

Specifications LC-050-XXX



Performance Parameters	Symbol	Units	LC-050-100			LC-050-200			LC-050-300			LC-050-400			LC-050-600			LC-050-800																				
			NC	AC	WC	NC	AC	WC	NC	AC	WC	NC	AC	WC	NC	AC	WC	NC	AC	WC																		
Continuous Force ¹	F_{cTmax}	N (lbf)	132 (30)	165 (37)	198 (44)	265 (60)	331 (74)	397 (89)	401 (90)	501 (113)	602 (135)	509 (114)	636 (143)	764 (172)	780 (175)	975 (219)	1170 (263)	1021 (229)	1276 (287)	1531 (344)																		
Peak Force ²	F_p	N (lbf)	302 (68)	302 (68)	302 (68)	600 (135)	600 (135)	600 (135)	941 (212)	941 (212)	941 (212)	1206 (271)	1206 (271)	1206 (271)	1848 (416)	1848 (416)	1848 (416)	2419 (544)	2419 (544)	2419 (544)																		
Motor Constant ¹	K_M	$\frac{N\sqrt{-W}}{(lbf\sqrt{-W})}$	15.1 (3.4)	15.1 (3.4)	15.1 (3.4)	21.3 (4.8)	21.3 (4.8)	21.3 (4.8)	26.5 (6.0)	26.5 (6.0)	26.5 (6.0)	30.7 (6.9)	30.7 (6.9)	30.7 (6.9)	37.5 (8.4)	37.5 (8.4)	37.5 (8.4)	43.3 (9.7)	43.3 (9.7)	43.3 (9.7)																		
Thermal Resistance	R_{th}	°C/W	1.44	0.92	0.64	0.71	0.46	0.32	0.48	0.31	0.21	0.40	0.26	0.18	0.25	0.16	0.11	0.20	0.13	0.09																		
Max Power Dissipation	P_{cTmax}	W	76	119	172	154	240	346	228	357	514	276	431	620	432	674	971	555	867	1248																		
Maximum Applied Bus Voltage ⁷	V_{DC}	Volts	650			650			650			650			650			650																				
Electrical Cycle Length	E_c	mm	50			50			50			50			50			50																				
Electrical Time Constant	τ_e	msec	10			10			10			10			10			10																				
Maximum Coil Temperature	T_{max}	°C	130			130			130			130			130			130																				
Winding Type			D		E	D		E	D		E	D		E	D		E	D		E																		
Force Constant ^{1,6}	K_F	$\frac{N/A_{pk}}{(lbf/A_{pk})}$	30.3 (6.8)		N/A	30.3 (6.8)		60.7 (13.6)	30.8 (6.9)		92.4 (20.8)	30.8 (6.9)		61.6 (13.8)	30.8 (6.9)		61.6 (13.8)	30.8 (6.9)		61.6 (13.8)																		
Back EMF Constant p-p ^{3,4,6}	K_e	$\frac{V_p/m/s}{(V_p/in/s)}$	35.8 (0.91)		N/A	35.8 (0.91)		71.7 (1.82)	36.4 (0.92)		109.1 (2.77)	36.4 (0.92)		72.8 (1.85)	36.4 (0.92)		72.8 (1.85)	36.4 (0.92)		72.8 (1.85)																		
Peak Current ⁴	I_p	$\frac{A_{pk}}{(A_{rms})}$	11.7 (8.3)		N/A	23.3 (16.5)		11.6 (8.2)	35.9 (25.4)		12.0 (8.5)	46.1 (32.6)		23.0 (16.3)	70.6 (49.9)		35.3 (25.0)	92.4 (65.3)		46.2 (32.7)																		
Cooling Type			NC	AC	WC	NC	AC	WC	NC	AC	WC	NC	AC	WC	NC	AC	WC	NC	AC	WC	NC	AC	WC	NC	AC	WC	NC	AC	WC									
Continuous Current ^{1,4}	I_{cTmax}	$\frac{A_{pk}}{(A_{rms})}$	4.3 (3.1)	5.4 (3.8)	6.5 (4.6)	N/A	N/A	N/A	8.7 (6.2)	10.9 (7.7)	13.1 (9.3)	4.4 (3.1)	5.5 (3.9)	6.5 (4.6)	13.0 (9.2)	16.3 (11.5)	19.5 (13.8)	4.3 (3.1)	5.4 (3.8)	6.5 (4.6)	16.5 (11.7)	20.7 (14.6)	24.8 (17.5)	8.3 (5.8)	10.3 (7.3)	12.4 (8.8)	25.3 (17.9)	31.7 (22.4)	38.0 (26.9)	12.7 (9.0)	15.8 (11.2)	19.0 (13.4)	33.1 (23.4)	41.4 (29.3)	49.7 (35.2)	16.6 (11.7)	20.7 (14.6)	24.9 (17.6)
Resistance p-p ^{3,6} @20°C	R_{20}	ohm	3.76		N/A	1.88		7.52	1.25		11.28	0.94		3.76	0.63		2.51	0.47		1.88																		
Inductance p-p ³	L	mH	36		N/A	18		72	12		108	9		36	6		24	4.5		18																		
Mechanical Parameters																																						
Magnetic Attraction ⁸	F_a	N (lbf)	690 (155)			1379 (310)			2069 (465)			2758 (620)			4137 (930)			5516 (1240)																				
Coil Mass ⁵	M_c	kg (lb _m)	1.79 (4.0)	1.97 (4.4)	1.97 (4.4)	3.13 (6.9)	3.45 (7.6)	3.45 (7.6)	4.47 (9.8)	4.92 (10.8)	4.92 (10.8)	5.80 (12.8)	6.39 (14.1)	6.39 (14.1)	8.48 (18.7)	9.34 (20.6)	9.34 (20.6)	11.15 (24.6)	12.29 (27.1)	12.29 (27.1)																		
Magnetic Track Mass	M_n	kg/m (lb/in)	6.62 (0.37)			6.62 (0.37)			6.62 (0.37)			6.62 (0.37)			6.62 (0.37)			6.62 (0.37)																				

