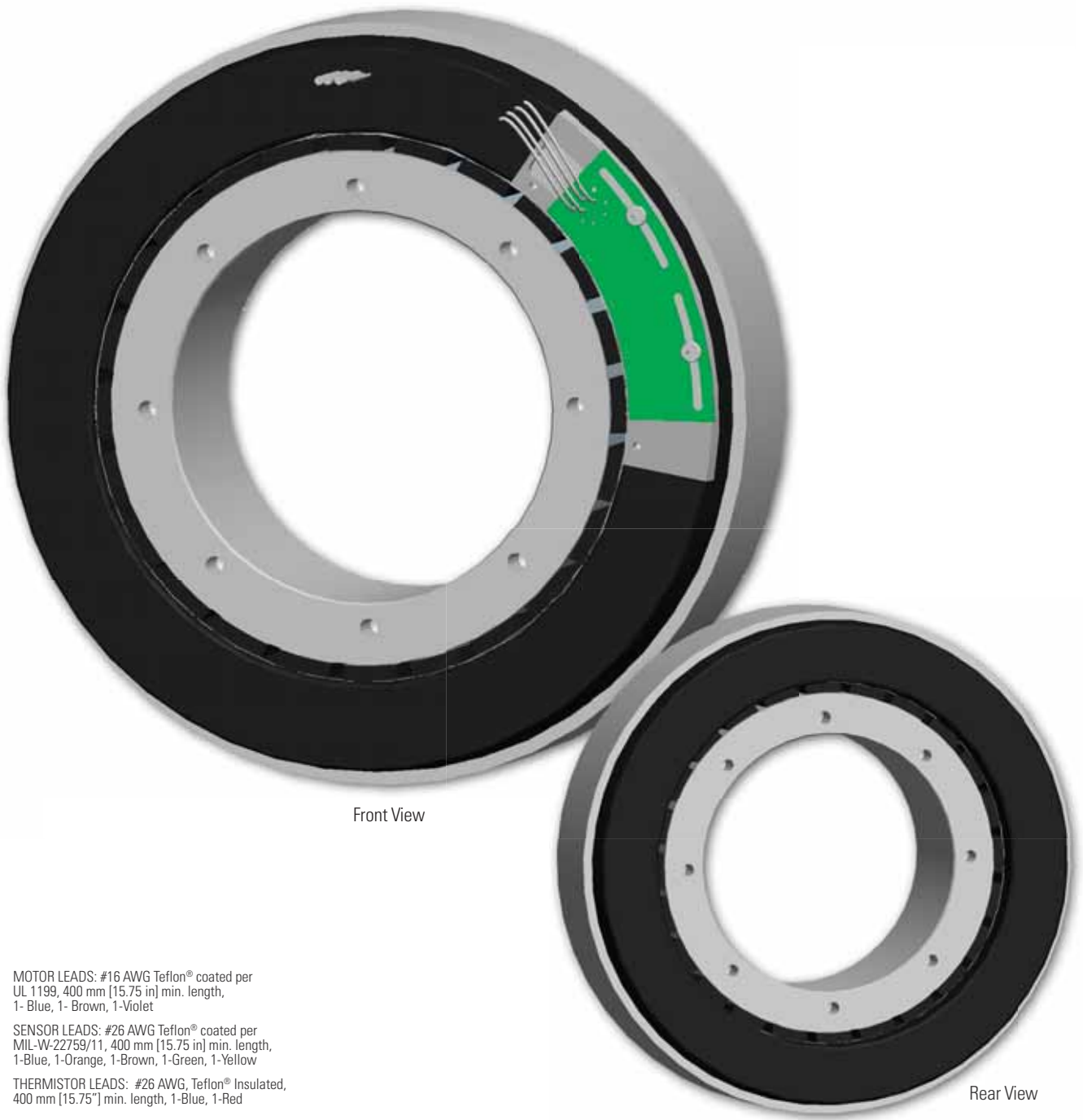


# KBM 57 Frameless Motors

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.



