

# BSH0551T21A2A

AC servo motor BSH - 0.5 N.m - 8000 rpm -  
untapped shaft - without brake - IP65



## Main

|                           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
|---------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Product or component type | Servo motor                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
| Device short name         | BSH                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
| Maximum mechanical speed  | 9000 rpm                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
| Continuous stall torque   | 0.5 N.m for LXM32.U90M2 at 3 A, 115 V, single phase<br>0.5 N.m for LXM32.U45M2 at 1.5 A, 230 V, single phase<br>0.5 N.m for LXM05CU70M2, 200...240 V, single phase<br>0.5 N.m for LXM05AD10F1, 110...120 V, single phase<br>0.5 N.m for LXM05AD10M2, 200...240 V, single phase<br>0.5 N.m for LXM05BD10F1, 110...120 V, single phase<br>0.5 N.m for LXM05BD10M2, 200...240 V, single phase<br>0.5 N.m for LXM05CD10F1, 110...120 V, single phase<br>0.5 N.m for LXM05CD10M2, 200...240 V, single phase<br>0.5 N.m for LXM15LD13M3, 230 V, three phase<br>0.5 N.m for LXM05AD10M3X, 200...240 V, three phase<br>0.5 N.m for LXM05BD10M3X, 200...240 V, three phase<br>0.5 N.m for LXM05CD10M3X, 200...240 V, three phase   |
| Peak stall torque         | 1.5 N.m for LXM32.U90M2 at 3 A, 115 V, single phase<br>1.4 N.m for LXM32.U45M2 at 1.5 A, 230 V, single phase<br>1.08 N.m for LXM05CU70M2, 200...240 V, single phase<br>1.4 N.m for LXM05AD10F1, 110...120 V, single phase<br>1.4 N.m for LXM05AD10M2, 200...240 V, single phase<br>1.4 N.m for LXM05BD10F1, 110...120 V, single phase<br>1.4 N.m for LXM05BD10M2, 200...240 V, single phase<br>1.4 N.m for LXM05CD10F1, 110...120 V, single phase<br>1.4 N.m for LXM05CD10M2, 200...240 V, single phase<br>1.24 N.m for LXM15LD13M3, 230 V, three phase<br>1.4 N.m for LXM05AD10M3X, 200...240 V, three phase<br>1.4 N.m for LXM05BD10M3X, 200...240 V, three phase<br>1.4 N.m for LXM05CD10M3X, 200...240 V, three phase |
| Nominal output power      | 150 W for LXM32.U90M2 at 3 A, 115 V, single phase<br>300 W for LXM32.U45M2 at 1.5 A, 230 V, single phase<br>150 W for LXM05AD10F1, 110...120 V, single phase<br>150 W for LXM05BD10F1, 110...120 V, single phase<br>150 W for LXM05CD10F1, 110...120 V, single phase<br>150 W for LXM05CU70M2, 200...240 V, single phase<br>270 W for LXM05AD10M2, 200...240 V, single phase<br>270 W for LXM05BD10M2, 200...240 V, single phase                                                                                                                                                                                                                                                                                          |

