TECNOTION®

direct drive in motion

IRON CORE LINEAR MOTOR SERIES

Extremely high force

WE DIRECT DRIVE YOUR MOTION TECHNOLOGY

Tecnotion direct drive motors are seamlessly integrated in a wide range of applications such as semiconductors, machine tooling, robotics, display applications and printing industry.

Being an independent supplier of linear and torque motors Tecnotion provides specialized motor technology to place in customers motion solutions. As global technology leader with over 30 years of experience we always offer the best motor solution for your motion needs, whether it is catalogue or custom. With a wealth of experience, we are accustomed to design and build any motion question.

Sales support

At Tecnotion we understand that each application of our motors is a unique case with specific requirements and demands.

Our sales and application engineers have extensive experience with a wide range of application types and collaborate on a high level with our customers to make sure you get the solution that best fits your requirements.

Additionally our specialized simulation tool is available to help you find your way through our wide range of motors and analyze/test out different motor types within your application specifications.

Innovation

We have an in-house R&D department, which is continuously pushing the boundaries of technology and taking our products to the next level. This translates directly to our high level of understanding of manufacturing processes.

Apart from our "off-the-shelf" range of standard linear motors, we can also design and manufacture custom made motors for high profile projects or OEM applications that require a tailor-made solution.

All our custom motors are built to the same high standards that characterize our standard range of products.

Manufacturing

Manufacturing of our standard range of motors takes place at our modern plant in China, where we are able to produce in high volume at very competitive rates.

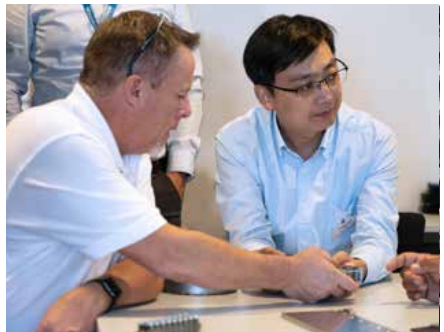
At our competence centre and headquarters in the Netherlands we specialize in advanced technology. This is where we do our research and development and where custom motors are built with extreme accuracy in our special state of the art cleanroom environment.

Tecnotion is committed to excellence. Both of our plants are ISO 9001 certified and comply to the highest quality standards possible.

Global logistics

We always have our most popular products in stock in our warehouses in both the Netherlands and China.

Our logistics department can ship to you from both locations, making short delivery times possible across the globe, even when markets are ramping.



Iron core motor series

TBW series

F_u 2700-6750 N F_{cw} 1200-3000 N

The TBW series is the water cooled variant of the TB series. It features a fully integrated, highly efficient cooling system which enables the TBW to reach even higher continuous forces than the standard version and sustain extreme accelerations while maintaining its sub-micron position accuracy.
Since heat is not dissipated into the machine's construction, it is especially suited for applications where thermal management is an issue.

TB series

F_u 1800-4500 N F_c 760-1900 N

The high-end TB motors are heavy duty workhorses that combine high acceleration and speed, sub-micron positioning accuracy and low power consumption with a superb force density. They excel in applications where high loads and long duty cycles are the order of the day. When you require a motor that takes your application to new levels, the TB more than delivers.

T	L M	6 12	S N

T = Iron core
L M = Series type
6 12 = Number of coils
S N = Winding type

TL series

F_u 450-3600 N F_{cw} 210-1680 N

The mid-range TL is our most popular iron core motor. It features an extremely low attraction force between the coils and the magnets and stands out for its small size, high acceleration, high speed and accuracy. The TL is also available in long versions, which makes this all-rounder suited for nearly any application, including those with long travel lengths, like printers for large digital formats.

TM series

F_u 120-720 N F_c 60-360 N

For applications that do not require high forces, it is often more effective to use a smaller and less costly motor. Over the years, the TM series has proven to be a very versatile, reliable and efficient motor for a wide range of applications. To enhance its effectiveness, the TM linear motor is equipped with a long flexible servo cable which makes the use of additional connectors superfluous and reduces total cost of ownership even further.

Features

Iron core linear motor series

F/cm³

High force density

More force in a smal design means lowering footprint and it fits better in tight spaces.

Aluminum housed design

Housed design with integrated water cooling for TBW- and TL series.

Low cogging

Optimized iron core motor design, for smooth motion and position and accuracy in your application.

Coil

Enhanced thermal management
Low thermal resistance (R_{th})

Power and sensor cable
Temperature measurement and cut-off sensor

NdFeB magnets

Magnet

unit

Lifetime
Proven quality due to in-house testing

Manufacturing
Produced under high quality standards

Aluminum enclosed coil unit

Low thermal resistance
Allowing good heat transfer, achieving an extremely high continuous force for all motors when using a decent size heatsink or active cooling.

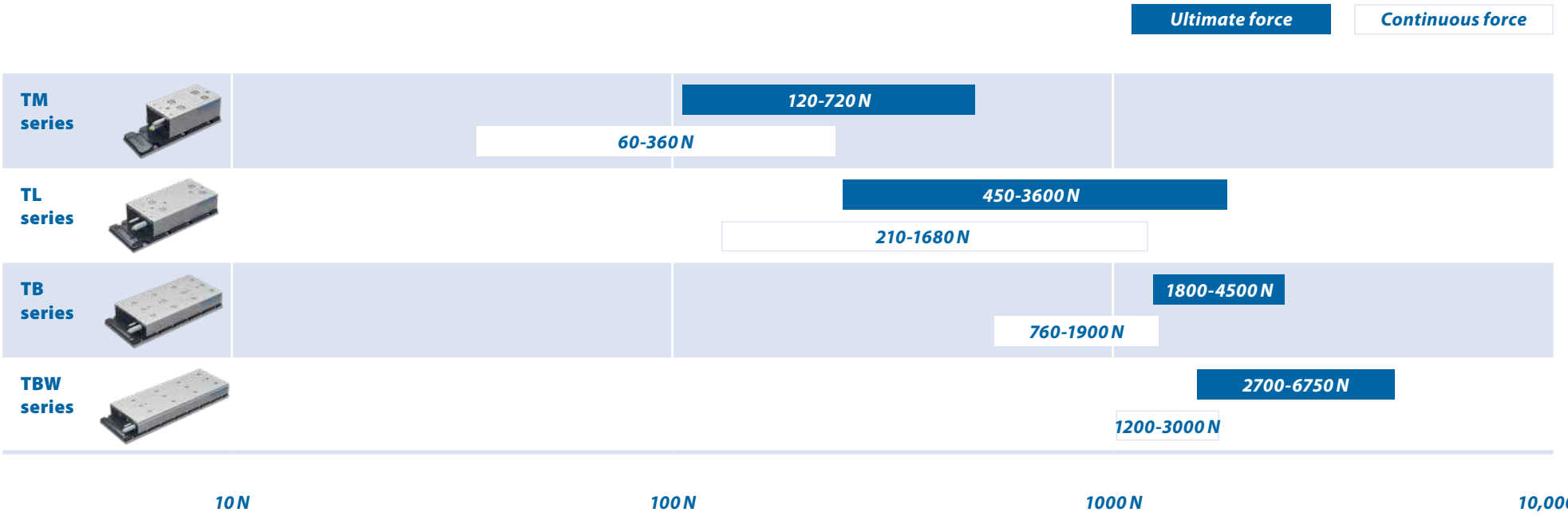
Approved for CSA, CE, UKCA and RoHS
All iron core motors from Tecnotion are approved for CE, CSA, UKCA and RoHS.

