

# KBM 79 Frameless Motors

K B M 7 9

The KBM(S)-79 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)-79 an ideal fit for direct drive applications requiring high torque at low to moderate speeds.



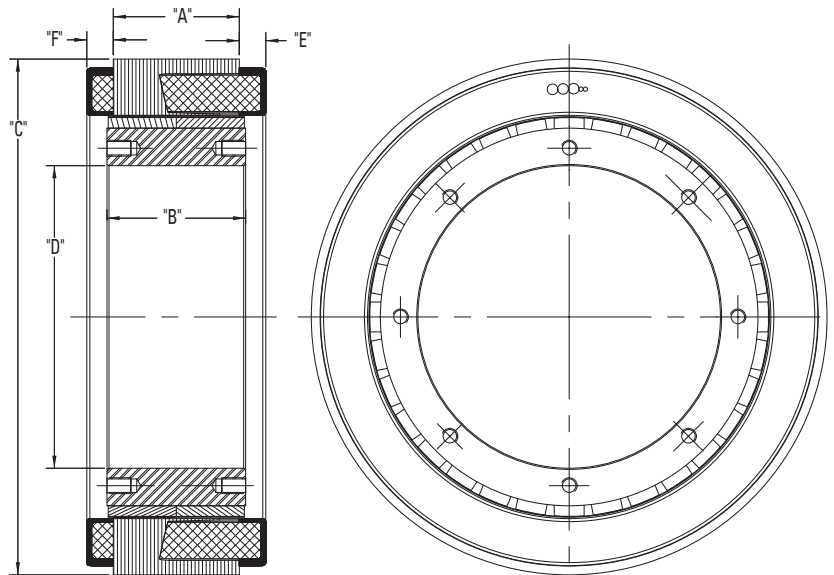
MOTOR LEADS: #16 AWG Teflon® coated per UL 1199, 400 mm [15.75 in] min. length, 1-Blue, 1-Brown, 1-Violet

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 79 Outline Drawings

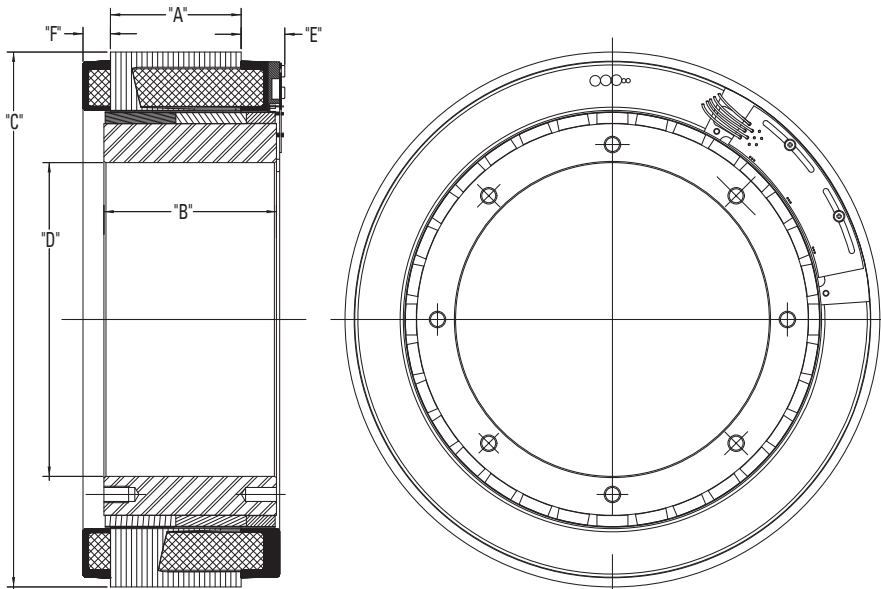
## KBM 79



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-79X01	31.75 [1.250]	38.10 [1.500]	259.63 [10.221]	152.43 [6.001]	13.34 [.525]	13.34 [.525]
KBM-79X02	63.50 [2.500]	69.85 [2.750]				
KBM-79X03	127.00 [5.000]	133.35 [5.250]				
KBM-79X04	170.94 [6.730]	177.29 [6.980]				
KBM-79X05	214.89 [5.000]	221.49 [8.720]				