Notes: NC= No Cooling, AC= Air Cooling, WC = Water Cooling

Motor performance specifications are with sinusoidal commutation.

¹ Continuous forces, motor constant and current listed are with coils at maximum temperature 130°C, mounted to a 1" aluminum heat sink whose area is noted in the table, and at 20°C ambient.

² Max on time 1 sec. In certain applications, the motor may produce significantly higher peak forces. Please contact Anorad Applications Engineering for details.

³ All winding parameters listed are measured line-to-line (phase-to-phase).

⁴ All currents and voltages listed are measured 0-peak of the sine wave unless noted rms.

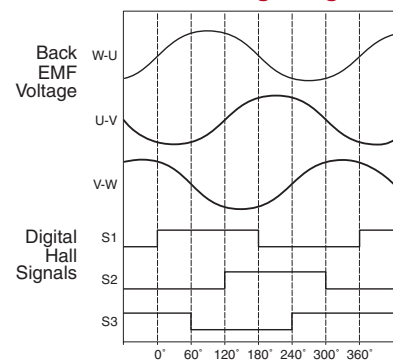
⁵ AC and WC include mass of cooling plate. Consult Anorad for Flow and Pressure for air cooled and water cooled version.

⁶ All specifications are ±10%. Phase-to-phase inductance is ±30%.

⁷ Maximum cable length 10 meters. Please consult factory concerning applications requiring longer cables.

⁸ All specifications are at the standard referenced air gap.