|                           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
|---------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                           | 270 W for LXM05CD10M2, 200...240 V, single phase<br>270 W for LXM05AD10M3X, 200...240 V, three phase<br>270 W for LXM05BD10M3X, 200...240 V, three phase<br>270 W for LXM05CD10M3X, 200...240 V, three phase<br>340 W for LXM15LD13M3, 230 V, three phase                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
| Nominal torque            | 0.49 N.m for LXM32.U90M2 at 3 A, 115 V, single phase<br>0.45 N.m for LXM32.U45M2 at 1.5 A, 230 V, single phase<br>0.43 N.m for LXM05AD10M2, 200...240 V, single phase<br>0.43 N.m for LXM05BD10M2, 200...240 V, single phase<br>0.43 N.m for LXM05CD10M2, 200...240 V, single phase<br>0.46 N.m for LXM05AD10F1, 110...120 V, single phase<br>0.46 N.m for LXM05BD10F1, 110...120 V, single phase<br>0.46 N.m for LXM05CD10F1, 110...120 V, single phase<br>0.46 N.m for LXM05CU70M2, 200...240 V, single phase<br>0.41 N.m for LXM15LD13M3, 230 V, three phase<br>0.43 N.m for LXM05AD10M3X, 200...240 V, three phase<br>0.43 N.m for LXM05BD10M3X, 200...240 V, three phase<br>0.43 N.m for LXM05CD10M3X, 200...240 V, three phase |
| Nominal speed             | 3000 rpm for LXM32.U90M2 at 3 A, 115 V, single phase<br>6000 rpm for LXM32.U45M2 at 1.5 A, 230 V, single phase<br>3000 rpm for LXM05AD10F1, 110...120 V, single phase<br>3000 rpm for LXM05BD10F1, 110...120 V, single phase<br>3000 rpm for LXM05CD10F1, 110...120 V, single phase<br>3000 rpm for LXM05CU70M2, 200...240 V, single phase<br>6000 rpm for LXM05AD10M2, 200...240 V, single phase<br>6000 rpm for LXM05BD10M2, 200...240 V, single phase<br>6000 rpm for LXM05CD10M2, 200...240 V, single phase<br>6000 rpm for LXM05AD10M3X, 200...240 V, three phase<br>6000 rpm for LXM05BD10M3X, 200...240 V, three phase<br>6000 rpm for LXM05CD10M3X, 200...240 V, three phase<br>8000 rpm for LXM15LD13M3, 230 V, three phase |
| Product compatibility     | LXM05AD10F1 at 110...120 V single phase<br>LXM05AD10M2 at 200...240 V single phase<br>LXM05BD10F1 at 110...120 V single phase<br>LXM05BD10M2 at 200...240 V single phase<br>LXM05CD10F1 at 110...120 V single phase<br>LXM05CD10M2 at 200...240 V single phase<br>LXM05CU70M2 at 200...240 V single phase<br>LXM32.U90M2 at 115 V single phase<br>LXM32.U45M2 at 230 V single phase<br>LXM05AD10M3X at 200...240 V three phase<br>LXM05BD10M3X at 200...240 V three phase<br>LXM05CD10M3X at 200...240 V three phase<br>LXM15LD13M3 at 230 V three phase                                                                                                                                                                             |
| Shaft end                 | Untapped                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
| IP degree of protection   | IP65 standard<br>IP67 with IP67 kit                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
| Speed feedback resolution | 131072 points/turn                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
| Holding brake             | Without                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
| Mounting support          | International standard flange                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
| Electrical connection     | Rotatable right-angled connectors                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |

## Complementary

|                          |                                                                                                                                                                                                        |
|--------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Range compatibility      | Lexium 32<br>Lexium 05<br>Lexium 15                                                                                                                                                                    |
| Supply voltage max       | 480 V                                                                                                                                                                                                  |
| Network number of phases | Three phase                                                                                                                                                                                            |
| Continuous stall current | 1.4 A                                                                                                                                                                                                  |
| Maximum continuous power | 0.45 W                                                                                                                                                                                                 |
| Maximum current Irms     | 6.2 A for LXM15LD13M3<br>5.4 A for LXM05AD10F1<br>5.4 A for LXM05CU70M2<br>5.4 A for LXM05AD10M2<br>5.4 A for LXM05AD10M3X<br>5.4 A for LXM05BD10F1<br>5.4 A for LXM05BD10M2<br>5.4 A for LXM05BD10M3X |

