

# KBM 35 Frameless Motors

The KBM(S)-35 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)-35 is an ideal choice to meet or exceed your compact frameless motor application needs.



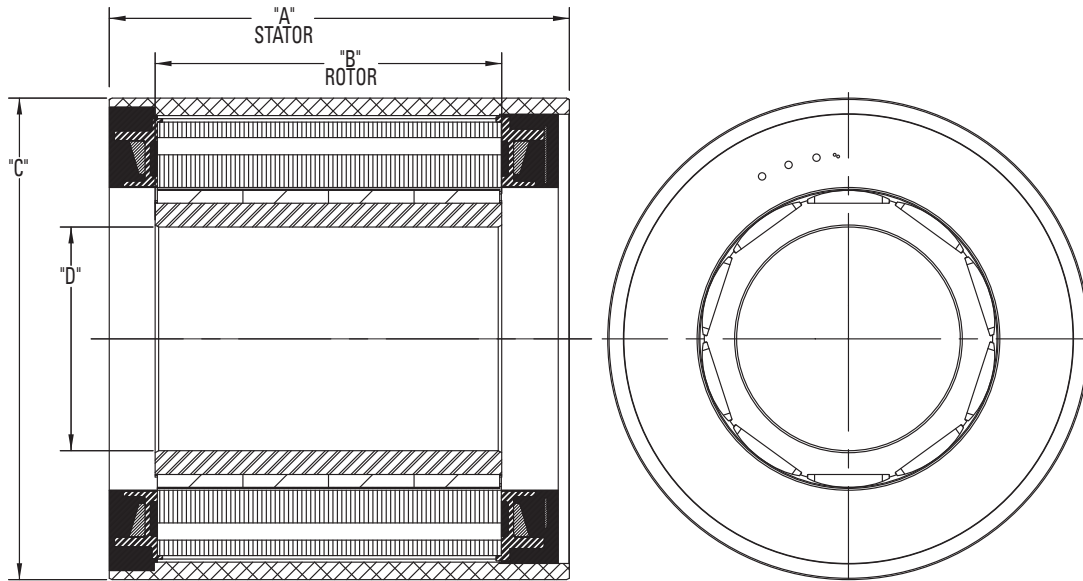
MOTOR LEADS: #14 AWG Teflon® coated per UL 10086 or UL 1199, 400 mm [15.75 in] min. length, 1-Blue, 1-Brown, 1-Violet

