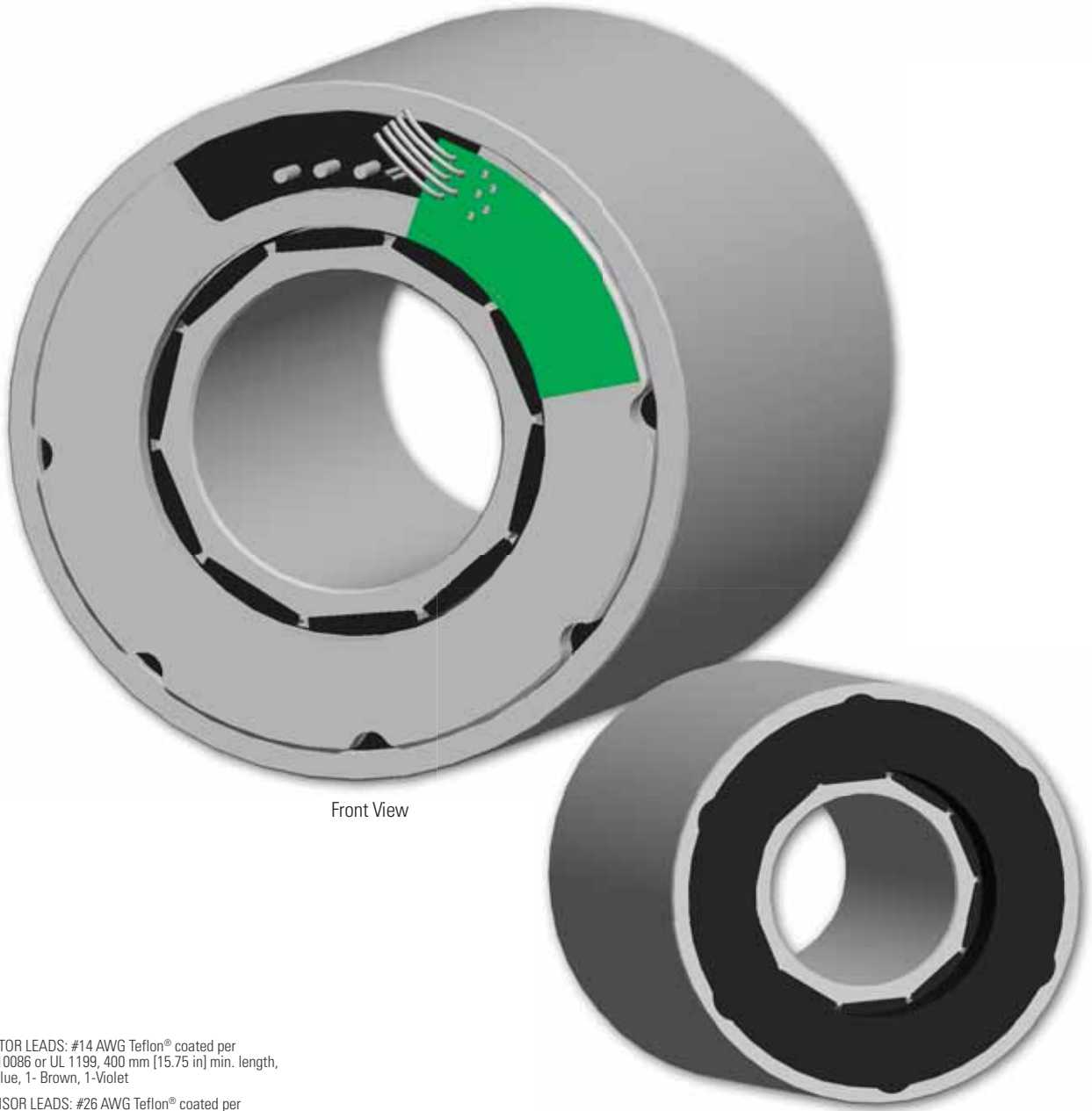


# KBM 25 Frameless Motors

K B M 2 5

The KBM(S)-25 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)-25 is an ideal choice to meet or exceed your compact frameless motor application needs.



