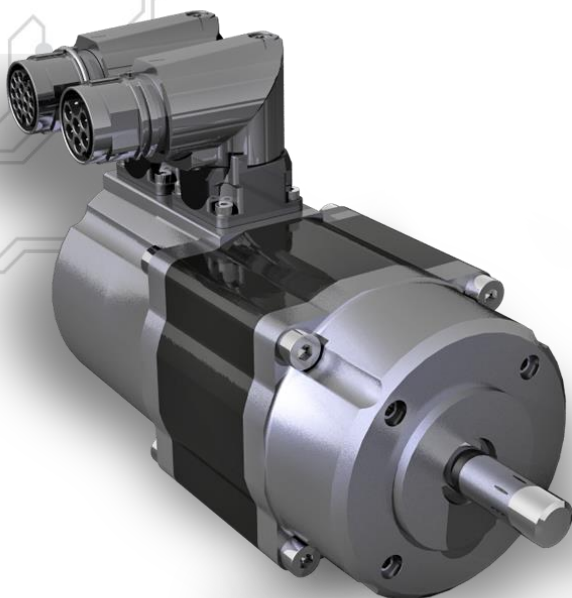


## AC BRUSHLESS SERVOMOTORS - M5.1x



**M5** - brushless servomotors, are AC permanent magnet synchronous motors (PMSM). They are equipped with last generation magnets and they have a very good price/performances. The use of high quality materials allows to obtain high torque/volume ratio and provides excellent dynamic performances with high maximum speed. They can have a resolver or incremental/absolute encoder.

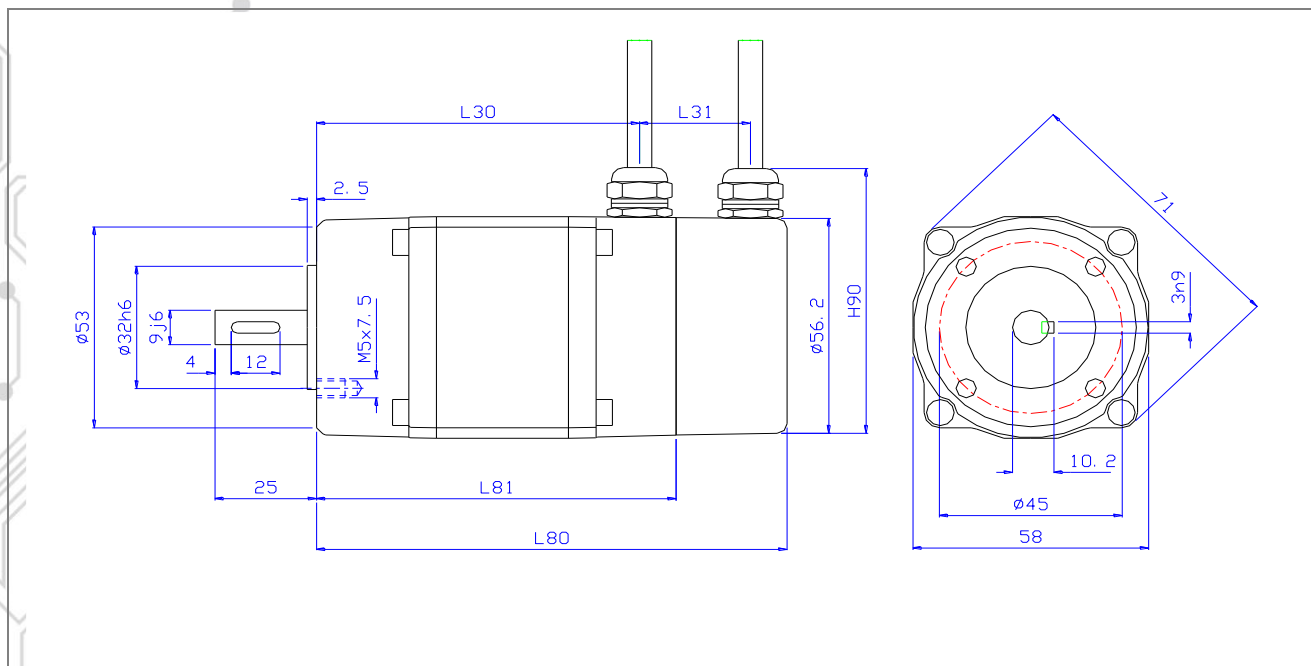
### *Their main characteristics are:*

- Rare earth magnets for high temperatures
- 4 Poles construction, 58x58 mm
- Sinusoidal B<sub>emf</sub>
- Integrated thermal protection with PTC
- Cable Output or connectors
- Compact design, low weight
- High protection, smooth surface
- High efficiency
- High speed