Magnet field protection plates
Enhanced safety and efficient handling of the magnet plates when installing the plates within your application.

plate

High force in a compact design

Iron core motor force range

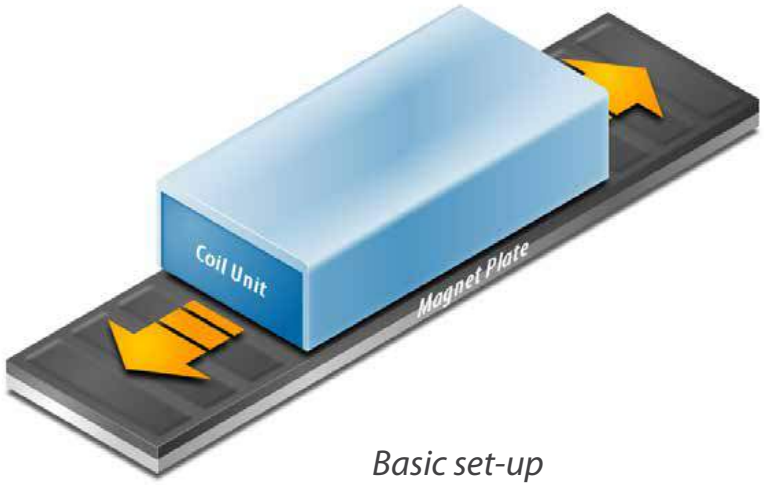


Modular
Motor configurations

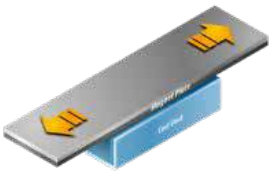
The direct drive technology of iron core linear motors is a perfect way to enhance productivity, accuracy, and dynamic performance. Linear motors eliminate the need for mechanical transmissions like rack and pinion, belts and speed reducers. Between coil unit and magnets there is no contact, this means no mechanical wear. The technology makes designs slimmer, modular and reduces costs.

Motors can be mechanically aligned in series or parallel. This allows motors to move on different tracks, distributing even force to a large gantry, or on the same track, enhancing power along a single line. In both cases, the total force of all motors adds up. Standardizing coil assemblies across multiple machines and applications reduces expenses and simplifies field support.

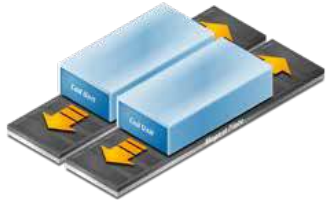
MODULAR SYSTEM All motors can be used in various configurations



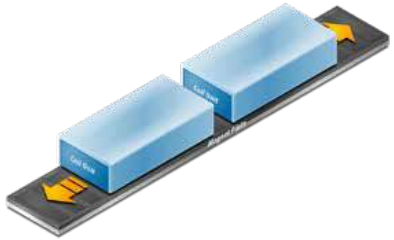
Basic set-up



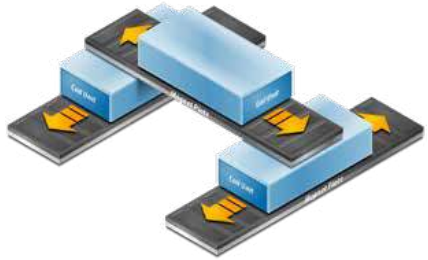
Moving magnet



Parallel coupled coil

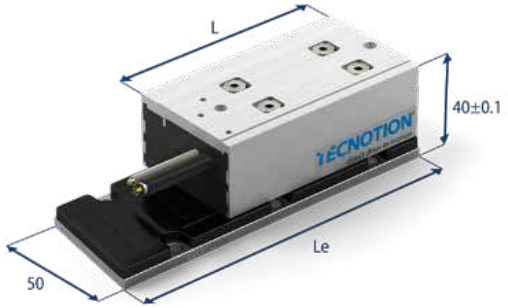


In-line on a single plate



Cross table or gantry

TM series iron core



TM3 on 144mm magnet plate shown

	Parameter	Remarks	Symbol	Unit	TM3		TM6		TM12	TM18	
Performance	Winding type				S	Z	S	Z	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	120		240		480	720	
	Peak force @ 6 K/s increase	magnets @ 25°C	F_p	N	105		210		420	630	
	Continuous force[1]	coils @ 100°C	F_c	N	60		120		240	360	
	Maximum speed[2]	@ U_{max} @ F_c	v_{max}	m/s	11	32	11	32	11	5.5	11
	Motor force constant	$I \leq I_c$	K_f	N/A_{rms}	39	12.9	39	12.9	39	79	39
	Motor constant	coils @ 25°C	S	N^2/W	94	99	188	198	376	578	596
Electrical	Ultimate current	magnets @ 25°C	I_u	A_{rms}	4.1	12.6	8.2	25.1	16.4	12.3	25.1
	Peak current	magnets @ 25°C	I_p	A_{rms}	3.1	9.5	6.2	18.9	12.4	9.2	18.9
	Continuous current[1]	coils @ 100°C	I_c	A_{rms}	1.5	4.7	3.0	9.3	6.0	4.5	9.3
	Back EMF ph-ph$_{peak}$		K_e	V_{dc}/m/s	32	11	32	11	32	65	32
	Resistance per phase	coils @ 25°C ex. cable	R_{ph}	Ω	5.4	0.56	2.7	0.28	1.35	3.6	0.85
	Induction per phase	$I < 0.6\ I_p$	L_{ph}	mH	35	3.7	17	1.8	8.7	23	5.5
	Electrical time constant		τ_e	ms	6.5						
Thermal	Continuous power loss[1]	coils @ 100°C	P_c	W	49		99		197	296	
	Thermal resistance	coils to mount. sfc.	R_{th}	K/W	1.5		0.75		0.38	0.25	
	Thermal time constant	up to 63% max. coil temp.	τ_{th}	s	75						
	Temperature sensor				PTC 1kΩ / KTY 83-122						
Mechanical	Coil unit mass	ex. cables	m	kg	0.6		0.9		1.6	2.3	
	Coil unit length	ex. cables	L	mm	93		143		241	336	
	Motor attraction force	rms @ 0 A	F_a	N	300		500		900	1300	
	Magnet pitch NN		τ	mm	24						
	Cable mass			kg/m	0.18						
	Cable type (power FLEX)	length 3 m	d	mm (AWG)	8.3 (18)						
	Cable type (sensor)	length 3 m	d	mm (AWG)	4.7 (26)						
	Cable life (power FLEX)[3]	minimum		cycles	5,000,000						
	Bending radius static (power FLEX)	minimum			4x cable diameter						
	Bending radius dynamic (power FLEX)	minimum			10x cable diameter						

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.*
[3] *Depending on bending radius, velocity and acceleration.*

FLEX cable

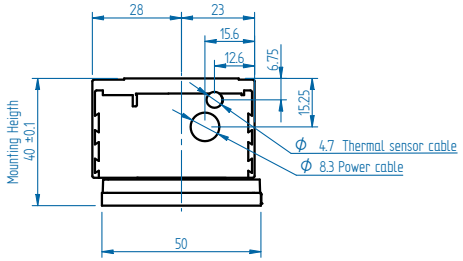
The TM series comes standard with a 3m long FLEX power cable.