Front View

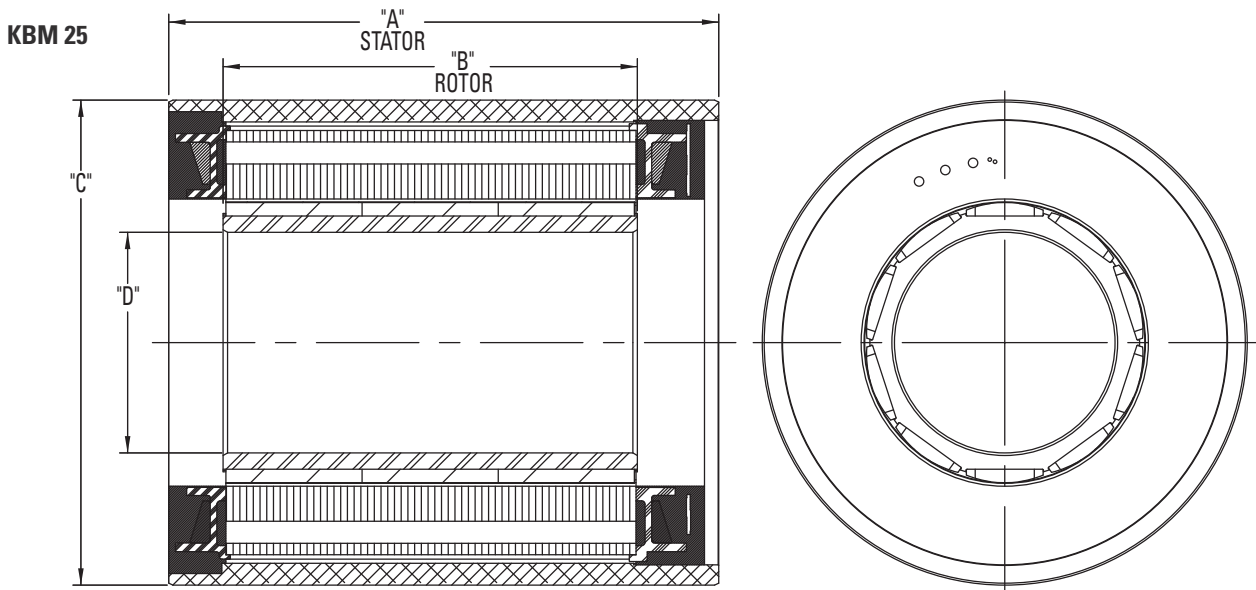
Rear View

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

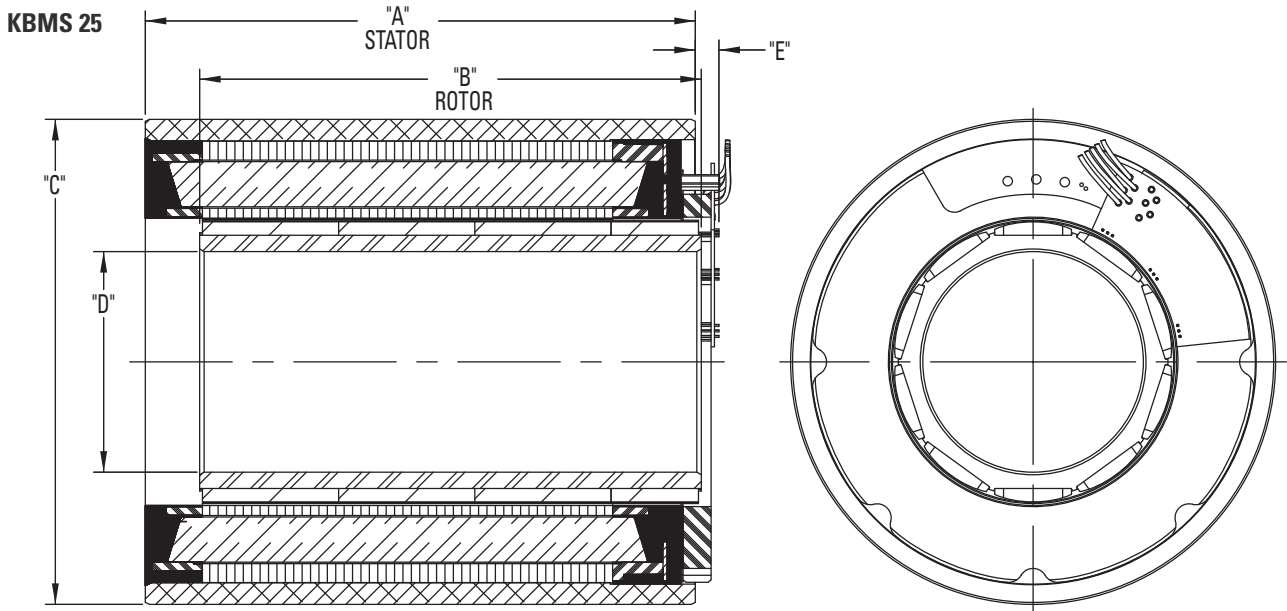
THERMISTOR LEADS: #26 AWG Teflon® coated, UL Rated 600 Vdc, 150C Min, 400 mm [15.75"] min. length, 1-Blue, 1-Black

