

LM-CA-55 series Linear Motion Technology

LM-CA-55 Coil Assembly Model

Coil Assembly Model	LM-CA2-55			LM-CA4-55			LM-CA6-55		
	S	P	D	SP	P	D	SP	P	D
Performance ⁽⁴⁾									
Peak Force(N) ⁽²⁾⁽³⁾	242.1			484.2			726.3		
Continuous Force with heat sink(N) ⁽¹⁾⁽²⁾	94.2			188.3			282.5		
Continuous Force without heat sink(N) ⁽²⁾⁽³⁾	53.8			107.6			161.4		
Peak Force in linear range(N)	174.9			349.7			524.6		
Attraction Force(N)	350.0			700.0			1050		
Peak power(W) ⁽²⁾	540			1080			1620		
Continuous power(W) ⁽¹⁾⁽²⁾	66.2			132.3			198.5		
Mechanical									
Coil assembly length(mm)	97			177			257		
Coil assembly weight(kg) ⁽²⁾	0.6			1.1			1.6		
Magnetic way weight(kg/m) ⁽²⁾	2.6			2.6			2.6		
Pole pitch(mm)	20			20			20		
Electrical ⁽⁴⁾									
Continuous Current with heat sink(A _{pk}) ⁽¹⁾⁽²⁾	1.8	3.5	7.0	3.5	7.0	14.4	3.5	10.5	21.0
Continuous Current without heat sink(A _{pk}) ⁽²⁾⁽³⁾	1.0	2.0	4.0	2.0	4.0	8.0	2.0	6.0	12.0
Peak Current ⁽²⁾⁽³⁾	5.0	10.0	20.0	10.0	20.0	40.0	10.0	30.0	60.0
Peak Current in linear range(N)	3.3	6.5	13.2	6.6	13.2	20.0	6.6	19.8	40.0
Force Constant(N/A _{pk}) ⁽²⁾	53.8	26.9	13.5	53.8	26.9	13.5	80.7	26.9	13.5
Back EMF Constant(V/m/s) ⁽²⁾	67.4	33.7	16.9	67.4	33.7	16.9	101.1	33.7	16.9
Resistant(Ohms) ⁽²⁾	21.6	5.4	1.4	10.8	2.7	0.7	16.2	1.8	0.5
Inductance(mH) ⁽²⁾	100.00	25.00	3.92	50.00	12.50	1.96	75.00	8.30	1.40
Time Constant(ms) ⁽²⁾	4.6	4.6	2.8	4.6	4.6	2.8	4.6	4.6	2.8
Thermal Resistant with heat sink(°C/W) ⁽¹⁾⁽²⁾	1.1			0.6			0.4		
Thermal Resistant without heat sink(°C/W) ⁽²⁾⁽³⁾	3.4			1.7			1.1		
Motor Constant(N/√W) ⁽²⁾	11.6			16.4			20.1		

(1) The value applies to static sinusoidal drive, specific heat sink (a 25mm aluminum heat sink whose area equals 11x the coil mounting area) and temperature from 25°C up to 110°C. The actual performance is dependent to heat sink configuration, system cooling condition and ambient temperature.

(2) The tolerance of all performance and electrical specification is ±10%

(3) The value applies to static sinusoidal drive and temperature from 25°C up to 110°C, without heat sink.

(4) Above "without heatsink" figure assumes a working condition of 1atm, 25°C ambient temperature, with the linear motor stationary and not in contact with any other objects, thus relying only on free air convection for cooling. As all heat conductive objects in direct contact with the linear motor, including slide plate, linear guide and base etc. can be considered as a kind of heat sink, the "with heat sink" figure should be taken as the primary reference in actual application design.

