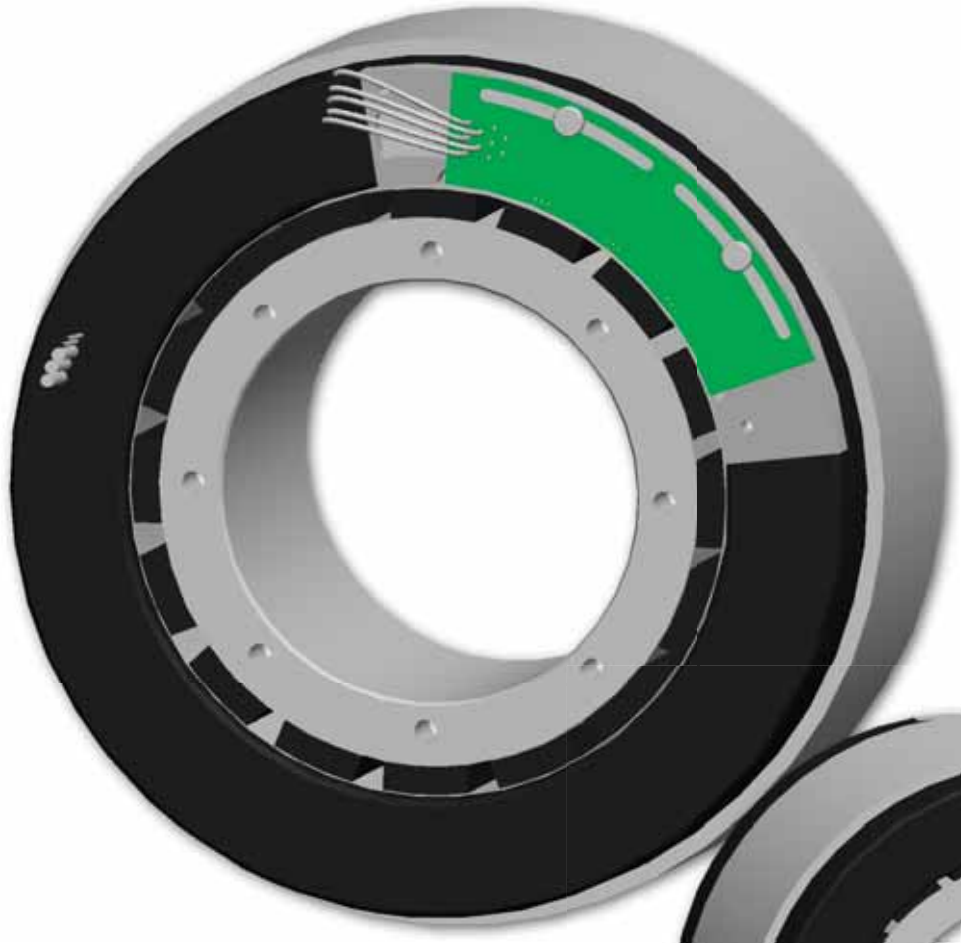
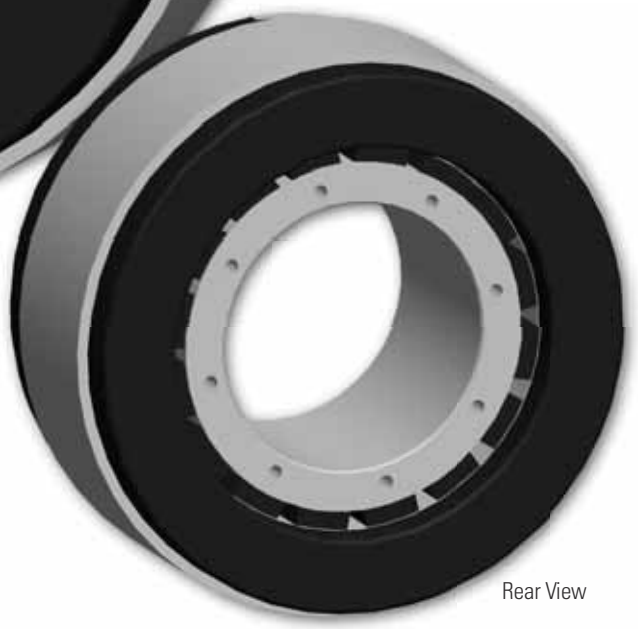
KBM 43 Frameless Motors

The KBM(S)-43 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)-43 an ideal fit for direct drive applications requiring high torque at low to moderate speeds.



