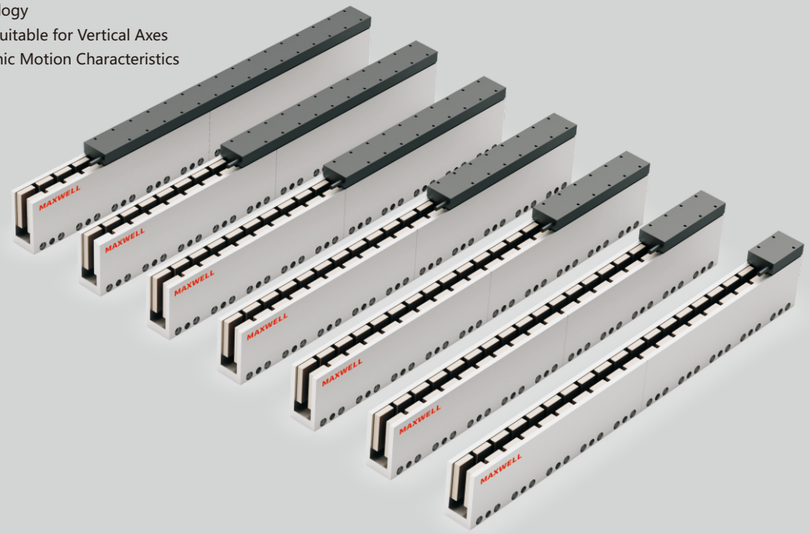
Ironless Linear Motor

- Ironless Technology
- Compact Size, Suitable for Vertical Axes
- Excellent Dynamic Motion Characteristics



Linear Motion | Horizontal/Plane | Angular | Rotary | Vertical & Rotary

• Model Number Designation System

Mover Model

JKB5 -□-S-S3-K-HF-0.5-FB-0UA

- Motor Model: JKB5
- Cooling Options: Natural Cooling (Blank) / Air Cooling (A) / Water Cooling (W) ❶
- Winding Connection Type: S = Series / P = Parallel / P5 / P7
- Coil Length: S1 / S2 / S3 / S4 / S5 / S6
- Design Control Code: (Blank) ❽ / V80 ❾ / V107 ❿ / 0UA ⓫
- Power Cable: FB ❺ / NFB ❻ / 9W4M ❼
- Cable Length (m): 0.5 / 3.0
- Sensor Cable: NH ❷ / HF ❸ / H9D ❹
- Temperature Sensor: J - Thermal switch (Standard) / J12 - Thermal switch (NST 120°) / K - PT100 (RTD)

Stator Model

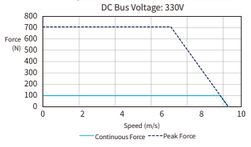
JKB5 – TL168

- Model: JKB5
- Magnetic Track Length: TL168 / TL252 / TL420

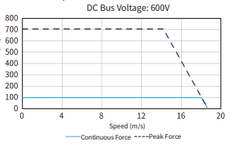
❶ Cooling options only available for AUM5-S1 to S6 models
❷ NH - No integrated Hall sensor, flying leads
❸ HF - Integrated Hall sensor, flying leads
❹ H9D - Integrated Hall sensor, 9-pin D-Sub connector
❺ FB - With ferromagnetic band, flying leads
❻ NFB - Without ferromagnetic band, flying leads
❼ 9W4M = Without ferromagnetic band, 9W4 male connector
❽ (Blank) = Standard model
❾ V80 = Special design for AUM5-S9 only
❿ V107 = Special design for AUM5-S8, AUM5-S10 and AUM5-S12 only
⓫ 0UA = UL certified model, for options with natural cooling and power cable = NFB only

JKB5 Series: Thrust Graph

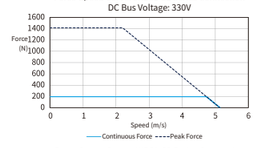
Force-Speed Curve: JKB51-S1 Series Connection
DC Bus Voltage: 330V



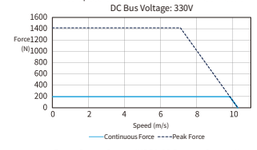
Force-Speed Curve: JKB51-S1 Series Connection
DC Bus Voltage: 600V



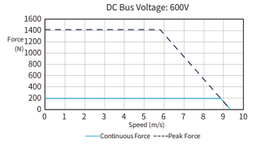
Force-Speed Curve: JKB51-S2 Series Connection
DC Bus Voltage: 330V