LM-CA-55 Coil Assembly

	Np1	Lp
LM-CA2-55	1	97
LM-CA4-55	3	177
LM-CA6-55	5	257

LM-MA-55 Magnetic Way

	Ns	L _T	L _S	L _{S1}
LM-MA0-55	2	126	120	110
LM-MA1-55	8	366	360	350
LM-MA2-55	11	486	480	470

LM-CA-75 series

Linear Motion Technology

LM-CA-75 Coil Assembly Model

Coil Assembly Model	LM-CA2-75			LM-CA4-75			LM-CA6-75	
	S	P	D	SP	P	D	P	D
Performance ⁽⁴⁾								
Peak Force(N) ⁽²⁾⁽³⁾	368.0			736.0			1104.0	
Continuous Force with heat sink(N) ⁽¹⁾⁽²⁾	143.1			286.2			429.3	
Continuous Force without heat sink(N) ⁽²⁾⁽³⁾	81.8			163.6			245.3	
Peak Force in linear range(N)	265.8			531.5			797.3	
Attraction Force(N)	505			1009			1514	
Peak power(W) ⁽²⁾	740			1480			2220	
Continuous power(W) ⁽¹⁾⁽²⁾	90.7			181.3			272.0	
Mechanical								
Coil assembly length(mm)	97			177			257	
Coil assembly weight(kg) ⁽²⁾	0.8			1.5			2.2	
Magnetic way weight(kg/m) ⁽²⁾	3.5			3.5			3.5	
Pole pitch(mm)	20			20			20	
Electrical ⁽⁴⁾								
Continuous Current with heat sink(A _{pk}) ⁽¹⁾⁽²⁾	1.8	3.5	7.0	3.5	7.0	14.0	10.5	21.0
Continuous Current without heat sink(A _{pk}) ⁽²⁾⁽³⁾	1.0	2.0	4.0	2.0	4.0	8.0	6.0	12.0
Peak Current ⁽²⁾⁽³⁾	5.0	10.0	20.0	10.0	20.0	40.0	30.0	60.0
Peak Current in linear range(N)	3.3	6.5	13.2	6.6	13.2	20.0	19.8	39.6
Force Constant(N/A _{pk}) ⁽²⁾	81.8	40.9	20.4	81.8	40.9	20.4	40.9	20.4
Back EMF Constant(V/m/s) ⁽²⁾	102.4	51.2	25.6	102.4	51.2	25.6	51.2	25.6
Resistant(Ohms) ⁽²⁾	29.6	7.4	1.9	14.8	3.7	0.9	2.5	0.6
Inductance(mH) ⁽²⁾	137.03	34.26	5.70	68.52	17.13	2.70	11.40	1.80
Time Constant(ms) ⁽²⁾	4.6	4.6	3.0	4.6	4.6	3.0	4.6	3.0
Thermal Resistant with heat sink(°C/W) ⁽¹⁾⁽²⁾	0.8			0.4			0.3	
Thermal Resistant without heat sink(°C/W) ⁽²⁾⁽³⁾	2.5			1.2			0.8	
Motor Constant(N/√W) ⁽²⁾	15.0			21.3			26.0	

- (1) The value applies to static sinusoidal drive, specific heat sink (a 25mm aluminum heat sink whose area equals 11x the coil mounting area) and temperature from 25°C up to 110°C. The actual performance is dependent to heat sink configuration, system cooling condition and ambient temperature.
- (2) The tolerance of all performance and electrical specification is ±10%
- (3) The value applies to static sinusoidal drive and temperature from 25°C up to 110°C, without heat sink.
- (4) Above "without heatsink" figure assumes a working condition of 1atm, 25°C ambient temperature, with the linear motor stationary and not in contact with any other objects, thus relying only on free air convection for cooling. As all heat conductive objects in direct contact with the linear motor, including slide plate, linear guide and base etc. can be considered as a kind of heat sink, the "with heat sink" figure should be taken as the primary reference in actual application design.

LM-CA-75 Coil Assembly

	Np1	Lp
LM-CA2-75	1	97
LM-CA4-75	3	177
LM-CA6-75	5	257

LM-MA-75 Magnetic Way

	Ns	L _T	L _S	L _{S1}
LM-MA0-75	2	126	120	110
LM-MA1-75	8	366	360	350
LM-MA2-75	11	486	480	470



LM-CA-115 series Linear Motion Technology

LM-CA-115 Coil Assembly Model

Coil Assembly Model	LM-CA2-115		LM-CA4-115		LM-CA6-115	
	P	D	P	D	P	D
Performance ⁽⁴⁾						
Peak Force(N) ⁽²⁾⁽³⁾	588.8		1177.6		1766.4	
Continuous Force with heat sink(N) ⁽¹⁾⁽²⁾	229.0		457.9		686.9	
Continuous Force without heat sink(N) ⁽²⁾⁽³⁾	130.8		261.7		392.5	
Peak Force in linear range(N)	454.5		909.0		1363.5	
Attraction Force(N)	896		1792		2688	
Peak power(W) ⁽²⁾	1020		2040		3060	
Continuous power(W) ⁽¹⁾⁽²⁾	124.9		249.9		374.8	
Mechanical						
Coil assembly length(mm)	97		177		257	
Coil assembly weight(kg) ⁽²⁾	1.5		2.8		4.1	
Magnetic way weight(kg/m) ⁽²⁾	6.7		6.7		6.7	
Pole pitch(mm)	20		20		20	
Electrical ⁽⁴⁾						
Continuous Current with heat sink(A _{pk}) ⁽¹⁾⁽²⁾	3.3	6.7	6.7	13.3	10.0	20.0
Continuous Current without heat sink(A _{pk}) ⁽²⁾⁽³⁾	1.9	3.8	3.8	7.6	5.7	11.4
Peak Current ⁽²⁾⁽³⁾	9.5	19.0	19.0	38.0	28.5	57.0
Peak Current in linear range(N)	6.6	13.2	13.2	26.4	16.5	39.6
Force Constant(N/A _{pk}) ⁽²⁾	68.9	34.4	68.9	34.4	68.9	34.4
Back EMF Constant(V/m/s) ⁽²⁾	86.3	43.1	86.3	43.1	86.3	43.1
Resistant(Ohms) ⁽²⁾	11.3	2.8	5.65	1.41	3.8	0.9
Inductance(mH) ⁽²⁾	52.31	8.68	26.16	4.37	17.40	2.79
Time Constant(ms) ⁽²⁾	4.6	3.1	4.6	3.1	4.6	3.1
Thermal Resistant with heat sink(°C/W) ⁽¹⁾⁽²⁾	0.6		0.3		0.2	
Thermal Resistant without heat sink(°C/W) ⁽²⁾⁽³⁾	1.8		0.9		0.6	
Motor Constant(N/√W) ⁽²⁾	20.5		29.0		35.5	