|                                       |                                                                                                                                                                      |
|---------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                                       | 5.4 A for LXM05CD10F1<br>5.4 A for LXM05CD10M2<br>5.4 A for LXM05CD10M3X<br>5.4 A for LXM32.U90M2<br>4.5 A for LXM32.U45M2                                           |
| Maximum permanent current             | 5.4 A                                                                                                                                                                |
| Switching frequency                   | 8 kHz                                                                                                                                                                |
| Second shaft                          | Without second shaft end                                                                                                                                             |
| Shaft diameter                        | 9 mm                                                                                                                                                                 |
| Shaft length                          | 20 mm                                                                                                                                                                |
| Feedback type                         | Single turn SinCos Hiperface                                                                                                                                         |
| Motor flange size                     | 55 mm                                                                                                                                                                |
| Number of motor stacks                | 1                                                                                                                                                                    |
| Torque constant                       | 0.36 N.m/A at 120 °C                                                                                                                                                 |
| Back emf constant                     | 22 V/krpm at 120 °C                                                                                                                                                  |
| Number of motor poles                 | 6                                                                                                                                                                    |
| Rotor inertia                         | 0.059 kg.cm <sup>2</sup>                                                                                                                                             |
| Stator resistance                     | 12.2 Ohm at 20 °C                                                                                                                                                    |
| Stator inductance                     | 20.8 mH at 20 °C                                                                                                                                                     |
| Stator electrical time constant       | 1.7 ms at 20 °C                                                                                                                                                      |
| Maximum radial force Fr               | 170 N at 8000 rpm<br>180 N at 7000 rpm<br>190 N at 6000 rpm<br>200 N at 5000 rpm<br>220 N at 4000 rpm<br>240 N at 3000 rpm<br>270 N at 2000 rpm<br>340 N at 1000 rpm |
| Maximum axial force Fa                | 0.2 x Fr                                                                                                                                                             |
| Type of cooling                       | Natural convection                                                                                                                                                   |
| Length                                | 132.5 mm                                                                                                                                                             |
| Centring collar diameter              | 40 mm                                                                                                                                                                |
| Centring collar depth                 | 2 mm                                                                                                                                                                 |
| Number of mounting holes              | 4                                                                                                                                                                    |
| Mounting holes diameter               | 5.5 mm                                                                                                                                                               |
| Circle diameter of the mounting holes | 63 mm                                                                                                                                                                |
| Product weight                        | 1.2 kg                                                                                                                                                               |

### Offer Sustainability

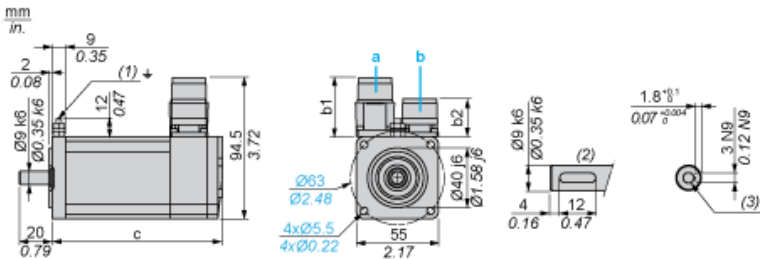
|                            |                                                                                                                             |
|----------------------------|-----------------------------------------------------------------------------------------------------------------------------|
| 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)  
(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 | 132.5             | 159            |

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 | 5.21              | 6.25           |

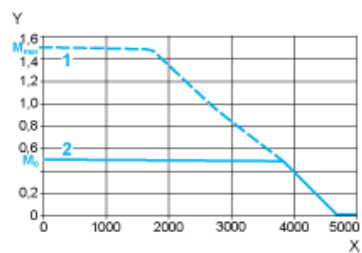
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115 V Single-Phase Supply Voltage

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Torque/Speed Curves

Servo motor with LXM32•U90M2 servo drive

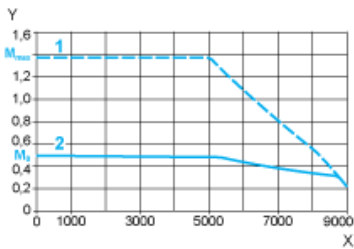


X Speed in rpm  
Y Torque in Nm  
1 Peak torque  
2 Continuous torque

230 V Single-Phase Supply Voltage

Torque/Speed Curves

Servo motor with LXM32•U45M2 servo drive



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