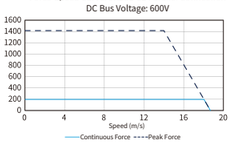
Force-Speed Curve: JKB51-S2 Parallel Connection
DC Bus Voltage: 330V



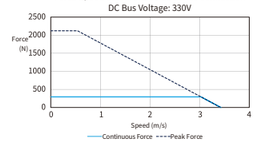
Force-Speed Curve: JKB51-S2 Series Connection
DC Bus Voltage: 600V



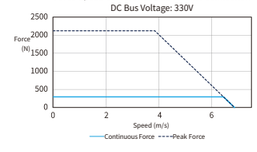
Force-Speed Curve: JKB51-S2 Parallel Connection
DC Bus Voltage: 600V



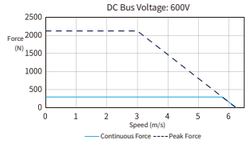
Force-Speed Curve: JKB51-S3 Series Connection
DC Bus Voltage: 330V



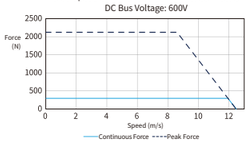
Force-Speed Curve: JKB51-S3 Parallel Connection
DC Bus Voltage: 330V



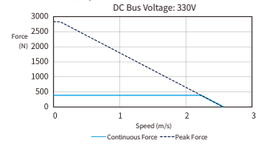
Force-Speed Curve: JKB51-S3 Series Connection
DC Bus Voltage: 600V



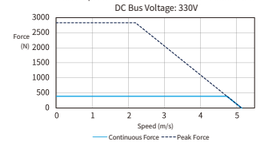
Force-Speed Curve: JKB51-S3 Parallel Connection
DC Bus Voltage: 600V



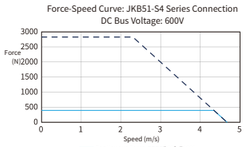
Force-Speed Curve: JKB51-S4 Series Connection
DC Bus Voltage: 330V



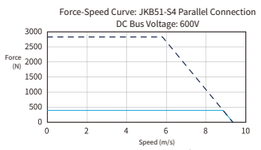
Force-Speed Curve: JKB51-S4 Parallel Connection
DC Bus Voltage: 330V



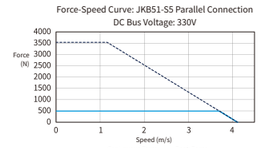
Force-Speed Curve: JKB51-S4 Series Connection
DC Bus Voltage: 600V



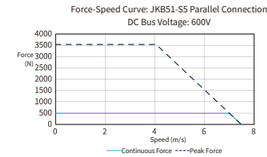
Force-Speed Curve: JKB51-S4 Parallel Connection
DC Bus Voltage: 600V



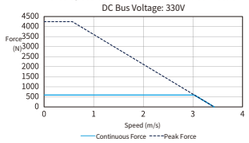
Force-Speed Curve: JKB51-S5 Parallel Connection
DC Bus Voltage: 330V



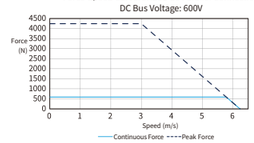
Force-Speed Curve: JKB51-S5 Parallel Connection
DC Bus Voltage: 600V



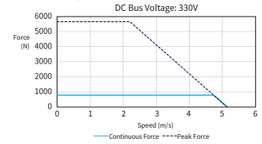
Force-Speed Curve: JKB51-S6 Parallel Connection
DC Bus Voltage: 330V



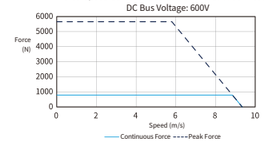
Force-Speed Curve: JKB51-S6 Parallel Connection
DC Bus Voltage: 600V



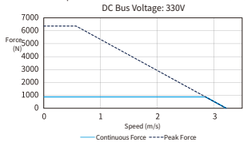
Force-Speed Curve: JKB51-S8-V107 Parallel Connection
DC Bus Voltage: 330V



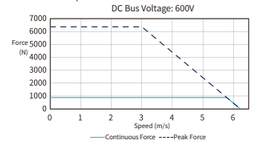
Force-Speed Curve: JKB51-S8-V107 Parallel Connection
DC Bus Voltage: 600V



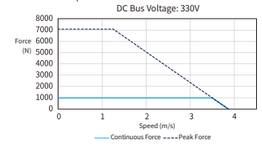
Force-Speed Curve: JKB51-S9-V80 Parallel Connection
DC Bus Voltage: 330V



