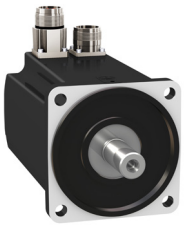
Lexium 32 and Motors
BMH servo motors

568427



BMH servo motor with straight connectors

568429

BMH servo motor with rotatable elbow connectors

Presentation

BMH servo motors provide excellent power density values to meet the requirements of compact machines. With four flange sizes and three different lengths for each flange size, they are suitable for many applications, covering a continuous stall range from 1.2 to 84 Nm for speeds up to 8,000 rpm.

The new BMH servo motors have a medium inertia motor, which means they are particularly suitable for high-load applications. They help to simplify installation and adjustment through a more robust adjustment of the movement.

BMH servo motors are UL Recognized and conform to standard UL1004 as well as to European directives (CE marking).

They are available with the following variants:
- 5 flange sizes: 70, 100, 140 and 190 mm/*2.76, 3.94, 5.51 and 7.48 in*
- 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 elbow connectors for power and encoder connection
- Integrated single-turn or multi-turn SinCos Hiperface® encoder (medium or high resolution)
- Smooth 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 /*- 4...+ 104 °F* without derating, in accordance with standard IEC 60721-3-3, category 3K3, and up to 55 °C/*131 °F* with derating of 1% of the nominal output power per additional °C above 40 °C/*104 °F*.

- The maximum operating altitude is 1,000 m/3,280 ft without derating, 2,000 m/6,561 ft with k = 0.86, and 3,000 m/*9,842 ft* 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, and 3Z2.

- The windings are insulation class F (maximum temperature for windings 155 °C/*311 °F*) in accordance with standard IEC 60034-1.

- 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 tool is available on our website to help you size your servo motor.

(1) k: derating factor

Presentation (continued)

Holding brake

BMH servo motors can be equipped with an 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.

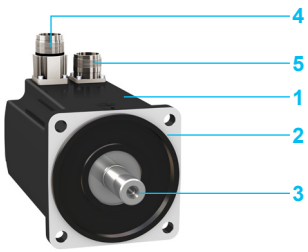
This encoder performs the following functions:
- Gives the absolute position of the motor so that flows can be synchronized
- Measures the servo motor speed via the associated Lexium 32 servo drive (this information is used by the servo drive's speed controller)
- Measures the position information for the servo drive's position controller
- Sends data from the servo motor to the servo drive, which provides 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)*
  - Multi-turn (131,072 points/turn x 4,096 turns) *(1)*

These encoders give an angular shaft position precise to less than ± 1.3 arc minutes.
- Medium resolution SinCos Hiperface® encoder:
  - Single-turn (32,768 points/turn) *(1)*
  - Multi-turn (32,768 points/turn x 4,096 turns) *(1)*

These encoders give an angular shaft position precise to less than ± 4.8 arc minutes.

Description



BMH servo motors, with a 3-phase stator and a 10-pole rotor with Neodymium Iron Boron (NdFeB) magnets, consist of:
1. Casing with RAL 9005 opaque black paint protective coating
2. A 4-point axial mounting flange
3. A smooth or keyed shaft end (depending on the model)
4. A threaded sealed male straight connector for the power cable *(2)*
5. A threaded sealed male straight connector for the control cable (encoder) *(2)*

Cables and connectors to be ordered separately, for connection to Lexium 32 servo drives (see page 36).

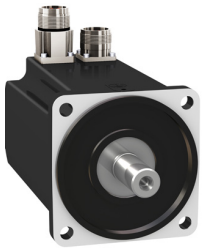
Schneider Electric has taken particular care over the compatibility of BMH servo motors and Lexium 32 servo drives.
This compatibility is only possible when using cables and connectors sold by Schneider Electric (see page 36).

(1) Encoder resolution given for use with a Lexium 32 servo drive.
(2) For other model with rotatable elbow connector, see page 34.

569430

Front of the BMH070●●●●●1A

569431



Front of the BMH100●●●●●1A

569432

Front of the BMH1401P●●●1A

110929

Rear view of the BMH1901P●●●2A

BMH servo motors

The BMH servo motors shown below are supplied without a gearbox.
For gearboxes, please consult "GBX and GBY planetary gearboxes"catalog or on our website.