Front View

Rear View

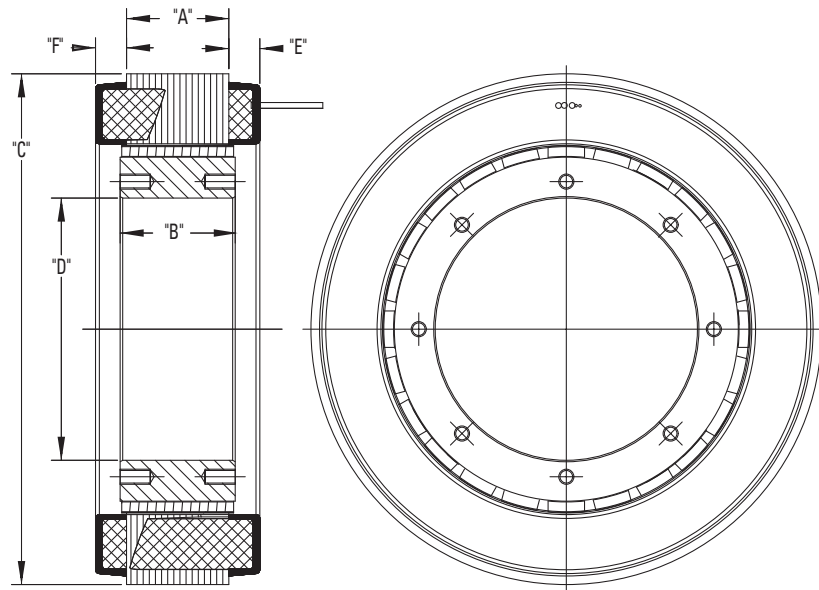
MOTOR LEADS: #16 AWG Teflon® coated per UL 1199, 400 mm [15.75 in] min. length, 1- Blue, 1- Brown, 1-Violet

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

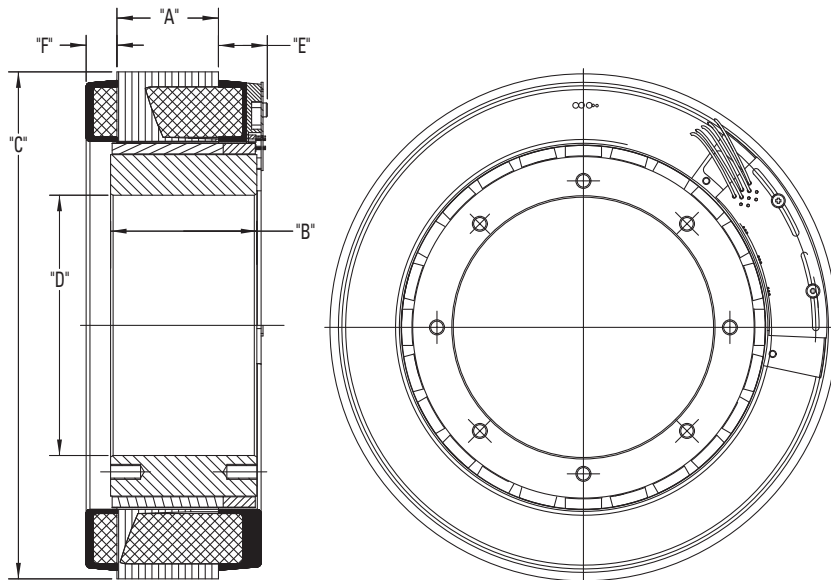
**KBM 57**



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](http://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](http://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 <sup>2</sup>		6.56E-3			1.18E-2			2.21E-2		
		lb-ft-s <sup>2</sup>		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 <sup>2</sup>		9.49E-3			1.49E-2			2.52E-2		
		lb-ft-s <sup>2</sup>		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](http://www.kollmorgen.com) for complete drive ratings.

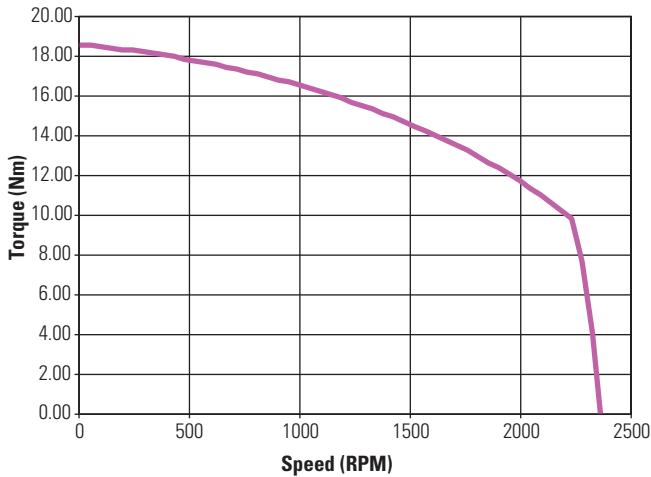
KBM(S)-57XXX PERFORMANCE DATA & MOTOR PARAMETERS									
Motor Parameter	Symbol	Units	TOL	KBM(S)-57X04-X			KBM(S)-57X05-X		
				A	B	C	A	B	C
Continuous Stall Torque at 25°C Amb. (1)	Tc	Nm	NOM	85.3	85.3	85.3	109	109	109
		lb-ft		62.9	62.9	62.9	80.1	80.1	80.1
Continuous Current	Ic	Arms	NOM	5.20	6.50	10.6	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	Vpk / 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 <sup>2</sup>		3.44E-02			4.58E-02		
		lb-ft-s <sup>2</sup>		2.54E-02			3.38E-02		
Weight (KBM)	Wt	Kg		22.0			29.2		
		lb		48.5			64.3		
Inertia (KBMS)	Jm	Kg-m <sup>2</sup>		3.78E-02			4.91E-02		
		lb-ft-s <sup>2</sup>		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 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](http://www.kollmorgen.com) for complete drive ratings.