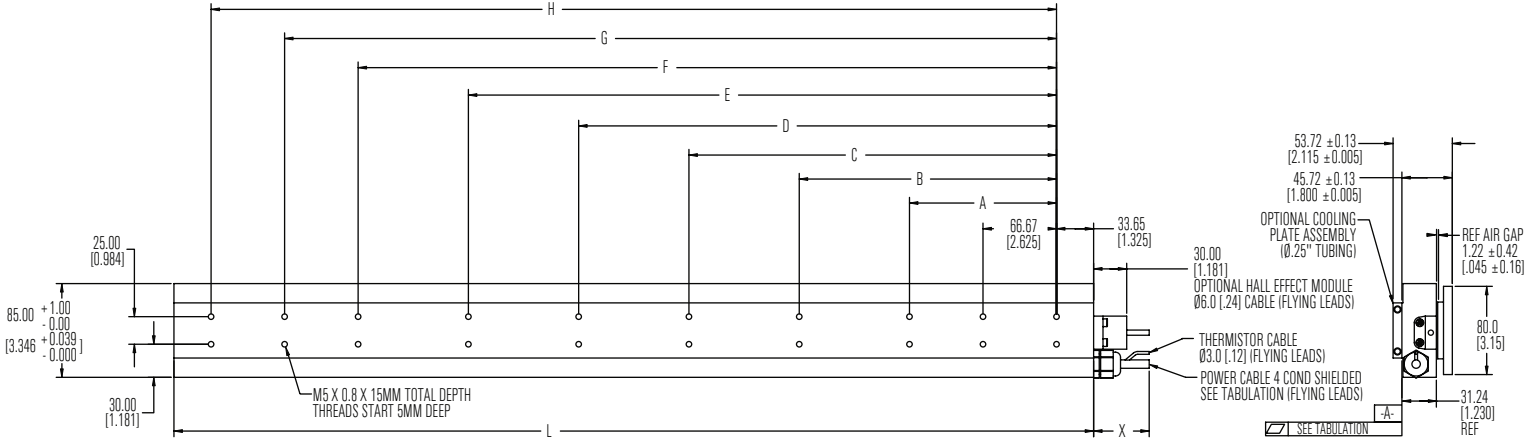
Motor Phasing Diagram



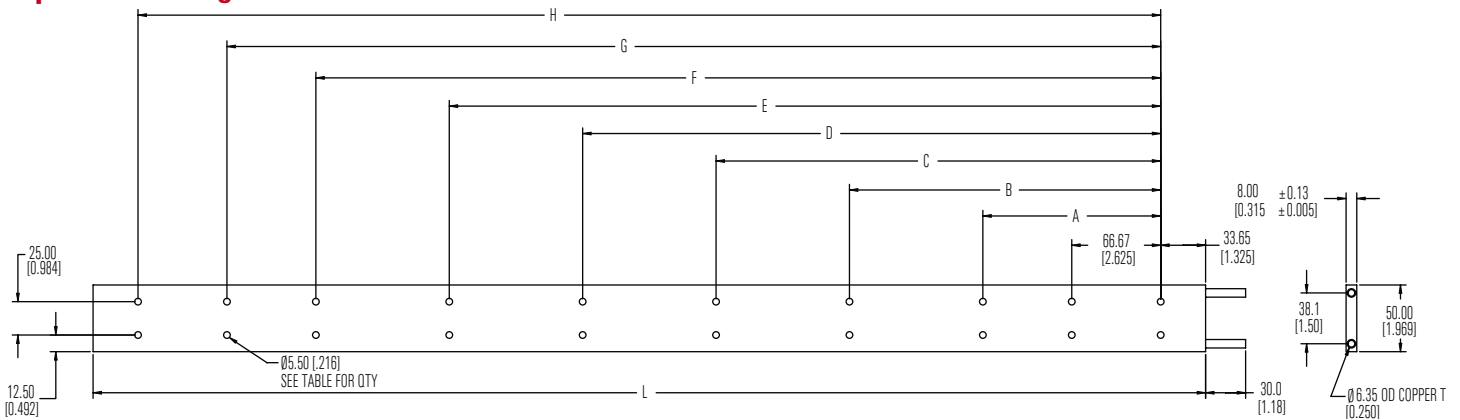
Note: Phasing direction is coil moving towards motor power cable.