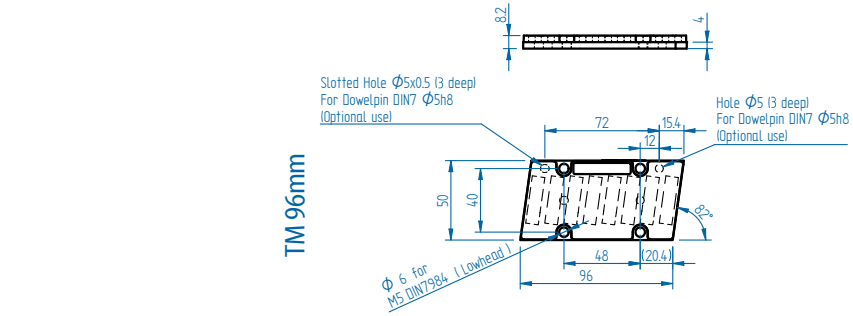
Magnet plate dimensions			
Le (mm)	96	144	384
M5 bolts	4	6	16
Mass (kg/m)		2.1	

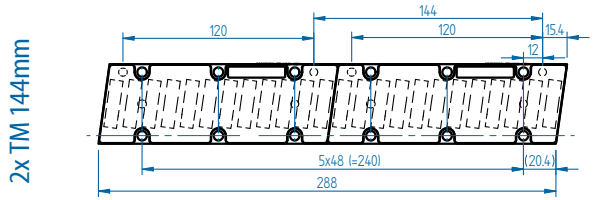
Magnet plates can be butted together.

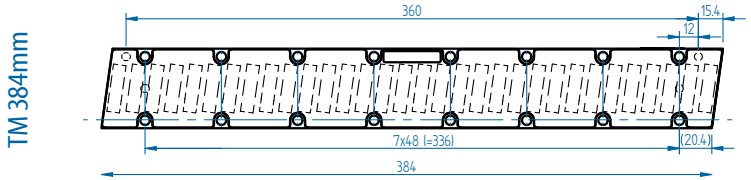
Approvals

Magnet plates

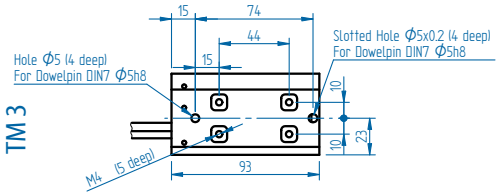


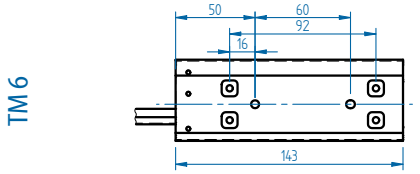


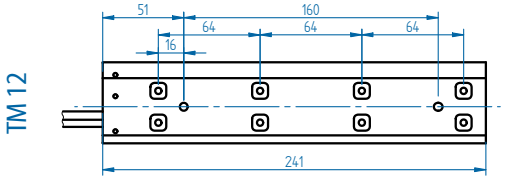


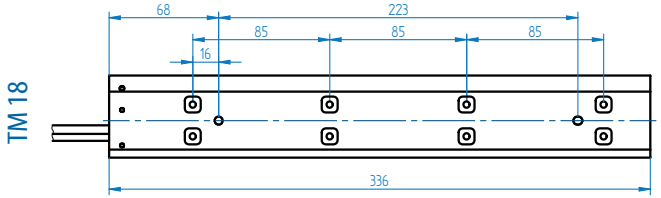


Coil units









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*

TL series iron core

TL6 on 192mm magnet plate shown

Parameter	Remarks	Sym	Unit	TL6		TL9		TL12		TL15		TL18		TL24		TL48
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	450		675		900		1125		1350		1800		3600
Peak force @ 6 K/s increase	magnets @ 25°C	F_p	N	400		600		800		1000		1200		1600		3200
Continuous force water cooled[1]	coils @ 100°C	F_{cw}	N	210		315		420		525		630		840		1680
Continuous force[1]	coils @ 100°C	F_c	N	200		300		400		500		600		800		1600
Maximum speed[2]	@ U_{max} @ F_c	v_{max}	m/s	4.8	9.4	3.1	9.4	4.8	9.4	3.9	9.4	4.8	9.8	4.8	9.4	2.4
Motor force constant	$I \leq I_c$	K_f	N/A_{rms}	93	46.5	140	46.5	93	46.5	112	46.5	93	44.9	93	46.5	180
Motor constant	coils @ 25°C	S	N^2/W	400	400	605	596	801	801	972	1001	1196	1139	1593	1567	3130
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	40.6	26.2	52.3	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	76	38	114	38	76	38	92	38	76	38	76	38	147
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	54	14	81	9.0	27	7.0	32	5.4	18	4.4	14	3.4	26
Electrical time constant		τ_e	ms	7.5												
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*	up to 63% max. coil temp.	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		1		2		2		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	950		1325		1700		2075		2450		3400		6400
Magnet pitch NN		τ	mm	24												
Cable mass			kg/m	0.18										0.30		
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)												

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.*

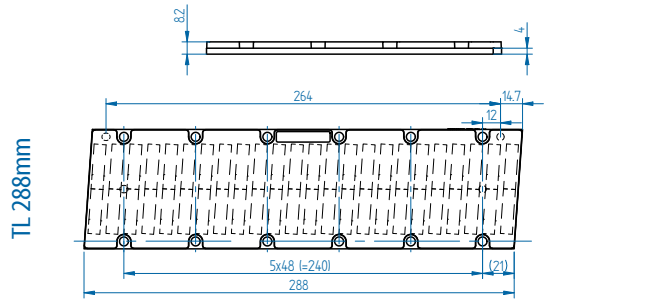
Water cooling

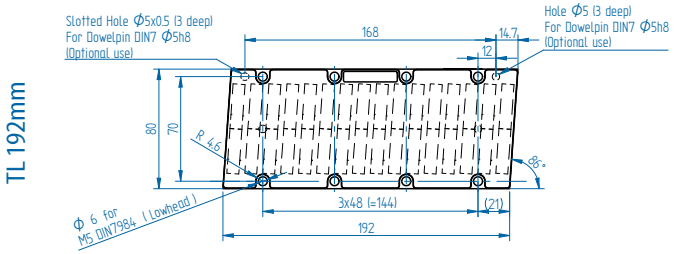
All TL motors feature integrated cooling channels that allow for the easy setup of a liquid cooled system, at no additional cost.