(1) The value applies to static sinusoidal drive, specific heat sink (a 25mm aluminum heat sink whose area equals 11x the coil mounting area) and temperature from 25°C up to 110°C. The actual performance is dependent to heat sink configuration, system cooling condition and ambient temperature.

(2) The tolerance of all performance and electrical specification is ±10%

(3) The value applies to static sinusoidal drive and temperature from 25°C up to 110°C, without heat sink.

(4) Above "without heatsink" figure assumes a working condition of 1atm, 25°C ambient temperature, with the linear motor stationary and not in contact with any other objects, thus relying only on free air convection for cooling. As all heat conductive objects in direct contact with the linear motor, including slide plate, linear guide and base etc. can be considered as a kind of heat sink, the "with heat sink" figure should be taken as the primary reference in actual application design.

LM-CA-115 Coil Assembly

	Np1	Lp
LM-CA2-115	1	97
LM-CA4-115	3	177
LM-CA6-115	5	257

LM-MA-115 Magnetic Way

	Ns	L _T	L _S	L _{S1}
LM-MA0-115	2	126	120	110
LM-MA1-115	8	366	360	350
LM-MA2-115	11	486	480	470



LM - CB - 60 series

Linear Motion Technology

LM-CB-60 Coil Assembly Model

Coil Assembly Model	LM-CB2-60			LM-CB4-60			LM-CB6-60	
	S	P	D	SP	P	D	P	D
Performance ⁽⁴⁾								
Peak Force(N) ⁽²⁾⁽³⁾	563			1117.4			1680.3	
Continuous Force with heat sink(N) ⁽¹⁾⁽²⁾	198.2			396.5			594.7	
Continuous Force without heat sink(N) ⁽²⁾⁽³⁾	132.2			264.3			396.5	
Peak Force in linear range(N)	283.2			566.4			849.6	
Attraction Force(N)	630			1260			1890	
Peak power(W) ⁽²⁾	862			1698			2560	
Continuous power(W) ⁽¹⁾⁽²⁾	84.7			169.3			254.0	
Mechanical								
Coil assembly length(mm)	130			250			370	
Coil assembly weight(kg) ⁽²⁾	1.6			3.1			4.6	
Magnetic way weight(kg/m) ⁽²⁾	3.0			3.0			3.0	
Pole pitch(mm)	30			30			30	
Electrical ⁽⁴⁾								
Continuous Current with heat sink(A _{pk}) ⁽¹⁾⁽²⁾	2.1	4.2	8.4	4.2	8.4	16.8	12.6	25.2
Continuous Current without heat sink(A _{pk}) ⁽²⁾⁽³⁾	1.4	2.8	5.6	2.8	5.6	11.2	8.4	16.8
Peak Current ⁽²⁾⁽³⁾	6.7	13.4	26.8	13.3	26.6	53.2	40.0	80.0
Peak Current in linear range(N)	3.0	6.0	12.0	6.0	12.0	24.0	18.0	36.0
Force Constant(N/A _{pk}) ⁽²⁾	94.4	47.2	23.6	94.4	47.2	23.6	47.2	23.6
Back EMF Constant(V/m/s) ⁽²⁾	104.0	52.0	26.0	104.0	52.0	26.0	52.0	26.0
Resistant(Ohms) ⁽²⁾	19.2	4.8	1.2	9.6	2.4	0.6	1.6	0.4
Inductance(mH) ⁽²⁾	200.00	50.00	10.32	100.00	25.00	5.16	16.70	3.44
Time Constant(ms) ⁽²⁾	10.4	10.4	8.6	10.4	10.4	8.6	10.4	8.6
Thermal Resistant with heat sink(°C/W) ⁽¹⁾⁽²⁾	0.9			0.4			0.3	
Thermal Resistant without heat sink(°C/W) ⁽²⁾⁽³⁾	1.9			1.0			0.6	
Motor Constant(N/√W) ⁽²⁾	21.5			30.5			37.3	

(1) The value applies to static sinusoidal drive, specific heat sink (a 25mm aluminum heat sink whose area equals 8x the coil mounting area) and temperature from 25°C up to 110°C. The actual performance is dependent to heat sink configuration, system cooling condition and ambient temperature.

