



TL6 on 2x TLX 192mm magnet plates

TLX series

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)	4.0	

Magnet plates can be butted together.

Approvals



	Parameter	Remarks	Sym	Unit	TLX6	TLX9	TLX12	TLX15	TLX18	TLX24	TLX48									
Performance	Winding type				N	S	N	S	N	S	N	S	N	S	N	S	Q			
	Motor type, max voltage ph-ph	3-phase synchronous	U _{max}	V _{ac,rms} (V _{dc})	400 (565)															
	Ultimate force @ 10 K/s increase	magnets @ 25°C	F _u	N	530		795		1060		1325		1590		2120		4241			
	Peak force @ 6 K/s increase	magnets @ 25°C	F _p	N	471		707		942		1178		1414		1885		3770			
	Continuous force water cooled ¹	coils @ 100°C	F _{cw}	N	247		371		495		618		742		990		1979			
	Continuous force ¹	coils @ 100°C	F _c	N	236		353		471		589		707		942		1885			
	Maximum speed ²	@ U _{max} @ F _c	v _{max}	m/s	4.4	8.8	2.9	8.8	4.4	8.8	3.6	8.8	4.4	9.2	4.4	8.8	2.1			
	Motor force constant	I ≤ I _c	K _f	N/A _{rms}	110	55	165	55	110	55	132	55	110	53	110	55	212			
	Motor constant	coils @ 25°C	S	N ² /W	556	556	839	827	1111	1111	1349	1389	1660	1581	2210	2174	4344			
Electrical	Ultimate current	magnets @ 25°C	I _u	A _{rms}	6.5	13.1	6.5	19.6	13.1	26.2	13.5	32.7	19.6	41.0	26.2	52.0	27.1			
	Peak current	magnets @ 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	20.7			
	Continuous current water cooled ¹	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	9.4			
	Back EMF ph-ph _{peak}		K _e	V _{dc} /m/s	90	45	134	45	90	45	108	45	90	45	90	45	173			
	Resistance per phase	coils @ 25°C ex. cable	R _{ph}	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	3.45			
	Induction per phase	I < 0.6 I _p	L _{ph}	mH	56	14.4	83	9.3	28	7.2	33	5.6	18.5	4.5	14.4	3.5	27			
	Electrical time constant		τ _e	ms	7.7															
Thermal	Continuous power loss ¹	coils @ 100°C	P _c	W	150		225		300		375		450		600		1200			
	Thermal resistance	coils to mount. sfc.	R _{th}	K/W	0.48		0.32		0.24		0.19		0.16		0.12		0.06			
	Thermal time constant		τ _{th}	s	77															
	Water cooling flow	for ΔT=3K	Φ _w	l/min	0.7		1.1		1.4		1.8		2.2		2.9		5.7			
	Water cooling pressure drop		ΔP _w	bar	1						2			3			7			
	Temperature sensor				PTC 1kΩ / KTY 83-122															
Mechanical	Coil unit mass	ex. cables	m	kg	1.5		2.0		2.6		3.2		3.8		5.2		9.8			
	Coil unit length	ex. cables	L	mm	146		194		244		290		336		468		855			
	Motor attraction force	rms @ 0 A	F _a	N	1300		1800		2350		2850		3350		4650		8750			
	Magnet pitch NN		τ	mm	24															
	Cable mass	all cables		kg/m	0.18								0.3							
	Cable type (power)	length 1 m	d	mm (AWG)	9.6 (18)								11.4 (14)							
	Cable type (sensor)	length 1 m	d	mm (AWG)	4.7 (26)															