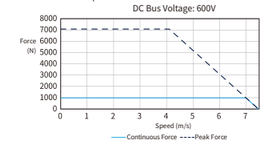
Force-Speed Curve: JKB51-S9-V80 Parallel Connection
DC Bus Voltage: 600V



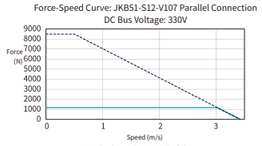
Force-Speed Curve: JKB51-S10-V107 Parallel Connection
DC Bus Voltage: 330V



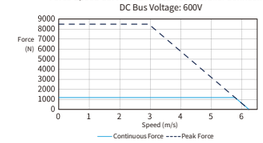
Force-Speed Curve: JKB51-S10-V107 Parallel Connection
DC Bus Voltage: 600V



Force-Speed Curve: JKB51-S12-V107 Parallel Connection
DC Bus Voltage: 330V



Force-Speed Curve: JKB51-S12-V107 Parallel Connection
DC Bus Voltage: 600V



			JKB51-S1	JKB51-S2		JKB51-S3		JKB51-S4		JKB51-S5	JKB51-S6	JKB51-S8 -V107	JKB51-S9 -V80	JKB51-S10 -V107	JKB51-S12 -V107
Performance Parameters	**Symbol**	**Unit**	**Series**	**Series**	**Parallel**	**Series**	**Parallel**	**Series**	**Parallel**	**Parallel**	**Parallel**	**P5**	**P7**	**P5**	**P5**
Continuous Thrust (Natural Cooling) @100℃ ❶	F_{cn}	N	98	197	197	295	295	393	393	491	590	786	884	983	1179
Continuous Thrust (Air Cooling) @100℃ ❶	F_{ca}	N	118	236	236	354	354	472	472	590	707	-	-	-	-
Continuous Thrust (Water Cooling) @100℃ ❶❹	F_{cw}	N	128	255	255	383	383	511	511	639	766	-	-	-	-
Peak Thrust	F_{pk}	N	707	1415	1415	2122	2122	2830	2830	3537	4244	5659	6367	7078	8489
Force Constant ±10%	K_f	N/Arms	39.3	78.6	39.3	117.9	59.0	157.2	78.6	98.3	117.9	78.6	117.9	98.3	117.9
Back EMF Constant ±10%	K_e	Vpeak/(m/s)	32.1	64.2	32.1	96.3	48.1	128.4	64.2	80.2	96.3	64.2	96.3	80.3	96.3
Motor Constant @25°C	K_m	N/Sqrt(W)	15.8	22.4	21.8	27.4	27.4	31.6	31.6	34.8	38.7	44.7	47.4	50.0	54.2
Phase-to-Phase Resistance @25°C ±10% ❷	R_{25}	Ω	4.16	8.28	2.20	12.40	3.13	16.52	4.16	5.34	6.22	2.07	4.13	2.58	3.16
Phase-to-Phase Inductance ±40% ❸	L	mH	6.50	13.00	3.25	19.50	4.88	26.00	6.50	8.13	9.75	3.25	6.50	4.06	4.88
Electrical Time Constant	τ_e	ms	1.56	1.57	1.48	1.57	1.56	1.57	1.56	1.52	1.57	1.57	1.57	1.57	1.54
Continuous Current (Natural Cooling) @100℃ ❶	I_{cn}	Arms	2.5	2.5	5.0	2.5	5.0	2.5	5.0	5.0	5.0	10.0	7.5	10.0	10.0
Continuous Current (Air Cooling) @100℃ ❶	I_{ca}	Arms	3.0	3.0	6.0	3.0	6.0	3.0	6.0	6.0	6.0	-	-	-	-
Continuous Current (Water Cooling) @100℃ ❶❹	I_{cw}	Arms	3.3	3.3	6.5	3.3	6.5	3.3	6.5	6.5	6.5	-	-	-	-
Peak Current	I_{pk}	Arms	18.0	18.0	36.0	18.0	36.0	18.0	36.0	36.0	36.0	72.0	54.0	72.0	72.0
Continuous Thermal Power (Natural Cooling) @ 100℃ ❶	P_{cn}	W	50	100	106	150	151	200	201	258	300	400	449	499	611
Continuous Thermal Power (Air Cooling) @ 100℃ ❶	P_{ca}	W	72	144	153	216	217	287	289	372	433	-	-	-	-
Continuous Thermal Power (Water Cooling) @ 100℃ ❶	P_{cw}	W	85	169	180	253	255	337	339	436	508	-	-	-	-
Max. Coil Temperature	t_{max}	℃	100	100	100	100	100	100	100	100	100	100	100	100	100
Thermal Dissipation Constant (Natural Cooling) ❶	K_{thn}	W/℃	0.7	1.3	1.4	2.0	2.0	2.7	2.7	3.4	4.0	5.3	6.0	6.7	8.1
Thermal Dissipation Constant (Air Cooling) ❶	K_{tha}	W/℃	1.0	1.9	2.0	2.9	2.9	3.8	3.9	5.0	5.8	-	-	-	-
Thermal Dissipation Constant (Water Cooling) ❶❹	K_{thw}	W/℃	1.1	2.3	2.4	3.4	3.4	4.5	4.5	5.8	6.8	-	-	-	-
Max. Bus Voltage	U_{bus}	Vdc	600	600	600	600	600	600	600	600	600	600	600	600	600
Electromagnetic Period	τ_{NN}	mm	84	84	84	84	84	84	84	84	84	84	84	84	84
Magnetic Attraction Force	F_a	kN	0	0	0	0	0	0	0	0	0	0	0	0	0
Mechanical Parameters															
Coil Mass (Natural Cooling)	m_{cn}	kg	0.73	1.45	1.45	2.16	2.16	2.88	2.88	3.60	4.32	5.73	6.53	7.25	8.76
Coil Length (Natural Cooling)	L_{cn}	mm	85.0	169.0	169.0	253.0	253.0	337.0	337.0	421.0	505.0	673.0	757.0	841.0	1009.0
Coil Length (Air Cooling)	L_{ca}	mm	85.0	169.0	169.0	253.0	253.0	337.0	337.0	421.0	505.0	-	-	-	-
Coil Length (Water Cooling)	L_{cw}	mm	85.0	169.0	169.0	253.0	253.0	337.0	337.0	421.0	505.0	-	-	-	-
Magnetic Track Mass (per meter)	m_{track}	kg/m	35.50	35.50	35.50	35.50	35.50	35.50	35.50	35.50	35.50	35.50	35.50	35.50	35.50
Other Information															