(2) The tolerance of all performance and electrical specification is ±10%

(3) The value applies to static sinusoidal drive and temperature from 25°C up to 110°C, without heat sink.

(4) Above "without heatsink" figure assumes a working condition of 1atm, 25°C ambient temperature, with the linear motor stationary and not in contact with any other objects, thus relying only on free air convection for cooling. As all heat conductive objects in direct contact with the linear motor, including slide plate, linear guide and base etc. can be considered as a kind of heat sink, the "with heat sink" figure should be taken as the primary reference in actual application design.

LM-CB-60 Coil Assembly

	Np1	Lp
LM-CB2-60	1	130
LM-CB4-60	3	250
LM-CB6-60	5	370

LM-MB-60 Magnetic Way

	Ns	Ls
LM-MB0-60	1	120
LM-MB1-60	4	300
LM-MB2-60	7	480



LM - CB - 80 series

Linear Motion Technology

LM-CB-80 Coil Assembly Model

Coil Assembly Model	LM-CB2-80		LM-CB4-80		LM-CB6-80	
	P	D	P	D	P	D
Performance ⁽⁴⁾						
Peak Force(N) ⁽²⁾⁽³⁾	848.7		1697.4		2552.5	
Continuous Force with heat sink(N) ⁽¹⁾⁽²⁾	301.3		602.6		904.0	
Continuous Force without heat sink(N) ⁽²⁾⁽³⁾	200.9		401.8		602.6	
Peak Force in linear range(N)	430.5		860.9		1291.4	
Attraction Force(N)	958		1915		2873	
Peak power(W) ⁽²⁾	1167		2335		3520	
Continuous power(W) ⁽¹⁾⁽²⁾	116.4		232.8		349.3	
Mechanical						
Coil assembly length(mm)	130		250		370	
Coil assembly weight(kg) ⁽²⁾	2.4		4.7		6.9	
Magnetic way weight(kg/m) ⁽²⁾	4.6		4.6		4.6	
Pole pitch(mm)	30		30		30	
Electrical ⁽⁴⁾						
Continuous Current with heat sink(A _{pk}) ⁽¹⁾⁽²⁾	4.2	8.4	8.4	16.8	12.6	25.2
Continuous Current without heat sink(A _{pk}) ⁽²⁾⁽³⁾	2.8	5.6	5.6	11.2	8.4	16.8
Peak Current ⁽²⁾⁽³⁾	13.3	26.6	26.6	53.3	40.0	80.0
Peak Current in linear range(N)	6.0	12.0	12.0	24.0	18.0	36.0
Force Constant(N/A _{pk}) ⁽²⁾	71.7	35.9	71.7	35.9	71.7	35.9
Back EMF Constant(V/m/s) ⁽²⁾	79.0	39.5	79.0	39.5	79.0	39.5
Resistant(Ohms) ⁽²⁾	6.6	1.7	3.3	0.8	2.2	0.6
Inductance(mH) ⁽²⁾	68.75	14.28	34.38	6.72	22.92	5.04
Time Constant(ms) ⁽²⁾	10.4	8.4	10.4	8.4	10.4	8.4
Thermal Resistant with heat sink(°C/W) ⁽¹⁾⁽²⁾	0.6		0.3		0.2	
Thermal Resistant without heat sink(°C/W) ⁽²⁾⁽³⁾	1.4		0.7		0.5	
Motor Constant(N/√W) ⁽²⁾	27.9		39.5		48.4	

(1) The value applies to static sinusoidal drive, specific heat sink (a 25mm aluminum heat sink whose area equals 8x the coil mounting area) and temperature from 25°C up to 110°C. The actual performance is dependent to heat sink configuration, system cooling condition and ambient temperature.

(2) The tolerance of all performance and electrical specification is ±10%

(3) The value applies to static sinusoidal drive and temperature from 25°C up to 110°C, without heat sink.

