

PRODUCTS GUIDE



LINEAR MOTORS

SM Series

Linear Motor U Channel Ironless Type

Ironless U Channel Linear Motor

Compact and High Force

Short Coil length

Hall Sensors built in

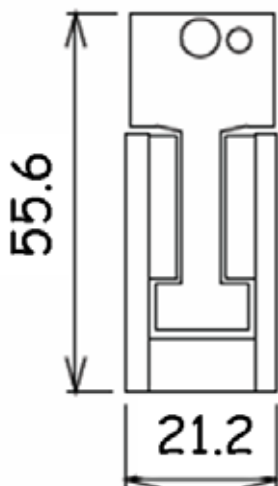
Zero Cogging

Suitable for applications requiring High Acceleration





SM2 SERIES



SM2 Series Specifications

- Maximum Continuous Force of 44 N
- Maximum Peak Force 176
- Compact and High Force
- Ironless U-Channel Linear Motor

Specifications		SM2-C1	SM2-C2		SM2-C3		SM2-C4	
Performance	Units	Series	Series	Parallel	Series	Parallel	Series	Parallel
Continuous Force	N	11.0	22.0		33.0		44.0	
Peak Force	N	44.0	88.0		132.0		176.0	
Motor Constant	N/SqRt(W)	3.05	4.4		5.4		6.1	
Continous Power	W	13.0	25.5		38		51	
Peak Power	W	205	410		620		820	
Electrical Cycle	mm	30	30		30		30	
Max. Bus Voltage	V	330	330		330		330	
Max Coil Temperature	°C	125	125		125		125	
Continuous Current	A	2	2	4	2	4	2	4
Peak Current	A	8	8	16	8	16	8	16
Force Constant	N/A	5.5	11	5.5	16.5	8.3	22	11
Back EMF	V/m/s	6.4	12.7	6.4	19.1	9.5	25.4	12.7
Inductance	mH	0.75	1.5	0.38	2.25	0.56	3	0.75
Resistance @25°C	Ohms	3.25	6.5	1.6	9.8	2.4	13	3.3
Mechanical								
Coil Weight	Kg	0.06	0.12		0.18		0.24	
Coil Length	mm	31	61		91		121	
Attractive Force	N	0	0		0		0	
Track Mass (per 120mm)	Kg		0.46					

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SM2 Series Dimensional Drawing

Motor Coil			
Model No.	Length	E	F
C2	61	5	5
C3	91	7	7
C4	121	9	9

Motor Track			
Size	Length	G	H
TL120	119.7	2	2
TL180	179.7	3	3
TL240	239.7	4	4
TL300	299.7	5	5

Motor Coil

Example : SM2-S-C2-K-3.0

<u>Model</u>	<u>Connection Type</u>	<u>Size</u>	<u>Thermal sensor</u>	<u>Cable length (m)</u>
SM2	S = Series connection P = Parallel connection ¹	C1 C2 C3 C4	K = PT100 (RTD) ²	1.0 2.0 3.0

Motor track

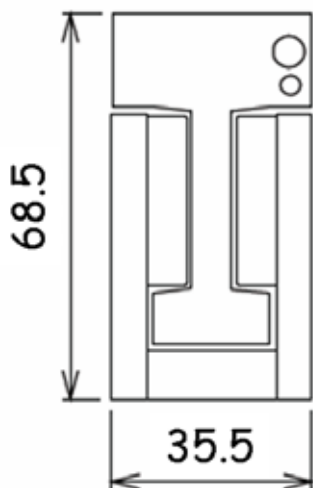
Example : SM2- TL120

<u>Model</u>	<u>Track Length</u>
SM2	TL120 TL180 TL240 TL300

¹ Parallel connection is not applicable to C1 motor coil
² K=PT100(RTD) is Std for SM2. Thermostat is not available



SM3 SERIES



SM3 Series Specifications

- Maximum Continuous Force of 144 N
- Maximum Peak Force 576
- Compact and High Force
- Ironless U-Channel Linear Motor