Continuous stall torque	Peak stall torque	Nominal servo motor output power	Nominal speed	Maximum mechanical speed	Associated LXM32 servo drive	Reference *(1)*	Weight *(2)*
Nm	Nm	W	rpm	rpm			kg/*lb*
1.2	4.2	350	3,000	8,000	●U60N4	**BMH0701P●●●●A**	1.600/ *3.527*
1.4	4	450	4,000	8,000	●U90M2	**BMH0701T●●●●A**	1.600/ *3.527*
	4.2	350	2,500	8,000	●D18M2	**BMH0701T●●●●A**	1.600/ *3.527*
		700	5,000	8,000	●D12N4	**BMH0701P●●●●A**	1.600/ *3.527*
2.5	6.4	600	2,500	8,000	●D30M2	**BMH0702T●●●●A**	1.800/ *3.968*
	7.4	900	4,000	8,000	●D18M2		
		700	3,000	8,000	●D12N4	**BMH0702P●●●●A**	1.800/ *3.968*
3.4	8.7	650	2,000	8,000	●D30M2	**BMH0703T●●●●A**	2.000/ *4.409*
	10.2	900	3,000	8,000	●D18M2	**BMH0703T●●●●A**	2.000/ *4.409*
		1,300	5,000	8,000	●D18N4	**BMH0703P●●●●A**	2.000/ *4.409*
3.3	10.8	800	4,000	6,000	●D12N4	**BMH1001P●●●●A**	3.340/ *7.363*
3.4	8.9	700	2,000	6,000	●D30M2	**BMH1001T●●●●A**	3.340/ *7.363*
	10.8	900	3,000	6,000	●D18M2		
		1,300	4,000	6,000	●D18N4	**BMH1001P●●●●A**	3.340/ *7.363*
6	10.3	750	2,000	6,000	●D30M2	**BMH1002T●●●●A**	4.920/ *10.847*
	18.4	1,450	3,000	6,000	●D30M2		
5.9	18.4	1,600	4,000	6,000	●D18N4	**BMH1002P●●●●A**	4.920/ *10.847*
8	23.5	1,450	2,500	5,000	●D30M2	**BMH1003T●●●●A**	6.500/ *14.330*
8.4	25.1	2,600	4,000	5,000	●D30N4	**BMH1003P●●●●A**	6.500/ *14.330*
10.3	30.8	1,450	1,500	4,000	●D30M2	**BMH1401P●●●●A**	8.000/ *17.637*
		2,400	3,000	4,000	●D30N4		
16.8	50.3	3,800	3,000	4,000	●D72N4	**BMH1402P●●●●A**	12.000/ *26.455*
24	71.8	4,500	3,000	4,000	●D72N4	**BMH1403P●●●●A**	16.000/ *35.274*
30	77.7	4,800	2,500	4,000	●D72N4	**BMH1901P●●●●A**	19.000/ *41.888*
	86.6	5,180	3,000	4,000	MD85N4		
	89.7	5,180	3,000	4,000	MC10N4		
37.4	101	5,900	2,500	4,000	●D72N4	**BMH1902P●●●●A**	31.000/ *68.343*
48	115.5	6,070	2,000	4,000	MD85N4		
	130.7	6,070	2,000	4,000	MC10N4		
43.2	123	5,700	1,500	3,500	●D72N4	**BMH1903P●●●●A**	43.000/ *94.799*
57.6	141.3	7,330	2,000	3,500	MD85N4		
65	162.7	7,750	2,000	3,500	MC10N4		
100	230	9800	2000	3000	MC10N4	**BMH1904P●●●●A**	67.000/ *147.71*

(1) To complete each reference see the table on page 35.
(2) Weight of servo motor without brake, no packaging. To obtain the weight of the servo motor with holding brake, please visit our website.