(4) Above "without heatsink" figure assumes a working condition of 1atm, 25°C ambient temperature, with the linear motor stationary and not in contact with any other objects, thus relying only on free air convection for cooling. As all heat conductive objects in direct contact with the linear motor, including slide plate, linear guide and base etc. can be considered as a kind of heat sink, the "with heat sink" figure should be taken as the primary reference in actual application design.

LM-CB-80 Coil Assembly

	Np1	Lp
LM-CB2-80	1	130
LM-CB4-80	3	250
LM-CB6-80	5	370

LM-MB-80 Magnetic Way

	Ns	Ls
LM-MB0-80	1	120
LM-MB1-80	4	300
LM-MB2-80	7	480

LM-CB-120 series Linear Motion Technology

LM-CB-120 Coil Assembly Model

Coil Assembly Model	LM-CB2-120		LM-CB4-120		LM-CB6-120	
	P	D	P	D	P	D
Performance ⁽⁴⁾						
Peak Force(N) ⁽²⁾⁽³⁾	1376.2		2709.3		4096.2	
Continuous Force with heat sink(N) ⁽¹⁾⁽²⁾	482.1		964.2		1446.4	
Continuous Force without heat sink(N) ⁽²⁾⁽³⁾	321.4		642.8		964.2	
Peak Force in linear range(N)	725.0		1450.0		2175.0	
Attraction Force(N)	1613		3226		4839	
Peak power(W) ⁽²⁾	1622		3143		4790	
Continuous power(W) ⁽¹⁾⁽²⁾	157.6		315.2		472.8	
Mechanical						
Coil assembly length(mm)	130		250		370	
Coil assembly weight(kg) ⁽²⁾	4.0		7.8		11.5	
Magnetic way weight(kg/m) ⁽²⁾	7.7		7.7		7.7	
Pole pitch(mm)	30		30		30	
Electrical ⁽⁴⁾						
Continuous Current with heat sink(A _{pk}) ⁽¹⁾⁽²⁾	4.0	8.0	8.0	16.0	12.0	23.9
Continuous Current without heat sink(A _{pk}) ⁽²⁾⁽³⁾	2.7	5.3	5.3	10.6	8.0	16.0
Peak Current ⁽²⁾⁽³⁾	12.8	25.2	25.2	50.4	38.1	76.2
Peak Current in linear range(N)	6.0	12.0	12.0	24.0	18.0	36.0
Force Constant(N/A _{pk}) ⁽²⁾	120.8	60.4	120.8	60.4	120.8	60.4
Back EMF Constant(V/m/s) ⁽²⁾	133.1	66.6	133.1	66.6	133.1	66.6
Resistant(Ohms) ⁽²⁾	9.90	2.50	4.95	1.24	3.3	0.8
Inductance(mH) ⁽²⁾	103.13	22.00	51.56	10.91	34.40	7.04
Time Constant(ms) ⁽²⁾	10.4	8.8	10.4	8.8	10.4	8.8
Thermal Resistant with heat sink(°C/W) ⁽¹⁾⁽²⁾	0.5		0.2		0.2	
Thermal Resistant without heat sink(°C/W) ⁽²⁾⁽³⁾	1.0		0.5		0.3	
Motor Constant(N/√W) ⁽²⁾	38.4		54.3		66.5	

(1) The value applies to static sinusoidal drive, specific heat sink (a 25mm aluminum heat sink whose area equals 8x the coil mounting area) and temperature from 25°C up to 110°C. The actual performance is dependent to heat sink configuration, system cooling condition and ambient temperature.

(2) The tolerance of all performance and electrical specification is ±10%

(3) The value applies to static sinusoidal drive and temperature from 25°C up to 110°C, without heat sink.

(4) Above "without heatsink" figure assumes a working condition of 1atm, 25°C ambient temperature, with the linear motor stationary and not in contact with any other objects, thus relying only on free air convection for cooling. As all heat conductive objects in direct contact with the linear motor, including slide plate, linear guide and base etc. can be considered as a kind of heat sink, the "with heat sink" figure should be taken as the primary reference in actual application design.