Front View



Rear View

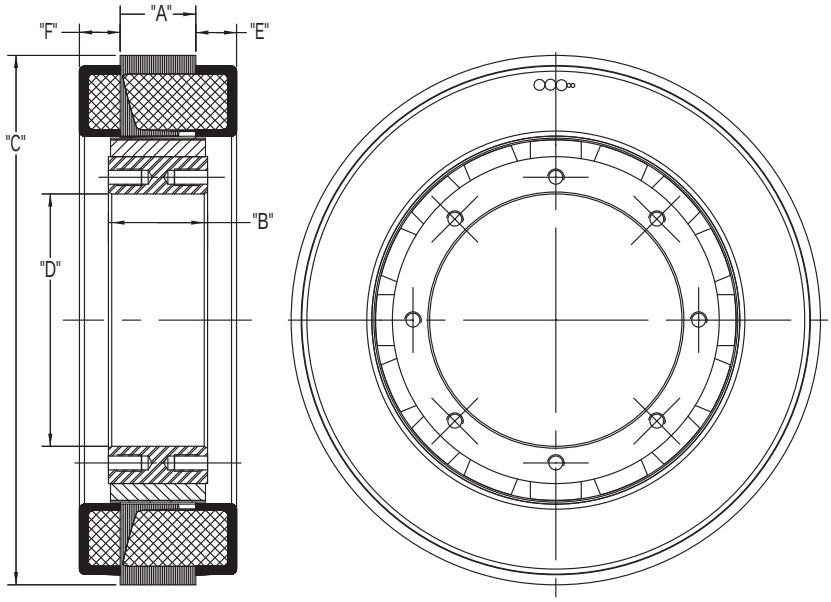
MOTOR LEADS: #16 AWG Teflon® coated per UL 1199, 400 mm [15.75 in] min. length, 1- Blue, 1- Brown, 1-Violet

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 43 Outline Drawings

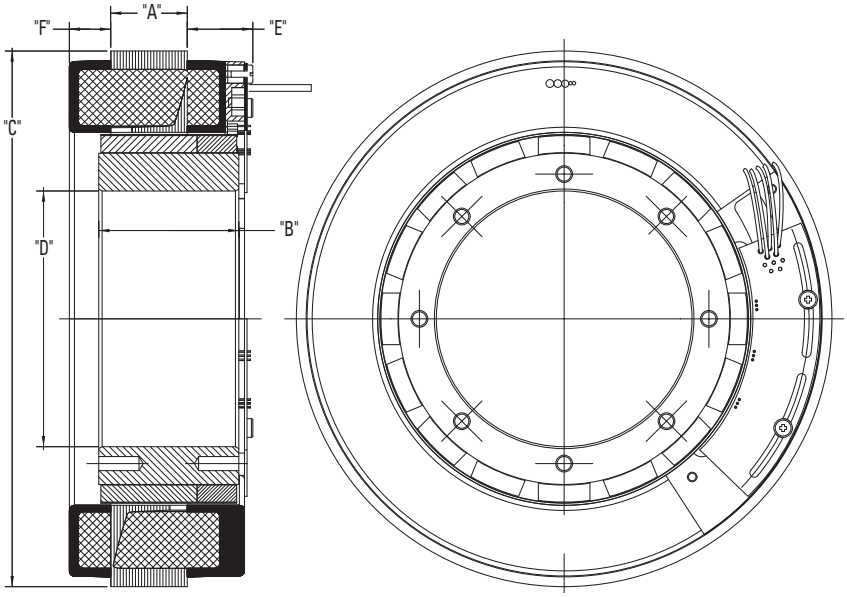
KBM 43



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-43X01	11.43 [.450]	18.54 [.730]	159.78 [6.290]	76.28 [3.003]	12.32 [.485]	12.32 [.485]
KBM-43X02	22.86 [.900]	29.97 [1.180]				
KBM-43X03	45.72 [1.800]	52.83 [2.080]				
KBM-43X04	80.26 [3.160]	87.38 [3.440]				
KBM-43X05	108.97 [4.290]	116.08 [4.570]				

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

KBMS 43



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-43X01	11.43 [.450]	30.35 [1.195]	159.78 [6.290]	76.28 [3.003]	20.32 [.800]	12.32 [.485]
KBMS-43X02	22.86 [.900]	41.78 [1.645]				
KBMS-43X03	45.72 [1.800]	64.64 [2.545]				
KBMS-43X04	80.26 [3.160]	99.19 [3.905]				
KBMS-43X05	108.97 [4.290]	127.89 [5.0325				

