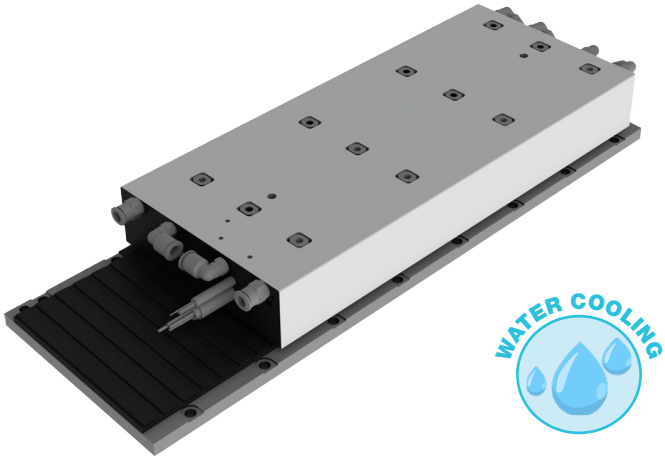
KMC78S SERIES - IRON CORE LINEAR MOTOR
DIMENSIONS AND SPECIFICATIONS

Magnet plate dimensions		
Code	**KMM770192**	**KMM770288**
Le (mm)	192	288
M5 bolts	8	12
Mass (kg/m)	10,5	
Magnet plates can be butted together.		

Water cooling

All KMC78S motors feature integrated cooling channels that allow for the easy setup of a liquid cooled system, at no additional cost.



	Parameter	Remarks	Sym	Unit	KMC78S							
Performance	**Winding type**				II23N	II23H	II28N	II28H	II47N	II47H	II71N	II71H
	Motortype, max voltage ph-ph				3-phase synchronous Iron core, 400 $V_{ac\ rms}$ (V_{dc})							
	Ultimate force @ 10°C/s increase	Magnet @ 25ºC	F_u	N	2375		2850		4750		7125	
	Peak force @ 6°C/s increase	Magnet @ 25ºC	F_p	N	2100		2520		4200		6300	
	Continuous force watercooled**	Coils @ 100ºC	F_{cw}	N	1300		1560		2600		3900	
	Continuous force aircooled*	Coils @ 100ºC	F_c	N	955		1140		1900		2850	
	Maximum speed**	@ 560 V	V_{max}	m/s	3	6	3	6	2.5	6	2.5	6
	Motor force constant	Mount. sfc. @ 20ºC	K	N/A_{rms}	224.5	93	186	90	225	93	225	93
	Motor constant	Coils @ 25ºC	S	N^2/W	2200	2200	2640		4400		6600	
Electrical	**Ultimate current**	Magnet @ 25ºC	I_u	A_{rms}	14	35	21	43	29	69	43	104
	Peak current	Magnet @ 25ºC	i_p	A_{rms}	11	26	16	33	22	53	33	79
	Maximum continuous current*	Coils @ 100ºC	I_c	A_{rms}	4	11	8	17	12	28	17	42
	Back EMF Phase-Phase$_{peak}$		B_{emf}	V/m/s	183	76	152	76	183	76	183	76
	Resistance per phase	Coils @ 25ºC ex. cable	R_{ph}	Ω	7.55	1.27	4.4	1.0	3.9	0.66	2.6	0.44
	Induction per phase	I < 0.6 Ip	I_{ph}	mH	60	10	35	8	31	5	21	3
	Electrical time constant	Coils @ 25ºC	T_e	ms	8							
Thermal	**Max. continuous power loss**	All coils	P_c	W	487		726		1209		1804	
	Thermal resistance	Coils to mount. sfc.	R_{th}	ºC/W	0.13		0.10		0.06		0.04	
	Thermal time constant*	up to 63% max. coiltemp.	T_{th}	s	87							
	Watercooling flow	for ΔT=3K	Ow	l/min	3		3.4		5.6		8.4	
	Watercooling pressure-drop	Magnitude	ΔP_w	bar	1		1.0		1.5		2.5	
	Temperature cut-off / sensor				PTC 1kΩ / KTY 83-122							
Mechanical	**Coil unit weight**	ex. cables	W	kg	6		7.3		12.3		18.2	
	Coil unit length	ex. cables	L	mm	290		336		562		834	
	Motor attraction force	rms @ 0 A	F_a	N	4150		4900		8300		12450	
	Magnet pitch NN		t	mm	24							
	Cable mass		m	kg/m	0.3					0.6		
	Cable Type (power FLEX)***	Length 3 m	d	mm (AWG)	11.9 (14)					16.9 (10)		
	Cable Type (sensor)	Length 3 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.*
*** Actual values depend on bus voltage. Please check the F/v diagram in our simulation tool.*
**** Depending on bending radius, velocity and acceleration.*