LM-CB-120 Coil Assembly

	Np1	Lp
LM-CB2-120	1	130
LM-CB4-120	3	250
LM-CB6-120	5	370

LM-MB-120 Magnetic Way

	Ns	Ls
LM-MB0-120	1	120
LM-MB1-120	4	300
LM-MB2-120	7	480



LM-CC-64 series Linear Motion Technology

LM-CC-64 Coil Assembly Model

Coil Assembly Model	LM-CC2-64		LM-CC4-64		LM-CC6-64	
	P	D	P	D	P	D
Performance ⁽⁴⁾						
Peak Force (N) ⁽²⁾⁽³⁾	592		1185		1777	
Continuous Force(N) ⁽¹⁾⁽²⁾	258.5		517.0		775.4	
Continuous Force without heat sink(N) ⁽²⁾⁽³⁾	143.6		287.2		430.8	
Peak Force in linear range(N)	287.2		574.4		861.6	
Attraction Force(N)	590		1180		1770	
Peak power(W) ⁽²⁾	1755		3510		5265	
Continuous power(W) ⁽¹⁾⁽²⁾	101.1		202.2		303.3	
Mechanical						
Coil assembly length(mm)	162		314		466	
Coil assembly weight(kg) ⁽²⁾	2.3		4.5		6.6	
Magnetic way weight(kg/m) ⁽²⁾	3.6		3.6		3.6	
Pole pitch(mm)	38		38		38	
Electrical ⁽⁴⁾						
Continuous Current with heat sink(A _{pk}) ⁽¹⁾⁽²⁾	3.6	7.2	7.2	14.4	10.8	21.6
Continuous Current without heat sink(A _{pk}) ⁽²⁾⁽³⁾	2.0	4.0	4.0	8.0	6.0	12.0
Peak Current ⁽²⁾⁽³⁾	15.0	30.0	30.0	60.0	45.0	90.0
Peak Current in linear range(N)	4.0	8.0	8.0	16.0	12.0	24.0
Force Constant(N/A _{pk}) ⁽²⁾	71.8	35.9	71.8	35.9	71.8	35.9
Back EMF Constant(V/m/s) ⁽²⁾	87.5	43.8	87.5	43.8	87.5	43.8
Resistant(Ohms) ⁽²⁾	7.8	2.0	3.9	1.0	2.6	0.7
Inductance(mH) ⁽²⁾	119.20	24.00	59.60	12.00	39.70	8.40
Time Constant(ms) ⁽²⁾	15	12	15	12	15	12
Thermal Resistant with heat sink(°C/W) ⁽¹⁾⁽²⁾	0.7		0.4		0.2	
Thermal Resistant without heat sink(°C/W) ⁽²⁾⁽³⁾	2.9		1.4		1.0	
Motor Constant(N/√W) ⁽²⁾	25.7		36.4		44.5	

(1) The value applies to static sinusoidal drive, specific heat sink (a 25mm aluminum heat sink whose area equals 9x the coil mounting area) and temperature from 25°C up to 110°C. The actual performance is dependent to heat sink configuration, system cooling condition and ambient temperature.

(2) The tolerance of all performance and electrical specification is ±10%

(3) The value applies to static sinusoidal drive and temperature from 25°C up to 110°C, without heat sink.

(4) Above "without heatsink" figure assumes a working condition of 1atm, 25°C ambient temperature, with the linear motor stationary and not in contact with any other objects, thus relying only on free air convection for cooling. As all heat conductive objects in direct contact with the linear motor, including slide plate, linear guide and base etc. can be considered as a kind of heat sink, the "with heat sink" figure should be taken as the primary reference in actual application design.

LM-CC-64 Coil Assembly

	Np1	Lp
LM-CC2-64	1	162
LM-CC4-64	3	314
LM-CC6-64	5	466

LM-MC-64 Magnetic Way

	Ns	Ls
LM-MC0-64	2	114
LM-MC1-64	7	304
LM-MC2-64	11	456



LM-CC-84 series

Linear Motion Technology

LM-CC-84 Coil Assembly Model

Coil Assembly Model	LM-CC2-84		LM-CC4-84		LM-CC6-84	
	P	D	P	D	P	D
Winding code						
Performance ⁽⁴⁾						
Peak Force(N) ⁽²⁾⁽³⁾	900.9		1800		2700	
Continuous Force with heat sink(N) ⁽¹⁾⁽²⁾	392.9		785.8		1178.7	
Continuous Force without heat sink(N) ⁽²⁾⁽³⁾	218.2		436.4		654.6	
Peak Force in linear range(N)	436.5		873.1		1309.6	
Attraction Force(N)	897		1794		2690	
Peak power(W) ⁽²⁾	2295		4590		6885	
Continuous power(W) ⁽¹⁾⁽²⁾	132.2		264.4		396.6	
Mechanical						
Coil assembly length(mm)	162		314		466	
Coil assembly weight(kg) ⁽²⁾	3.5		6.8		10.1	
Magnetic way weight(kg/m) ⁽²⁾	5.5		5.5		5.5	
Pole pitch(mm)	38		38		38	
Electrical ⁽⁴⁾						
Continuous Current with heat sink(A _{pk}) ⁽¹⁾⁽²⁾	3.6	7.2	7.2	14.4	10.8	20.5
Continuous Current without heat sink(A _{pk}) ⁽²⁾⁽³⁾	2.0	4.0	4.0	8.0	6.0	12.0
Peak Current ⁽²⁾⁽³⁾	15.0	30.0	30.0	60.0	45.0	90.0
Peak Current in linear range(N)	4.0	8.0	8.0	16.0	12.0	24.0
Force Constant(N/A _{pk}) ⁽²⁾	109.1	54.6	109.1	54.6	109.1	54.6
Back EMF Constant(V/m/s) ⁽²⁾	133.0	66.5	133.0	66.5	133.0	66.5
Resistant(Ohms) ⁽²⁾	10.2	2.6	5.1	1.3	3.4	0.9
Inductance(mH) ⁽²⁾	155.90	31.20	77.90	15.60	52.00	10.80
Time Constant(ms) ⁽²⁾	15	12	15	12	15	12
Thermal Resistant with heat sink(°C/W) ⁽¹⁾⁽²⁾	0.6		0.3		0.2	
Thermal Resistant without heat sink(°C/W) ⁽²⁾⁽³⁾	2.2		1.1		0.7	
Motor Constant(N/√W) ⁽²⁾	34.2		48.3		59.2	