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 35 Outline Drawings

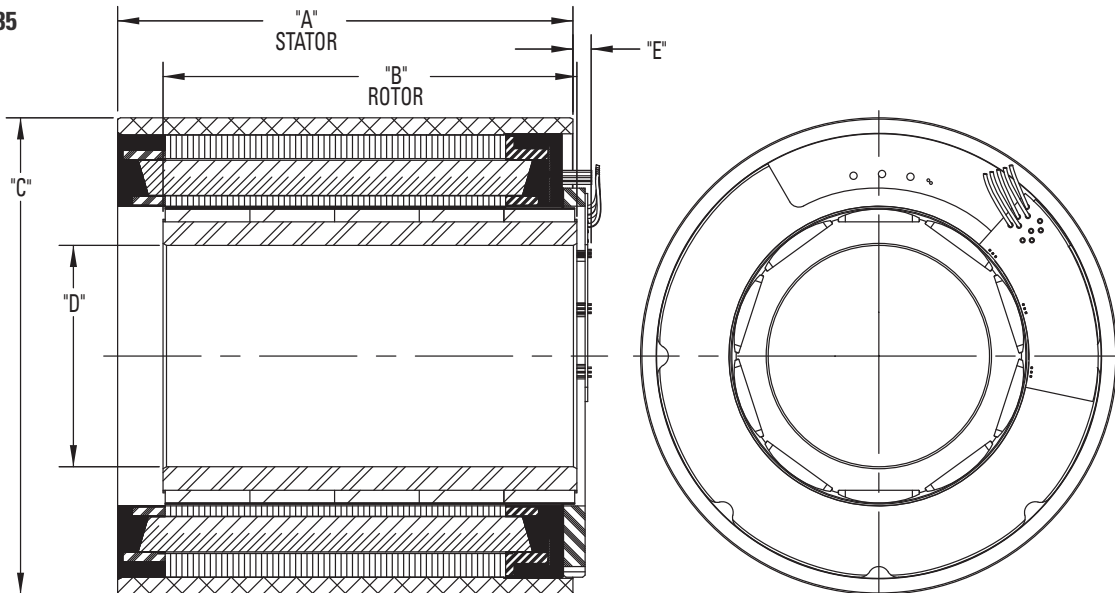
**KBM 35**



Model Number	"A" mm[inch]	"B" mm[inch]	Ø "C" mm[inch]	Ø "D" mm[inch]
KBM-35X01	83.74 [3.297]	51.00 [2.008]	139.956 [5.5101]	65.012 [2.5595]
KBM-35X02	108.74 [4.281]	75.87 [2.987]		
KBM-35X03	133.74 [5.265]	100.74 [3.966]		
KBM-35X04	158.74 [6.250]	125.60 [4.945]		

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 35**



Model Number	"A" mm[inch]	"B" mm[inch]	Ø "C" mm[inch]	Ø "D" mm[inch]	"E" MAX mm[inch]
KBMS-35X01	83.74 [3.297]	71.83 [2.828]	139.956 [5.5101]	65.012 [2.5595]	5.75 [.226]
KBMS-35X02	108.74 [4.281]	96.70 [3.807]			
KBMS-35X03	133.74 [5.265]	121.56 [4.786]			
KBMS-35X04	158.74 [6.250]	146.43 [5.765]			

