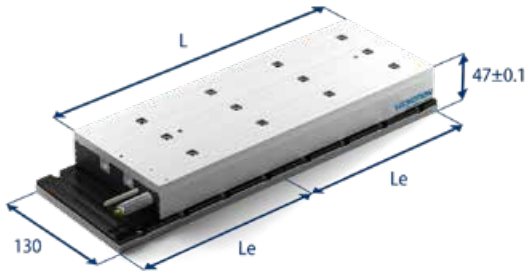


# TBW Series Iron Core



TBW18 on 2x192mm magnet plate shown

## 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) 10.5

Magnet plates can be butted together.

Approvals



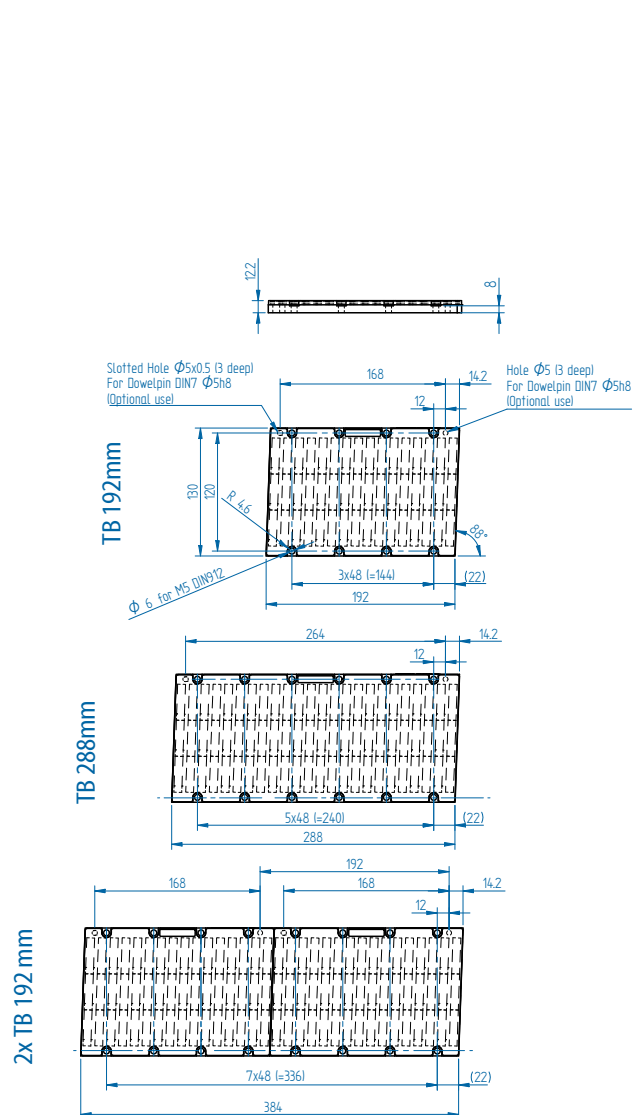
Parameter	Remarks	Symbol	Unit	TBW18		TBW30		TBW45	
				N	S	N	S	N	S
Winding type				N	S	N	S	N	S
Motor type, max voltage ph-ph				3-phase synchronous Iron core, 400V <sub>ac rms</sub> (565 V <sub>dc</sub> )					
Ultimate force @ 10°C/s increase	magnet @ 25°C	F <sub>u</sub>	N	2700		4500		6750	
Peak force @ 6°C/s increase	magnet @ 25°C	F <sub>p</sub>	N	2400		4000		6000	
Continuous force watercooled*	coils @ 100°C	F <sub>cw</sub>	N	1200		2000		3000	
Continuous force aircooled*	coils @ 100°C	F <sub>c</sub>	N	1140		1900		2850	
Maximum speed**	@ 560 V	V <sub>max</sub>	m/s	3	6	2.5	6	2.5	6
Motor force constant	mount. sfc. @ 20°C	K	N/A <sub>rms</sub>	186	90	225	93	225	93
Motor constant	coils @ 25°C	S	N <sup>2</sup> /W	2580		4300		6450	
Ultimate current	magnet @ 25°C	I <sub>u</sub>	A <sub>rms</sub>	19.6	41	27	65	41	98
Peak current	magnet @ 25°C	I <sub>p</sub>	A <sub>rms</sub>	15.0	31.1	20.7	50	31	75
Continuous current watercooled*	coils @ 100°C	I <sub>cw</sub>	A <sub>rms</sub>	6.5	13.4	8.9	21.5	13.4	32.3
Back EMF phase-phase <sub>peak</sub>		B <sub>emf</sub>	V/m/s	152	76	183	76	183	76
Resistance per phase*	coils @ 25°C ex. cable	R <sub>ph</sub>	Ω	4.4	1.0	3.9	0.66	2.6	0.44
Induction per phase	l < 0.6 lp	L <sub>ph</sub>	mH	35	8	31	5	21	3
Electrical time constant*	coils @ 25°C	τ <sub>e</sub>	ms	8		8		8	
Maximum continuous power loss	all coils	P <sub>c</sub>	W	726		1209		1804	
Thermal resistance	coils to mount. sfc.	R <sub>th</sub>	°C/W	0.10		0.06		0.04	
Thermal time constant*	up to 63% max. coiltemp.	τ <sub>th</sub>	s	87		87		87	
Watercooling flow	for ΔT=3K	Φ <sub>w</sub>	l/min	3.1		5.2		7.8	
Watercooling pressure-drop	order of magnitude	ΔP <sub>w</sub>	bar	1.0		1.5		2.5	
Temperature cut-off / sensor				PTC 1kΩ / KTY 83-122					
Coil unit weight	ex. cables	W	kg	7.3		12.3		18.2	
Coil unit length	ex. cables	L	mm	344		580		852	
Motor attraction force	rms @ 0 A	F <sub>a</sub>	N	4900		8300		12450	
Magnet pitch NN		τ	mm	24		24		24	
Cable mass		m	kg/m	0.3		0.6			
Cable type (power)	length 1 m	d	mm (AWG)	11.9 (14)		16.9 (10)			
Cable type (sensor)	length 1 m	d	mm (AWG)			4.3 (26)			