(1) The value applies to static sinusoidal drive, specific heat sink (a 25mm aluminum heat sink whose area equals 9x the coil mounting area) and temperature from 25°C up to 110°C. The actual performance is dependent to heat sink configuration, system cooling condition and ambient temperature.

(2) The tolerance of all performance and electrical specification is ±10%

(3) The value applies to static sinusoidal drive and temperature from 25°C up to 110°C, without heat sink.

(4) Above "without heatsink" figure assumes a working condition of 1atm, 25°C ambient temperature, with the linear motor stationary and not in contact with any other objects, thus relying only on free air convection for cooling. As all heat conductive objects in direct contact with the linear motor, including slide plate, linear guide and base etc. can be considered as a kind of heat sink, the "with heat sink" figure should be taken as the primary reference in actual application design.

LM-CC-84 Coil Assembly

	Np1	Lp
LM-CC2-84	1	162
LM-CC4-84	3	314
LM-CC6-84	5	466

LM-MC-84 Magnetic Way

	Ns	Ls
LM-MC0-84	2	114
LM-MC1-84	7	304
LM-MC2-84	11	456



LM-CC-124 series Linear Motion Technology

LM-CC-124 Coil Assembly Model

Coil Assembly Model	LM-CC2-124		LM-CC4-124		LM-CC6-124	
	P	D	P	D	P	D
Performance ⁽⁴⁾						
Peak Force(N) ⁽²⁾⁽³⁾	1446		2881		4327	
Continuous Force with heat sink(N) ⁽¹⁾⁽²⁾	628.6		1257.2		1885.9	
Continuous Force without heat sink(N) ⁽²⁾⁽³⁾	349.2		698.4		1047.7	
Peak Force in linear range(N)	735.2		1470.5		2205.7	
Attraction Force(N)	1510		3021		4531	
Peak power(W) ⁽²⁾	3067		6092		9159	
Continuous power(W) ⁽¹⁾⁽²⁾	175.4		350.9		526.3	
Mechanical						
Coil assembly length(mm)	162		314		466	
Coil assembly weight(kg) ⁽²⁾	5.9		11.4		16.9	
Magnetic way weight(kg/m) ⁽²⁾	9.2		9.2		9.2	
Pole pitch(mm)	38		38		38	
Electrical ⁽⁴⁾						
Continuous Current with heat sink(A _{pk}) ⁽¹⁾⁽²⁾	3.4	6.8	6.8	13.7	10.3	20.5
Continuous Current without heat sink(A _{pk}) ⁽²⁾⁽³⁾	1.9	3.8	3.8	7.6	5.7	11.4
Peak Current ⁽²⁾⁽³⁾	14.3	28.5	28.5	57.0	42.8	85.5
Peak Current in linear range(N)	4.0	8.0	8.0	16.0	12.0	24.0
Force Constant(N/A _{pk}) ⁽²⁾	183.8	91.9	183.8	91.9	183.8	91.9
Back EMF Constant(V/m/s) ⁽²⁾	224.0	112.0	224.0	112.0	224.0	112.0
Resistant(Ohms) ⁽²⁾	15	3.8	7.5	1.9	5.0	1.3
Inductance(mH) ⁽²⁾	229.20	46.36	114.60	28.18	76.40	15.86
Time Constant(ms) ⁽²⁾	15	12.2	15	12.2	15	12.2
Thermal Resistant with heat sink(°C/W) ⁽¹⁾⁽²⁾	0.4		0.2		0.1	
Thermal Resistant without heat sink(°C/W) ⁽²⁾⁽³⁾	1.7		0.8		0.6	
Motor Constant(N/√W) ⁽²⁾	47.5		67.1		82.2	

(1) The value applies to static sinusoidal drive, specific heat sink (a 25mm aluminum heat sink whose area equals 9x the coil mounting area) and temperature from 25°C up to 110°C. The actual performance is dependent to heat sink configuration, system cooling condition and ambient temperature.