# KBM 57 Performance Curves

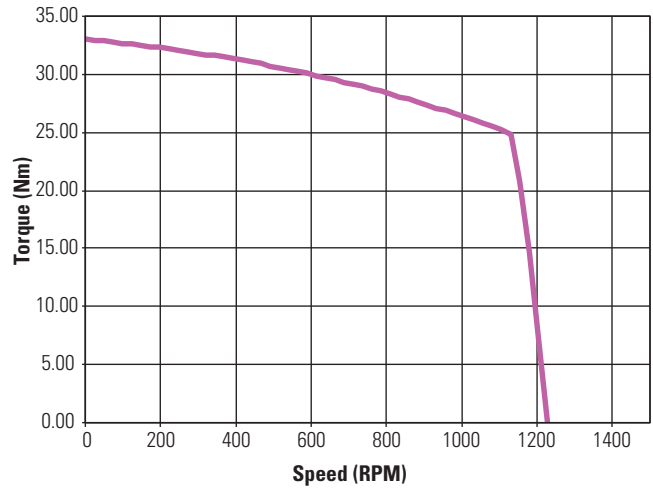
Continuous duty capability for 130°C rise in a 25°C ambient using recommended AKD servo drive and sinusoidal commutation.

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



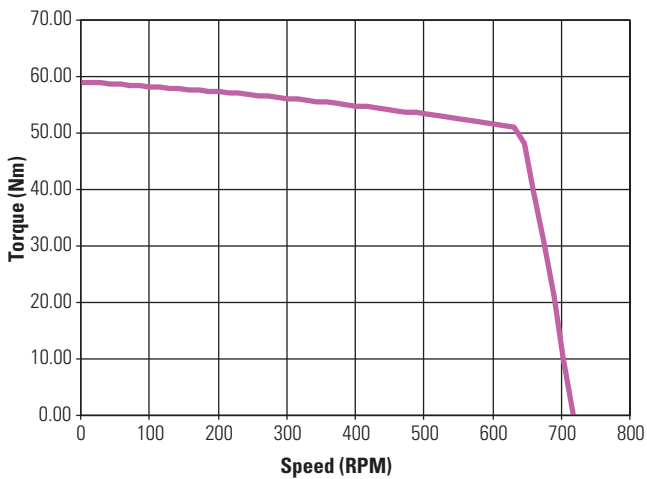
— A Winding-480 VAC / B Winding-400 VAC / C Winding-240 VAC

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



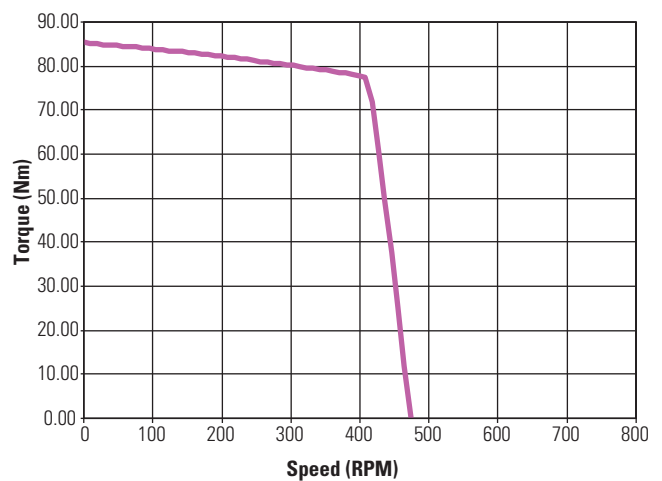
— A Winding-480 Vac / B Winding-400 Vac / C Winding-240 Vac

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



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

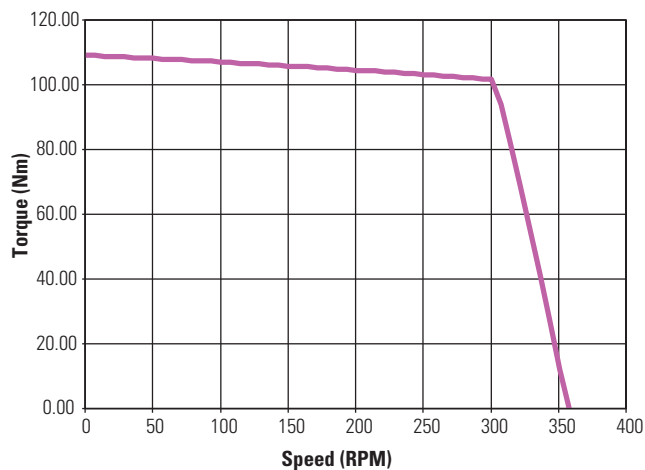
**KBM(S)-57X04  
Continuous Torque**



— 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