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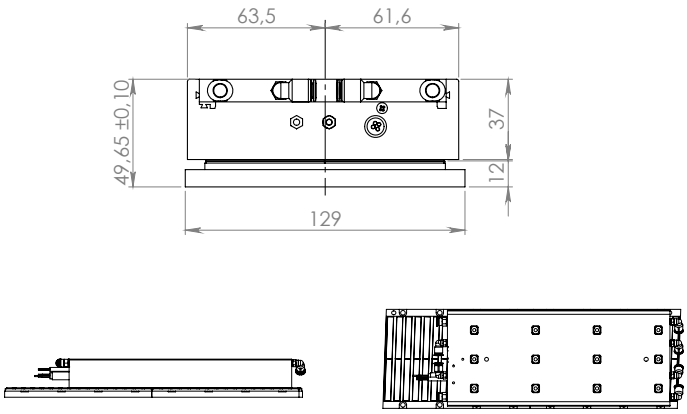
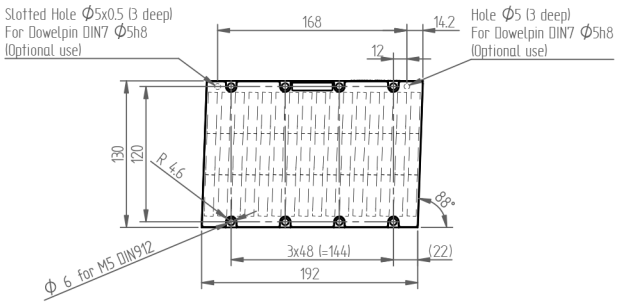
DIMENSIONS AND SPECIFICATIONS

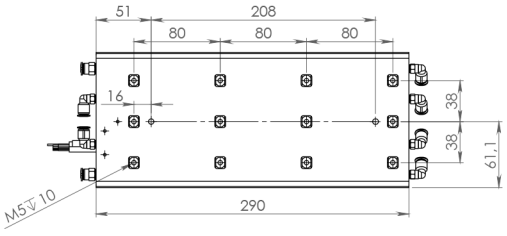
MAGNET PLATES



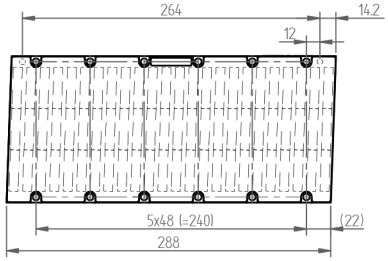
KMM770192



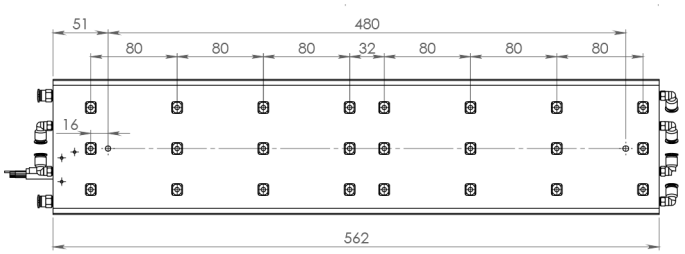
KMC78S-II23N / II23H



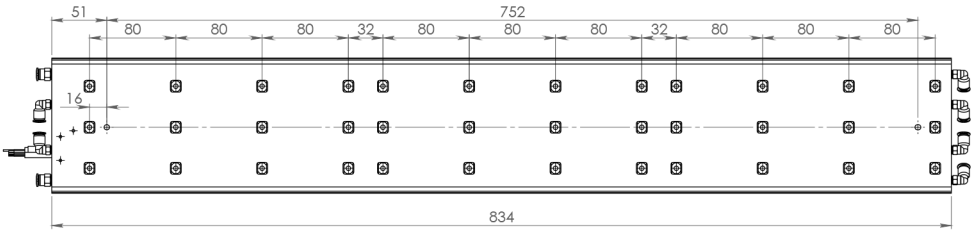
KMM770288



KMC78S-II47N / II47H



KMC78S-II71N / II71H



*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*