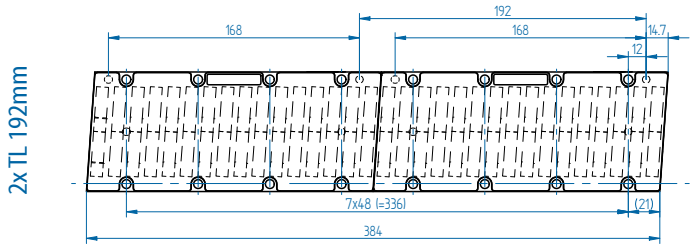
Magnet plate dimensions		
Le (mm)	192	288
M5 bolts	8	12
Mass (kg/m)	3.8	
Magnet plates can be butted together.		

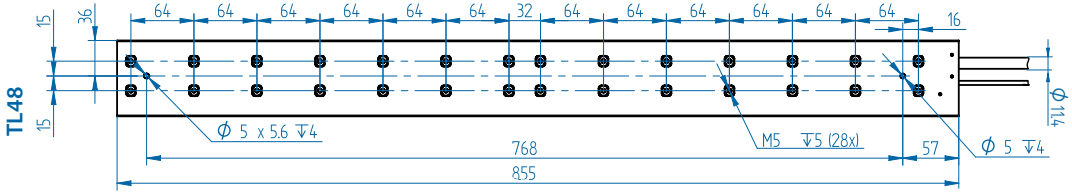
Approvals

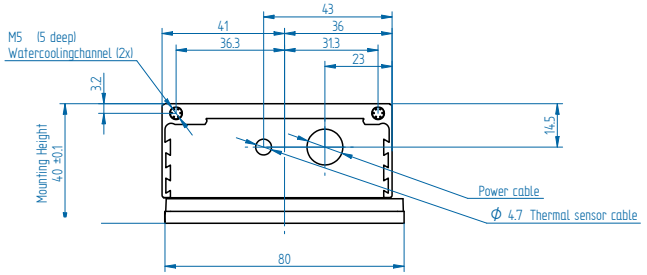
Magnet plates



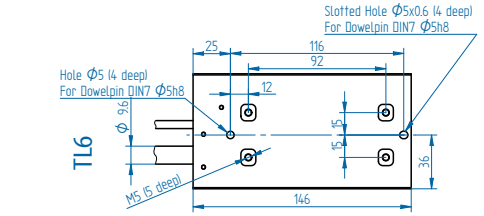


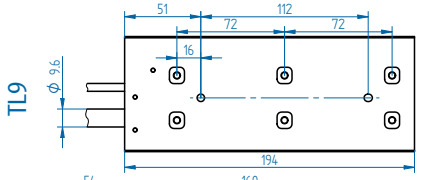


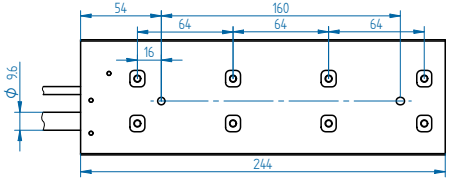


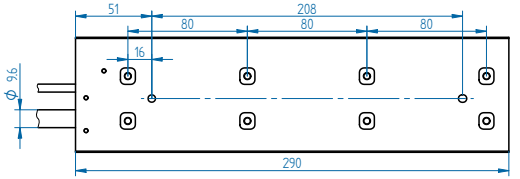


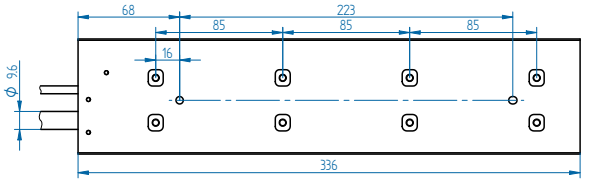
Coil units

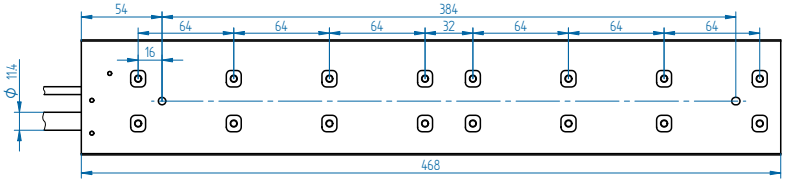












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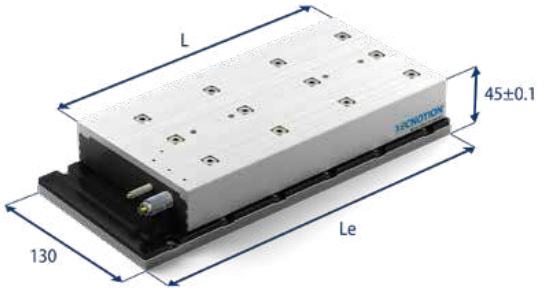
** All sizes are in mm*

TB series iron core



TB12 on 288mm magnet plate shown

Parameter	Remarks	Sym	Unit	TB12		TB15		TB18	TB24	TB30	
Performance				N	S	N	S	N	N	N	S
Winding type											
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	1800		2250		2700	3600	4500	
Peak force @ 6 K/s increase	magnets @ 25°C	F_p	N	1600		2000		2400	3200	4000	
Continuous force[1]	coils @ 100°C	F_c	N	760		950		1140	1520	1900	
Maximum speed[2]	@ U_{max} @ F_c	v_{max}	m/s	2.4	5.0	2.0	5.0	2.4	1.9	2.0	5.0
Motor force constant	$I \leq I_c$	K_f	N/A_{rms}	186	93	225	93	186	232	225	93
Motor constant	coils @ 25°C	S	N^2/W	1830	1802	2220	2218	2746	3588	4441	4435
Electrical											
Ultimate current	magnets @ 25°C	I_u	A_{rms}	13.0	26	13.5	33	20	21	27	66
Peak current	magnets @ 25°C	I_p	A_{rms}	10.0	20	10.0	25	15	16	20	50
Continuous current[1]	coils @ 100°C	I_c	A_{rms}	4.1	8.2	4.2	10.2	6.1	6.6	8.5	20.5
Back EMF ph-ph$_{peak}$		K_e	V_{dc}/m/s	152	76	183	76	152	189	183	76
Resistance per phase	coils @ 25°C ex. cable	R_{ph}	Ω	6.3	1.6	7.6	1.3	4.2	5.0	3.8	0.65
Induction per phase	$I < 0.6\ I_p$	L_{ph}	mH	51	13	60	10	34	40	30	5.1
Electrical time constant		τ_e	ms	8							
Thermal											
Continuous power loss[1]	coils @ 100°C	P_c	W	430		530		640	853	1060	
Thermal resistance	coils to mount. sfc.	R_{th}	K/W	0.15		0.12		0.11	0.08	0.06	
Thermal time constant	up to 63% max. coil temp.	τ_{th}	s	90							
Temperature sensor				PTC 1kΩ / KTY 83-122							
Mechanical											
Coil unit mass	ex. cables	m	kg	4.9		5.9		6.9	9.4	11.6	
Coil unit length	ex. cables	L	mm	244		290		336	434	562	
Motor attraction force	rms @ 0 A	F_a	N	3400		4150		4900	6800	8300	
Magnet pitch NN		τ	mm	24							
Cable mass			kg/m	0.3							
Cable type (power)	length 1 m	d	mm (AWG)	11.4 (14)							
Cable type (sensor)	length 1 m	d	mm (AWG)	4.7 (26)							

