

Lexium 32 servo drive/BMH or BSH servo motor combinations

Servo motors

Lexium 32C, 32A and 32M servo drives

208...480 V three-phase supply voltage with integrated EMC filter



BMH (IP 50 or IP 65)		BSH (IP 50 or IP 65)		LXM 32●U60N4 Continuous output current: 1.5 A rms				LXM 32●D12N4 Continuous output current: 3 A rms			
Motor type	Rotor inertia	Motor type	Rotor inertia	Nominal operating point (1)			Stall torques	Nominal operating point (1)			Stall torques
	kgcm ²		kgcm ²	Nm	rpm	W	M ⁰ /M ^{max} (2)	Nm	rpm	W	M ⁰ /M ^{max} (2)
		BSH 0551P	0.06	0.48	6000	300	0.5/1.5				
		BSH 0552P	0.10	0.65	6000	400	0.8/2.5				
		BSH 0553P	0.13	0.65	6000	400	1.05/3.5				
BMH 0701P	0.59			1.1	3000	350	1.2/4.2				
BMH 0701P	0.59							1.3	5000	700	1.4/4.2
		BSH 0701P	0.25					1.32	5000	700	1.4/3.5
		BSH 0702P	0.41					1.64	5000	850	2.2/7.6
BMH 1001P	3.2							1.9	4000	800	3.3/10.8
BMH 0702P	1.13							2.2	3000	700	2.5/7.4
BMH 0703T	1.67										
		BSH 0703P	0.58								
		BSH 1001P	1.40								
BMH 1001P	3.2										
BMH 1002P	6.3										
		BSH 1002P	2.31								
BMH 1003P	9.4										
		BSH 1003P	3.2								
BMH 1401P	16.5										
		BSH 1004P	4.2								
		BSH 1401P	7.4								
BMH 1402P	32.0										
		BSH 1402T	12.7								
		BSH 1403T	17.9								
BMH 1403P	47.5										
		BSH 1404P	23.7								
BMH 1901P	67.7										
BMH 1902P	130										
BMH 1903P	194										
BMH 2053P	190										

(1) These values are given for a supply voltage of 400 V single phase.

(2) - M_0 : Continuous stall torque,

- M_{max} : Peak stall torque.



BMH servo motor with straight connectors




BMH servo motor with rotatable angled connectors

Presentation

BMH servo motors provide unequalled power density values to meet the requirements of most compact machines. With four flange sizes and three different lengths for each flange size, they are suitable for most applications, covering a continuous stall range from 1.2 to 84 Nm for speeds up to 8000 rpm.

With their medium inertia motor, the new BMH servo motors are ideal for high-load applications and enable more robust adjustment of the movement, making for easier installation and adjustment.

They are certified as "Recognized"  by the Underwriters Laboratories and conform to UL 1004 standards as well as to European directives (CE marking).

They are available with the following variants:

- 5 flange sizes: 70, 100, 140, 190 and 205 mm
- 2 degrees of protection for the shaft end: IP 50 or IP 65 (IP 67 with the conformity kit, which is available as an option) in accordance with standard IEC/EN 60529. The degree of protection of the casing is IP 65 (IP 67 with the conformity kit, which is available as an option)
- With or without holding brake
- Straight or angled connectors for power and encoder connection
- Integrated SinCos Hiperface® single turn or multiturn encoder (medium or high resolution)
- Untapped or keyed shaft end

Special features

BMH servo motors have been developed to comply with the following main specifications:

- The ambient operating temperature is - 20...+ 40°C without derating, in accordance with standard IEC 60721-3-3, category 3K3, and up to 55°C with derating of 1% of the nominal output power per additional °C above 40°C.
- The maximum operating altitude is 1000 m without derating, 2000 m with $k = 0.86$ and 3000 m with $k = 0.8$ (1).
The relative humidity that the servo motor can withstand is in line with standard IEC 60721-3-3, categories 3K3, 3Z12 et 3Z2.
- The windings are insulation class F (maximum temperature for windings 155°C) in accordance with standard IEC 60034-1.
- The thermal protection is provided and controlled by the Lexium 32 servo drive via the motor temperature control algorithm.
- All mounting positions are permitted (horizontal mounting (IMB5) or vertical mounting (IMV1 with shaft end at the top and IMV3 with shaft end at the bottom) in accordance with standard IEC 60034-7.

Sizing

The Lexium Sizer sizing tool is available on our website www.schneider-electric.com to help you size your servo motor.

(1) *k*: derating factor.

Presentation (continued)

Holding brake

BMH servo motors can be equipped with a failsafe electromagnetic holding brake.

⚠ Do not use the holding brake as a dynamic brake for deceleration, as this will quickly damage the brake.

Integrated encoder

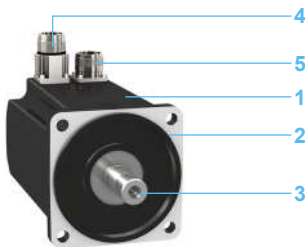
BMH servo motors are equipped as standard with an absolute encoder.

This encoder performs the following functions:

- Gives the absolute position of the motor so that flows can be synchronized
- Measures the servo motor speed via the associated Lexium 32 servo drive. This information is used by the servo drive's speed controller
- Measures the position information for the servo drive's position controller
- Sends data from the servo motor to the servo drive, which ensures automatic identification of the motor when the servo drive starts

Four types of encoder are available:

- High resolution SinCos Hiperface® encoder:
 - Single turn (131,072 points/turn) (1) or
 - Multiturn (131,072 points/turn x 4096 turns) (1),
ensuring angular precision of the shaft position, accurate to less than ± 1.3 arc minutes
- Medium resolution SinCos Hiperface® encoder:
 - Single turn (32,768 points/turn) (1) or
 - Multiturn (32,768 points/turn x 4096 turns) (1),
ensuring angular precision of the shaft position, accurate to less than ± 4.8 arc minutes.



