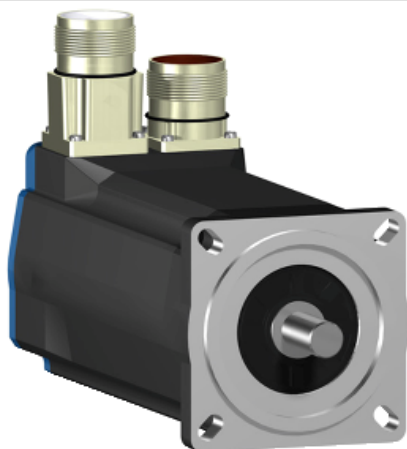


# BSH0702P12F1A

AC servo motor BSH - 2.2 N.m - 3000 rpm -  
keyed shaft - with brake - IP50



## Main

|                           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
|---------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Product or component type | Servo motor                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
| Device short name         | BSH                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
| Maximum mechanical speed  | 8000 rpm                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
| Continuous stall torque   | 2.2 N.m for LXM32.D12N4 at 3 A, 400 V, three phase<br>2.2 N.m for LXM32.D12N4 at 3 A, 480 V, three phase<br>2.12 N.m for LXM05AD10M2, 200...240 V, single phase<br>2.12 N.m for LXM05AD10M3X, 200...240 V, three phase<br>2.12 N.m for LXM05BD10M2, 200...240 V, single phase<br>2.12 N.m for LXM05BD10M3X, 200...240 V, three phase<br>2.12 N.m for LXM05CD10M2, 200...240 V, single phase<br>2.12 N.m for LXM05CD10M3X, 200...240 V, three phase<br>2.2 N.m for LXM15LD13M3, 230 V, single phase<br>2.12 N.m for LXM05AD17M2, 200...240 V, single phase<br>2.12 N.m for LXM05BD17M2, 200...240 V, single phase<br>2.12 N.m for LXM05CD17M2, 200...240 V, single phase<br>2.2 N.m for LXM15LD10N4, 480 V, three phase<br>2.12 N.m for LXM05AD17M3X, 200...240 V, three phase<br>2.12 N.m for LXM05AD14N4, 380...480 V, three phase<br>2.12 N.m for LXM05BD17M3X, 200...240 V, three phase<br>2.12 N.m for LXM05BD14N4, 380...480 V, three phase<br>2.12 N.m for LXM05CD17M3X, 200...240 V, three phase<br>2.12 N.m for LXM05CD14N4, 380...480 V, three phase<br>2.2 N.m for LXM15LD10N4, 230 V, three phase<br>2.2 N.m for LXM15LD10N4, 400 V, three phase |
| Peak stall torque         | 7.6 N.m for LXM32.D12N4 at 3 A, 400 V, three phase<br>7.6 N.m for LXM32.D12N4 at 3 A, 480 V, three phase<br>5.63 N.m for LXM15LD13M3, 230 V, single phase<br>4.57 N.m for LXM05AD10M2, 200...240 V, single phase<br>5.63 N.m for LXM05AD17M2, 200...240 V, single phase<br>4.57 N.m for LXM05BD10M2, 200...240 V, single phase<br>5.63 N.m for LXM05BD17M2, 200...240 V, single phase<br>4.57 N.m for LXM05CD10M2, 200...240 V, single phase<br>5.63 N.m for LXM05CD17M2, 200...240 V, single phase<br>4.85 N.m for LXM15LD10N4, 230 V, three phase<br>4.85 N.m for LXM15LD10N4, 400 V, three phase<br>4.85 N.m for LXM15LD10N4, 480 V, three phase<br>4.57 N.m for LXM05AD10M3X, 200...240 V, three phase<br>5.63 N.m for LXM05AD17M3X, 200...240 V, three phase                                                                                                                                                                                                                                                                                                                                                                                           |

