 32.9 | 52.4 |
| Rated Continuous Output Power at 25°C Amb. (1) | P Rated | Watts | | 2880 | 2880 | 2880 | 2675 | 2675 | 2675 |
| | HP Rated | HP | | 3.86 | 3.86 | 3.86 | 3.59 | 3.59 | 3.59 |
| Speed at Rated Power | N Rated | RPM | | 375 | 375 | 375 | 265 | 265 | 265 |
| Torque Sensitivity (2) | Kt | Nm / Arms | +/-10% | 16.7 | 13.7 | 8.37 | 22.4 | 18.4 | 11.2 |
| | | lb-ft / Arms | | 12.3 | 10.1 | 6.17 | 16.5 | 13.6 | 8.27 |
| Back EMF Constant | Kb | Vrms / kRPM | +/- 10% | 1011 | 832 | 506 | 1356 | 1113 | 677 |
| Motor Constant | Km | Nm/√watt | +/-10% | 4.77 | 4.77 | 4.77 | 5.64 | 5.64 | 5.64 |
| | | lb-ft /√watt | | 3.52 | 3.52 | 3.52 | 4.16 | 4.16 | 4.16 |
| Resistance (line to line) | Rm | Ohms | +/- 10% | 8.22 | 5.36 | 2.05 | 10.5 | 6.86 | 2.63 |
| Inductance | Lm | mH | | 52 | 35 | 13 | 70 | 47 | 18 |
| Inertia (KBM) | Jm | Kg-m ² | | 3.44E-02 | | | 4.58E-02 | | |
| | | lb-ft-s ² | | 2.54E-02 | | | 3.38E-02 | | |
| Weight (KBM) | Wt | Kg | | 22.0 | | | 29.2 | | |
| | | lb | | 48.5 | | | 64.3 | | |
| Inertia (KBMS) | Jm | Kg-m ² | | 3.78E-02 | | | 4.91E-02 | | |
| | | lb-ft-s ² | | 2.79E-02 | | | 3.62E-02 | | |
| Weight (KBMS) | Wt | Kg | | 22.9 | | | 30.1 | | |
| | | lb | | 50.4 | | | 66.3 | | |
| Max Static Friction | Tf | Nm | | 0.881 | | | 1.13 | | |
| | | lb-ft | | 0.650 | | | 0.834 | | |
| Cogging Friction (peak-to-peak) | Tcog | Nm | | 0.441 | | | 0.569 | | |
| | | lb-ft | | 0.325 | | | 0.420 | | |
| Viscous Damping | Fi | Nm/ kRPM | | 5.97 | | | 8.41 | | |
| | | lb-ft / kRPM | | 4.40 | | | 6.20 | | |
| Thermal Resistance (3) | TPR | °C / watt | | 0.265 | | | 0.229 | | |
| Number of Poles | P | - | | 24 | | | 24 | | |
| Recommended Kollmorgen AKD Drive | | | | 00607 | 01207 | 02406 | 00607 | 01207 | 02406 |
| Voltage Req'd at Rated Output | Vac Input | Vac | | 480 | 400 | 240 | 480 | 400 | 240 |
| Peak Stall Torque (4) (Motor with Drive) | Tp Drive | Nm | +/-10% | 241 | 311 | 301 | 323 | 416 | 402 |
| | | lb-ft | | 178 | 229 | 222 | 238 | 307 | 297 |
| Cont. Stall Torque (4) (Motor with Drive) | Tc Drive | Nm | +/-10% | 85.3 | 85.3 | 85.3 | 109 | 109 | 109 |
| | | lb-ft | | 62.9 | 62.9 | 62.9 | 80.4 | 80.4 | 80.4 |

- 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 12" x 12" 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 57 Performance Curves

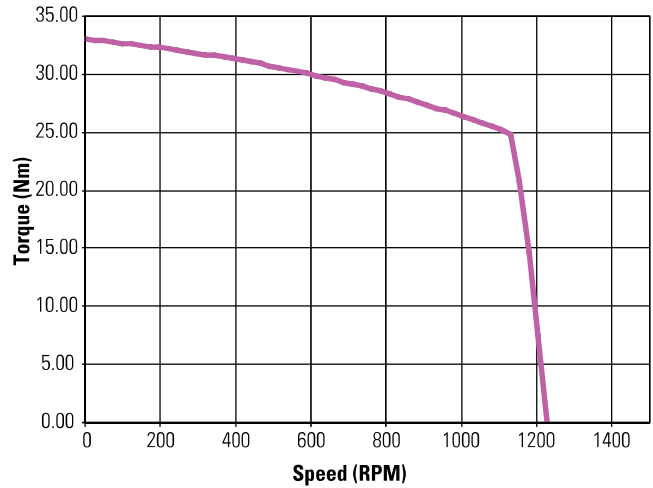
Continuous duty capability for 130°C rise in a 25°C ambient using recommended AKD servo drive and sinusoidal commutation.

