

UM3 in 150mm magnet yoke shown

# UM Series Ironless

Parameter	Remarks	Symbol	Unit	UM3		UM6		UM9		UM12	
				N	S	N	S	N	S	N	S
Winding type				N	S	N	S	N	S	N	S
Motortype, max voltage ph-ph				3-phase synchronous Ironless, 230V <sub>acrms</sub> (325V <sub>dc</sub> )							
Peak force @ 20°C/s increase	magnet @ 25°C	F <sub>p</sub>	N	100		200		300		400	
Continuous force*	coils @ 110°C	F <sub>c</sub>	N	29		58		87		116	
Maximum speed**	@ 300 V	v <sub>max</sub>	m/s	10	18	10	18	10	17	10	16
Motor force constant	mount. sfc. @ 20°C	K	N/A <sub>rms</sub>	36.3	19.9	36.3	19.9	36.3	19.9	36.3	19.9
Motor constant	coils @ 25°C	S	N <sup>2</sup> /W	24		48		71		95	
Peak current	magnet @ 25°C	I <sub>p</sub>	A <sub>rms</sub>	2.8	5.0	5.5	10.0	8.3	15.0	11.0	20.0
Maximum continuous current	coils @ 110°C	I <sub>c</sub>	A <sub>rms</sub>	0.8	1.5	1.6	2.9	2.4	4.4	3.2	5.8
Back EMF phase-phase <sub>peak</sub>		B <sub>emf</sub>	V/m/s	30	16	30	16	30	16	30	16
Resistance per phase*	coils @ 25°C ex. cable	R <sub>ph</sub>	Ω	18.5	5.5	9.3	2.8	6.2	1.8	4.6	1.4
Induction per phase		L <sub>ph</sub>	mH	6	1.8	3	0.9	2	0.6	1.5	0.4
Electrical time constant*	coils @ 25°C	τ <sub>e</sub>	ms	0.35		0.35		0.35		0.35	
Maximum continuous power loss	all coils	P <sub>c</sub>	W	47		95		142		190	
Thermal resistance	coils to mount. sfc.	R <sub>th</sub>	°C/W	1.8		0.9		0.6		0.45	
Thermal time constant*	up to 63% max. coiltemp.	τ <sub>th</sub>	s	36		36		36		36	
Temperature cut-off / sensor				PTC 1kΩ / NTC							
Coil unit weight	ex. cables	W	kg	0.084		0.162		0.240		0.318	
Coil unit length	ex. cables	L	mm	78		138		198		258	
Motor attraction force		F <sub>a</sub>	N	0		0		0		0	
Magnet pitch NN		τ	mm	30		30		30		30	
Cable mass		m	kg/m	0.08		0.08		0.08		0.08	
Cable type (power)	length 1 m	d	mm (AWG)					5.3 (22)			
Cable type (sensor)	length 1 m	d	mm (AWG)					3.2 (26)			

### Magnet yoke dimensions

Le (mm)	90	120	150	390
M4 bolts	3	4	6	13
Mass (kg/m)	4.8			

Magnet yokes can be butted together.

Approvals

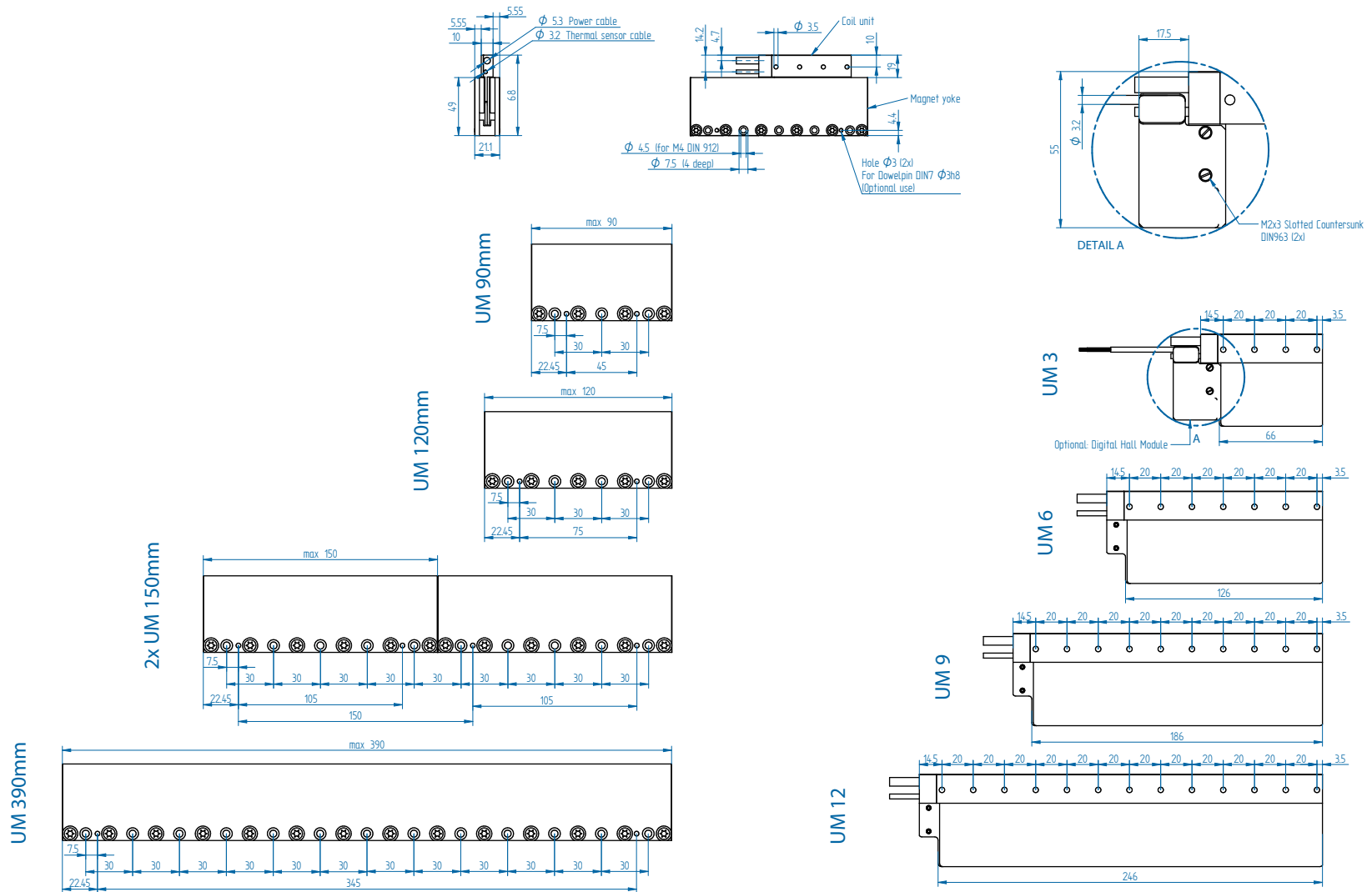


\* These values are only applicable when the mounting surface is at 20°C and the motor is driven at maximum continuous current. If these values differ in your application, please check our simulation tool.

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

## Magnet yokes

## Coil units



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

\* All sizes are in mm