All specifications ±10%

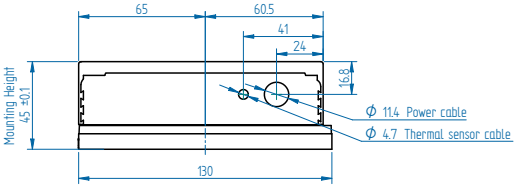
[1] *These values are only applicable when the mounting surface is at 20°C and the motor is driven at continuous current. If these values differ in your application, please check our simulation tool.*

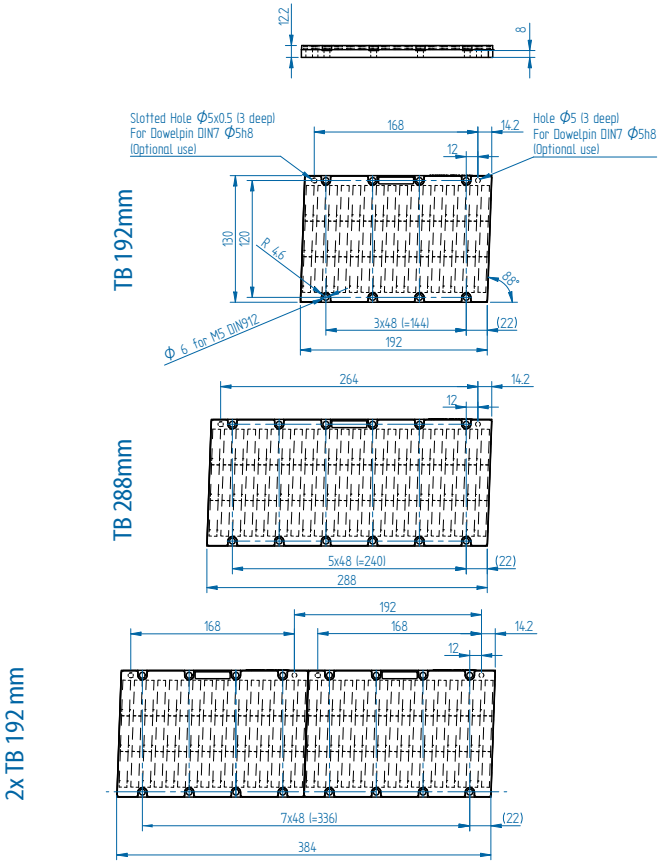
[2] *Actual values depend on bus voltage. Please check the F/v diagram in our simulation tool.*

Magnet plate dimensions		
Le (mm)	192	288
M5 bolts	8	12
Mass (kg/m)	10.5	
Magnet plates can be butted together.		

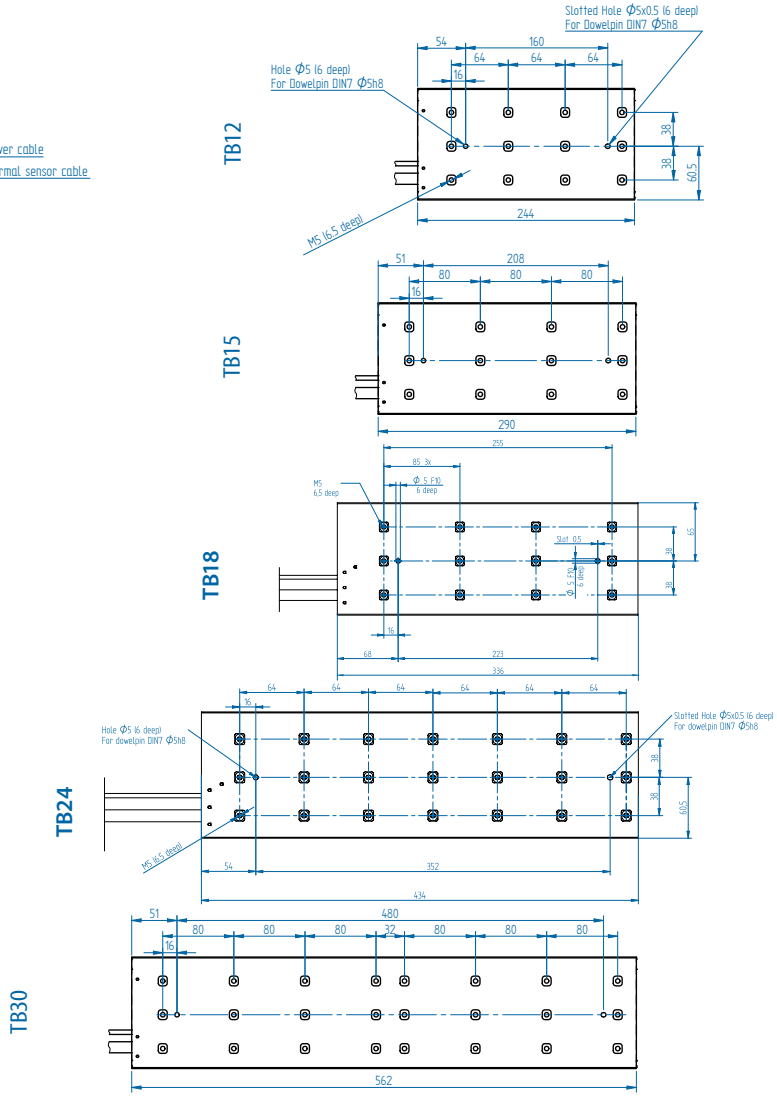
Approvals

Magnet plates





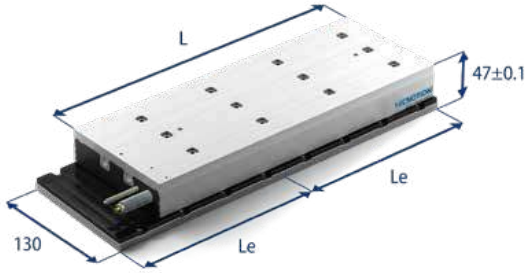
Coil units



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*

TBW series iron core



TBW18 on 2x192mm magnet plate shown

Parameter	Remarks	Symbol	Unit	TBW18		TBW30		TBW45	
Performance				N	S	N	S	N	S
Winding type									
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	2700		4500		6750	
Peak force @ 6 K/s increase	magnets @ 25°C	F_p	N	2400		4000		6000	
Continuous force water cooled[1]	coils @ 100°C	F_{cw}	N	1200		2000		3000	
Continuous force[1]	coils @ 100°C	F_c	N	1140		1900		2850	
Maximum speed[2]	@ U_{max} @ F_c	v_{max}	m/s	2.4	5.0	2.0	5.0	2.0	5.0
Motor force constant	$I \leq I_c$	K_f	N/A_{rms}	186	90	225	93	225	93
Motor constant	coils @ 25°C	S	N^2/W	2621	2700	4327	4368	6490	6552
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	152	76	183	76	183	76
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	35	8.1	31	5.1	21	3.5
Electrical time constant		τ_e	ms	8					
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	up to 63% max. coil temp.	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	4900		8300		12450	
Magnet pitch NN		τ	mm	24					
Cable mass			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)					

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.*

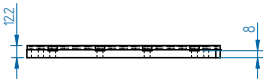
Water cooling

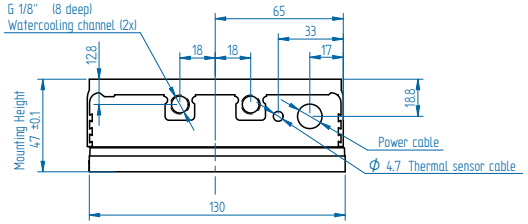
All TBW motors feature integrated cooling channels that allow for the easy setup of a liquid cooled system, at no additional cost.