# KBM 25 Outline Drawings



Model Number	"A" mm[inch]	"B" mm[inch]	Ø "C" mm[inch]	Ø "D" mm[inch]
KBM-25X01	62.70 [2.469]	32.16 [1.266]	109.965 [4.3293]	50.012 [1.9689]
KBM-25X02	93.70 [3.689]	63.05 [2.482]		
KBM-25X03	124.70 [4.909]	93.93 [3.698]		
KBM-25X04	155.70 [6.130]	124.82 [4.914]		

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-25X01	62.70 [2.469]	51.97 [2.046]	109.965 [4.3293]	50.012 [1.9689]	5.75 [0.226]
KBMS-25X02	93.70 [3.689]	82.86 [3.262]			
KBMS-25X03	124.70 [4.909]	113.74 [4.478]			
KBMS-25X04	155.70 [6.130]	144.63 [5.694]			

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 25 Performance Data

KBM(S)-25XXX PERFORMANCE DATA & MOTOR PARAMETERS												
Motor Parameter	Symbol	Units	TOL	KBM(S)-25X01-X				KBM(S)-25X02-X				
				A	B	C	D	A	B	C	D	E
Continuous Stall Torque at 25°C Amb. (1)	Tc	Nm	NOM	4.90	4.96	4.85	4.75	8.70	8.75	8.75	8.62	8.85
		lb-ft		3.62	3.66	3.58	3.50	6.42	6.45	6.45	6.36	6.53
Continuous Current	Ic	Arms	NOM	3.10	5.34	6.45	7.95	3.33	5.18	6.50	8.00	10.20
Peak Stall Torque (25°C winding temp)	Tp	Nm	NOM	14.4	14.6	15.0	14.9	29.4	29.7	29.7	29.8	29.8
		lb-ft		10.6	10.8	11.1	11.0	21.7	21.9	21.9	22.0	22.0
Peak Current	Ip	Arms	NOM	10.9	19.3	27.6	34.3	13.9	22.0	27.8	35.1	43.3
Rated Continuous Output Power at 25°C Amb. (1)	P Rated	Watts		1110	730	1025	1100	1765	2545	2535	1790	1850
	HP Rated	HP		1.49	0.979	1.37	1.42	2.37	3.41	3.40	2.40	2.48
Speed at Rated Power	N Rated	RPM		3800	4900	4225	4000	2300	4000	5000	6000	6000
Torque Sensitivity (2)	Kt	Nm / Arms	+/-10%	1.66	0.950	0.766	0.613	2.67	1.73	1.38	1.11	0.890
		lb-ft / Arms		1.22	0.701	0.565	0.452	1.97	1.27	1.02	0.818	0.656
Back EMF Constant	Kb	Vpk / kRPM	+/- 10%	100	57.4	46.3	37.0	162	104	83.2	67.1	53.8
Motor Constant	Km	Nm/√watt	+/-10%	0.452	0.458	0.445	0.439	0.729	0.733	0.733	0.723	0.742
		lb-ft /√watt		0.334	0.338	0.328	0.324	0.538	0.541	0.541	0.533	0.547
Resistance (line to line)	Rm	Ohms	+/- 10%	8.98	2.87	1.97	1.30	8.96	3.70	2.35	1.57	0.960
Inductance	Lm	mH		37	12	7.9	5.2	45	19	12	7.8	5.0
Inertia (KBM)	Jm	Kg-m <sup>2</sup>		2.66E-4				5.15E-4				
		lb-ft-s <sup>2</sup>		1.96E-4				3.80E-4				
Weight (KBM)	Wt	Kg		1.79				3.27				
		lb		3.95				7.22				
Inertia (KBMS)	Jm	Kg-m <sup>2</sup>		4.34E-4				6.78E-4				
		lb-ft-s <sup>2</sup>		3.20E-4				5.00E-4				
Weight (KBMS)	Wt	Kg		2.02				3.50				
		lb		4.45				7.72				
Max Static Friction	Tf	Nm		9.25E-2				0.163				
		lb-ft		6.82E-2				0.120				
Cogging Friction (peak-to-peak)	Tcog	Nm		7.61E-2				0.132				
		lb-ft		5.61E-2				9.70E-2				
Viscous Damping	Fi	Nm/ kRPM		3.09E-2				3.95E-2				
		lb-ft / kRPM		2.28E-2				2.91E-2				
Thermal Resistance (4)	TPR	°C / watt		0.680				0.560				
Number of Poles	P	-		10				10				
Recommended AKD Drive				00607	00607	01206	01206	00607	00607	01207	01207	01207
Voltage Req'd at Rated Output	Vac Input	Vac		480	400	240	240	480	480	480	480	400
Peak Stall Torque (5) (Motor with Drive)	Tp Drive	Nm	+/-10%	14.4	13.3	15.0	14.6	29.4	25.5	29.7	26.0	22.6
		lb-ft		10.6	9.81	11.1	10.8	21.7	18.8	21.9	19.2	16.7
Cont. Stall Torque (4) (Motor with Drive)	Tc Drive	Nm	+/-10%	4.90	4.96	4.85	4.75	8.70	8.75	8.75	8.62	8.85
		lb-ft		3.62	3.66	3.58	3.50	6.42	6.45	6.45	6.36	6.53

- Notes
- 1) Winding temperature = 155°C at continuous stall, at rated output, and for performance curve
  - 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 1/2" heat sink or equivalent.
  - 4) Peak torque may be limited by AKD servo drive current, see [www.kollmorgen.com](http://www.kollmorgen.com) for complete drive ratings.