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 79



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-79X01	31.75 [1.250]	52.07 [2.050]	259.63 [10.221]	152.43 [6.001]	21.20 [.835]	13.34 [.525]
KBMS-79X02	63.50 [2.500]	83.82 [3.300]				
KBMS-79X03	127.00 [5.000]	147.07 [5.790]				
KBMS-79X04	170.94 [6.730]	191.26 [7.530]				
KBMS-79X05	214.89 [5.000]	235.46 [9.270]				

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 79 Performance Data

KBM(S)-79XXX PERFORMANCE DATA & MOTOR PARAMETERS												
Motor Parameter	Symbol	Units	TOL	KBM(S)-79X01-X			KBM(S)-79X02-X			KBM(S)-79X03-X		
				A	B	C	A	B	C	A	B	C
Continuous Stall Torque at 25°C Amb. (1)	Tc	Nm	NOM	43.5	43.5	43.5	79.6	79.6	79.6	143	143	143
		lb-ft		32.1	32.1	32.1	58.7	58.7	58.7	106	106	106
Continuous Current	Ic	Arms	NOM	4.95	6.00	10.0	5.40	6.50	11.0	6.76	8.00	13.2
Peak Stall Torque (25°C winding temp)	Tp	Nm	NOM	152	152	152	319	319	319	637	637	637
		lb-ft		112	112	112	235	235	235	470	470	470
Peak Current	Ip	Arms	NOM	20.8	25.3	41.7	26.1	31.4	52.4	36.7	46.3	73.7
Rated Continuous Output Power at 25°C Amb. (1)	P Rated	Watts		2585	2585	2585	2920	2920	2920	3750	3750	3640
	HP Rated	HP		3.47	3.47	3.47	3.91	3.91	3.91	5.03	5.03	4.88
Speed at Rated Power	N Rated	RPM		730	730	730	430	430	430	300	300	290
Torque Sensitivity (2)	Kt	Nm / Arms	+/-10%	8.87	7.34	4.43	14.9	12.4	7.46	21.4	18.1	11.0
		lb-ft / Arms		6.54	5.42	3.27	11.0	9.17	5.50	15.8	13.4	8.10
Back EMF Constant	Kb	Vrms/kRPM	+/- 10%	536	444	268	902	751	450	1295	1096	664
Motor Constant	Km	Nm/√watt	+/-10%	2.89	2.89	2.89	4.81	4.81	4.81	7.29	7.29	7.29
		lb-ft/√watt		2.13	2.13	2.13	3.55	3.55	3.55	5.38	5.38	5.38
Resistance (line to line)	Rm	Ohms	+/- 10%	6.26	4.25	1.56	6.40	4.44	1.60	5.75	3.86	1.47
Inductance	Lm	mH		23	16	5.8	32	22	8.0	34	24	8.9
Inertia (KBM)	Jm	Kg-m <sup>2</sup>		3.25E-2			5.97E-2			0.114		
		lb-ft-s <sup>2</sup>		2.40E-2			4.40E-2			8.40E-2		
Weight (KBM)	Wt	Kg		9.21			16.9			32.1		
		lb		20.3			37.3			70.8		
Inertia (KBMS)	Jm	Kg-m <sup>2</sup>		4.45E-2			7.15E-2			0.125		
		lb-ft-s <sup>2</sup>		3.28E-2			5.27E-2			9.20E-2		
Weight (KBMS)	Wt	Kg		10.7			18.40			33.5		
		lb		23.5			40.5			73.9		
Max Static Friction	Tf	Nm		0.407			0.746			1.36		
		lb-ft		0.300			0.550			1.00		
Cogging Friction (peak-to-peak)	Tcog	Nm		0.136			0.244			0.447		
		lb-ft		0.100			0.180			0.330		
Viscous Damping	Fi	Nm/kRPM		2.44			15.5			31.2		
		lb-ft /kRPM		1.80			11.4			23.0		
Thermal Resistance (3)	TPR	°C / watt		0.377			0.311			0.220		
Number of Poles	P	-		32			32			32		
Recommended Kollmorgen AKD Drive				00607	01207	02406	00607	01207	02406	01207	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		133	152	152	234	308	298	557	482	465
		lb-ft		98.1	112	112	173	227	220	411	356	343
Cont. Stall Torque 4) (Motor with Drive)	Tc Drive	Nm		43.5	43.5	43.5	79.6	79.6	79.6	143	143	143
		lb-ft		32.1	112	112	59	228	218	105	105	105

- 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.

