

# BSH0553P31F1A

AC servo motor BSH, Lexium 05, 1.3N.m,  
3000rpm, keyed shaft, with brake, IP65





## Main

|                           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
|---------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Device short name         | BSH                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
| Product or Component Type | Servo motor                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
| Maximum mechanical speed  | 9000 rpm                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
| Continuous stall torque   | 9.29 Lbf.In (1.05 N.m) LXM32.U60N4 1.5 A, 480 V, three phase<br>9.29 Lbf.In (1.05 N.m) LXM32.U60N4 1.5 A, 400 V, three phase<br>11.5 Lbf.In (1.3 N.m) LXM05AD10M2, 200...240 V, single phase<br>11.5 Lbf.In (1.3 N.m) LXM05BD10M2, 200...240 V, single phase<br>11.5 Lbf.In (1.3 N.m) LXM05CD10M2, 200...240 V, single phase<br>11.5 Lbf.In (1.3 N.m) LXM05AD10M3X, 200...240 V, three phase<br>11.5 Lbf.In (1.3 N.m) LXM05BD10M3X, 200...240 V, three phase<br>11.5 Lbf.In (1.3 N.m) LXM05CD10M3X, 200...240 V, three phase<br>11.5 Lbf.In (1.3 N.m) LXM15LD13M3, 230 V, single phase<br>11.5 Lbf.In (1.3 N.m) LXM15LD13M3, 230 V, three phase<br>11.5 Lbf.In (1.3 N.m) LXM15LD10N4, 400 V, three phase<br>11.5 Lbf.In (1.3 N.m) LXM05AD14N4, 380...480 V, three phase<br>11.5 Lbf.In (1.3 N.m) LXM05BD14N4, 380...480 V, three phase<br>11.5 lbf.in (1.3 N.m) LXM05CD14N4, 380...480 V, three phase                   |
| Peak stall torque         | 31.0 Lbf.In (3.5 N.m) LXM32.U60N4 1.5 A, 480 V, three phase<br>31.0 Lbf.In (3.5 N.m) LXM32.U60N4 1.5 A, 400 V, three phase<br>23.9 Lbf.In (2.7 N.m) LXM15LD13M3, 230 V, single phase<br>28.15 Lbf.In (3.18 N.m) LXM05AD10M2, 200...240 V, single phase<br>28.15 Lbf.In (3.18 N.m) LXM05BD10M2, 200...240 V, single phase<br>28.15 Lbf.In (3.18 N.m) LXM05CD10M2, 200...240 V, single phase<br>23.9 Lbf.In (2.7 N.m) LXM15LD13M3, 230 V, three phase<br>34.25 Lbf.In (3.87 N.m) LXM15LD10N4, 400 V, three phase<br>28.15 Lbf.In (3.18 N.m) LXM05AD10M3X, 200...240 V, three phase<br>34.25 Lbf.In (3.87 N.m) LXM05AD14N4, 380...480 V, three phase<br>28.15 Lbf.In (3.18 N.m) LXM05BD10M3X, 200...240 V, three phase<br>34.25 Lbf.In (3.87 N.m) LXM05BD14N4, 380...480 V, three phase<br>28.15 Lbf.In (3.18 N.m) LXM05CD10M3X, 200...240 V, three phase<br>34.25 lbf.in (3.87 N.m) LXM05CD14N4, 380...480 V, three phase |