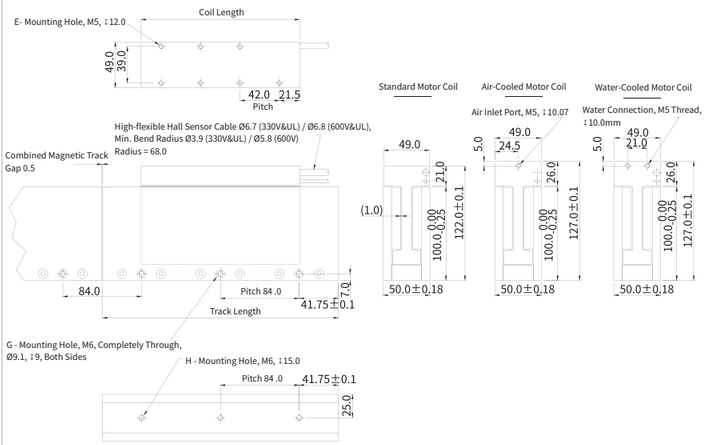
Insulation Level		Class B (130°C)
Protection Grade		IP00
Compliance Standards		RoHS, CE, UL (option)
Ambient Temperature	Operating	0°C - 40°C (no icing)
	Storage	-15°C to 70°C (no icing)
Ambient Humidity	Operating	10% to 80% RH (no condensation)
	Storage	10% to 90% RH (no condensation)
Recommended Operating Environment		Indoor (no direct sunlight)
		Free from corrosive gases, flammable gases, oil mist, or dust

❶ Measured at 25°C room temperature, depending on heat dissipation conditions.
❷ Resistance measured with DC current, including 0.5m standard cable.
❸ Inductance measured at 1kHz. The wide tolerance range (±40%) for JKB series is due to differences in three-phase inductance. The catalog value represents the average of maximum and minimum values, with each phase having ±20% tolerance.
❹ Water Cooling test conditions: coolant inlet temperature 20°C, S1-55 flow rate - 1.5L/min, 56-512 flow rate - 2L/min. (Detailed test conditions available upon request)
Relevant parameters are subject to change without prior notice.

•JKB5: Dimensions

In Stock Lead Time: 15-20 Days
* The lead time is subject to change during special periods. Please consult our sales team.