All specifications ±10%

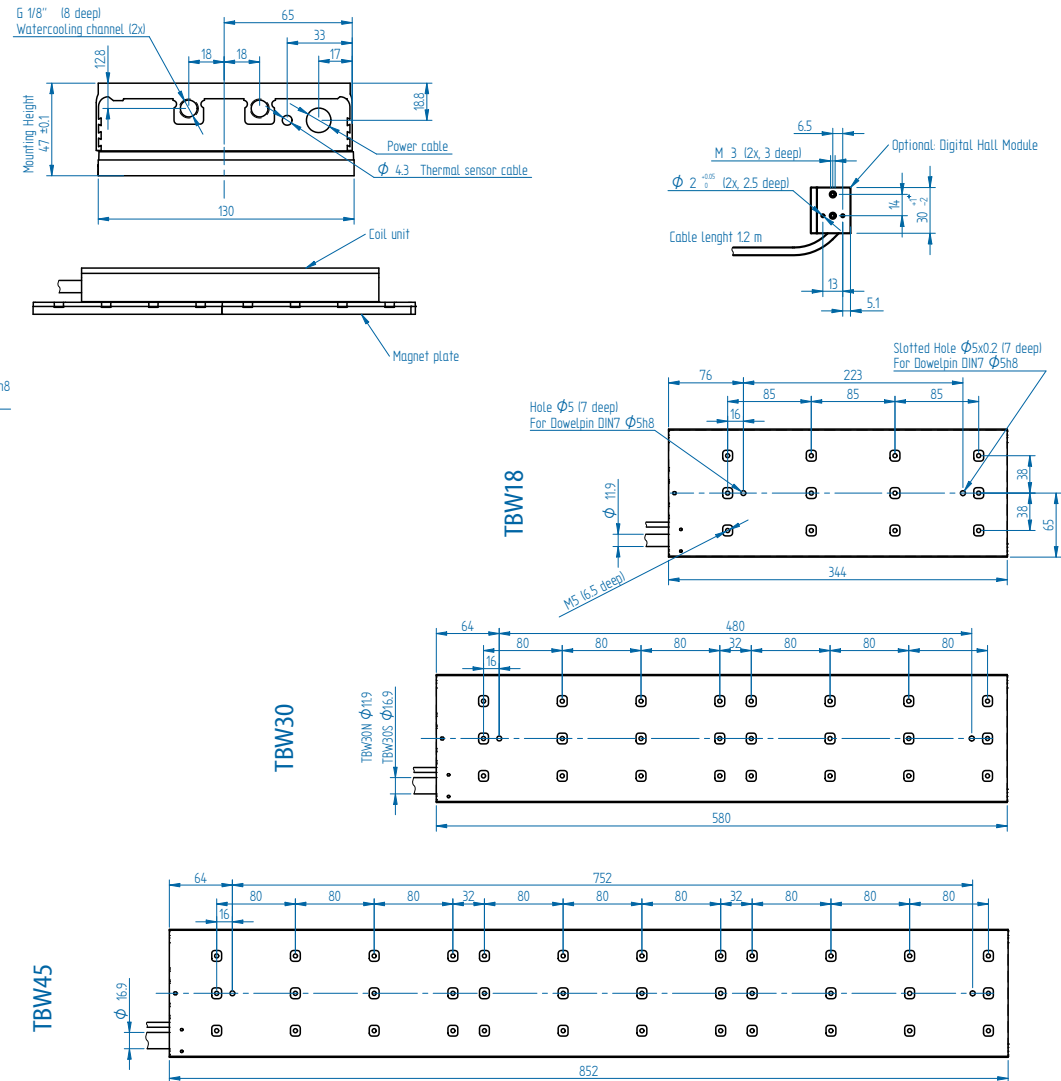
\* These values are only applicable when the mounting surface is at 20°C and the motor is driven at maximum continuous current. If these values differ in your application, please check our simulation tool.

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

## Magnet plates



## Coil units



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

\* All sizes are in mm