Technical Data

Tab. 1

Description <i>Winding code</i>	Symbol	MU	M5.11			M5.12			M5.13		
			1	3	4	1	2	3	1	2	3
<b>Stall Torque</b>	M <sub>0</sub>	Nm	<b>0,24</b>			<b>0,45</b>			<b>0,9</b>		
<b>Max Voltage</b>	U <sub>MAX</sub>	V	179	47	24	188	335	47	183	336	50
<b>Stall Current</b>	I <sub>0</sub>	A	0,67	2,6	4,8	0,94	0,46	3,3	1,8	1	6,4
<b>Nominal Current</b>	I <sub>N</sub>	A	0,56	2,1	4	0,84	0,42	3	1,6	0,89	5,9
<b>Nominal Torque</b>	M <sub>N</sub>	Nm	0,2			0,4			0,7		
<b>Nominal Power</b>	P <sub>N</sub>	W	100			160			280		
<b>Nominal Speed</b>	N <sub>N</sub>	min <sup>-1</sup>	5.000			4.000			4.000		
<b>Maximal Speed</b>	N <sub>MAX</sub>	min <sup>-1</sup>	6.000			5.000			5.000		
<b>Peak Current</b>	I <sub>MAX</sub>	A	2,7	11	19	4	2	14	7,5	4,2	27
<b>Voltage constant</b>	K <sub>E</sub>	V/Krpm	22	5,8	3	30	56	7,6	31	57	8,5
<b>Torque constant</b>	K <sub>T</sub>	Nm/A	0,36	0,1	0,05	0,5	0,94	0,13	0,51	0,94	0,14
<b>Rotor Inertia</b>	J <sub>R</sub>	Kg cm <sup>2</sup>	0,094			0,17			0,32		
<b>Resistance @ 20°C</b>	R <sub>U-V</sub>	ohm	24	1,6	0,42	14	49	0,96	5,5	18	0,46
<b>Inductance @ 1 KHz</b>	L <sub>U-V</sub>	mH	32	2,1	0,6	27	80	1,5	11	40	0,9
<b>Mass</b>	m	Kg	0,62			1,02			1,68		



Dimension in mm

Tab. 2

Motor Type	M5.11		M5.12		M5.13	
	Res/enc	Brake	Res/enc	Brake	Res/enc	Brake
Feedback/Brake						
L80	96	na	116	152	156	192
L81	71		91		131	
L30	60		80		120	
L31	24	na	24	62	24	62
H90	70		70		70	
Cable lenght	300					
Fr @3000rpm [N]	180					
Fa @3000rpm [N]	60					

**Values in this catalogue are true for the following conditions:**

- Max Temperature ambient 40° C
- Min temperature ambient 0 °C
- Max Altitude 1000 m sl
- F insulation class, materials F e H
- RMS value
- Installation with aluminium flange
- Degree of Protection IP44 (shaft excluding)
- Installation Motor design B14 – V18 –V19
- Cooling IC0041
- Typical value, tolerance ±10%
- 100K temperature increase on the winding

**The following accessories are available on request:**

- Gear reducers
- Precision planetary gears reducers
- Digital Drive
- Low-cost digital drive
- Connectors Cable motor-drive
- Special winding
- Sensorless motor
- Custom shaft
- Application & new design
- Holding brake

Producer reserves the right to amend the specification of this product without prior notification.

## PART NUMBER COMPOSITION

1	2	3	4	5	6	7	8	9	10	11	12
-	-	M	5	1	2	1	0	9	3	x	x

POS.	DESCRIPTION
1-3	<p><b>Product</b> M= PM synchronous motor, self cooling</p>
4	<p><b>Motor type</b> Series 5</p>
5	<p><b>Motor size</b> Size One</p>
6	<p><b>Motor lenght</b> 1= Mo 0,24 Nm 2= Mo 0,45 Nm 3= Mo 0,90 Nm</p>
7	<p><b>Voltage</b> 1= Winding code 1 2= Winding code 2 3= Winding code 3 4= Winding code 4</p>
8	<p><b>Holding brake</b> 0= Without brake</p>
9	<p><b>Feedback</b> 0= Sensorless 2= Hall sensor 4 pole 5-12 VDC PP 4= Encoder 2048 i/g TTL LD + hall 5= Encoder 1024 i/g TTL LD + hall 9= Resolver size 15 2p 7V 10KHz</p>
10	<p><b>Connection type</b> 0= Cable bushing 1= Cable glands 3= AMP motor connector, SUB-D feedback (standard) 8= M17 rotatable connectors</p>
11-12	<p><b>Special version</b> 90= Thermal protection PT1000</p>



## **MOTORS & MOTION CONTROL**

- **M5 BRUSHLESS SERVOMOTORS**
- **DSG SYNCHRONOUS PM GENERATORS**
- **RARE EARTH SC DC SERVOMOTORS**
- **DSW WATER-COOLED**
- **LOW-COST SOLUTIONS**
- **PLANETARY GEARS**
- **CUSTOMISED SOLUTIONS**
- **TORQUE MOTORS**
- **FRAMELESS SPINDLE MOTORS**



ISD : E220486