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

KBM 43 Performance Data

KBM(S)-43XXX PERFORMANCE DATA & MOTOR PARAMETERS														
Motor Parameter	Symbol	Units	TOL	KBM(S)-43X01-X			KBM(S)-43X02-X				KBM(S)-43X03-X			
				A	B	C	A	B	C	D	A	B	C	D
Continuous Stall Torque at 25°C Amb. (1)	Tc	Nm	NOM	6.11	6.24	6.11	11.6	11.6	11.9	11.9	21.0	20.7	20.9	20.9
		lb-ft		4.51	4.60	4.51	8.57	8.53	8.57	8.57	15.5	15.3	15.4	15.4
Continuous Current	Ic	Arms	NOM	5.10	8.60	18.4	5.10	18.3	6.10	10.2	4.78	13.8	5.73	19.2
Peak Stall Torque (25°C winding temp)	Tp	Nm	NOM	18.0	18.0	18.0	34.6	34.6	34.6	34.6	64.5	64.5	64.5	64.5
		lb-ft		13.3	13.3	13.3	25.5	25.5	25.5	25.5	47.6	47.6	47.6	47.6
Peak Current	Ip	Arms	NOM	18.0	32.2	64.6	18.0	64.6	22.8	36.2	18.0	51.2	22.8	72.5
Rated Continuous Output Power at 25°C Amb. (1)	P Rated	Watts		1230	1230	1230	2160	2160	2160	2160	2520	2875	2520	2520
	HP Rated	HP		1.65	1.65	1.65	2.90	2.90	2.90	2.90	3.38	3.85	3.38	3.38
Speed at Rated Power	N Rated	RPM		4750	4750	4750	3000	2650	3000	3000	1500	2275	1500	1500
Torque Sensitivity (2)	Kt	Nm / Arms	+/-10%	1.21	0.721	0.335	2.31	0.641	1.92	1.15	4.43	1.54	3.69	1.11
		lb-ft / Arms		0.890	0.531	0.247	1.70	0.473	1.42	0.851	3.27	1.14	2.73	0.818
Back EMF Constant	Kb	Vrms/kRPM	+/- 10%	72.8	43.6	20.3	139.3	38.7	116	69.8	268	93.3	223	67.0
Motor Constant	Km	Nm/√watt	+/-10%	0.579	0.596	0.58	1.00	1.00	1.00	1.00	1.65	1.63	1.69	1.65
		lb-ft /√watt		0.427	0.440	0.425	0.737	0.737	0.737	0.737	1.21	1.20	1.24	1.21
Resistance (line to line)	Rm	Ohms	+/- 10%	2.90	0.976	0.226	3.55	0.277	2.35	0.886	4.83	0.595	3.20	0.301
Inductance	Lm	mH		6.8	2.4	0.520	12	0.93	8.3	3.0	19	2.2	13.0	1.2
Inertia (KBM)	Jm	Kg-m²		1.94E-3			2.85E-3				4.75E-3			
		lb-ft-s²		1.43E-3			2.10E-3				3.50E-3			
Weight (KBM)	Wt	Kg		2.26			3.49				5.96			
		lb		4.98			7.70				13.1			
Inertia (KBMS)	Jm	Kg-m²		2.85E-3			3.73E-3				5.69E-3			
		lb-ft-s²		2.10E-3			2.75E-3				4.20E-3			
Weight (KBMS)	Wt	Kg		2.66			3.89				6.35			
		lb		5.86			8.57				14.0			
Max Static Friction	Tf	Nm		0.058			0.108				0.203			
		lb-ft		0.043			0.080				0.150			
Cogging Friction (peak-to-peak)	Tcog	Nm		0.027			0.054				0.102			
		lb-ft		0.020			0.040				0.075			
Viscous Damping	Fi	Nm/ kRPM		0.388			0.561				0.860			
		lb-ft / kRPM		0.286			0.414				1.17			
Thermal Resistance (3)	TPR	°C / watt		0.763			0.629				0.525			
Number of Poles	P	-		16			16				16			
Recommended Kollmorgen AKD Drive				00607	01206	02406	00607	02406	01207	01206	00607	02406	00607	02406
Voltage Req'd at Rated Output	Vac Input	Vac		400	240	120	480	120	400	240	480	240	400	120
Peak Stall Torque (4) (Motor with Drive)	Tp Drive	Nm	+/-10%	18.0	17.5	13.7	34.6	26.1	34.6	29.0	64.5	59.5	55.3	45.0
		lb-ft		13.3	12.9	10.1	25.5	19.3	25.5	21.4	47.6	43.9	40.8	33.2
Cont. Stall Torque (4) (Motor with Drive)	Tc Drive	Nm	+/-10%	6.11	6.24	6.11	11.6	11.6	11.9	11.9	21.0	20.7	20.9	20.9
		lb-ft		4.51	4.60	4.51	8.56	8.56	8.78	8.78	15.5	15.3	15.4	15.4

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) Back EMF is peak (not RMS).
4) Peak & Continuous Torques may be limited by drive current, see www.kollmorgen.com for complete drive ratings.

