

# KBM 17 Frameless Motors

K B M 1 7

The KBM(S)-17 series is designed to operate over a broad speed range with high acceleration. Designed for maximum torque density with minimal cogging by using a variable air gap, the KBM(S)-17 is an ideal choice to meet or exceed your compact frameless motor application needs.



Front View

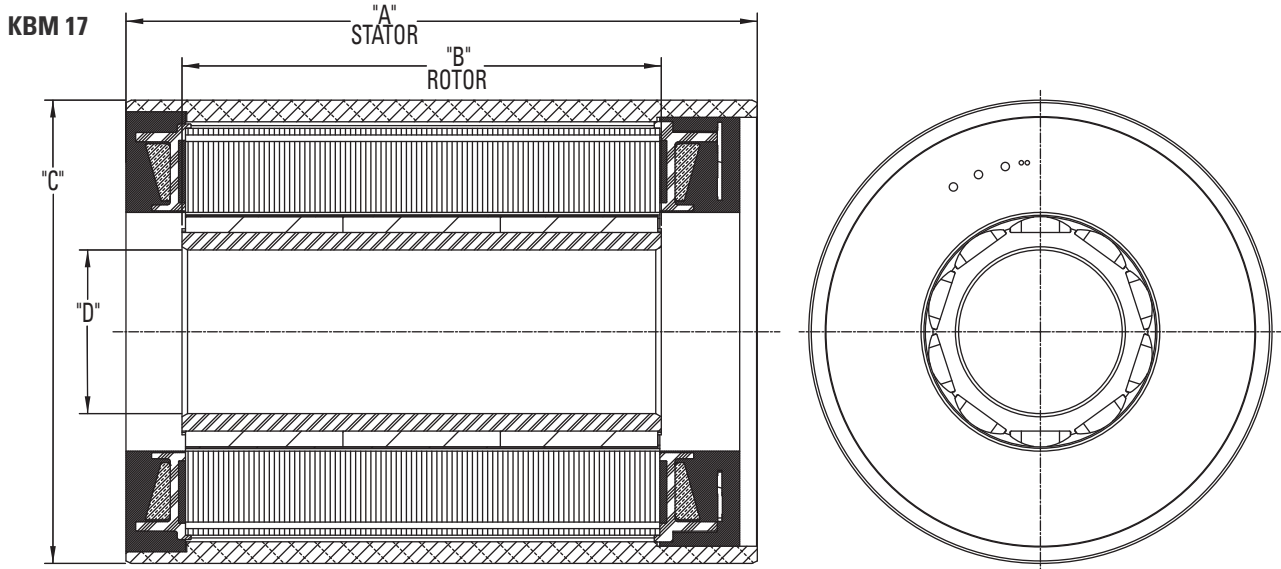
Rear View

MOTOR LEADS: #18 AWG Teflon® coated per UL 10086 or 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