Description

BMH servo motors, with a three-phase stator and a 10-pole rotor with Neodymium Iron Boron (NdFeB) magnets, consist of:

- 1 A casing protected by opaque RAL 9005 black paint
- 2 A 4-point axial fixing flange
- 3 A keyed or untapped shaft end (depending on the model)
- 4 A threaded dust and damp proof male straight connector for connecting the power cable (2)
- 5 A threaded dust and damp proof male straight connector for connecting the control cable (encoder) (2)

Cables and connectors to be ordered separately, for connection to Lexium 32 servo drives (see page 46).

Schneider Electric has taken particular care to ensure compatibility between BMH servo motors and Lexium 32 servo drives.

This compatibility can only be assured by using cables and connectors sold by Schneider Electric (see page 46).

(1) Encoder resolution given for use with a Lexium 32 servo drive.

(2) Other model with rotatable angled connector (see page 44).

Lexium 32 motion control BMH servo motors



Front of the BMH 070●●●●●1A



Front of the BMH 100●●●●●1A



Front of the BMH 1401P●●●●●1A



Rear view of the BMH 1901P●●●●●2A

BMH servo motors

The BMH servo motors shown below are supplied without a gearbox. For GBX and GBY gearboxes see pages 51 and 52.

Continuous stall torque	Peak stall torque	Nominal servo motor output power	Nominal speed	Maximum mechanical speed	Associated LXM 32 servo drive	Reference (1)	Weight (2)
Nm	Nm	W	rpm	rpm			kg
1.2	4.2	350	3000	8000	●U60N4	BMH 0701P●●●●●A	1.600
1.4	4	450	4000	8000	●U90M2	BMH 0701T●●●●●A	1.600
	4.2	350	2500	8000	●D18M2	BMH 0701T●●●●●A	1.600
2.5	6.4	600	2500	8000	●D12N4	BMH 0701P●●●●●A	1.600
		900	4000	8000	●D18M2	BMH 0702T●●●●●A	1.800
	7.4	700	3000	8000	●D12N4	BMH 0702P●●●●●A	1.800
3.4	8.7	650	2000	8000	●D30M2	BMH 0703T●●●●●A	2.000
	10.2	900	3000	8000	●D18M2	BMH 0703T●●●●●A	2.000
		1300	5000	8000	●D18N4	BMH 0703P●●●●●A	2.000
3.3	10.8	800	4000	6000	●D12N4	BMH 1001P●●●●●A	3.340
3.4	8.9	700	2000	6000	●D30M2	BMH 1001T●●●●●A	3.340
	10.8	900	3000	6000	●D18M2		
		1300	4000	6000	●D18N4	BMH 1001P●●●●●A	3.340
6	10.3	750	2000	6000	●D30M2	BMH 1002T●●●●●A	4.920
	18.4	1450	3000	6000	●D30M2		
5.9	18.4	1600	4000	6000	●D18N4	BMH 1002P●●●●●A	4.920
8	23.5	1450	2500	5000	●D30M2	BMH 1003T●●●●●A	6.500
8.4	25.1	2600	4000	5000	●D30N4	BMH 1003P●●●●●A	6.500
		1450	1500	4000	●D30M2	BMH 1401P●●●●●A	8.000
10.3	30.8	2400	3000	4000	●D30N4		
		3800	3000	4000	●D72N4	BMH 1402P●●●●●A	12.000
24	71.8	4500	3000	4000	●D72N4	BMH 1403P●●●●●A	16.000
30	77.7	4800	2500	4000	●D72N4	BMH 1901P●●●●●A	19.000
37.4	101	5900	2500	4000	●D72N4	BMH 1902P●●●●●A	31.000
43.2	123	5700	1500	3500	●D72N4	BMH 1903P●●●●●A	43.000
84	232	6500	1200	3800	●D72N4	BMH 2053P●●●●●A	67.000

To order a BMH servo motor, complete each reference above with:

		BMH 0701P					A
Shaft end	IP 54	Untapped (3)	0				
		Keyed (3)	1				
	IP 65/IP 67 (4)	Untapped	2				
		Keyed	3				
Integrated sensor High resolution, optical	Single turn, SinCos Hiperface® 131,072 points/turn (5) 128 sine/cosine periods per turn			1			
	Multiturn, SinCos Hiperface® 131,072 points/turn x 4096 turns (5) 128 sine/cosine periods per turn			2			
Integrated sensor Medium resolution, capacitive	Single turn, SinCos Hiperface® 32,768 points/turn (5) 16 sine/cosine periods per turn			6			
	Multiturn, SinCos Hiperface® 32,768 points/turn x 4096 turns (5) 16 sine/cosine periods per turn			7			
Holding brake	Without				A		
	With				F		
Connections	Straight connectors (3)					1	
	Rotatable right-angled connectors					2	
Flange	International standard					A	

Note: The example above is for a BMH 0701P servo motor. For other servo motors, replace BMH 0701P with the relevant reference.

(1) To complete each reference see the table above.

(2) Weight of servo motor without brake, no packaging. To obtain the weight of the servo motor with holding brake, please visit our website www.schneider-electric.com.

(3) Not available for BMH 190 servo motors.

(4) IP 67 with the VW3 M2 30● IP 67 conformity kit supplied as an option (see opposite page).

(5) Sensor resolution given for use with a Lexium 32 servo drive.