TECNOTION®

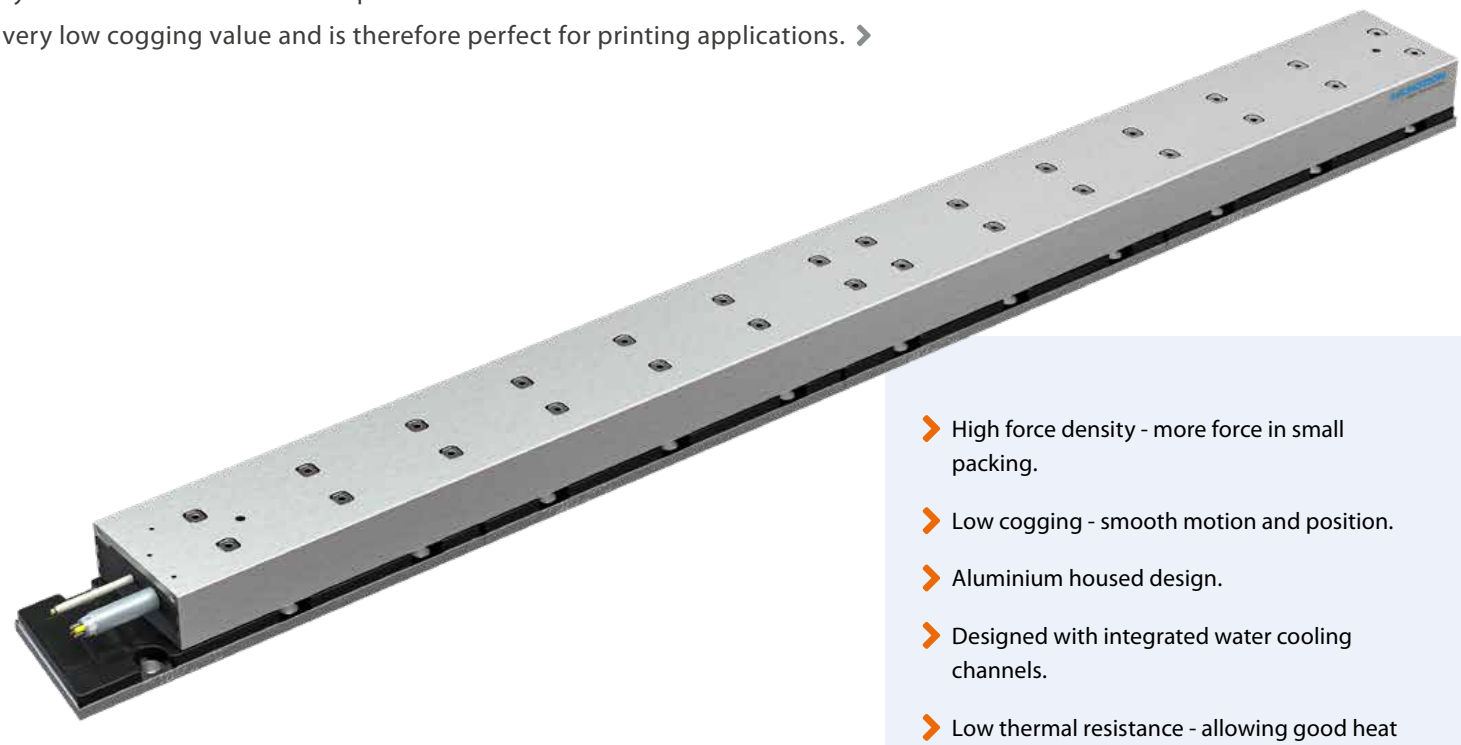
direct drive in motion

The TL48 - best suited for printing

and perfect for long strokes

The TL48 iron core coil unit is specially suited for applications with a high force demand and long strokes. The high force generation allows it to accelerate very quickly to the desired velocity.

The high force generation reduces the distance needed to reach its final speed which in turn saves space in your application. The integrated cooling channels allow for an easy setup of a liquid cooled system. And this increases the performance even more. As with all Tecnotion linear motors it has a very low cogging value and is therefore perfect for printing applications. ›



- High force density - more force in small packing.
- Low cogging - smooth motion and position.
- Aluminium housed design.
- Designed with integrated water cooling channels.
- Low thermal resistance - allowing good heat transfer.
- Approved for CSA, CE and RoHS.

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	Parameter	Remarks	Symbol	Unit	TL48 SPECIFICATIONS
Performance	Winding type				Q
	Motortype, max voltage ph-ph				3-phase synchronous Iron core, 400$V_{ac\ rms}$ (565 V_{dc})
	Ultimate force @ 10°C/s increase	magnet @ 25°C	F_u	N	3600
	Peak force @ 6°C/s increase	magnet @ 25°C	F_p	N	3200
	Continuous force watercooled*	coils @ 100°C	F_{cw}	N	1680
	Continuous force	coils @ 100°C	F_c	N	1600
	Maximum speed**	@ 560 V	v_{max}	m/s	1.7
	Motor force constant	mount. sfc. @ 20°C	K	N/A_{rms}	180
	Motor constant	coils @ 25°C	S	N^2/W	3040
Electrical	Ultimate current	magnet @ 25°C	I_u	A_{rms}	27.1
	Peak current	magnet @ 25°C	I_p	A_{rms}	20.7
	Continuous current watercooled*	coils @ 100°C	I_{cw}	A_{rms}	9.4
	Back EMF phase-phase$_{peak}$		B_{emf}	V/m/s	147
	Resistance per phase*	coils @ 25°C ex. cable	R_{ph}	Ω	3.45
	Induction per phase	I < 0.6 Ip	L_{ph}	mH	25.9
	Electrical time constant*	coils @ 25°C	τ_e	ms	7.5
Thermal	Maximum continuous power loss	all coils	P_c	W	1200
	Thermal resistance	coils to mount. sfc.	R_{th}	°C/W	0.06
	Thermal time constant*	up to 63% max. coiltemp.	τ_{th}	s	77
	Watercooling flow	for ΔT=3K	Φw	l/min	5.7
	Watercooling pressure-drop	order of magnitude	ΔP_w	bar	7
	Temperature cut-off / sensor				PTC 1kΩ / KTY 83-122
Mechanical	Coil unit weight	ex. cables	W	kg	9.75
	Coil unit length	ex. cables	L	mm	855
	Motor attraction force	rms @ 0 A	F_a	N	6400
	Magnet pitch NN		τ	mm	24
	Cable mass		m	kg/m	0.18
	Cable type (power)	length 1 m	d	mm (AWG)	11.4 (14)
	Cable type (sensor)	length 1 m	d	mm (AWG)	4.3 (26)

** These values are only applicable when the mounting surface is at 20°C and the motor is driven at maximum continuous current. If these values differ in your application, please check our simulation tool.*

All specifications ±10%

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

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.		

Approvals