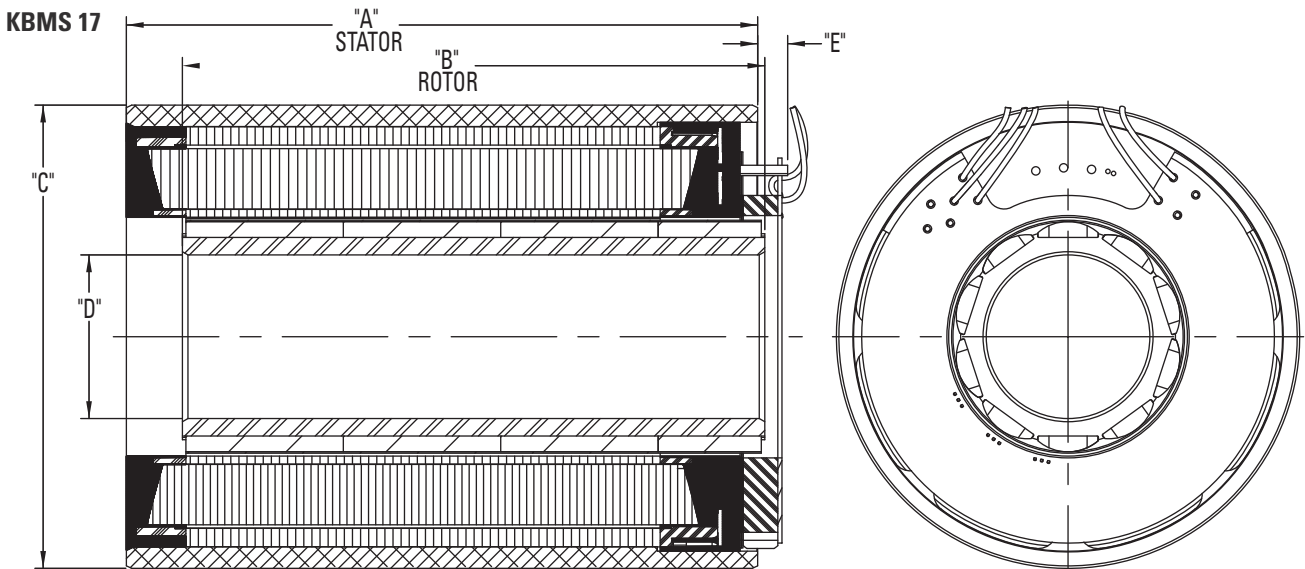
THERMISTOR LEADS: #26 AWG Teflon® coated, UL Rated 600 Vdc, 150C Min, 400 mm [15.75"] min. length, 1-Blue, 1-Black

# KBM 17 Outline Drawings



Model Number	"A" mm[inch]	"B" mm[inch]	Ø "C" mm[inch]	Ø "D" mm[inch]
KBM-17X01	57.80 [2.276]	30.15 [1.187]	84.963 [3.345]	30.010 [1.1815]
KBM-17X02	86.80 [3.417]	59.03 [2.324]		
KBM-17X03	115.80 [4.559]	87.91 [3.461]		
KBM-17X04	144.80 [5.701]	116.79 [4.598]		

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)



Model Number	"A" mm[inch]	"B" mm[inch]	Ø "C" mm[inch]	Ø "D" mm[inch]	"E" MAX mm[inch]
KBMS-17X01	57.80 [2.276]	49.07 [1.932]	84.963 [3.345]	30.010 [1.1815]	5.75 [.226]
KBMS-17X02	86.80 [3.417]	77.95 [3.069]			
KBMS-17X03	115.80 [4.559]	106.83 [4.206]			
KBMS-17X04	144.80 [5.701]	135.71 [5.353]			

