



TBW18 on 3xTBX 192mm magnet plates

TBWX series

	Parameter	Remarks	Symbol	Unit	TBWX18		TBWX30		TBWX45	
Performance	Winding type				N	S	N	S	N	S
	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	3097		5162		7742	
	Peak force @ 6 K/s increase	magnets @ 25°C	F_p	N	2753		4588		6882	
	Continuous force water cooled ¹	coils @ 100°C	F_{cw}	N	1376		2294		3441	
	Continuous force ¹	coils @ 100°C	F_c	N	1308		2179		3269	
	Maximum speed ²	@ $U_{\max}$ @ F_c	$v_{\max}$	m/s	2.2	4.9	1.8	4.7	1.8	4.7
	Motor force constant	$I \leq I_c$	K_f	N/A _{rms}	213	103	258	107	258	107
	Motor constant	coils @ 25°C	S	N ² /W	3448	3552	5693	5747	8539	8620
Electrical	Ultimate current	magnets @ 25°C	I_u	A _{rms}	20	41	27	65	41	98
	Peak current	magnets @ 25°C	I_p	A _{rms}	15.0	31.1	20.7	50	31.1	75
	Continuous current water cooled ¹	coils @ 100°C	I_{cw}	A _{rms}	6.5	13.4	8.9	21.5	13.4	32.3
	Back EMF ph-ph _{peak}		K_e	V _{dc} /m/s	174	87	210	87	210	87
	Resistance per phase	coils @ 25°C ex. cable	R_{ph}	Ω	4.4	1.0	3.9	0.66	2.6	0.44
	Induction per phase	$I < 0.6 I_p$	L_{ph}	mH	36	8.3	32	5.3	22	3.6
	Electrical time constant		τ_e	ms	8.2					
Thermal	Continuous power loss ¹	coils @ 100°C	P_c	W	726		1209		1804	
	Thermal resistance	coils to mount. sfc.	R_{th}	K/W	0.10		0.06		0.04	
	Thermal time constant		τ_{th}	s	87					
	Water cooling flow	for ΔT=3K	Φ_w	l/min	3.1		5.2		7.8	
	Water cooling pressure drop		ΔP_w	bar	1.0		1.5		2.5	
	Temperature sensor				PTC 1kΩ / KTY 83-122					
Mechanical	Coil unit mass	ex. cables	m	kg	7.3		12.3		18.2	
	Coil unit length	ex. cables	L	mm	344		580		852	
	Motor attraction force	rms @ 0 A	F_a	N	6300		10700		16050	
	Magnet pitch NN		τ	mm	24					
	Cable mass	all cables		kg/m	0.3		0.6			
	Cable type (power)	length 1 m	d	mm (AWG)	11.4 (14)			15.8 (10)		
	Cable type (sensor)	length 1 m	d	mm (AWG)	4.7 (26)					

Water cooling

All TBW 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) 10.8

Magnet plates can be butted together.

Approvals



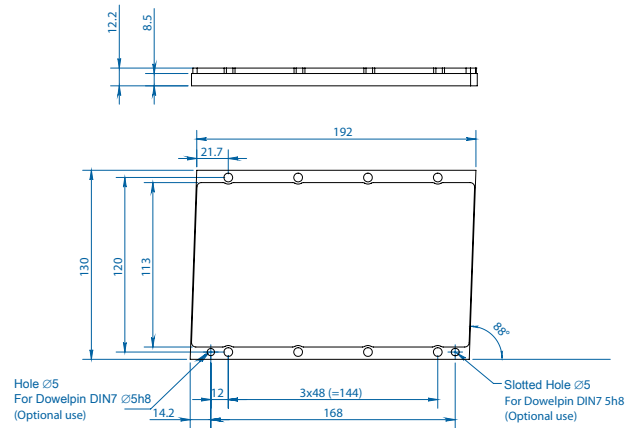
All specifications ±10%

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.

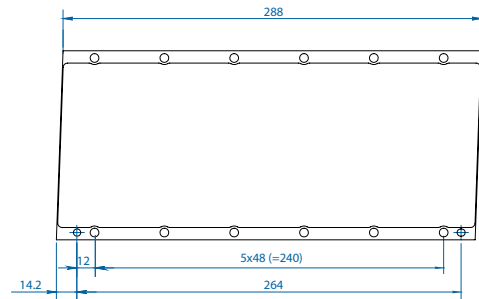
² Actual values depend on bus voltage. Please check the F/v diagram in our simulation tool.

Magnet plates

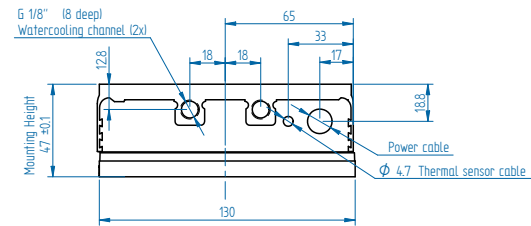
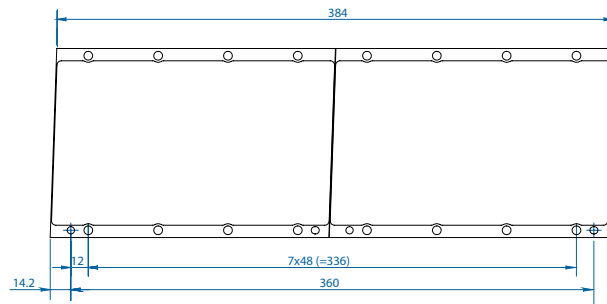
TBX 192 mm



TBX 288 mm

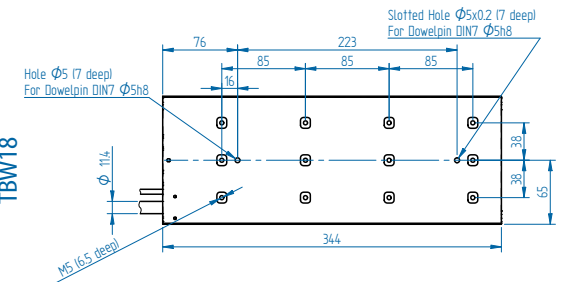


2x TBX 192 mm

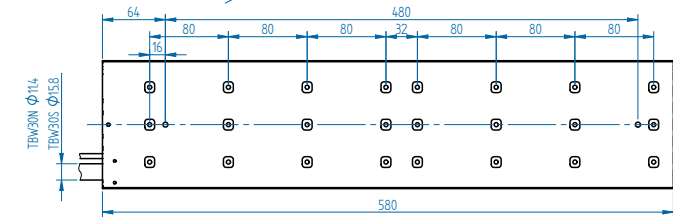


Coil units

TBW18



TBW30



TBW45