BMH servo motors (continued)

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

			BMH●●●●●	●	●	●	●	●
Shaft end	IP 54	Smooth *(1)*		**0**				
		Keyed *(1)*		**1**				
	IP 65/IP 67 *(2)*	Smooth		**2**				
		Keyed		**3**				
Integrated sensor High resolution, optical	Single-turn, SinCos Hiperface® 131,072 points/turn *(3)* 128 sine/cosine periods per turn				**1**			
	Multi-turn, SinCos Hiperface® 131,072 points/turn x 4,096 turns *(3)* 128 sine/cosine periods per turn				**2**			
Integrated sensor Medium resolution, capacitive	Single-turn, SinCos Hiperface® 32,768 points/turn *(3)* 16 sine/cosine periods per turn				**6** *(1)*			
	Multi-turn, SinCos Hiperface® 32,768 points/turn x 4,096 turns *(3)* 16 sine/cosine periods per turn				**7** *(1)*			
Holding brake	Without					**A**		
	With					**F**		
Connections	Straight connectors *(1)*						**1**	
	Rotatable right angle elbow connectors						**2**	
Flange	International standard							**A**
Motor with fan option	Available for BMH1904 only							**B**

Dimensions (overall)

Servo motors	Flange	Width x Height x Depth *(4)*	
		Without holding brake	With holding brake
	mm/*in*	mm/*in*	mm/*in*
BMH0701●	70 x 70/ *2.76 x 2.76*	70 x 109.5 x 122/ *2.76 x 4.31 x 4.80*	70 x 109.5 x 161/ *2.76 x 4.31 x 6.34*
BMH0702●	70 x 70/ *2.76 x 2.76*	70 x 109.5 x 154/ *2.76 x 4.31 x 6.06*	70 x 109.5 x 193/ *2.76 x 4.31 x 7.60*
BMH0703●	70 x 70/ *2.76 x 2.76*	70 x 109.5 x 186/ *2.76 x 4.31 x 7.32*	70 x 109.5 x 225/ *2.76 x 4.31 x 8.86*
BMH1001●	100 x 100/ *3.94 x 3.94*	100 x 139.5 x 128/ *3.94 x 5.49 x 5.04*	100 x 139.5 x 170/ *3.94 x 5.49 x 6.69*
BMH1002●	100 x 100/ *3.94 x 3.94*	100 x 139.5 x 160/ *3.94 x 5.49 x 6.30*	100 x 139.5 x 202/ *3.94 x 5.49 x 7.95*
BMH1003●	100 x 100/ *3.94 x 3.94*	100 x 139.5 x 192/ *3.94 x 5.49 x 7.60*	100 x 139.5 x 234/ *3.94 x 5.49 x 9.21*
BMH1401P	140 x 140/ *5.51 x 5.51*	140 x 179.5 x 152/ *5.51 x 7.07 x 5.98*	140 x 179.5 x 187/ *5.51 x 7.07 x 7.36*
BMH1402P	140 x 140/ *5.51 x 5.51*	140 x 179.5 x 192/ *5.51 x 7.07 x 7.60*	140 x 179.5 x 227/ *5.51 x 7.07 x 8.94*
BMH1403P	140 x 140/ *5.51 x 5.51*	140 x 179.5 x 232/ *5.51 x 7.07 x 9.13*	140 x 179.5 x 267/ *5.51 x 7.07 x 10.51*
BMH1901P	190 x 190/ *7.48 x 7.48*	190 x 257 x 190/ *7.48 x 10.12 x 7.48*	190 x 257 x 248/ *7.48 x 10.12 x 9.76*
BMH1902P	190 x 190/ *7.48 x 7.48*	190 x 257 x 250/ *7.48 x 10.12 x 9.84*	190 x 257 x 308/ *7.48 x 10.12 x 12.13*
BMH1903P	190 x 190/ *7.48 x 7.48*	190 x 257 x 310/ *7.48 x 10.12 x 12.21*	190 x 257 x 368/ *7.48 x 10.12 x 14.49*
BMH1904P	190 x 190/ *7.48 x 7.48*	190 x 257 x 383/ *7.48 x 10.12 x 15.07*	190 x 257 x 456/ *7.48 x 10.12 x 17.95*

Note: *The example above is for a* ***BMH0701P*** *servo motor. For other servo motors, replace* ***BMH0701P*** *with the relevant reference.*

(1) Not available for BMH190 servo motors.
(2) IP 67 with the VW3M230● IP 67 conformity kit supplied as an option (see page 36).
(3) Sensor resolution given for use with a Lexium 32 servo drive.
(4) D: motor length (excluding shaft end).
(5) Height of the servo motor equipped with straight connectors. The height is 265 mm/10.43 in when the servo motor is equipped with rotatable elbow connectors.