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 17 Performance Data

KBM(S)-17XXX PERFORMANCE DATA & MOTOR PARAMETERS											
Motor Parameter	Symbol	Units	TOL	KBM(S)-17X01-X			KBM(S)-17X02-X				
				A	B	C	A	B	C	D	
Continuous Stall Torque at 25°C Amb. (1)	Tc	Nm	NOM	2.08	2.06	2.07	3.58	3.52	3.57	3.58	
		lb-ft		1.53	1.52	1.53	2.64	2.60	2.64	2.64	
Continuous Current	Ic	Arms	NOM	1.65	3.11	6.10	1.59	3.00	5.27	6.25	
Peak Stall Torque (25°C winding temp)	Tp	Nm	NOM	5.95	6.14	6.35	12.2	12.3	12.7	12.8	
		lb-ft		4.39	4.53	4.68	9.00	9.05	9.38	9.45	
Peak Current	Ip	Arms	NOM	5.45	10.9	21.8	6.08	12.2	21.9	24.5	
Rated Continuous Output Power at 25°C Amb. (1)	P Rated	Watts		810	715	955	855	835	1270	790	1290
	HP Rated	HP		1.09	0.958	1.280	1.15	1.12	1.70	1.06	1.73
Speed at Rated Power	N Rated	RPM		4650	9600	8125	9050	2600	5450	7560	5600
Torque Sensitivity (2)	Kt	Nm / Arms	+/-10%	1.29	0.681	0.355	2.31	1.21	0.709	0.565	
		lb-ft / Arms		0.948	0.502	0.262	1.70	0.890	0.523	0.416	
Back EMF Constant	Kb	Vpk / kRPM	+/- 10%	77.7	41.2	21.5	139.6	73.0	42.9	34.1	
Motor Constant	Km	Nm/√watt	+/-10%	0.227	0.227	0.232	0.359	0.353	0.365	0.359	
		lb-ft / √watt		0.168	0.167	0.171	0.265	0.261	0.270	0.265	
Resistance (line to line)	Rm	Ohms	+/- 10%	21.3	6.02	1.56	27.5	7.78	2.51	1.65	
Inductance	Lm	mH		66	18	5.0	97	27	9.2	6.0	
Inertia (KBM)	Jm	Kg-m <sup>2</sup>		5.12E-5			9.54E-5				
		lb-ft-s <sup>2</sup>		3.78E-5			7.04E-5				
Weight (KBM)	Wt	Kg		1.05			1.87				
		lb		2.31			4.12				
Inertia (KBMS)	Jm	Kg-m <sup>2</sup>		8.62E-5			1.28E-4				
		lb-ft-s <sup>2</sup>		6.36E-5			9.45E-5				
Weight (KBMS)	Wt	Kg		1.16			1.97				
		lb		2.55			4.35				
Max Static Friction	Tf	Nm		4.23E-2			7.59E-2				
		lb-ft		3.12E-2			5.60E-2				
Cogging Friction (peak-to-peak)	Tcog	Nm		3.19E-2			5.61E-2				
		lb-ft		2.35E-2			4.14E-2				
Viscous Damping	Fi	Nm/ kRPM		8.45E-3			1.22E-2				
		lb-ft / kRPM		6.23E-3			9.00E-3				
Thermal Resistance (3)	TPR	°C / watt		0.970			0.800				
Number of Poles	P	-		10			10				
Recommended AKD Drive				00307	00607	01206	00307	00307	00607	01206	
Voltage Req'd at Rated Output	Vac Input	Vac		480	480	400	240	480	480	400	240
Peak Stall Torque (4) (Motor with Drive)	Tp Drive	Nm	+/-10%	5.95	6.14	6.14	6.35	12.2	9.61	11.0	12.8
		lb-ft		4.39	4.53	4.53	4.68	9.00	7.08	8.11	9.45
Cont. Stall Torque (4) (Motor with Drive)	Tc Drive	Nm	+/-10%	2.08	2.06	2.06	2.07	3.58	3.52	3.57	3.58
		lb-ft		1.53	1.52	1.52	1.53	2.64	2.60	2.64	2.64

\* 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 10" x 10" x 1/4" heat sink or equivalent.  
 4) Peak torque may be limited by AKD servo drive current, see www.kollmorgen.com for complete drive ratings.