(2) The tolerance of all performance and electrical specification is ±10%

(3) The value applies to static sinusoidal drive and temperature from 25°C up to 110°C, without heat sink.

(4) Above "without heat sink" figure assumes a working condition of 1atm, 25°C ambient temperature, with the linear motor stationary and not in contact with any other objects, thus relying only on free air convection for cooling. As all heat conductive objects in direct contact with the linear motor, including slide plate, linear guide and base etc. can be considered as a kind of heat sink, the "with heat sink" figure should be taken as the primary reference in actual application design.

LM-CC-124 Coil Assembly

	Np1	Lp
LM-CC2-124	1	162
LM-CC4-124	3	314
LM-CC6-124	5	466

LM-MC-124 Magnetic Way

	Ns	Ls
LM-MC0-124	2	114
LM-MC1-124	7	304
LM-MC2-124	11	456

Sizing Example

Condition 1: Motion profile containing cruising section

Driver maximum output voltage : 300 Vdc

Driver continuous output current : 2A

Driver peak output current : 5A

Max. velocity : $V_{max} = 2$ [m/s]

Cruising time : $t_2 = 3$ [s]

Load mass : $m = 5$ [kg]

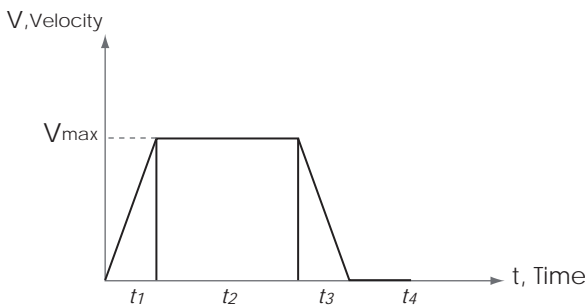
Decelerating time : $t_3 = 0.2$ [s]

Acceleration : $a = 10$ [m/s²]

Dwell time : $t_4 = 2$ [s]

Accelerating time : $t_1 = 0.2$ [s]

Friction Force : $f = 5$ [N]



Symbol	Parameter	Metric	Imperial
t_1	Accelerating time	s	s
t_2	Cruising time	s	s
t_3	Decelerating time	s	s
t_4	Dwell time	s	s
V_{max}	Max. velocity	m/S	in/S

Step1: Thrust force calculation

$$F_1 = ma + f = 5 \times 10 + 5 = 55 \text{ [N]}$$

$$F_2 = f = 5 \text{ [N]}$$

$$F_3 = ma - f = 5 \times 10 - 5 = 45 \text{ [N]}$$

$$F_4 = 0 \text{ [N]}$$

$$F_{rms} = \sqrt{\frac{F_1^2 \times t_1 + F_2^2 \times t_2 + F_3^2 \times t_3 + F_4^2 \times t_4}{t_1 + t_2 + t_3 + t_4}}$$

$$= \sqrt{\frac{55^2 \times 0.2 + 5^2 \times 3 + 45^2 \times 0.2 + 0}{0.2 + 3 + 0.2 + 2}} = 14.2 \text{ [N]}$$

$$F_{max} = F_1 = 55 \text{ [N]}$$

Safety factor = 1.5

Motor required peak force needs to be greater than

$$F_{max} \times 1.5 = 55 \times 1.5 = 82.5 \text{ [N]}$$

Motor required continuous force needs to be greater than

$$F_{rms} \times 1.5 = 14.2 \times 1.5 = 21.3 \text{ [N]}$$

Hence choose LM-PA-X2

(Peak Force = 123.8[N], Continuous force = 31[N])

Step2: Wiring selection

If W1 model is chosen

$$I_{rms} = F_{rms} / K_f = 21.3 / 17.2 = 1.24 \text{ [A]}$$

$$I_{max} = F_{max} / k_f = 82.5 / 17.2 = 4.8 \text{ [A]}$$

$$\text{Required voltage} = V_{max} \times K_e + I_{max} \times R$$

$$= 2 \times 20 + 4.8 \times 17 = 121.6 \text{ [V]}$$

Take safety factor = 1.3

$$\text{Required supply voltage} = 121.6 \times 1.3 = 158.1 \text{ [V]}$$

Driver :

Continuous output current 2A > 1.24A

Peak output current 5A > 4.8A

Max. output voltage 300 V > 158.1V

W1 model matches requirements.

LM-PA-X2-W1 will be applicable.