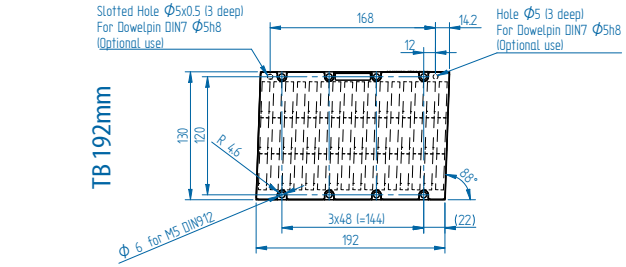
Magnet plate dimensions		
Le (mm)	192	288
M5 bolts	8	12
Mass (kg/m)	10.5	
Magnet plates can be butted together.		

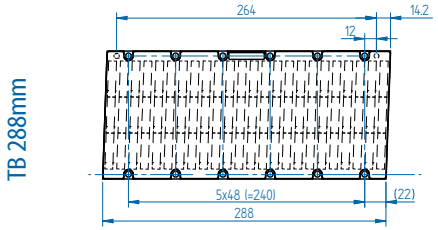
Approvals

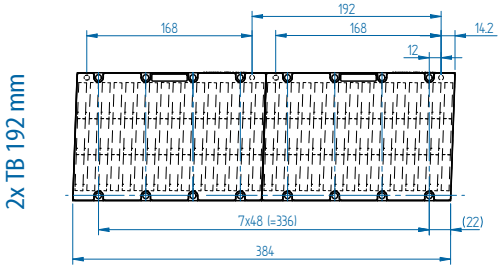
Magnet plates



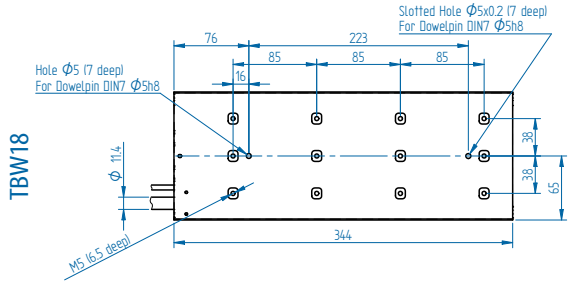


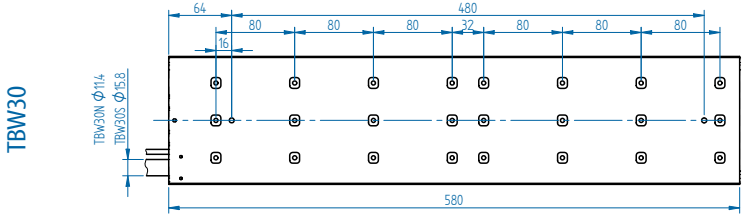


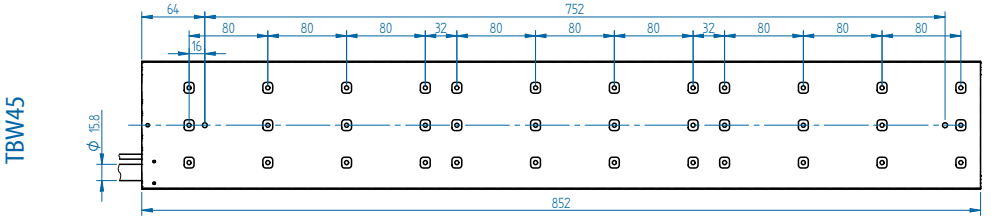




Coil units



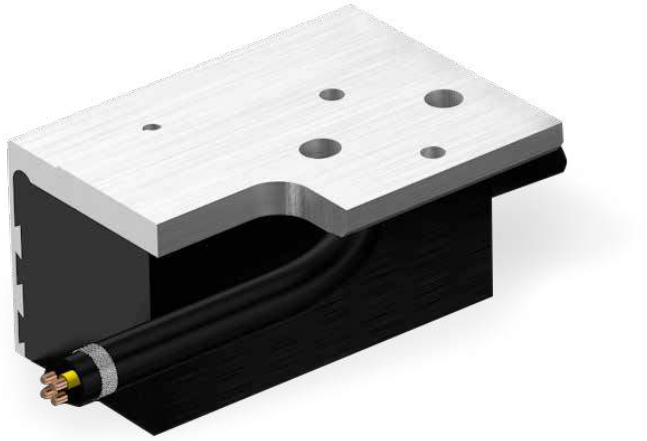


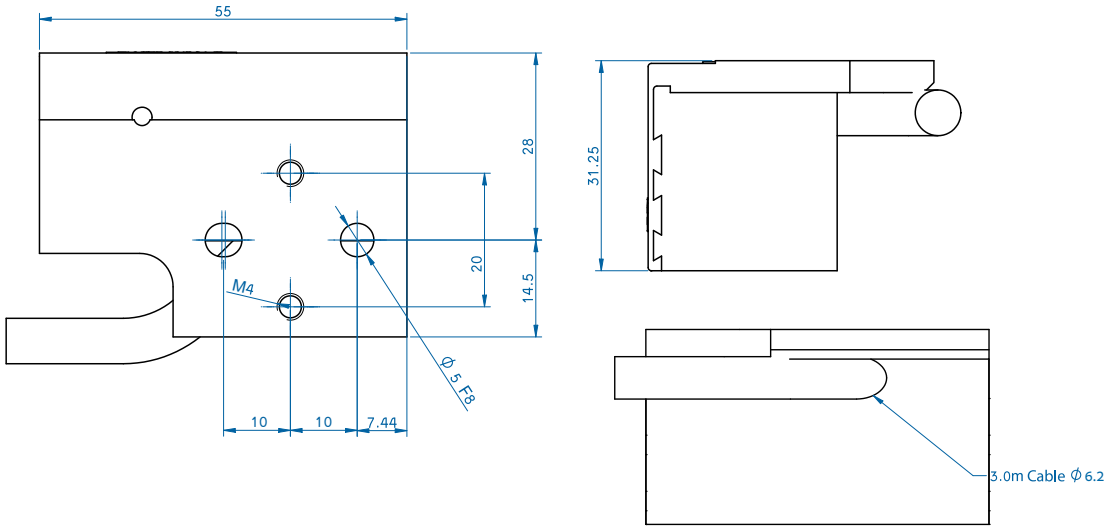


Mounting instructions and flatness or parallelism requirements can be found in the iron core installation manual. CAD files, 3D models and the manual can be downloaded from our website.