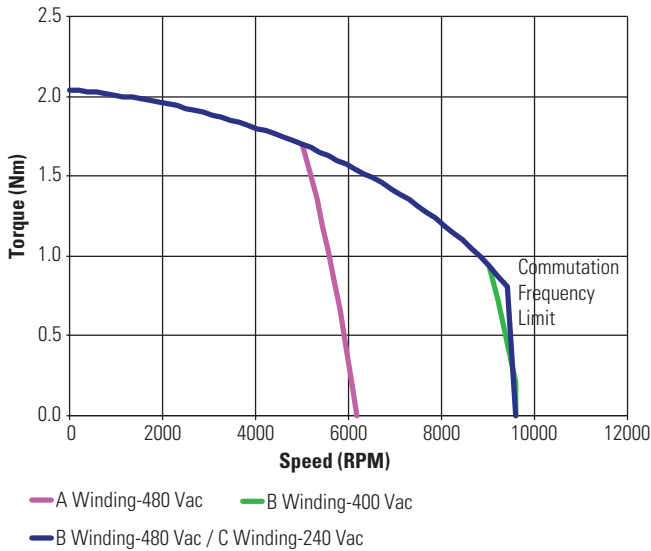
KBM(S)-17XXX PERFORMANCE DATA & MOTOR PARAMETERS											
Motor Parameter	Symbol	Units	TOL	KBM(S)-17X03-X				KBM(S)-17X04-X			
				A	B	C	D	A	B	C	D
Continuous Stall Torque at 25°C Amb. (1)	Tc	Nm	NOM	4.89	4.90	5.00	5.00	6.20	6.12	5.90	5.90
		lb-ft		3.61	3.62	3.69	3.69	4.57	4.52	4.35	4.35
Continuous Current	Ic	Arms	NOM	3.02	5.32	6.14	10.4	3.26	5.53	6.20	9.56
Peak Stall Torque (25°C winding temp)	Tp	Nm	NOM	18.5	18.8	18.8	19.0	23.7	23.7	23.7	24.0
		lb-ft		13.6	13.9	13.9	14.0	17.5	17.5	17.5	17.7
Peak Current	Ip	Arms	NOM	13.8	24.4	27.2	48.0	14.5	25.0	28.1	44.0
Rated Continuous Output Power at 25°C Amb. (1)	P Rated	Watts		1440	890	965	1275	1520	1075	975	1550
	HP Rated	HP		1.93	1.19	1.29	1.71	2.04	1.44	1.31	2.08
Speed at Rated Power	N Rated	RPM		3950	6500	6480	6100	3350	5700	5775	5000
Torque Sensitivity (2)	Kt	Nm / Arms	+/-10%	1.66	0.948	0.849	0.496	1.96	1.14	1.01	0.661
		lb-ft / Arms		1.22	0.699	0.626	0.366	1.45	0.841	0.748	0.487
Back EMF Constant	Kb	Vpk / kRPM	+/- 10%	100.2	57.3	51.3	30.0	118.5	69.0	61.3	40.0
Motor Constant	Km	Nm/√watt	+/-10%	0.461	0.462	0.478	0.471	0.544	0.557	0.555	0.557
		lb-ft /√watt		0.340	0.341	0.353	0.348	0.401	0.411	0.409	0.411
Resistance (line to line)	Rm	Ohms	+/- 10%	8.61	2.81	2.10	0.740	8.64	2.80	2.23	0.940
Inductance	Lm	mH		33	11	8.8	2.9	34	12	9.1	3.8
Inertia (KBM)	Jm	Kg-m <sup>2</sup>		1.42E-4				2.03E-4			
		lb-ft-s <sup>2</sup>		1.05E-4				1.50E-4			
Weight (KBM)	Wt	Kg		2.65				3.62			
		lb		5.85				7.98			
Inertia (KBMS)	Jm	Kg-m <sup>2</sup>		1.75E-4				2.40E-4			
		lb-ft-s <sup>2</sup>		1.29E-4				1.77E-4			
Weight (KBMS)	Wt	Kg		2.76				3.72			
		lb		6.08				8.20			
Max Static Friction	Tf	Nm		.130				.165			
		lb-ft		9.60E-2				.122			
Cogging Friction (peak-to-peak)	Tcog	Nm		.102				.127			
		lb-ft		7.50E-2				9.40E-2			
Viscous Damping	Fi	Nm/ kRPM		1.60E-2				1.98E-2			
		lb-ft / kRPM		1.18E-2				1.46E-2			
Thermal Resistance (3)	TPR	°C / watt		0.700				0.650			
Number of Poles	P	-		10				10			
Recommended AKD Drive				00607	00607	01207	01206	00607	00607	01207	01206
Voltage Req'd at Rated Output	Vac Input	Vac		480	480	400	240	480	480	400	240
Peak Stall Torque (4) (Motor with Drive)	Tp Drive	Nm	+/-10%	18.5	14.6	18.8	13.7	23.7	18.5	23.7	17.7
		lb-ft		13.6	10.8	13.9	10.1	17.5	13.6	17.5	13.0
Cont. Stall Torque (4) (Motor with Drive)	Tc Drive	Nm	+/-10%	4.89	4.90	5.00	5.00	6.20	6.12	5.90	5.90
		lb-ft		3.61	3.62	3.69	3.69	4.57	4.52	4.35	4.35

- \* 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 10" x 10" x 1/4" heat sink or equivalent.  
4) Peak torque may be limited by AKD servo drive current, see www.kollmorgen.com for complete drive ratings.