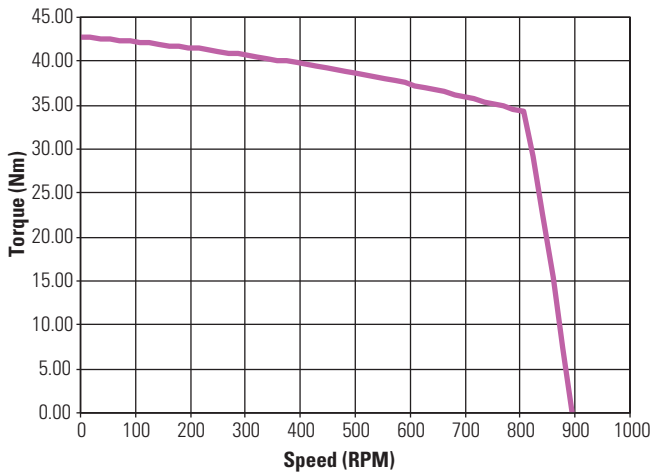
KBM(S)-79XXX PERFORMANCE DATA & MOTOR PARAMETERS									
Motor Parameter	Symbol	Units	TOL	KBM(S)-79X04-X			KBM(S)-79X05-X		
				A	B	C	A	B	C
Continuous Stall Torque at 25°C Amb. (1)	Tc	Nm	NOM	180	180	180	222	222	222
		lb-ft		133	133	133	163	163	163
Continuous Current	Ic	Arms	NOM	6.60	7.80	12.8	6.30	7.50	12.1
Peak Stall Torque (25°C winding temp)	Tp	Nm	NOM	858	858	858	1075	1075	1075
		lb-ft		633	633	633	793	793	793
Peak Current	Ip	Arms	NOM	36.7	46.3	73.7	36.7	46.3	73.7
Rated Continuous Output Power at 25°C Amb. (1)	P Rated	Watts		3540	3540	3540	3330	3330	3330
	HP Rated	HP		4.75	4.75	4.75	4.46	4.46	4.46
Speed at Rated Power	N Rated	RPM		215	215	215	165	165	165
Torque Sensitivity (2)	Kt	Nm / Arms	+/-10%	28.9	24.4	14.8	36.3	30.7	18.6
		lb-ft / Arms		21.3	18.0	10.9	26.7	22.6	13.7
Back EMF Constant	Kb	Vrms/kRPM	+/- 10%	1747	1478	896	2192	1856	1124
Motor Constant	Km	Nm/√watt	+/-10%	8.71	8.71	8.71	9.89	9.89	9.89
		lb-ft/√watt		6.42	6.42	6.42	7.30	7.30	7.30
Resistance (line to line)	Rm	Ohms	+/- 10%	7.34	5.20	1.88	8.96	6.02	2.30
Inductance	Lm	mH		46	33	12	57	41	15
Inertia (KBM)	Jm	Kg-m <sup>2</sup>		0.152			0.191		
		lb-ft-s <sup>2</sup>		0.112			0.141		
Weight (KBM)	Wt	Kg		44.0			54.9		
		lb		97.0			121		
Inertia (KBMS)	Jm	Kg-m <sup>2</sup>		0.164			0.202		
		lb-ft-s <sup>2</sup>		0.121			0.149		
Weight (KBMS)	Wt	Kg		45.3			56.2		
		lb		99.8			124.0		
Max Static Friction	Tf	Nm		1.83			2.29		
		lb-ft		1.35			1.69		
Cogging Friction (peak-to-peak)	Tcog	Nm		0.61			0.759		
		lb-ft		0.45			0.560		
Viscous Damping	Fi	Nm/kRPM		22.0			19.0		
		lb-ft /kRPM		16.0			26.0		
Thermal Resistance (3)	TPR	°C / watt		0.19			0.169		
Number of Poles	P	-		32			32		
Recommended Kollmorgen AKD Drive				01207	01207	02406	01207	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		751	650	627	941	817	787
		lb-ft		554	479	462	694	603	580
Cont. Stall Torque (4) (Motor with Drive)	Tc Drive	Nm		180	180	180	222	222	222
		lb-ft		133	133	133	164	164	164