Coil Assembly LC-050-XXX

Dimensions mm [in]



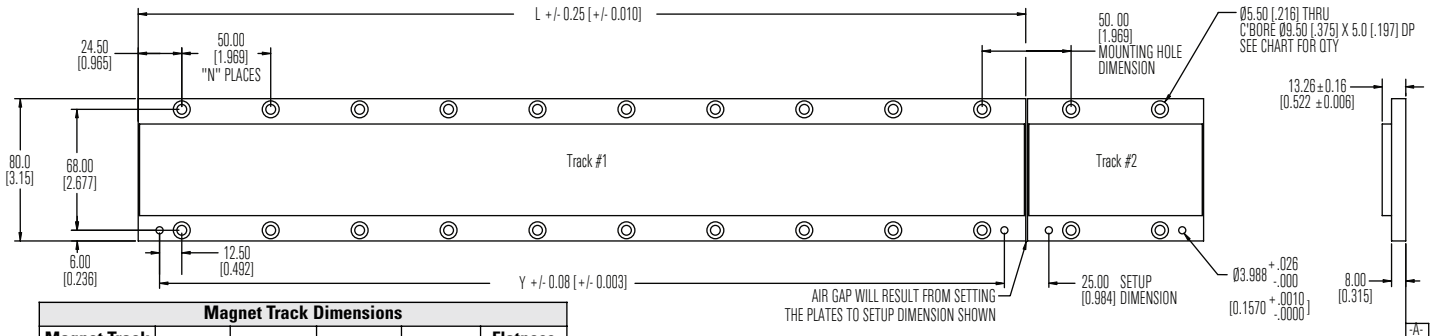
Optional Cooling Plate LCCP-050-XXX



Coil and Cooling Plate Dimensions												
Coil Size	L	A	B	C	D	E	F	G	H	Hole Qty (N)	Flatness -A-	Heat Sink
050 x 100	134.00 (5.28)									4	0.25 (0.010)	200 x 200 (8 x 8)
050 x 200	234.00 (9.21)	100.00 (3.937)	166.67 (6.562)							8	0.25 (0.010)	200 x 300 (8 x 12)
050 x 300	334.00 (13.15)	133.33 (5.249)	200.00 (7.874)	266.67 (10.499)						10	0.38 (0.015)	200 x 400 (8 x 16)
050 x 400	434.00 (17.09)	133.33 (5.249)	233.33 (9.186)	300.00 (11.811)	366.67 (14.436)					12	0.64 (0.025)	200 x 500 (8 x 20)
050 x 600	634.00 (24.96)	133.33 (5.249)	233.33 (9.186)	333.33 (13.123)	433.33 (17.060)	500.00 (19.686)	566.66 (22.310)			16	0.89 (0.035)	200 x 750 (8 x 30)
050 x 800	834.00 (32.84)	133.33 (5.249)	233.33 (9.186)	333.33 (13.123)	433.33 (17.060)	533.33 (20.997)	633.33 (24.934)	700.00 (27.559)	766.66 (30.184)	20	1.16 (0.045)	200 x 1000 (8 x 40)

Power Cable Gauge		
Coil Size	Winding Type	Wire Gauge
050 x 100	D	18 GA
050 x 200	D, E	18 GA
050 x 300	D, E	18 GA
050 x 400	D, E	18 GA
050 x 600	D	16 GA
050 x 600	E	18 GA
050 x 800	D	14 GA
050 x 800	E	18 GA

Magnet Track LCM-050-XXX*



Magnet Track Dimensions					
Magnet Track Length	L	Y	Hole Qty	N	Flatness -A-TIR
100 mm	99.00 (3.90)	75.00 (2.953)	4	1	0.06 (0.002)
250 mm	249.00 (9.80)	225.00 (8.853)	10	4	0.25 (0.010)
400 mm	399.00 (15.71)	375.00 (14.764)	16	7	0.38 (0.015)
500 mm	499.00 (19.65)	475.00 (18.750)	20	9	0.50 (0.020)

* Magnet tracks can be combined for longer travel lengths.