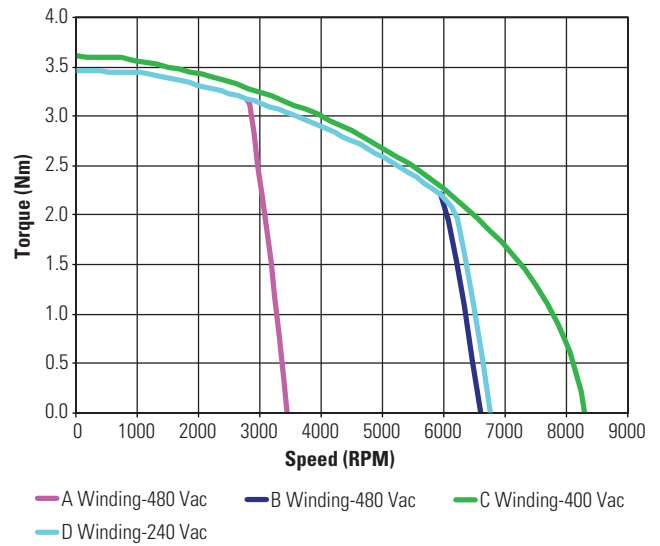
# KBM 17 Performance Curves

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

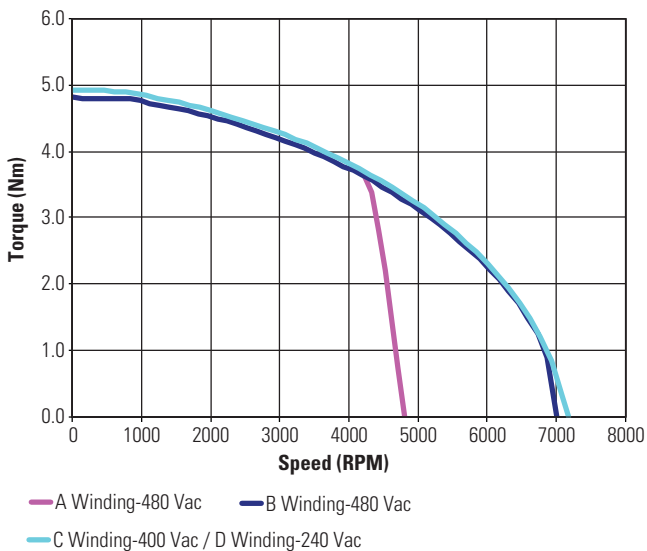
**KBM(S)-17X01  
Continuous Torque**



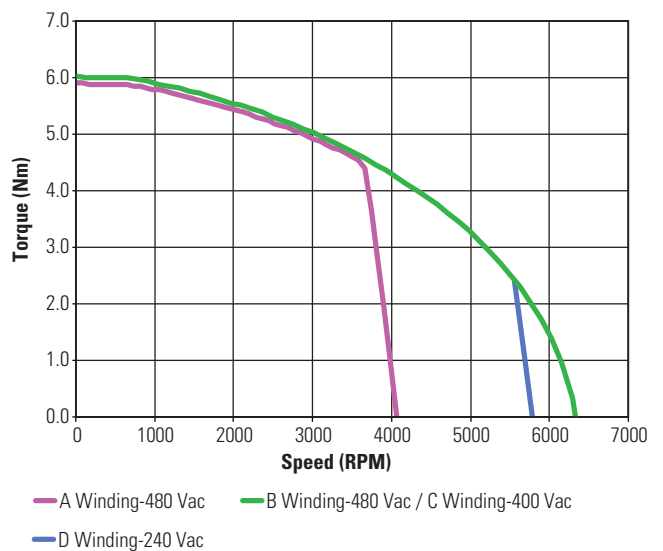
**KBM(S)-17X02  
Continuous Torque**



**KBM(S)-17X03  
Continuous Torque**



**KBM(S)-17X04  
Continuous Torque**



Low Voltage optimized windings available.