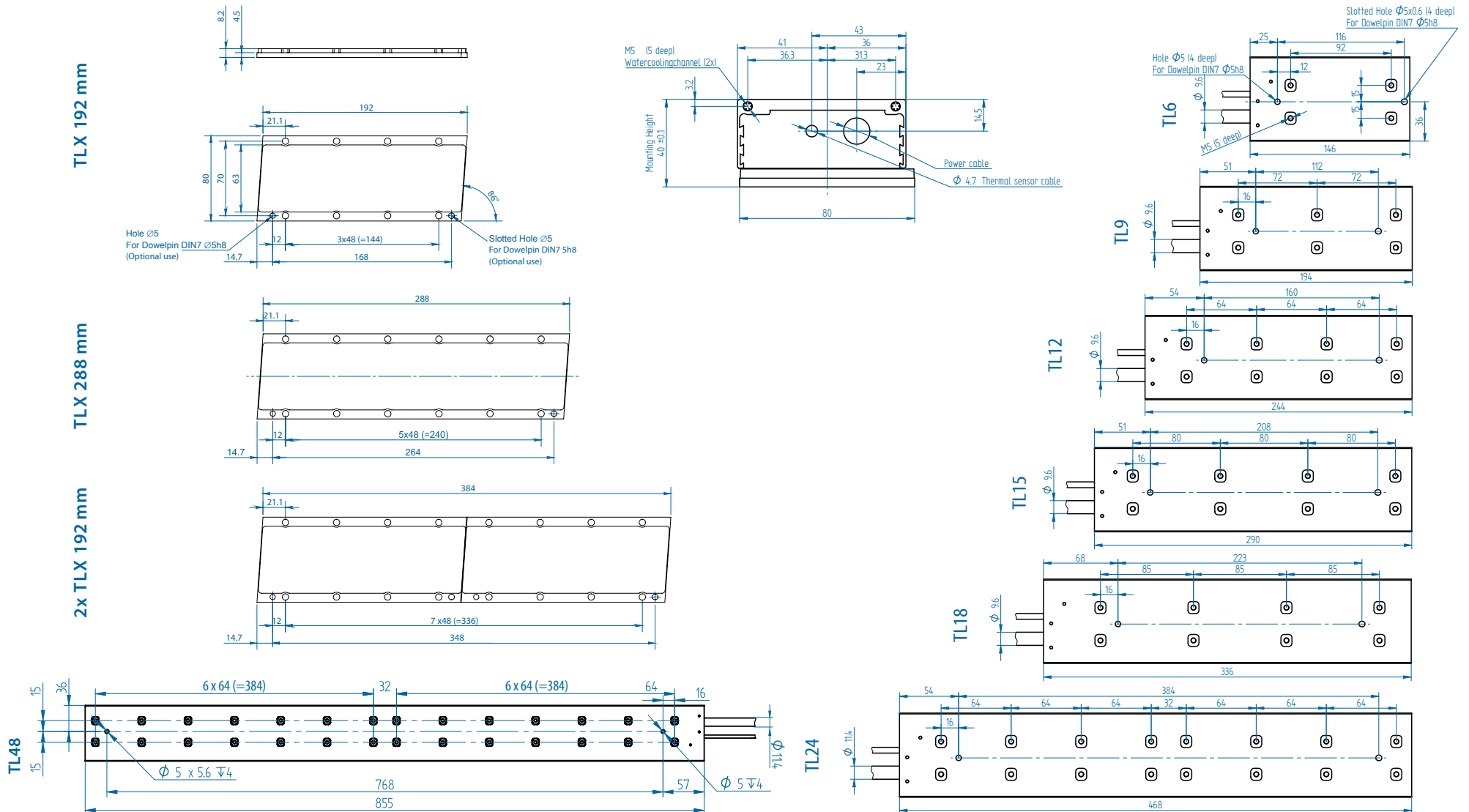
¹ These values are only applicable when the mounting surface is at 20°C and the motor is driven at continuous current. If these values differ in your application, please check our simulation tool.

² Actual values depend on bus voltage. Please check the F/v diagram in our simulation tool.

All specifications ±10%

Magnet plates

Coil units



Mounting instructions and flatness or parallelism requirements can be found in the iron core installation manual. CAD files and the manual can be downloaded from our website.

* All sizes are in mm