

## AC BRUSHLESS SERVOMOTORS - DSM5.5x



MBM5 Brushless Servomotors are AC PM Synchronous servomotors. They have been designed using the latest generation of magnets and construction techniques to provide very high performance, low cogging and torque ripple. They can be supplied with resolver or Incremental / absolute encoder.

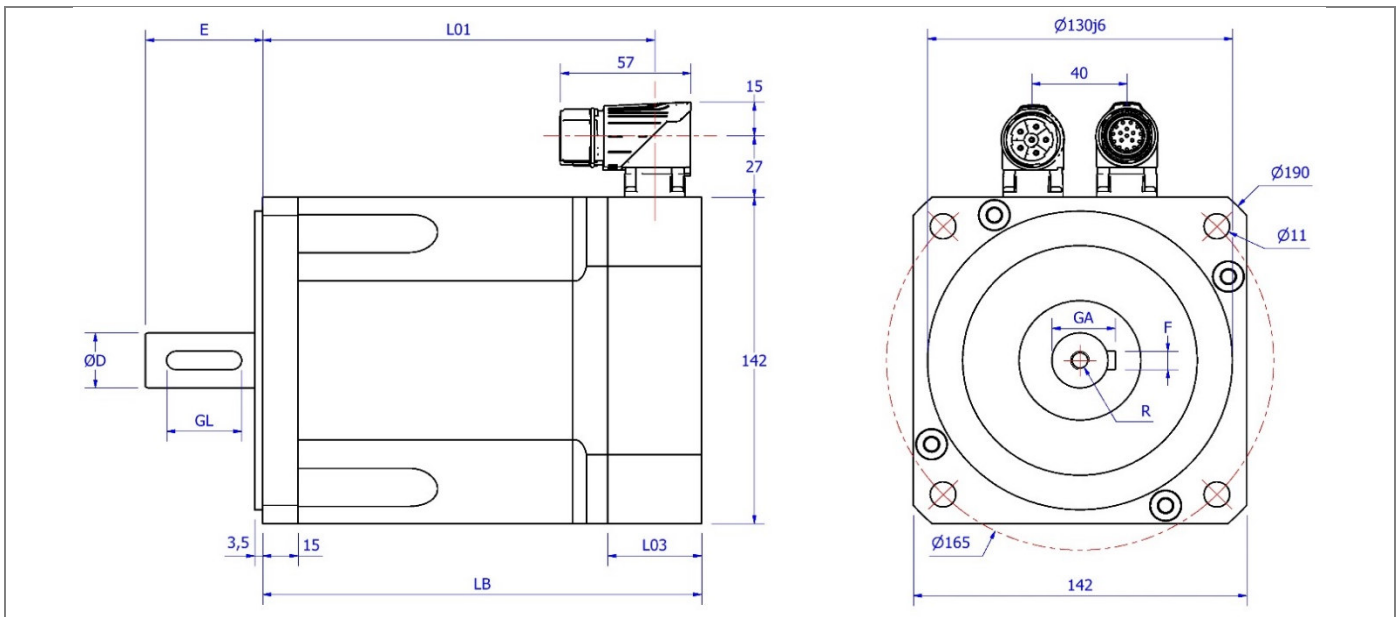
Their main characteristics are:

- Frame size 142mm
- Rare earth magnets for high performance
- 8 pole construction for high torque density
- Low cogging and torque ripple
- Sinusoidal back EMF
- Integrated PTC thermal protection
- Rotatable connectors
- Compact design
- High IP rating
- Smooth finish

Technical Data

Tab. 1

Description Winding code	Symbol	Motor	MBM51		MBM52		MBM53		MBM54	
		Units	1	2	1	2	1	2	1	2
Stall Torque	$M_0$	Nm	10		19		27		35	
Maximum Torque	$M_{pk}$	Nm	36	34	65	66	93	93	119	118
Stall Current	$I_0$	A	10,5	6,5	16	12,3	21	15,4	25	20
Peak current	$I_{pk}$	A	42	26	64	49	84	62	100	80
Maximum mechanical revs	$N_{mec}$	$min^{-1}$	6500		6500		5500		5500	
Maximum revs @ 230Vac	$N_{MAX}$	$min^{-1}$	3000	1900	2600	2000	2400	1700	2200	1800
Maximum revs @ 400Vac	$N_{MAX}$	$min^{-1}$	5000	3000	4500	3000	4500	3000	4000	3000
Voltage constant	$K_E$	V/krpm	62	93	72	93	78	106	85	106
Torque constant	$K_T$	Nm/A	1,02	1,54	1,2	1,54	1,3	1,74	1,4	1,74
Rotor Inertia	$J_r$	kg cm <sup>2</sup>	22		43		65		87	
Resist. @ 20°C	$R_{U-V}$	Ohm	0,65	1,61	0,34	0,61	0,25	0,46	0,18	0,32
Induct. @ 1 kHz	$L_{U-V}$	mH	2,6	7	1,9	3,3	1,7	2,7	1,7	1,9
Mass	$m$	kg	11		16		21		26	