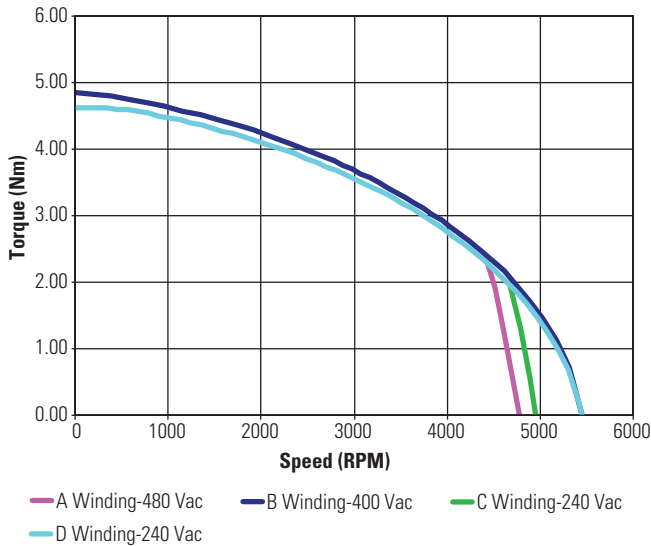
KBM(S)-25XXX PERFORMANCE DATA & MOTOR PARAMETERS												
Motor Parameter	Symbol	Units	TOL	KBM(S)-25X03-X				KBM(S)-25X04-X				
				A	B	C	D	A	B	C	D	E
Continuous Stall Torque at 25°C Amb. (1)	Tc	Nm	NOM	11.9	11.9	11.9	11.9	14.8	14.9	15.0	14.9	14.6
		lb-ft		8.75	8.75	8.75	8.80	10.9	11.0	11.1	11.0	10.8
Continuous Current	Ic	Arms	NOM	5.30	7.27	8.20	10.2	5.50	6.25	8.70	10.7	13.8
Peak Stall Torque (25°C winding temp)	Tp	Nm	NOM	42.2	42.3	42.4	42.6	54.4	53.8	54.4	54.8	53.8
		lb-ft		31.1	31.2	31.3	31.4	40.1	39.7	40.1	40.4	39.7
Peak Current	Ip	Arms	NOM	23.9	33.0	37.0	47.0	25.0	27.5	38.5	48.5	62.5
Rated Continuous Output Power at 25°C Amb. (1)	P Rated	Watts		2700	2890	2585	2605	2865	3090	3255	1990	1940
	HP Rated	HP		3.62	3.87	3.47	3.49	3.84	4.14	4.36	2.67	2.60
Speed at Rated Power	N Rated	RPM		2900	4150	4725	2700	2400	2700	3850	4700	4700
Torque Sensitivity (2)	Kt	Nm / Arms	+/-10%	2.29	1.66	1.49	1.19	2.76	2.46	1.79	1.44	1.08
		lb-ft / Arms		1.69	1.22	1.10	0.881	2.03	1.81	1.32	1.06	0.799
Back EMF Constant	Kb	Vpk / kRPM	+/- 10%	139	100	90.1	72.2	167	149	108	86.8	65.5
Motor Constant	Km	Nm/√watt	+/-10%	0.939	0.936	0.944	0.947	1.11	1.12	1.13	1.13	1.10
		lb-ft /√watt		0.693	0.690	0.696	0.698	0.822	0.827	0.834	0.832	0.809
Resistance (line to line)	Rm	Ohms	+/- 10%	3.97	2.10	1.66	1.06	4.08	3.20	1.66	1.08	0.650
Inductance	Lm	mH		21	11	9.1	5.7	23	18	10	6.2	3.5
Inertia (KBM)	Jm	Kg-m <sup>2</sup>		7.66E-4				1.02E-3				