|                       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
|-----------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Nominal output power  | 400 W LXM32.U60N4 1.5 A, 400 V, three phase<br>400 W LXM32.U60N4 1.5 A, 480 V, three phase<br>340 W LXM15LD13M3, 230 V, three phase<br>340 W LXM15LD13M3, 230 V, single phase<br>350 W LXM05AD10M2, 200...240 V, single phase<br>350 W LXM05BD10M2, 200...240 V, single phase<br>350 W LXM05CD10M2, 200...240 V, single phase<br>350 W LXM05AD10M3X, 200...240 V, three phase<br>350 W LXM05AD14N4, 380...480 V, three phase<br>350 W LXM05BD10M3X, 200...240 V, three phase<br>350 W LXM05BD14N4, 380...480 V, three phase<br>350 W LXM05CD10M3X, 200...240 V, three phase<br>350 W LXM05CD14N4, 380...480 V, three phase<br>670 W LXM15LD10N4, 400 V, three phase                                                                                                                                                                                                                            |
| Nominal torque        | 5.75 Lbf.In (0.65 N.m) LXM32.U60N4 1.5 A, 400 V, three phase<br>5.75 Lbf.In (0.65 N.m) LXM32.U60N4 1.5 A, 480 V, three phase<br>9.56 Lbf.In (1.08 N.m) LXM15LD13M3, 230 V, single phase<br>9.7 Lbf.In (1.1 N.m) LXM05AD10M2, 200...240 V, single phase<br>9.7 Lbf.In (1.1 N.m) LXM05BD10M2, 200...240 V, single phase<br>9.7 Lbf.In (1.1 N.m) LXM05CD10M2, 200...240 V, single phase<br>7.08 Lbf.In (0.8 N.m) LXM15LD10N4, 400 V, three phase<br>9.56 Lbf.In (1.08 N.m) LXM15LD13M3, 230 V, three phase<br>9.7 Lbf.In (1.1 N.m) LXM05AD10M3X, 200...240 V, three phase<br>9.7 Lbf.In (1.1 N.m) LXM05AD14N4, 380...480 V, three phase<br>9.7 Lbf.In (1.1 N.m) LXM05BD10M3X, 200...240 V, three phase<br>9.7 Lbf.In (1.1 N.m) LXM05BD14N4, 380...480 V, three phase<br>9.7 Lbf.In (1.1 N.m) LXM05CD10M3X, 200...240 V, three phase<br>9.7 lbf.in (1.1 N.m) LXM05CD14N4, 380...480 V, three phase |
| Nominal speed         | 6000 rpm LXM32.U60N4 1.5 A, 400 V, three phase<br>6000 rpm LXM32.U60N4 1.5 A, 480 V, three phase<br>3000 rpm LXM05AD10M2, 200...240 V, single phase<br>3000 rpm LXM05BD10M2, 200...240 V, single phase<br>3000 rpm LXM05CD10M2, 200...240 V, single phase<br>3000 rpm LXM05AD10M3X, 200...240 V, three phase<br>3000 rpm LXM05AD14N4, 380...480 V, three phase<br>3000 rpm LXM05BD10M3X, 200...240 V, three phase<br>3000 rpm LXM05BD14N4, 380...480 V, three phase<br>3000 rpm LXM05CD10M3X, 200...240 V, three phase<br>3000 rpm LXM05CD14N4, 380...480 V, three phase<br>3000 rpm LXM15LD13M3, 230 V, single phase<br>3000 rpm LXM15LD13M3, 230 V, three phase<br>8000 rpm LXM15LD10N4, 400 V, three phase                                                                                                                                                                                  |
| Product compatibility | LXM05AD10M2 200...240 V single phase<br>LXM05BD10M2 200...240 V single phase<br>LXM05CD10M2 200...240 V single phase<br>LXM15LD13M3 230 V single phase<br>LXM32.U60N4 400 V three phase<br>LXM32.U60N4 480 V three phase<br>LXM05AD10M3X 200...240 V three phase<br>LXM05BD10M3X 200...240 V three phase<br>LXM05CD10M3X 200...240 V three phase<br>LXM15LD13M3 230 V three phase<br>LXM05AD14N4 380...480 V three phase<br>LXM05BD14N4 380...480 V three phase<br>LXM05CD14N4 380...480 V three phase<br>LXM15LD10N4 400 V three phase                                                                                                                                                                                                                                                                                                                                                        |
| Shaft end             | Keyed                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |

|                           |                                     |
|---------------------------|-------------------------------------|
| IP Degree of Protection   | IP65 standard<br>IP67 with IP67 kit |
| Speed feedback resolution | 131072 points/turn                  |
| Holding brake             | With                                |
| Mounting Support          | International standard flange       |
| Electrical Connection     | Straight connectors                 |