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 35 Performance Data

KBM(S)-35XXX PERFORMANCE DATA & MOTOR PARAMETERS													
Motor Parameter	Symbol	Units	TOL	KBM(S)-35X01-X					KBM(S)-35X02-X				
				A	B	C	D	E	A	B	C	D	E
Continuous Stall Torque at 25°C Amb. (1)	Tc	Nm	NOM	12.6	12.7	12.4	12.7	12.2	17.3	17.6	17.5	17.5	17.1
		lb-ft		9.26	9.34	9.15	9.34	9.00	12.8	13.0	12.9	12.9	12.6
Continuous Current	Ic	Arms	NOM	5.41	6.10	8.32	10.6	12.9	4.97	6.30	8.70	10.9	12.1
Peak Stall Torque (25°C winding temp)	Tp	Nm	NOM	40.9	40.8	41.1	41.2	41.1	58.8	58.8	59.2	59.4	59.4
		lb-ft		30.1	30.1	30.3	30.4	30.3	43.4	43.4	43.7	43.8	43.8
Peak Current	Ip	Arms	NOM	21.9	24.5	34.7	43.5	55.4	22.5	28.0	39.2	49.5	55.4
Rated Continuous Output Power at 25°C Amb. (1)	P Rated	Watts		2970	3100	3885	3750	3200	2750	3415	4395	4750	4610
	HP Rated	HP		3.98	4.16	5.21	5.03	4.29	3.69	4.58	5.89	6.37	6.18
Speed at Rated Power	N Rated	RPM		2700	2900	4200	5800	6125	1750	2200	3200	4300	3765
Torque Sensitivity (2)	Kt	Nm /Arms	+/-10%	2.37	2.11	1.53	1.23	0.956	3.55	2.87	2.05	1.64	1.46
		lb-ft /Arms		1.75	1.55	1.13	0.904	0.705	2.62	2.12	1.51	1.21	1.08
Back EMF Constant	Kb	Vpk / kRPM	+/- 10%	144	127	92.7	74.1	57.8	215	174	124	98.9	88.4
Motor Constant	Km	Nm/√watt	+/-10%	0.954	0.947	0.946	0.963	0.908	1.24	1.27	1.25	1.25	1.23
		lb-ft /√watt		0.704	0.699	0.698	0.710	0.670	0.912	0.934	0.921	0.923	0.908
Resistance (line to line)	Rm	Ohms	+/- 10%	4.13	3.30	1.75	1.08	0.740	5.50	3.43	1.80	1.14	0.940
Inductance	Lm	mH		32	25	13	8.5	5.4	44	28	15	9.3	7.4
Inertia (KBM)	Jm	Kg-m <sup>2</sup>		1.52E-3					2.28E-3				
		lb-ft-s <sup>2</sup>		1.12E-3					1.68E-3				
Weight (KBM)	Wt	Kg		4.68					6.76				
		lb		10.3					14.9				
Inertia (KBMS)	Jm	Kg-m <sup>2</sup>		2.17E-3					2.94E-3				
		lb-ft-s <sup>2</sup>		1.60E-3					2.17E-3				
Weight (KBMS)	Wt	Kg		5.17					7.21				
		lb		11.4					15.9				
Max Static Friction	Tf	Nm		0.247					0.346				
		lb-ft		0.182					0.255				
Cogging Friction (peak-to-peak)	Tcog	Nm		0.197					0.271				
		lb-ft		0.145					0.200				
Viscous Damping	Fi	Nm/ kRPM		3.76E-2					5.99E-2				
		lb-ft /kRPM		2.77E-2					4.42E-2				
Thermal Resistance (3)	TPR	°C / watt		0.460					0.410				
Number of Poles	P	-		10					10				
Recommended AKD Drive				00607	01207	01207	01207	02407	00607	01207	01207	01207	02407
Voltage Req'd at Rated Output	Vac Input	Vac		480	480	480	480	400	480	480	480	480	400
Peak Stall Torque (4) (Motor with Drive)	Tp Drive	Nm	+/-10%	37.5	40.8	35.0	28.8	35.0	49.1	58.8	47.7	39.2	52.9
		lb-ft		27.7	30.1	25.8	21.2	25.8	36.2	43.4	35.2	28.9	39.0
Cont. Stall Torque (4) (Motor with Drive)	Tc Drive	Nm	+/-10%	12.6	12.7	12.4	12.7	12.2	17.3	17.6	17.5	17.5	17.1
		lb-ft		9.26	9.34	9.15	9.34	9.00	12.8	13.0	12.9	12.9	12.6

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) TPR assumes motor is housed and mounted to a 18" x 18" x 1/2" heat sink or equivalent.  
 4) Peak torque may be limited by AKD servo drive current, see www.kollmorgen.com for complete drive ratings.