Specifications		SM3-C1	SM3-C2		SM3-C3		SM3-C4	
	Units	Series	Series	Parallel	Series	Parallel	Series	Parallel
Continuous Force	N	36	72.0		108.0		144.0	
Peak Force	N	144	288.0		432.0		577.0	
Motor Constant	N/SqRt(W)	7.3	10.3		12.6		14.48	
Continous Power	W	24.2	49		73		97	
Peak Power	W	390	781		1165		1550	
Electrical Cycle	mm	60	60		60		60	
Max. Bus Voltage	V	330	330		330		330	
Max Coil Temperature	°C	125	125		125		125	
Continuous Current	A	2.3	2.3	4.6	2.3	4.6	2.3	4.6
Peak Current	A	9.2	9.2	18.4	9.2	18.4	9.2	18.4
Force Constant	N/A	15.7	31.4	15.7	47.1	23.6	62.8	31.4
Back EMF	V/m/s	18.1	36.3	18.1	54.4	27.2	72.5	36.3
Inductance	mH	3.1	6.2	1.6	9.3	2.3	12.5	3.1
Resistance @25°C	Ohms	4.1	9.4	2.4	14.1	3.5	18.8	4.7
Mechanical								
Coil Weight	Kg	0.22	0.45		0.68		0.91	
Coil Length	mm	61	121		181		241	
Attractive Force	N	0	0		0		0	
Track Mass (per 120mm)	Kg	1.00						

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SM3 Series Dimensional Drawing

Motor Coil		
Model No.	Length	E
C1	61	3
C2	121	7
C3	181	11
C4	241	15

Motor Track			
Size	Length	G	H
TL120	119.7	2	2
TL180	179.7	3	3
TL240	239.7	4	4
TL300	299.7	5	5
TL600	599.5	10	10

Motor Coil

Example : SM3-S-C2-J-3.0

<u>Model</u>	<u>Connection Type</u>	<u>Size</u>	<u>Thermal sensor</u>	<u>Cable length (m)</u>	<u>Cooling options</u>
SM3	S = Series connection P = Parallel connection ¹	C1 C2 C3 C4	J = Thermostat (standard) K = PT100 (RTD) ²	1.0 2.0 3.0	Blank = natural convection A = Air cooled W = Water cooled

Motor track

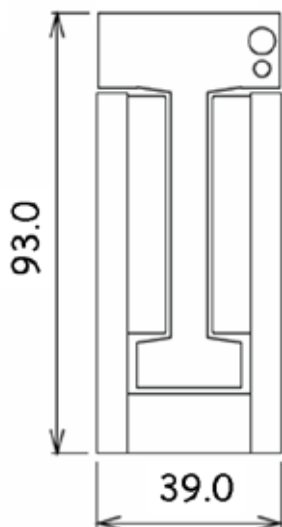
Example : SM3- TL120

<u>Model</u>	<u>Track Length</u>
SM3	TL120 TL180 TL240 TL300

¹ Parallel connection is not applicable to C1 motor coil



SM4 SERIES



SM4 Series Specifications

- Maximum Continuous Force of 224 N
- Maximum Peak Force 895
- Compact and High Force
- Ironless U-Channel Linear Moto

Specifications		SM4-C1	SM4-C2		SM4-C3		SM4-C4	
Performance	Units	Series	Series	Parallel	Series	Parallel	Series	Parallel
Continuous Force	N	56	112.0		168.0		224.0	
Peak Force	N	224	448.0		672.0		895.0	
Motor Constant	N/SqRt(W)	11.4	16		19.5		22.6	
Continous Power	W	24	49		73		100	
Peak Power	W	380	781		1150		1550	
Electrical Cycle	mm	60	60		60		60	
Max. Bus Voltage	V	330	330		330		330	
Max Coil Temperature	°C	125	125		125		125	
Continuous Current	A	2.3	2.3	4.6	2.3	4.6	2.3	4.6
Peak Current	A	9.2	9.2	18.4	9.2	18.4	9.2	18.4
Force Constant	N/A	24	48	24	72	36	96	48
Back EMF	V/m/s	28	55.5	28	83.5	42	111	56
Inductance	mH	3.5	7	1.8	10.6	2.7	14.2	3.5
Resistance @25°C	Ohms	4.6	9.2	2.3	13.8	3.5	18.4	4.6
Mechanical								
Coil Weight	Kg	0.28	0.56		0.88		1.1	
Coil Length	mm	61	121		181		241	
Attractive Force	N	0	0		0		0	
Track Mass (per 120mm)	Kg	1.76						

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SM4 Series Dimensional Drawing

Motor Coil		
Model No.	Length	E
C1	61	3
C2	121	7
C3	181	11
C4	241	15

Motor Track			
Size	Length	G	H
TL120	119.7	2	2
TL180	179.7	3	3
TL240	239.7	4	4
TL300	299.7	5	5
TL600	599.5	10	10