Dimension in mm

Tab. 2

Feedback device	EQ1130, TTL 2048ppr, Resolver			SinCos, EKS36		
Dimension	LB	L01	L03	LB	L01	L03
MBM51	174	154	27	187	167	40
MBM52	224	204		237	217	
MBM53	274	254		287	267	
MBM54	324	304		337	317	
MBM51 Brake	227,5	207,5		240,5	220,5	
MBM52 Brake	277,5	257,5		290,5	270,5	
MBM53 Brake	327,5	307,5		340,5	320,5	
MBM54 Brake	377,5	357,5		390,5	370,5	

Dimensions in mm

Tab. 3

Shaft	Dimension	
D	24j6	32k6
E	50	58
GL	32	45
GA	27	35
F	8	10
R	M8 x 15	M12 x 22

Values in this catalogue are true for the following conditions:

Max ambient temperature 40° C  
 Min ambient temperature 0 °C  
 Max Altitude 1000 m (above sea level)  
 Insulation class F (materials F & H)  
 RMS values  
 Insulation system conforms to UL  
 IP65 enclosure protection with shaft seal

Motor Installation B5 – V5  
 Cooling IC0041  
 Typical tolerance value ±10%  
 Continuous ratings apply with a rise of ΔT=100K  
 on the windings when fitted on an aluminium  
 plate with dimensions 457 x 457 x 15 mm

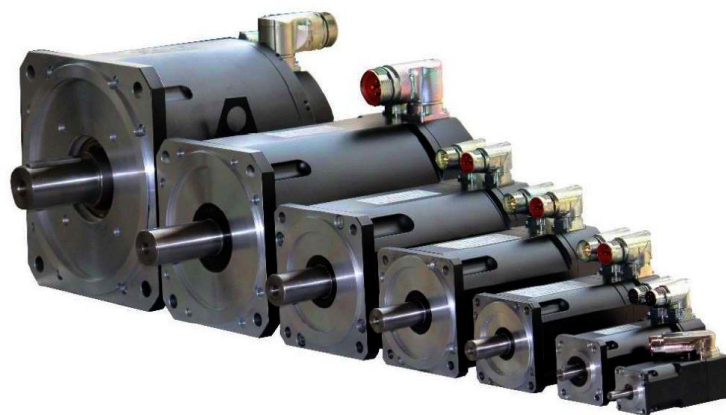
NiLAB reserves the right to amend the specification of this product without prior notification.

## PART NUMBER COMPOSITION

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

POS. DESCRIPTION

- 1-3 **Product**  
 MBM = PM synchronous motor, self-cooled  
 MBF = PM synchronous motor, forced air-cooled  
 MBW = PM synchronous motor, water-cooled
- 4 **Motor type**  
 Blank
- 5 **Motor size**  
 Size Five
- 6 **Motor length**  
 1 = Mo 10 Nm  
 2 = Mo 19 Nm  
 3 = Mo 27 Nm  
 4 = Mo 35 Nm
- 7 **Voltage**  
 1 = Winding code 1  
 2 = Winding code 2
- 8 **Holding brake**  
 0 = Without brake  
 1 = Permanent Magnet Brake  $24 \pm V_{DC} M_{br} = 40 \text{ Nm}$   $24 \text{ W}$   $J_{br} = 9,5 \text{ kgcm}^2$   $m = 1,4 \text{ kg}$
- 9 **Feedback**  
 0 = Sensor-less  
 1 = Heidenhain encoder EQI1130 EnDat multi-turn  
 4 = Encoder 2048ppr TTL LD + hall sensors  
 6 = Encoder 4096ppr TTL LD + hall sensors  
 7 = Encoder 1Vpp + position sin-cos  
 9 = Resolver size 15 2p 7V 10KHz  
 W = Sick encoder EKS36 Hiperface DSL single-turn no SIL 17bit  
 Y = Sick encoder EKM36 Hiperface DSL multi-turn no SIL 17bit  
 Z = Sick encoder SKM36 Hiperface 128ppr multi-turn
- 10 **Connection type**  
 7 = M23 connectors 90° rotatable  
 9 = M40 connectors 90° rotatable I > 20A, feedback M23
- 11-12 **Special version**  
 26 = Smooth Shaft  
 32 = Shaft 32 x 58  
 66 = IP65 Shaft Protection  
 90 = Thermal Protection PT1000  
 xx = Special Shaft and Flanges (on request)



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