		lb-ft-s <sup>2</sup>		5.65E-4				7.50E-4				
Weight (KBM)	Wt	Kg		4.72				6.17				
		lb		10.4				13.6				
Inertia (KBMS)	Jm	Kg-m <sup>2</sup>		9.31E-4				1.18E-3				
		lb-ft-s <sup>2</sup>		6.87E-4				8.72E-4				
Weight (KBMS)	Wt	Kg		4.90				6.35				
		lb		10.8				14.0				
Max Static Friction	Tf	Nm		0.226				0.289				
		lb-ft		0.167				0.213				
Cogging Friction (peak-to-peak)	Tcog	Nm		0.183				0.230				
		lb-ft		0.135				0.170				
Viscous Damping	Fi	Nm/ kRPM		5.19E-2				5.74E-2				
		lb-ft / kRPM		3.83E-2				4.23E-2				
Thermal Resistance (3)	TPR	°C / watt		0.500				0.450				
Number of Poles	P	-		10				10				
Recommended AKD Drive				00607	01207	01207	01207	00607	01207	01207	01207	02407
Voltage Req'd at Rated Output	Vac Input	Vac		480	480	480	400	480	480	480	480	400
Peak Stall Torque (4) (Motor with Drive)	Tp Drive	Nm	+/-10%	34.0	39.3	36.1	31.0	41.9	53.8	44.4	37.8	42.7
		lb-ft		25.1	29.0	26.6	22.9	30.9	39.7	32.7	27.9	31.5
Cont. Stall Torque (4) (Motor with Drive)	Tc Drive	Nm	+/-10%	11.9	11.9	11.9	11.9	14.8	14.9	15.0	14.9	14.6
		lb-ft		8.75	8.75	8.75	8.80	10.9	11.0	11.1	11.0	10.8

- Notes
- 1) Winding temperature = 155°C at continuous stall, at rated output, and for performance curve
  - 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 1/2" heat sink or equivalent.
  - 4) Peak torque may be limited by AKD servo drive current, see [www.kollmorgen.com](http://www.kollmorgen.com) for complete drive ratings.