JKB5 -S1,S2,S3,S4,S5,S6



Motor Coil		
Coil Model ❶❷	Coil Length	E
JKB5-S1	85.0	3
JKB5-S2	169.0	7
JKB5-S3	253.0	11
JKB5-S4	337.0	15
JKB5-S5	421.0	19
JKB5-S6	505.0	23

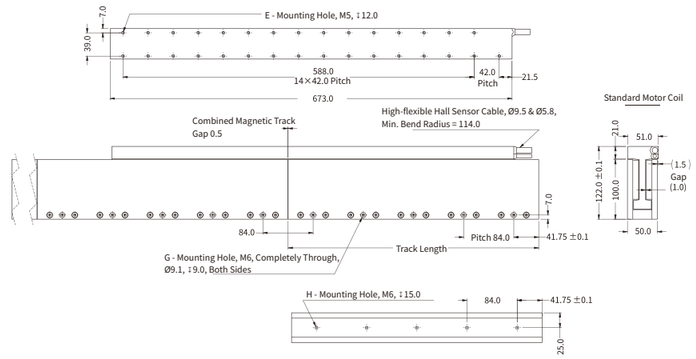
❶ For both air-cooled and water-cooled models, the coil length and the 'E' dimension remain identical to the standard model.
❷ Air-cooled or water-cooled models offer 36 coil length options.

Motor Magnetic Track			
Track Model	Track Length	G	H
JKB5-TL168	167.5	2	2
JKB5-TL252	251.5	3	3
JKB5-TL420	419.5	5	5

•JKB5: Dimensions

In Stock Lead Time: 15-20 Days
* The lead time is subject to change during special periods. Please consult our sales team.

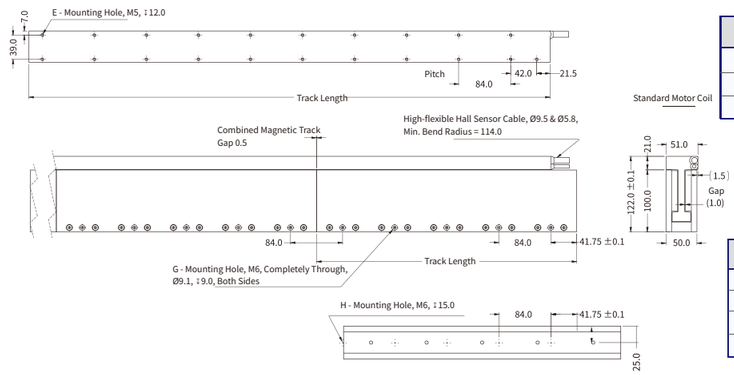
JKB5 -P5-S8-V107



Motor Coil		
Coil Model	Coil Length	E
JKB5-P5-S8-V107	673.0	31

Motor Magnetic Track			
Track Model	Track Length	G	H
JKB5-TL168	167.5	2	2
JKB5-TL252	251.5	3	3
JKB5-TL420	419.5	5	5

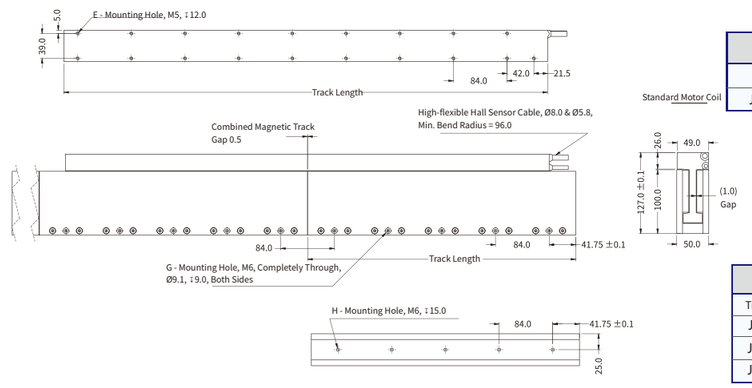
JKB5 -P5-S10,S12-V107



Motor Coil		
Coil Model	Coil Length	E
JKB5-P5-S10-V107	841.0	21
JKB5-P5-S12-V107	1009.0	25

Motor Magnetic Track			
Track Model	Track Length	G	H
JKB5-TL168	167.5	2	2
JKB5-TL252	251.5	3	3
JKB5-TL420	419.5	5	5

JKB5-P7-S9-V80



Motor Coil		
Coil Model	Coil Length	E
JKB5 -P7-S9-V80	757.0	19

Motor Magnetic Track			
Track Model	Track Length	G	H
JKB5-TL168	167.5	2	2
JKB5-TL252	251.5	3	3
JKB5-TL420	419.5	5	5