TECNOTION
THE LINEAR MOTOR COMPANY

TL Series Iron Core

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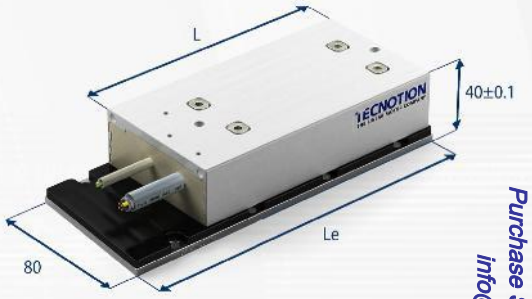
	Parameter	Remarks	Sym	Unit	TL6		TL9		TL12		TL15		TL18		TL24	
Performance	Winding type				N	S	N	S	N	S	N	S	N	S	N	S
	Motortype, max voltage ph-ph				3-phase synchronous Iron core, 600V_{dc}											
	Ultimate Force @ 10°C/s	magnet @ 25°C	F_u	N	450		675		900		1125		1350		1800	
	Peak Force @ 6°C/s	magnet @ 25°C	F_p	N	400		600		800		1000		1200		1600	
	Continuous Force Watercooled	coils @ 100°C	F_{cw}	N	210		315		420		525		630		840	
	Continuous Force Aircooled*	coils @ 100°C	F_c	N	200		300		400		500		600		800	
	Maximum Speed**	@ 560 V	v_{max}	m/s	3.5	7	4	7	3.5	7	3.5	7	3.5	7	3.5	7
	Motor Force Constant	motor @ 25°C	K	N/A_{rms}	93	46.5	140	46.5	93	46.5	112	46.5	93	44.9	93	46.5
	Motor Constant		S	N^2/W	380		570		760		950		1140		1520	
Electrical	Ultimate Current	magnet @ 25°C	I_u	A_{rms}	6.5	13.1	6.5	19.6	13.1	26.2	13.5	32.7	19.6	41	26.2	52
	Peak Current	magnet @ 25°C	I_p	A_{rms}	5.0	10.0	5.0	15.0	10.0	20.0	10.4	25.0	15.0	31.0	20.0	40.0
	Continuous Current Watercooled	coils @ 100°C	I_{cw}	A_{rms}	2.26	4.5	2.26	6.8	4.5	9.0	4.7	11.3	6.8	14.0	9.0	18.1
	Back EMF Phase-Phase		B_{emf}	V_{rms} / m/s	76	38	114	38	76	38	92	38	76	38	76	38
	Resistance per Phase	coils @ 25°C ex. cable	R_f	Ω	7.2	1.80	10.8	1.21	3.6	0.90	4.3	0.72	2.41	0.59	1.81	0.46
	Induction per Phase	I < 0.6 Ip	L_f	mH	54	14	81	9.0	27	7.0	32	5.4	18	4.4	14	3.4
	Electrical Time Constant	coils @ 25°C	τ_e	ms	7.5		7.5		7.5		7.5		7.5		7.5	
Thermal	Maximum Continuous Power Loss	all coils	P_c	W	150		225		300		375		450		600	
	Thermal Resistance		R_{th}	°C/W	0.48		0.32		0.24		0.19		0.16		0.12	
	Thermal Time Constant	minimum	τ_{th}	s	77		77		77		77		77		77	
	Watercooling Flow	for ΔT=3K	Φw	l/min	0.7		1.1		1.4		1.8		2.2		2.9	
	Watercooling Pressure-drop	indication	ΔP_w	bar	1		1		2		2		2		3	
	Temperature Sensors				PTC 1kΩ and KTY21-6											
Mechanical	Coil Unit Weight	ex. cables	M	kg	1.5		2.0		2.6		3.2		3.8		5.2	
	Coil Unit Length	ex. cables	L	mm	146		194		244		290		336		468	
	Motor Attraction Force	rms	F_a	N	950		1325		1700		2075		2450		3400	
	Magnet Pitch NN		τ	mm	24		24		24		24		24		24	
	Cable Weight		m	gr/m	180		180		180		180		180		300	
	Cable Type (Power)	length 1 m	d	mm (AWG)	9.6 (18)										11.9 (14)	
	Cable Type (Sensor)	length 1 m	d	mm (AWG)	4.3 (26)										4.3 (26)	

All specifications ±10%



TL6 on 192mm magnet plate shown

Water cooling

All TL motors feature integrated cooling channels that allow for the easy setup of a liquid cooled system, at no additional cost.

Magnet plate dimensions

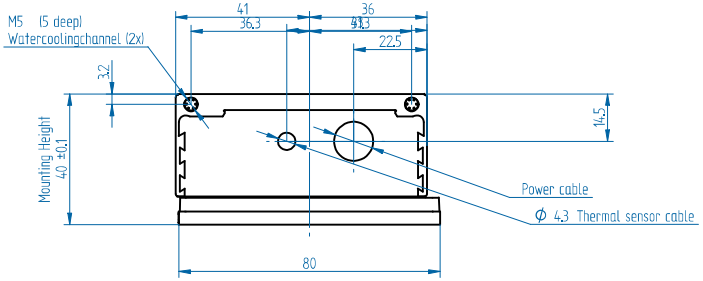
Le (mm)	192	288
M5 bolts	8	12
Mass (kg/m)	3.8	
Magnet plates can be butted together.		