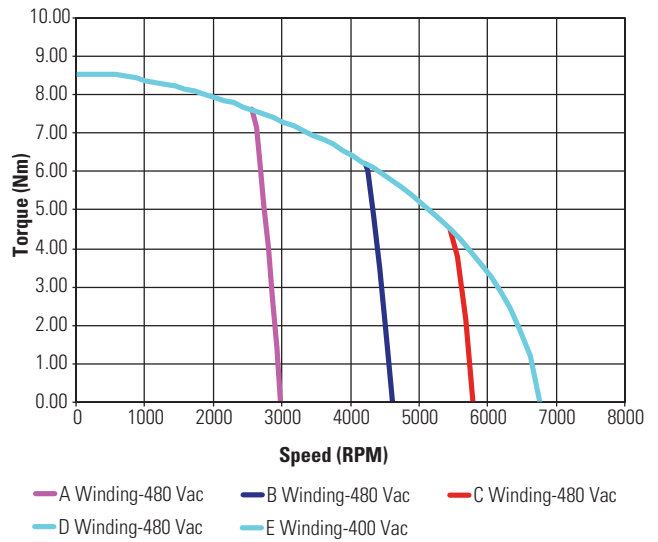
# KBM 25 Performance Curves

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

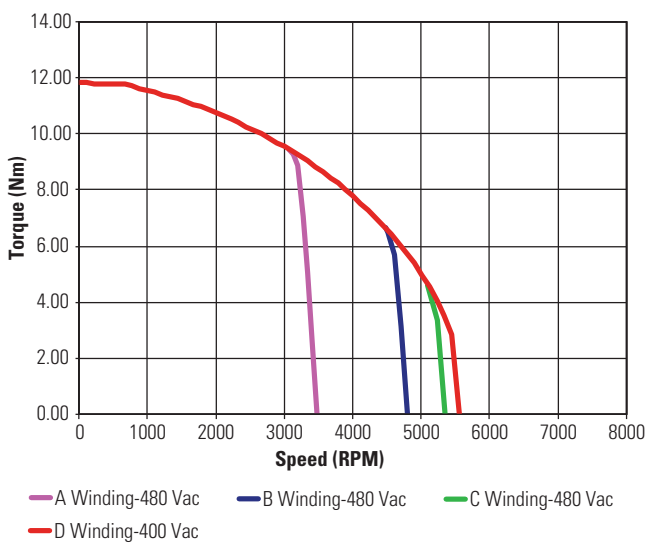
**KBM(S)-25X01  
Continuous Torque**



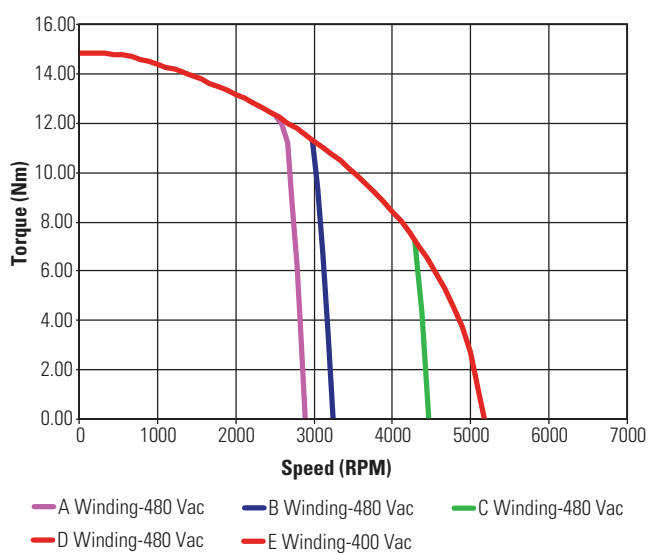
**KBM(S)-25X02  
Continuous Torque**



**KBM(S)-25X03  
Continuous Torque**



**KBM(S)-25X04  
Continuous Torque**



Low Voltage optimized windings available.