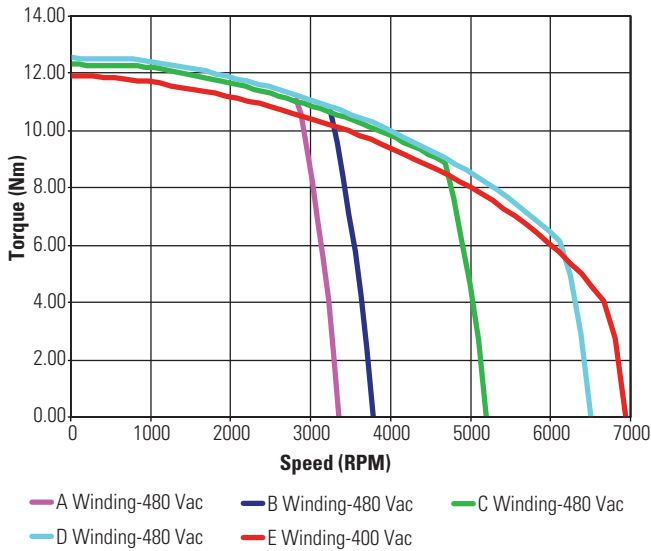
KBM(S)-35XXX PERFORMANCE DATA & MOTOR PARAMETERS											
Motor Parameter	Symbol	Units	TOL	KBM(S)-35X03-X				KBM(S)-35X04-X			
				A	B	C	D	A	B	C	D
Continuous Stall Torque at 25°C Amb. (1)	Tc	Nm	NOM	21.8	21.7	20.7	20.0	25.6	25.9	25.3	24.7
		lb-ft		16.1	16.0	15.3	14.8	18.9	19.1	18.7	18.2
Continuous Current	Ic	Arms	NOM	10.2	14.0	20.2	21.5	10.9	13.3	14.7	19.2
Peak Stall Torque (25°C winding temp)	Tp	Nm	NOM	76.1	76.6	75.2	75.7	92.3	93.0	93.0	91.5
		lb-ft		56.1	56.5	55.5	55.8	68.1	68.6	68.6	67.5
Peak Current	Ip	Arms	NOM	46.1	64.0	93.1	104	49.0	61.0	68.0	89.0
Rated Continuous Output Power at 25°C Amb. (1)	P Rated	Watts		5025	5160	2985	4735	5400	5750	4870	4500
	HP Rated	HP		6.74	6.92	4.00	6.35	7.24	7.71	6.53	6.03
Speed at Rated Power	N Rated	RPM		3100	4800	5000	3400	2800	3400	4150	4250
Torque Sensitivity (2)	Kt	Nm /Arms	+/-10%	2.19	1.59	1.05	.956	2.44	2.01	1.76	1.32
		lb-ft /Arms		1.62	1.17	0.776	0.705	1.80	1.48	1.30	0.975
Back EMF Constant	Kb	Vpk / kRPM	+/- 10%	133	96.2	63.7	57.8	147	121	107	79.9
Motor Constant	Km	Nm/√watt	+/-10%	1.51	1.50	1.43	1.38	1.71	1.73	1.68	1.65
		lb-ft /√watt		1.11	1.11	1.06	1.02	1.26	1.28	1.24	1.21
Resistance (line to line)	Rm	Ohms	+/- 10%	1.41	0.750	0.360	0.320	1.35	0.900	0.730	0.430
Inductance	Lm	mH		12	6.2	2.8	2.3	11	7.6	6.1	3.4
Inertia (KBM)	Jm	Kg-m <sup>2</sup>		3.04E-3				3.81E-3			
		lb-ft-s <sup>2</sup>		2.24E-3				2.81E-3			
Weight (KBM)	Wt	Kg		8.80				10.9			
		lb		19.4				24.0			
Inertia (KBMS)	Jm	Kg-m <sup>2</sup>		3.70E-3				4.46E-3			
		lb-ft-s <sup>2</sup>		2.73E-3				3.29E-3			
Weight (KBMS)	Wt	Kg		9.34				11.3			
		lb		20.6				25.0			
Max Static Friction	Tf	Nm		0.450				0.598			
		lb-ft		0.332				0.441			
Cogging Friction (peak-to-peak)	Tcog	Nm		0.338				0.399			
		lb-ft		0.249				0.294			
Viscous Damping	Fi	Nm/ kRPM		7.51E-2				9.40E-2			
		lb-ft /kRPM		5.54E-2				6.93E-2			
Thermal Resistance (3)	TPR	°C / watt		0.380				0.350			
Number of Poles	P	-		10				10			
Recommended AKD Drive				01207	02407	02407	02406	01207	02407	02407	02407
Voltage Req'd at Rated Output	Vac Input	Vac		480	480	400	240	480	480	480	400
Peak Stall Torque (4) (Motor with Drive)	Tp Drive	Nm	+/-10%	52.2	39.2	40.5	37.7	58.0	73.9	66.1	50.8
		lb-ft		38.5	28.9	29.9	27.8	42.8	54.5	48.7	37.5
Cont. Stall Torque (4) (Motor with Drive)	Tc Drive	Nm	+/-10%	21.8	21.7	20.7	20.0	25.6	25.9	25.3	24.7
		lb-ft		16.1	16.0	15.3	14.8	18.8	19.1	18.7	18.2