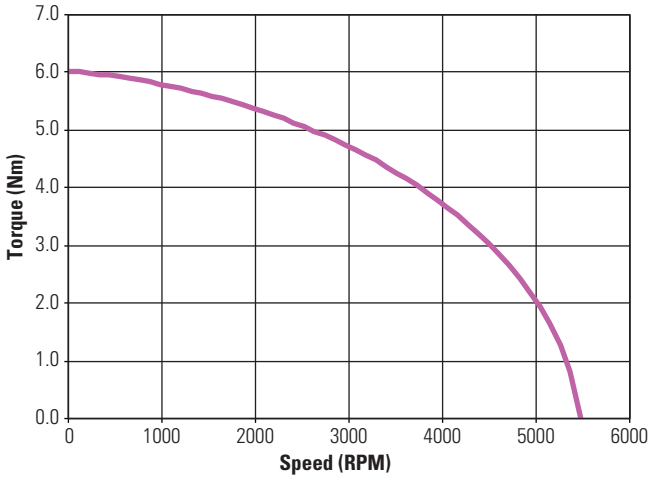
KBM(S)-43XXX PERFORMANCE DATA & MOTOR PARAMETERS									
Motor Parameter	Symbol	Units	TOL	KBM(S)-43X04-X			KBM(S)-43X05-X		
				A	B	C	A	B	C
Continuous Stall Torque at 25°C Amb. (1)	Tc	Nm	NOM	35.1	35.1	35.1	44.2	44.2	44.2
		lb-ft		25.9	25.9	25.9	32.6	32.6	32.6
Continuous Current	Ic	Arms	NOM	4.78	5.60	9.20	4.50	4.50	4.50
Peak Stall Torque (25°C winding temp)	Tp	Nm	NOM	113	113	113	153	153	153
		lb-ft		83.0	83.0	83.0	113	113	113
Peak Current	Ip	Arms	NOM	18.0	22.8	36.2	18.0	22.8	36.2
Rated Continuous Output Power at 25°C Amb. (1)	P Rated	Watts		2600	2600	2600	2500	2550	2500
	HP Rated	HP		3.49	3.49	3.49	3.35	3.42	3.35
Speed at Rated Power	N Rated	RPM		830	830	830	620	620	620
Torque Sensitivity (2)	Kt	Nm / Arms	+/-10%	7.74	6.45	3.87	10.1	8.44	5.06
		lb-ft / Arms		5.71	4.76	2.85	7.47	6.23	3.74
Back EMF Constant (3)	Kb	Vpk / kRPM	+/- 10%	468	390	234	612	511	306
Motor Constant	Km	Nm/√watt	+/-10%	2.39	2.45	2.39	2.79	2.86	2.79
		lb-ft /√watt		1.77	1.81	1.77	2.06	2.11	2.06
Resistance (line to line)	Rm	Ohms	+/- 10%	6.96	4.61	1.73	8.76	5.80	2.18
Inductance	Lm	mH		33	23	8.3	48	33	12
Inertia (KBM)	Jm	Kg-m²		6.44E-03			8.54E-03		
		lb-ft-s²		4.75E-03			6.30E-03		
Weight (KBM)	Wt	Kg		8.85			11.80		
		lb		19.5			25.9		
Inertia (KBMS)	Jm	Kg-m²		6.85E-03			9.44E-03		
		lb-ft-s²		5.05E-03			6.96E-03		
Weight (KBMS)	Wt	Kg		9.25			12.20		
		lb		20.4			26.90		
Max Static Friction	Tf	Nm		0.353			0.479		
		lb-ft		0.260			0.353		
Cogging Friction (peak-to-peak)	Tcog	Nm		0.176			0.240		
		lb-ft		0.130			0.177		
Viscous Damping	Fi	Nm/ kRPM		1.49			2.03		
		lb-ft / kRPM		1.10			1.50		
Thermal Resistance (3)	TPR	°C / watt		0.396			0.339		
Number of Poles	P	-		16			16		
Recommended Kollmorgen AKD Drive				00607	00607	01206	00607	00607	01206
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%	113	96.6	96.2	153	127	126
		lb-ft		83.3	71.2	71.0	113	93.7	92.9
Cont. Stall Torque (4) (Motor with Drive)	Tc Drive	Nm	+/-10%	35.1	35.1	35.1	44.2	44.2	44.2
		lb-ft		25.9	25.9	25.9	32.6	32.6	32.6

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) Back EMF is peak (not RMS).
4) Peak & Continuous Torques may be limited by drive current, see www.kollmorgen.com for complete drive ratings.