Motor Coil

Example : SM4-S-C3-J-3.0

<u>Model</u>	<u>Connection Type</u>	<u>Size</u>	<u>Thermal sensor</u>	<u>Cable length (m)</u>	<u>Cooling options</u>
SM4	S = Series connection P = Parallel connection ¹	C1 C2 C3 C4	J = Thermostat (standard) K = PT100 (RTD) ²	1.0 2.0 3.0	Blank = natural convection A = Air cooled W = Water cooled

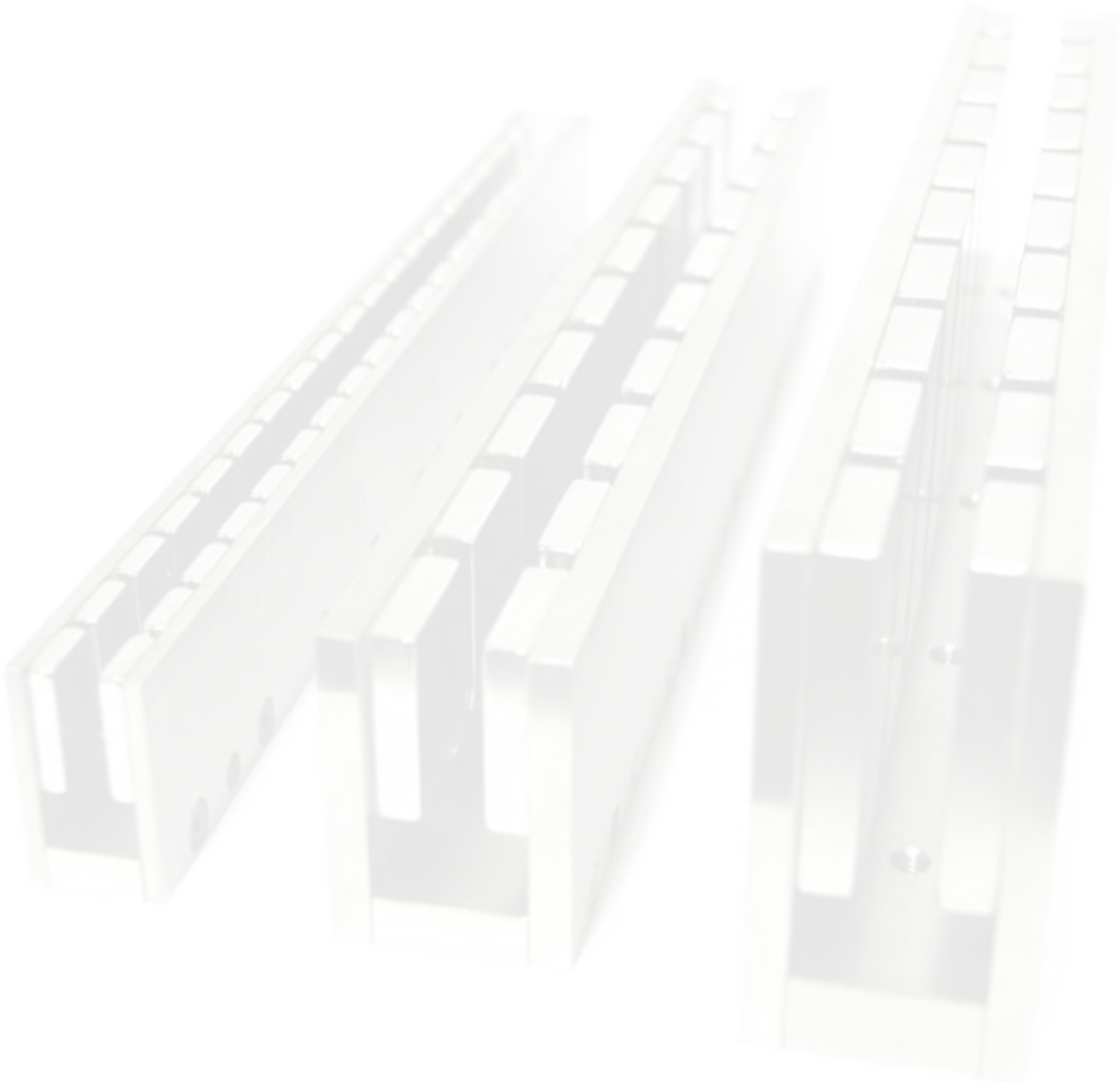
Motor track

Example : SM4- TL120

<u>Model</u>	<u>Track Length</u>
SM4	TL120 TL180 TL240 TL300

¹ Parallel connection is not applicable to C1 motor coil

Notes



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