|                       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
|-----------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                       | <p>5.63 N.m for LXM05AD14N4, 380...480 V, three phase</p> <p>4.57 N.m for LXM05BD10M3X, 200...240 V, three phase</p> <p>5.63 N.m for LXM05BD17M3X, 200...240 V, three phase</p> <p>5.63 N.m for LXM05BD14N4, 380...480 V, three phase</p> <p>4.57 N.m for LXM05CD10M3X, 200...240 V, three phase</p> <p>5.63 N.m for LXM05CD17M3X, 200...240 V, three phase</p> <p>5.63 N.m for LXM05CD14N4, 380...480 V, three phase</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
| Nominal output power  | <p>850 W for LXM32.D12N4 at 3 A, 400 V, three phase</p> <p>850 W for LXM32.D12N4 at 3 A, 480 V, three phase</p> <p>1000 W for LXM15LD10N4, 400 V, three phase</p> <p>597 W for LXM15LD13M3, 230 V, single phase</p> <p>600 W for LXM05AD10M2, 200...240 V, single phase</p> <p>600 W for LXM05AD17M2, 200...240 V, single phase</p> <p>600 W for LXM05BD10M2, 200...240 V, single phase</p> <p>600 W for LXM05BD17M2, 200...240 V, single phase</p> <p>600 W for LXM05CD10M2, 200...240 V, single phase</p> <p>600 W for LXM05CD17M2, 200...240 V, single phase</p> <p>1300 W for LXM15LD10N4, 480 V, three phase</p> <p>597 W for LXM15LD10N4, 230 V, three phase</p> <p>600 W for LXM05AD10M3X, 200...240 V, three phase</p> <p>600 W for LXM05AD14N4, 380...480 V, three phase</p> <p>600 W for LXM05AD17M3X, 200...240 V, three phase</p> <p>600 W for LXM05BD10M3X, 200...240 V, three phase</p> <p>600 W for LXM05BD14N4, 380...480 V, three phase</p> <p>600 W for LXM05BD17M3X, 200...240 V, three phase</p> <p>600 W for LXM05CD10M3X, 200...240 V, three phase</p> <p>600 W for LXM05CD14N4, 380...480 V, three phase</p> <p>600 W for LXM05CD17M3X, 200...240 V, three phase</p>                                                              |
| Nominal torque        | <p>1.64 N.m for LXM32.D12N4 at 3 A, 400 V, three phase</p> <p>1.64 N.m for LXM32.D12N4 at 3 A, 480 V, three phase</p> <p>1.9 N.m for LXM05AD10M2, 200...240 V, single phase</p> <p>1.9 N.m for LXM05AD17M2, 200...240 V, single phase</p> <p>1.9 N.m for LXM05BD10M2, 200...240 V, single phase</p> <p>1.9 N.m for LXM05BD17M2, 200...240 V, single phase</p> <p>1.9 N.m for LXM05CD10M2, 200...240 V, single phase</p> <p>1.9 N.m for LXM05CD17M2, 200...240 V, single phase</p> <p>1.9 N.m for LXM15LD13M3, 230 V, single phase</p> <p>1.55 N.m for LXM15LD10N4, 480 V, three phase</p> <p>1.65 N.m for LXM15LD10N4, 400 V, three phase</p> <p>1.9 N.m for LXM05AD10M3X, 200...240 V, three phase</p> <p>1.9 N.m for LXM05AD14N4, 380...480 V, three phase</p> <p>1.9 N.m for LXM05AD17M3X, 200...240 V, three phase</p> <p>1.9 N.m for LXM05BD10M3X, 200...240 V, three phase</p> <p>1.9 N.m for LXM05BD14N4, 380...480 V, three phase</p> <p>1.9 N.m for LXM05BD17M3X, 200...240 V, three phase</p> <p>1.9 N.m for LXM05CD10M3X, 200...240 V, three phase</p> <p>1.9 N.m for LXM05CD14N4, 380...480 V, three phase</p> <p>1.9 N.m for LXM05CD17M3X, 200...240 V, three phase</p> <p>1.9 N.m for LXM15LD10N4, 230 V, three phase</p>                  |
| Nominal speed         | <p>5000 rpm for LXM32.D12N4 at 3 A, 400 V, three phase</p> <p>5000 rpm for LXM32.D12N4 at 3 A, 480 V, three phase</p> <p>3000 rpm for LXM05AD10M2, 200...240 V, single phase</p> <p>3000 rpm for LXM05BD10M2, 200...240 V, single phase</p> <p>3000 rpm for LXM05CD10M2, 200...240 V, single phase</p> <p>3000 rpm for LXM05AD10M3X, 200...240 V, three phase</p> <p>3000 rpm for LXM05AD14N4, 380...480 V, three phase</p> <p>3000 rpm for LXM05BD10M3X, 200...240 V, three phase</p> <p>3000 rpm for LXM05BD14N4, 380...480 V, three phase</p> <p>3000 rpm for LXM05CD10M3X, 200...240 V, three phase</p> <p>3000 rpm for LXM05CD14N4, 380...480 V, three phase</p> <p>3000 rpm for LXM15LD13M3, 230 V, single phase</p> <p>3000 rpm for LXM05AD17M2, 200...240 V, single phase</p> <p>3000 rpm for LXM05BD17M2, 200...240 V, single phase</p> <p>3000 rpm for LXM05CD17M2, 200...240 V, single phase</p> <p>3000 rpm for LXM05AD17M3X, 200...240 V, three phase</p> <p>3000 rpm for LXM05BD17M3X, 200...240 V, three phase</p> <p>3000 rpm for LXM05CD17M3X, 200...240 V, three phase</p> <p>8000 rpm for LXM15LD10N4, 480 V, three phase</p> <p>3000 rpm for LXM15LD10N4, 230 V, three phase</p> <p>6000 rpm for LXM15LD10N4, 400 V, three phase</p> |
| Product compatibility | <p>LXM05AD10M2 at 200...240 V single phase</p> <p>LXM05AD17M2 at 200...240 V single phase</p> <p>LXM05BD10M2 at 200...240 V single phase</p> <p>LXM05BD17M2 at 200...240 V single phase</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |