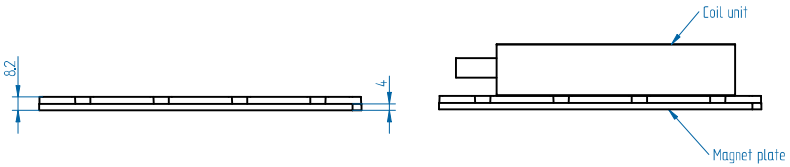
*Max. continuous force depends on the thermal resistance, cooling surface and ambient temperature of your application. Download our simulation tool to check the motor's thermal behavior in the application.

** Actual values depend on bus voltage. Please check the F/V diagram in our simulation tool.

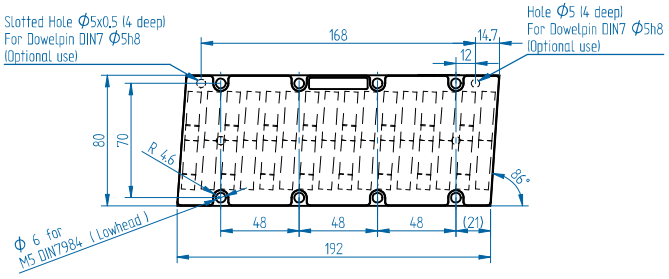
Mounting instructions and flatness or parallelism requirements can be found in the Iron Core installation manual. CAD files and 3D models can be downloaded from our website.

MAGNET PLATES

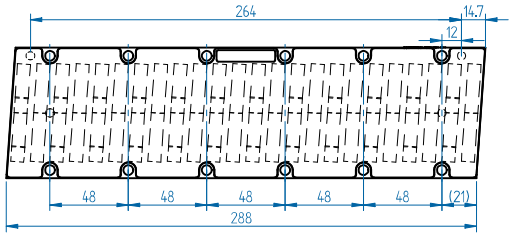




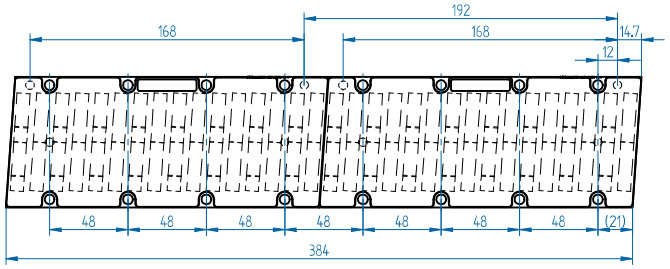
TL 192mm



TL 288mm

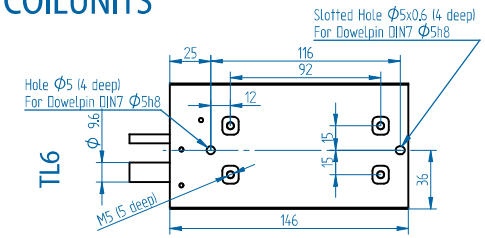


2x TL 192mm

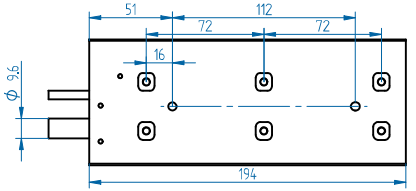


COILUNITS

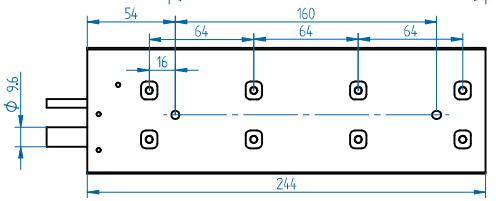
TL6



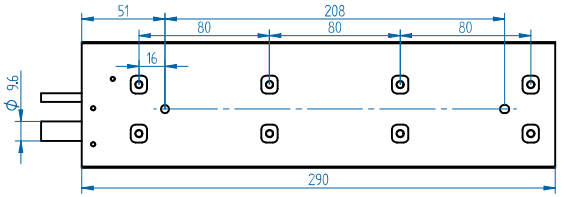
TL9



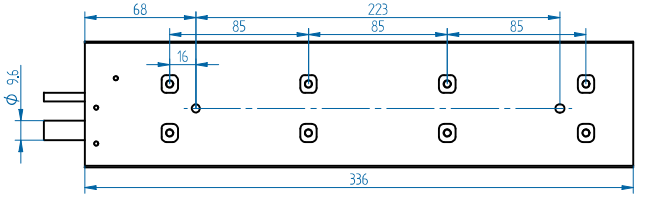
TL12



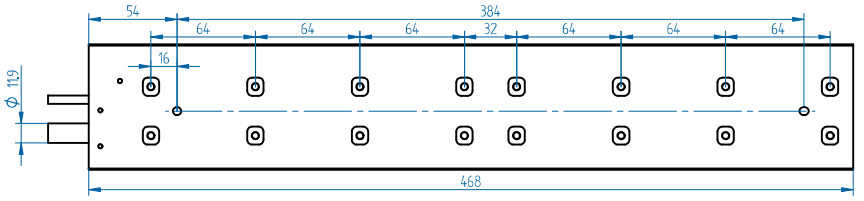
TL15



TL18



TL24



Purchase Source: GROUP SIX (USA & CAN)
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