- 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 18" x 18" x 1/2" heat sink or equivalent.  
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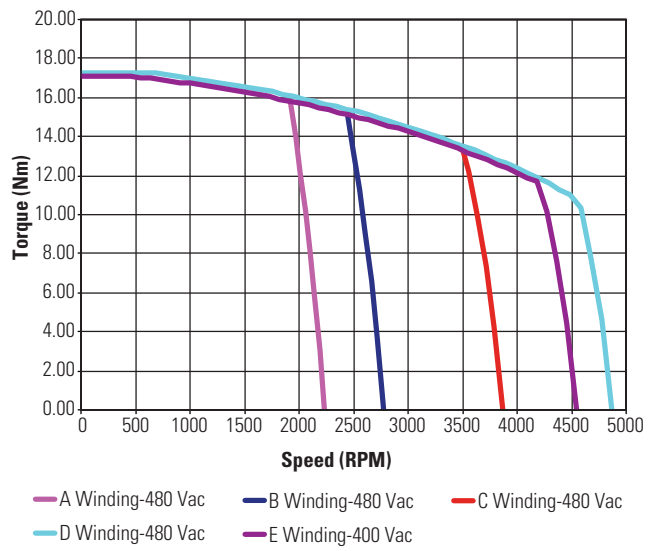
# KBM 35 Performance Curves

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

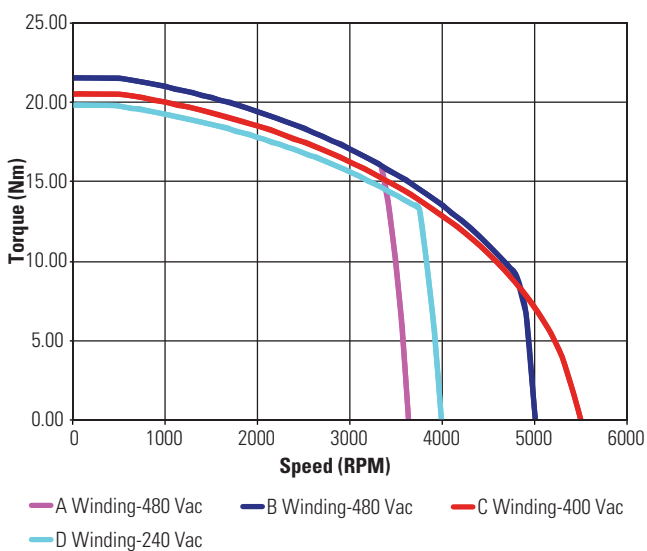
**KBM(S)-35X01  
Continuous Torque**



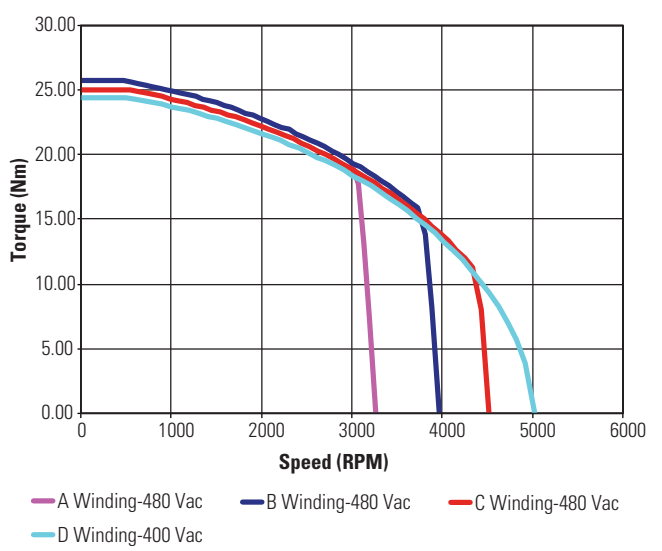
**KBM(S)-35X02  
Continuous Torque**



**KBM(S)-35X03  
Continuous Torque**



**KBM(S)-35X04  
Continuous Torque**



Low Voltage optimized windings available.