LXM05CD10M2 at 200...240 V single phase  
 LXM05CD17M2 at 200...240 V single phase  
 LXM15LD13M3 at 230 V single phase  
 LXM05AD10M3X at 200...240 V three phase  
 LXM05BD10M3X at 200...240 V three phase  
 LXM05CD10M3X at 200...240 V three phase  
 LXM05AD14N4 at 380...480 V three phase  
 LXM05BD14N4 at 380...480 V three phase  
 LXM05CD14N4 at 380...480 V three phase  
 LXM15LD10N4 at 400 V three phase  
 LXM05AD17M3X at 200...240 V three phase  
 LXM05BD17M3X at 200...240 V three phase  
 LXM05CD17M3X at 200...240 V three phase  
 LXM32.D12N4 at 400 V three phase  
 LXM32.D12N4 at 480 V three phase  
 LXM15LD10N4 at 230 V three phase  
 LXM15LD10N4 at 480 V three phase

|                           |                                 |
|---------------------------|---------------------------------|
| Shaft end                 | Keyed                           |
| IP degree of protection   | IP50 standard                   |
| Speed feedback resolution | 131072 points/turn x 4096 turns |
| Holding brake             | With                            |
| Mounting support          | International standard flange   |
| Electrical connection     | Straight connectors             |

## Complementary

|                           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
|---------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Range compatibility       | Lexium 15<br>Lexium 32<br>Lexium 05                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
| Supply voltage max        | 480 V                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
| Network number of phases  | Three phase                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
| Continuous stall current  | 2.9 A                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
| Maximum continuous power  | 1.51 W                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
| Maximum current Irms      | 11.8 A for LXM15LD13M3<br>11.8 A for LXM15LD10N4<br>11.8 A for LXM05AD10M2<br>11.8 A for LXM05AD17M2<br>11.8 A for LXM05AD10M3X<br>11.8 A for LXM05AD17M3X<br>11.8 A for LXM05AD14N4<br>11.8 A for LXM05BD10M2<br>11.8 A for LXM05BD17M2<br>11.8 A for LXM05BD10M3X<br>11.8 A for LXM05BD17M3X<br>11.8 A for LXM05BD14N4<br>11.8 A for LXM05CD10M2<br>11.8 A for LXM05CD17M2<br>11.8 A for LXM05CD10M3X<br>11.8 A for LXM05CD17M3X<br>11.8 A for LXM05CD14N4<br>11.8 A for LXM32.D12N4 |
| Maximum permanent current | 11.8 A                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
| Switching frequency       | 8 kHz                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
| Second shaft              | Without second shaft end                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
| Shaft diameter            | 11 mm                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
| Shaft length              | 23 mm                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
| Key width                 | 18 mm                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
| Feedback type             | Multiturn SinCos Hiperface                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
| Holding torque            | 2 N.m holding brake                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
| Motor flange size         | 70 mm                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
| Number of motor stacks    | 2                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
| Torque constant           | 0.77 N.m/A at 120 °C                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
| Back emf constant         | 48 V/krpm at 120 °C                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
| Number of motor poles     | 6                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |

|                                       |                                                                                                                            |
|---------------------------------------|----------------------------------------------------------------------------------------------------------------------------|
| Rotor inertia                         | 0.482 kg.cm <sup>2</sup>                                                                                                   |
| Stator resistance                     | 4.2 Ohm at 20 °C                                                                                                           |
| Stator inductance                     | 19 mH at 20 °C                                                                                                             |
| Stator electrical time constant       | 4.52 ms at 20 °C                                                                                                           |
| Maximum radial force Fr               | 390 N at 6000 rpm<br>410 N at 5000 rpm<br>450 N at 4000 rpm<br>490 N at 3000 rpm<br>560 N at 2000 rpm<br>710 N at 1000 rpm |
| Maximum axial force Fa                | 0.2 x Fr                                                                                                                   |
| Brake pull-in power                   | 10 W                                                                                                                       |
| Type of cooling                       | Natural convection                                                                                                         |
| Length                                | 212.5 mm                                                                                                                   |
| Centring collar diameter              | 60 mm                                                                                                                      |
| Centring collar depth                 | 2.5 mm                                                                                                                     |
| Number of mounting holes              | 4                                                                                                                          |
| Mounting holes diameter               | 5.5 mm                                                                                                                     |
| Circle diameter of the mounting holes | 82 mm                                                                                                                      |
| Product weight                        | 3 kg                                                                                                                       |