**KBM(S)-57X01
Continuous Torque**



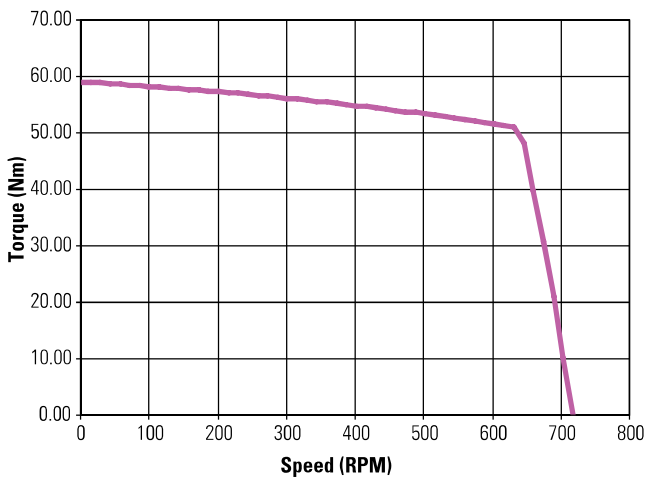
— A Winding-480 VAC / B Winding-400 VAC / C Winding-240 VAC

**KBM(S)-57X02
Continuous Torque**



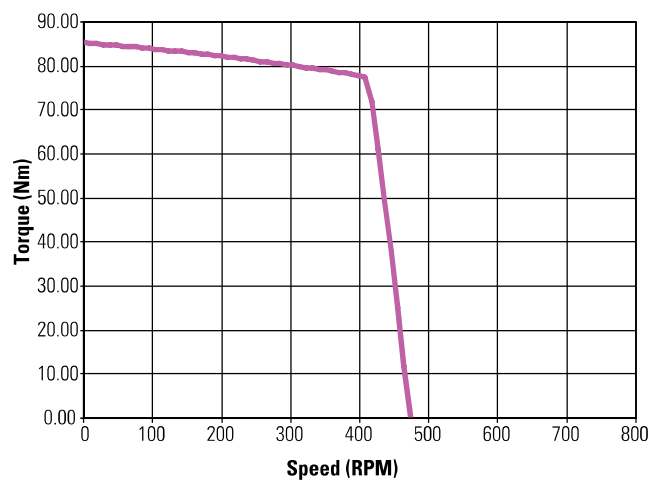
— A Winding-480 Vac / B Winding-400 Vac / C Winding-240 Vac

**KBM(S)-57X03
Continuous Torque**



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

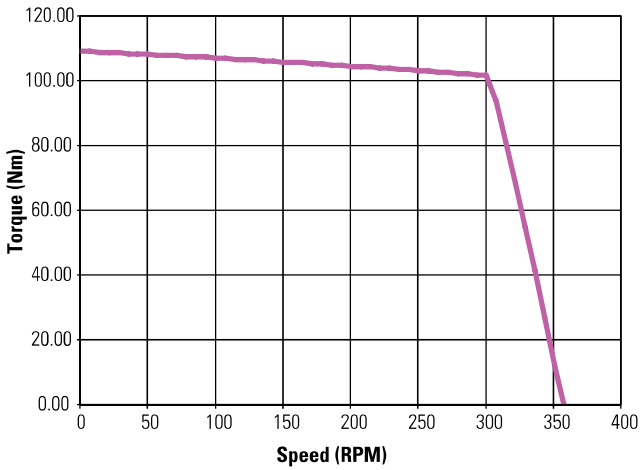
**KBM(S)-57X04
Continuous Torque**



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

Low Voltage optimized windings available.

KBM(S)-57X05 Continuous Torque



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

Low Voltage optimized windings available.

Notes