- 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 79 Performance Curves

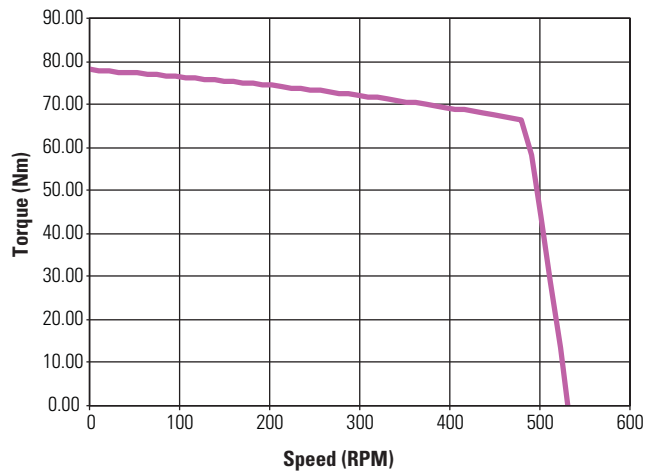
Continuous duty capability for 130°C rise in a 25°C ambient using recommended AKD servo drive and sinusoidal commutation.

**KBM(S)-79X01  
Continuous Torque**



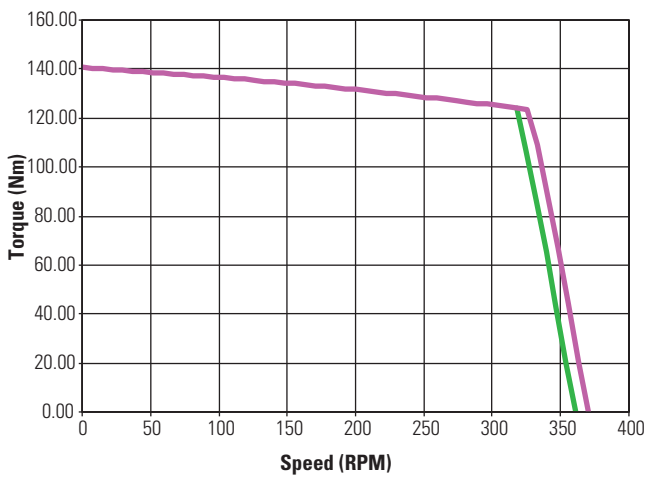
— A Winding-480 Vac / B Winding-400 Vac / C Winding-240 Vac

**KBM(S)-79X02  
Continuous Torque**



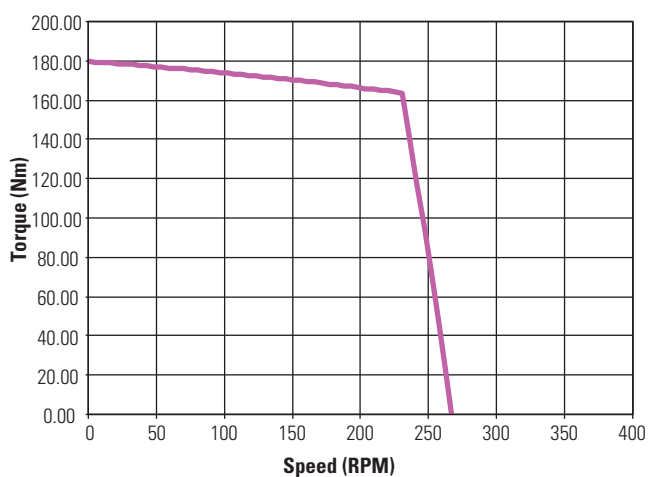
— A Winding-480 VAC / B Winding-400 VAC / C Winding-240 VAC

**KBM(S)-79X03  
Continuous Torque**



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

**KBM(S)-79X04  
Continuous Torque**



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

Low Voltage optimized windings available.