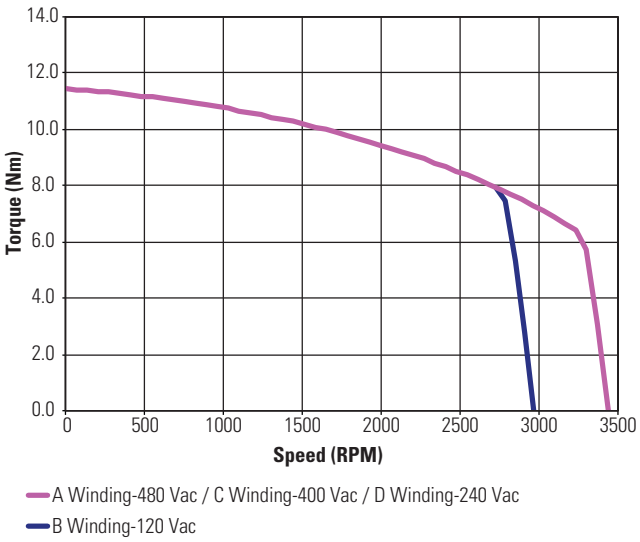
KBM 43 Performance Curves

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

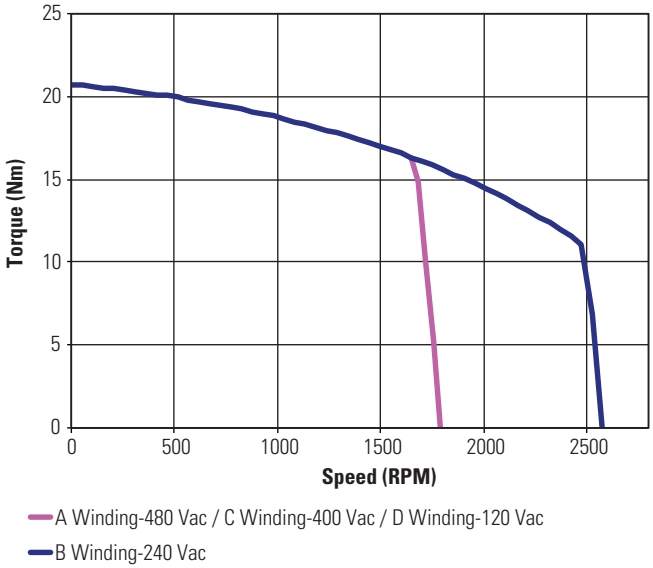
KBM(S)-43X01
ContinuousTorque



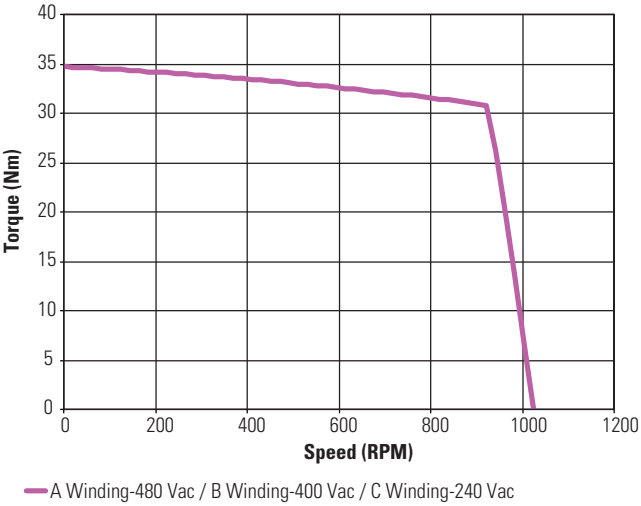
KBM(S)-43X02
ContinuousTorque



KBM(S)-43X03
ContinuousTorque



KBM(S)-43X04
ContinuousTorque



Low Voltage optimized windings available.

Low Voltage optimized windings available.

Notes