### Offer Sustainability

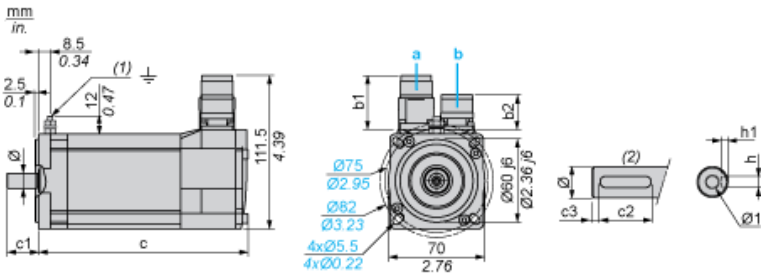
|                            |                                                                                                                             |
|----------------------------|-----------------------------------------------------------------------------------------------------------------------------|
| Sustainable offer status   | Green Premium product                                                                                                       |
| REACH Regulation           | <a href="#">REACH Declaration</a>                                                                                           |
| EU RoHS Directive          | Pro-active compliance (Product out of EU RoHS legal scope)<br><a href="#">EU RoHS Declaration</a>                           |
| Mercury free               | Yes                                                                                                                         |
| RoHS exemption information | <a href="#">Yes</a>                                                                                                         |
| China RoHS Regulation      | <a href="#">China RoHS declaration</a>                                                                                      |
| Environmental Disclosure   | <a href="#">Product Environmental Profile</a>                                                                               |
| Circularity Profile        | No need of specific recycling operations                                                                                    |
| WEEE                       | The product must be disposed on European Union markets following specific waste collection and never end up in rubbish bins |

### Contractual warranty

|          |           |
|----------|-----------|
| Warranty | 18 months |
|----------|-----------|

Servo Motors Dimensions

Example with Straight Connectors



- a: Power supply for servo motor brake  
b: Power supply for servo motor encoder  
(1) M4 screw  
(2) Shaft end, keyed slot (optional)

Dimensions in mm

| Straight connectors |      | Rotatable angled connectors |      | c (without brake) | c (with brake) | c1 | c2 | c3  | h    | h1                               | Ø     | Ø1 for screws |
|---------------------|------|-----------------------------|------|-------------------|----------------|----|----|-----|------|----------------------------------|-------|---------------|
| b1                  | b2   | b1                          | b2   |                   |                |    |    |     |      |                                  |       |               |
| 39.5                | 25.5 | 39.5                        | 39.5 | 187               | 213            | 23 | 18 | 2.5 | 4 N9 | 2.5 <sup>+0.1</sup> <sub>0</sub> | 11 k6 | M4 x 10       |

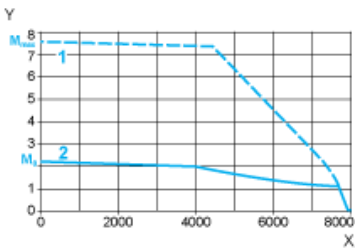
Dimensions in in.

| Straight connectors |      | Rotatable angled connectors |      | c (without brake) | c (with brake) | c1   | c2   | c3   | h       | h1                                  | Ø       | Ø1 for screws |
|---------------------|------|-----------------------------|------|-------------------|----------------|------|------|------|---------|-------------------------------------|---------|---------------|
| b1                  | b2   | b1                          | b2   |                   |                |      |      |      |         |                                     |         |               |
| 1.55                | 1.00 | 1.55                        | 1.55 | 7.36              | 8.38           | 0.90 | 0.70 | 0.09 | 0.16 N9 | 0.01 <sup>+0.004</sup> <sub>0</sub> | 0.43 k6 | M4 x 0.39     |

400 V 3-Phase Supply Voltage

Torque/Speed Curves

Servo motor with LXM32•D12N4 servo drive



- X Speed in rpm
- Y Torque in Nm
- 1 Peak torque
- 2 Continuous torque

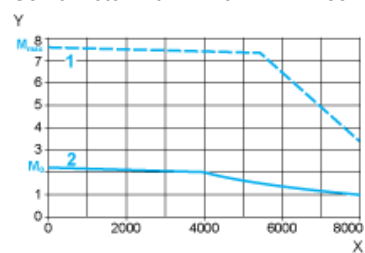
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480 V 3-Phase Supply Voltage

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Torque/Speed Curves

Servo motor with LXM32•D12N4 servo drive



X Speed in rpm  
Y Torque in Nm  
1 Peak torque  
2 Continuous torque