** All sizes are in mm*

Analog Hall module



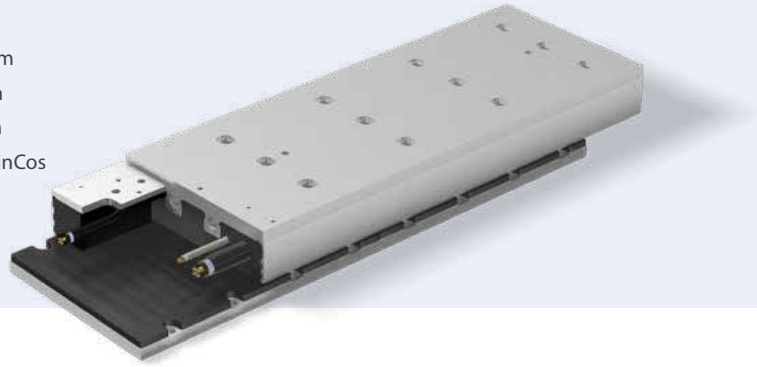


Cost efficient positioning

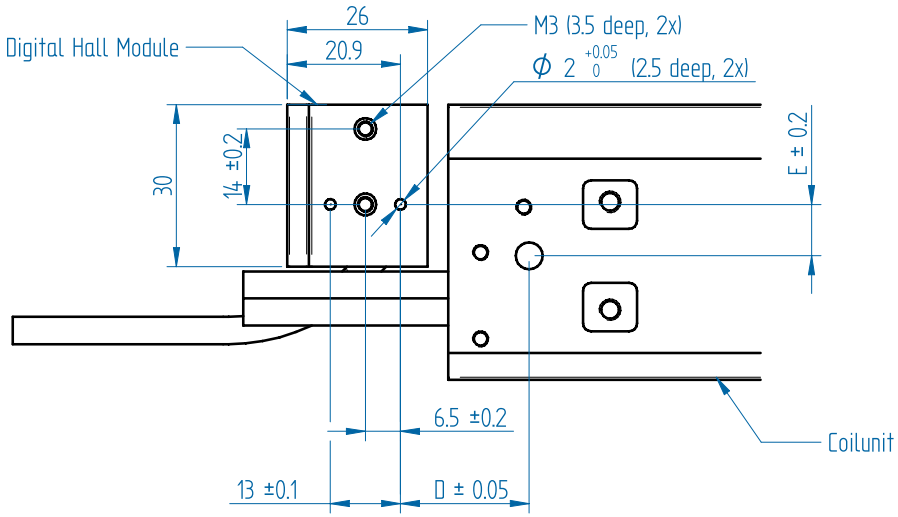
Linear motors can be positioned extremely accurately by using optical encoders and rulers. If extreme accuracy is not required, the optical encoders can be replaced by an analog Hall module. This module uses the magnet track, as opposed to the ruler, as the linear scale.

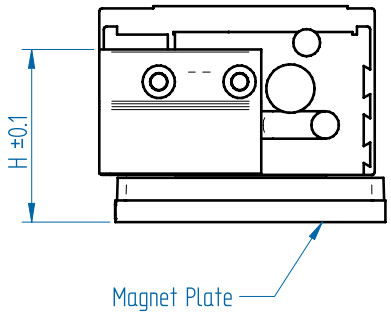
The analog Hall module can be easily mounted on our iron core motors and communicates with practically all standard servo controllers. The analog Hall module requires a standard $5V_{dc}$ power supply.

Absolute accuracy	± 100 µm
Repeatable accuracy	± 30 µm
Resolution	± 10 µm
Signal	1 Vpp SinCos
Signal period	24 mm



Digital Hall module





Commutation

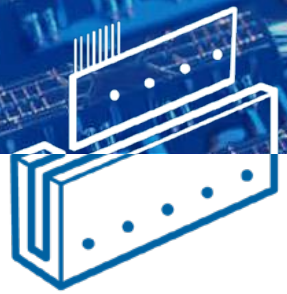
An optional digital Hall module that can be used with our entire range of linear motors, is available for commutation. It's sensors provide 3 digital outputs, each phase shifted 120 degrees, to determine the electrical angle between coils and magnets.

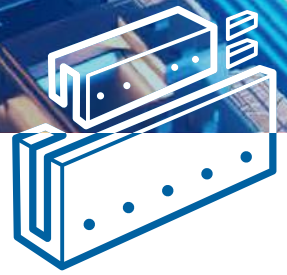
This module can be a cost-effective alternative, if you don't use a controller that allows you to commutate within the servo drive.

- The digital Hall module requires a 4 to 24V_{dc} power supply.

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.

We direct drive your motion technology





Vacuum linear motors

F_p 100-4020 N F_c 22-698 N

Vacuum Generation 2 motors for powerful and precise processes

Generation 2 vacuum ironless linear motor series is designed with the unique challenges of vacuum applications in mind and based on years of collaboration with high-end semiconductor manufacturers.

Optimal thermal properties, added safety, excellent RGA performance, lower outgassing and flexibility to install make the Generation 2 vacuum motor series the benchmark for motion in vacuum applications.

www.tecnotion.com/vacuum

Torque motors

T_u 0.64-2202 Nm T_c 0.29-907 Nm

Increased accuracy and dynamic performance of your application

Tecnotion torque motor series features superior force density, low thermal resistance, low cogging and housed design. Motors can be very slim in height but large in diameter (for large axles and turntables) or have a 'height' close to their diameter, resulting in a compact but high-torque motor.

The torque series consists of different outer diameters ranging from 65mm to 485mm for the largest motor and various building heights ranging from 17mm up to 105mm.

www.tecnotion.com/torque

Custom motors

Motor solutions

Adapt standard motor series to meet your needs

In case the standard motor series are not sufficient for your application, it is also possible to have these motors customized in a variety of ways. Customization can range from simple modifications, like adding a connector, to fully tailor-made motors designed from scratch.

Some examples: custom windings, cable confection, additional sensors, additional certifications and customization for vacuum applications. For more information please contact Tecnotion.

www.tecnotion.com/custom

Ironless linear motors

F_p 36-4200 N F_c 10-846 N

Superior precision with accurate force constant and speed

In contrast to iron core motors, these motors feature an ironless coil unit, therefore no attraction force or cogging between the coil unit and the magnet track. This gives ironless motors their light weight, superior precision, a linear force constant, and extremely dynamic velocity, acceleration, and deceleration.