## Complementary

|                                 |                                                                                                                                                                                                                                                           |
|---------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Range Compatibility             | Lexium 15<br>Lexium 05<br>Lexium 32                                                                                                                                                                                                                       |
| Supply voltage max              | 480 V                                                                                                                                                                                                                                                     |
| Phase                           | Three phase                                                                                                                                                                                                                                               |
| Continuous stall current        | 1.7 A                                                                                                                                                                                                                                                     |
| Maximum continuous power        | 0.97 W                                                                                                                                                                                                                                                    |
| Maximum current Irms            | 8.7 A LXM15LD13M3<br>8.7 A LXM15LD10N4<br>6.5 A LXM05AD10M2<br>6.5 A LXM05AD10M3X<br>6.5 A LXM05AD14N4<br>6.5 A LXM05BD10M2<br>6.5 A LXM05BD10M3X<br>6.5 A LXM05BD14N4<br>6.5 A LXM05CD10M2<br>6.5 A LXM05CD10M3X<br>6.5 A LXM05CD14N4<br>6 A LXM32.U60N4 |
| Maximum permanent current       | 6.5 A                                                                                                                                                                                                                                                     |
| Switching frequency             | 8 kHz                                                                                                                                                                                                                                                     |
| Second shaft                    | Without second shaft end                                                                                                                                                                                                                                  |
| Shaft diameter                  | 0.4 in (9 mm)                                                                                                                                                                                                                                             |
| Shaft length                    | 0.8 in (20 mm)                                                                                                                                                                                                                                            |
| Key width                       | 0.5 in (12 mm)                                                                                                                                                                                                                                            |
| Feedback type                   | Single turn SinCos Hiperface                                                                                                                                                                                                                              |
| Holding torque                  | 7.08 lbf.in (0.8 N.m) holding brake                                                                                                                                                                                                                       |
| Motor flange size               | 2.2 in (55 mm)                                                                                                                                                                                                                                            |
| Number of motor stacks          | 3                                                                                                                                                                                                                                                         |
| Torque constant                 | 0.7 N.m/A 248.0000000000 °F (120 °C)                                                                                                                                                                                                                      |
| Back emf constant               | 41 V/krpm 248.0000000000 °F (120 °C)                                                                                                                                                                                                                      |
| Number of motor poles           | 6                                                                                                                                                                                                                                                         |
| Rotor inertia                   | 0.1553 kg.cm <sup>2</sup>                                                                                                                                                                                                                                 |
| Stator resistance               | 10.4 Ohm 68.0000000000 °F (20 °C)                                                                                                                                                                                                                         |
| Stator inductance               | 25 mH 68.0000000000 °F (20 °C)                                                                                                                                                                                                                            |
| Stator electrical time constant | 2.4 ms 68.0000000000 °F (20 °C)                                                                                                                                                                                                                           |
| Maximum radial force Fr         | 190 N 8000 rpm<br>200 N 7000 rpm<br>210 N 6000 rpm<br>230 N 5000 rpm<br>240 N 4000 rpm<br>270 N 3000 rpm<br>310 N 2000 rpm<br>390 N 1000 rpm                                                                                                              |
| Maximum axial force Fa          | 0.2 x Fr                                                                                                                                                                                                                                                  |
| Brake pull-in power             | 10 W                                                                                                                                                                                                                                                      |
| Type of cooling                 | Natural convection                                                                                                                                                                                                                                        |
| Length                          | 8.0 in (203 mm)                                                                                                                                                                                                                                           |
| Centring collar diameter        | 1.6 in (40 mm)                                                                                                                                                                                                                                            |
| Centring collar depth           | 0.08 in (2 mm)                                                                                                                                                                                                                                            |
| Number of mounting holes        | 4                                                                                                                                                                                                                                                         |
| Mounting holes diameter         | 0.2 in (5.5 mm)                                                                                                                                                                                                                                           |

|                                       |                     |
|---------------------------------------|---------------------|
| Circle diameter of the mounting holes | 2.5 in (63 mm)      |
| Net Weight                            | 4.2 lb(US) (1.9 kg) |

## Ordering and shipping details

|                   |               |
|-------------------|---------------|
| Category          | US1PC5318282  |
| Discount Schedule | PC53          |
| GTIN              | 3389118159389 |
| Returnability     | No            |
| Country of origin | DE            |

## Packing Units

|                              |                       |
|------------------------------|-----------------------|
| Unit Type of Package 1       | PCE                   |
| Number of Units in Package 1 | 1                     |
| Package 1 Height             | 4.8 in (12.3 cm)      |
| Package 1 Width              | 5.04 in (12.8 cm)     |
| Package 1 Length             | 14.8 in (37.7 cm)     |
| Package 1 Weight             | 3.42 lb(US) (1.55 kg) |

## Offer Sustainability

|                            |                                                                                                                                                                                                                                                                                             |
|----------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Sustainable offer status   | Green Premium product                                                                                                                                                                                                                                                                       |
| California proposition 65  | WARNING: This product can expose you to chemicals including: Lead and lead compounds, which is known to the State of California to cause cancer and birth defects or other reproductive harm. For more information go to <a href="http://www.P65Warnings.ca.gov">www.P65Warnings.ca.gov</a> |
| EU RoHS Directive          | Pro-active compliance (Product out of EU RoHS legal scope)                                                                                                                                                                                                                                  |
| Mercury free               | Yes                                                                                                                                                                                                                                                                                         |
| China RoHS Regulation      | <a href="#">China RoHS Declaration</a>                                                                                                                                                                                                                                                      |
| RoHS exemption information | <a href="#">Yes</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.                                                                                                                                                                |
| PVC free                   | Yes                                                                                                                                                                                                                                                                                         |

## 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)  
(3) For screw M3 x 9 mm/M3 x 0.35 in.

Dimensions in mm

| Straight connectors |      | Rotatable angled connectors |      | c (without brake) | c (with brake) |
|---------------------|------|-----------------------------|------|-------------------|----------------|
| b                   | b1   | b                           | b1   |                   |                |
| 39.5                | 25.5 | 39.5                        | 39.5 | 176.5             | 203            |

Dimensions in in.

| Straight connectors |      | Rotatable angled connectors |      | c (without brake) | c (with brake) |
|---------------------|------|-----------------------------|------|-------------------|----------------|
| b                   | b1   | b                           | b1   |                   |                |
| 1.55                | 1.00 | 1.55                        | 1.55 | 6.94              | 7.99           |

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### 400 V 3-Phase Supply Voltage

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#### Torque/Speed Curves

Servo motor with LXM32-U60N4 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-U60N4 servo drive



X Speed in rpm

Y Torque in Nm

1 Peak torque

2 Continuous torque