Perfect for many industries, such as semiconductor, display, inspection, medical, automation, and optics.

www.tecnotion.com/ironless

TECNOTION® direct drive in motion

Motor simulation tool

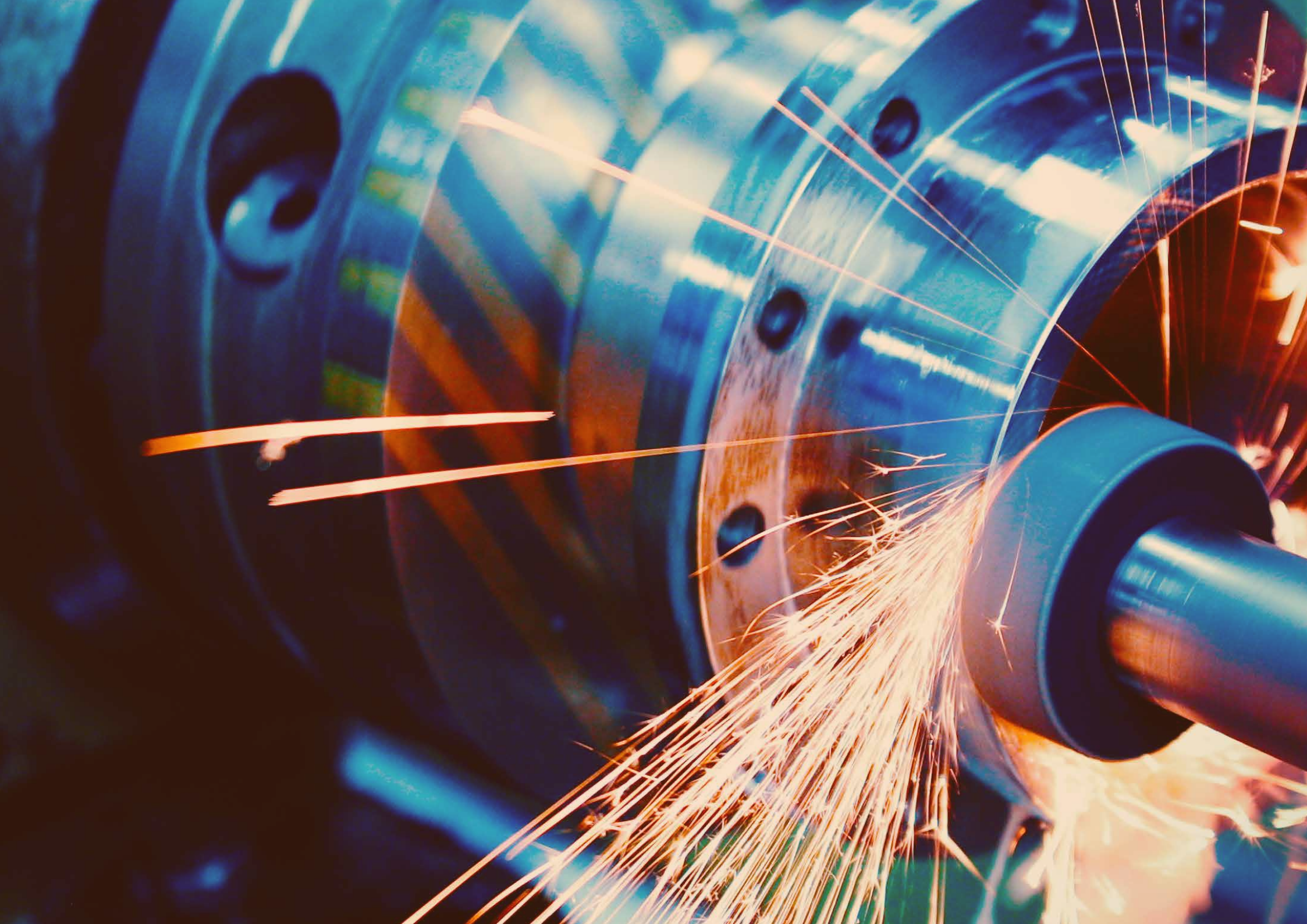
Analyze your application

Size your application with the motor selection and simulation tool

Online motor simulation software helps you find the best motor for the application and generate reports within seconds, without having to make time consuming calculations by hand.

The motor sizing simulation tool helps to select the right torque or linear motor, using your application characteristics. The tool will provide you with diagrams for position, velocity, acceleration, jerk, torque, power, voltage, current, temperature and torque vs. velocity.

www.tecnotion.com/simtool



Article numbers

Series	Article	Article code
TM series		
TM	Coil unit TM 3S FLEX	4022 368 5075
TM	Coil unit TM 3Z FLEX	4022 368 5533
TM	Coil unit TM 6S FLEX	4022 368 5076
TM	Coil unit TM 6Z FLEX	4022 368 5300
TM	Coil unit TM 12S FLEX	4022 368 5078
TM	Coil unit TM 18N FLEX	4022 368 5500
TM	Coil unit TM 18S FLEX	4022 368 5519
TM	Magnet plate TM 96 mm	4022 368 5225
TM	Magnet plate TM 144 mm	4022 368 5226
TM	Magnet plate TM 384 mm	4022 368 5227
TM	Analog Hall Module	4022 368 5139
TM	Digital Hall Module T-Serie	4022 368 5418
TL series		
TL	Coil unit TL 6N	4022 369 7458
TL	Coil unit TL 6S	4022 368 5032
TL	Coil unit TL 9N	4022 368 5311
TL	Coil unit TL 9S	4022 368 5312
TL	Coil unit TL 12N	4022 369 7459
TL	Coil unit TL 12S	4022 368 5033
TL	Coil unit TL 15N	4022 369 7460
TL	Coil unit TL 15S	4022 368 5034
TL	Coil unit TL 18N	4022 368 5223
TL	Coil unit TL 18S	4022 368 5224
TL	Coil unit TL 24N	4022 368 5014
TL	Coil unit TL 24S	4022 368 5035
TL	Coil unit TL 48Q	112547
TL	Magnet plate TL 192 mm	4022 368 5193
TL	Magnet plate TL 288 mm	4022 368 5194
TL	Analog Hall Module	4022 368 5139
TL	Digital Hall Module T-Serie	4022 368 5418

Series	Article	Article code
TB series		
TB	Coil unit TB 12N	4022 368 5155
TB	Coil unit TB 12S	4022 368 5157
TB	Coil unit TB 15N	4022 368 5122
TB	Coil unit TB 15S	4022 368 5120
TB	Coil unit TB 18N	111026
TB	Coil unit TB 24N	111027
TB	Coil unit TB 30N	4022 368 5123
TB	Coil unit TB 30S	4022 368 5121
TB	Magnet plate TB 192 mm	4022 368 5221
TB	Magnet plate TB 288 mm	4022 368 5222
TB	Analog Hall Module	4022 368 5139
TB	Digital Hall Module T-Serie	4022 368 5418
TBW series		
TBW	Coil unit TBW 18N	4022 368 5263
TBW	Coil unit TBW 18S	4022 368 5264
TBW	Coil unit TBW 30N	4022 368 5242
TBW	Coil unit TBW 30S	4022 368 5243
TBW	Coil unit TBW 45N	4022 368 5244
TBW	Coil unit TBW 45S	4022 368 5245
TBW	Magnet plate TB 192 mm	4022 368 5221
TBW	Magnet plate TB 288 mm	4022 368 5222
TBW	Analog Hall Module	4022 368 5139
TBW	Digital Hall Module T-Serie	4022 368 5418