

# BSH0553T12A2A

servo motor BSH, Lexium 05, 1.3N.m,  
3000rpm, 55mm, keyed shaft, Sincos multi  
turn, without brake, IP50





## Main

|                           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
|---------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Product or component type | Servo motor                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
| Device short name         | BSH                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
| Maximum mechanical speed  | 9000 rpm                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
| Continuous stall torque   | 1.2 N.M for LXM32.U90M2 at 3 A, 230 V, single phase<br>1.3 N.M for LXM05AD17F1, 110...120 V, single phase<br>1.3 N.M for LXM05AD17M2, 200...240 V, single phase<br>1.3 N.M for LXM05BD17F1, 110...120 V, single phase<br>1.3 N.M for LXM05BD17M2, 200...240 V, single phase<br>1.3 N.M for LXM05CD17F1, 110...120 V, single phase<br>1.3 N.M for LXM05CD17M2, 200...240 V, single phase<br>1.2 N.M for LXM32.D18M2 at 6 A, 115 V, single phase<br>1.3 N.M for LXM05AD17M3X, 200...240 V, three phase<br>1.3 N.M for LXM05BD17M3X, 200...240 V, three phase<br>1.3 N.m for LXM05CD17M3X, 200...240 V, three phase        |
| Peak stall torque         | 3 N.M for LXM32.U90M2 at 3 A, 230 V, single phase<br>3.31 N.M for LXM05AD17F1, 110...120 V, single phase<br>3.31 N.M for LXM05AD17M2, 200...240 V, single phase<br>3.31 N.M for LXM05BD17F1, 110...120 V, single phase<br>3.31 N.M for LXM05BD17M2, 200...240 V, single phase<br>3.31 N.M for LXM05CD17F1, 110...120 V, single phase<br>3.31 N.M for LXM05CD17M2, 200...240 V, single phase<br>3.3 N.M for LXM32.D18M2 at 6 A, 115 V, single phase<br>3.31 N.M for LXM05AD17M3X, 200...240 V, three phase<br>3.31 N.M for LXM05BD17M3X, 200...240 V, three phase<br>3.31 N.m for LXM05CD17M3X, 200...240 V, three phase |
| Nominal output power      | 550 W for LXM32.U90M2 at 3 A, 230 V, single phase<br>350 W for LXM05AD17F1, 110...120 V, single phase<br>350 W for LXM05AD17M2, 200...240 V, single phase<br>350 W for LXM05BD17F1, 110...120 V, single phase<br>350 W for LXM05BD17M2, 200...240 V, single phase<br>350 W for LXM05CD17F1, 110...120 V, single phase<br>350 W for LXM05CD17M2, 200...240 V, single phase<br>350 W for LXM32.D18M2 at 6 A, 115 V, single phase<br>350 W for LXM05AD17M3X, 200...240 V, three phase<br>350 W for LXM05BD17M3X, 200...240 V, three phase<br>350 W for LXM05CD17M3X, 200...240 V, three phase                              |

|                           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
|---------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Nominal torque            | 0.84 N.M for LXM32.U90M2 at 3 A, 230 V, single phase<br>1.1 N.M for LXM05AD17F1, 110...120 V, single phase<br>1.1 N.M for LXM05AD17M2, 200...240 V, single phase<br>1.1 N.M for LXM05BD17F1, 110...120 V, single phase<br>1.1 N.M for LXM05BD17M2, 200...240 V, single phase<br>1.1 N.M for LXM05CD17F1, 110...120 V, single phase<br>1.1 N.M for LXM05CD17M2, 200...240 V, single phase<br>1.14 N.M for LXM32.D18M2 at 6 A, 115 V, single phase<br>1.1 N.M for LXM05AD17M3X, 200...240 V, three phase<br>1.1 N.M for LXM05BD17M3X, 200...240 V, three phase<br>1.1 N.m for LXM05CD17M3X, 200...240 V, three phase          |
| Nominal speed             | 6000 rpm for LXM32.U90M2 at 3 A, 230 V, single phase<br>3000 rpm for LXM05AD17F1, 110...120 V, single phase<br>3000 rpm for LXM05BD17F1, 110...120 V, single phase<br>3000 rpm for LXM05CD17F1, 110...120 V, single phase<br>3000 rpm for LXM05AD17M2, 200...240 V, single phase<br>3000 rpm for LXM05BD17M2, 200...240 V, single phase<br>3000 rpm for LXM05CD17M2, 200...240 V, single phase<br>3000 rpm for LXM32.D18M2 at 6 A, 115 V, single phase<br>3000 rpm for LXM05AD17M3X, 200...240 V, three phase<br>3000 rpm for LXM05BD17M3X, 200...240 V, three phase<br>3000 rpm for LXM05CD17M3X, 200...240 V, three phase |
| Product compatibility     | LXM05AD17F1 at 110...120 V single phase<br>LXM05AD17M2 at 200...240 V single phase<br>LXM05BD17F1 at 110...120 V single phase<br>LXM05BD17M2 at 200...240 V single phase<br>LXM05CD17F1 at 110...120 V single phase<br>LXM05CD17M2 at 200...240 V single phase<br>LXM32.U90M2 at 230 V single phase<br>LXM32.D18M2 at 115 V single phase<br>LXM05AD17M3X at 200...240 V three phase<br>LXM05BD17M3X at 200...240 V three phase<br>LXM05CD17M3X at 200...240 V three phase                                                                                                                                                   |
| Shaft end                 | Keyed                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
| IP degree of protection   | IP50 standard                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
| Speed feedback resolution | 131072 points/turn x 4096 turns                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
| Holding brake             | Without                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
| Mounting support          | International standard flange                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
| Electrical connection     | Rotatable right-angled connectors                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |

## Complementary

|                          |                        |
|--------------------------|------------------------|
| Range compatibility      | Lexium 32<br>Lexium 05 |
| Supply voltage max       | 480 V                  |
| Network number of phases | Three phase            |
| Continuous stall current | 3.1 A                  |
| Maximum continuous power | 0.97 W                 |

|                                       |                                                                                                                                                                                                                                                                                          |
|---------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Maximum current Irms                  | 11.9 A for LXM05AD17F1<br>11.9 A for LXM05AD17M2<br>11.9 A for LXM05AD17M3X<br>11.9 A for LXM05BD17F1<br>11.9 A for LXM05BD17M2<br>11.9 A for LXM05BD17M3X<br>11.9 A for LXM05CD17F1<br>11.9 A for LXM05CD17M2<br>11.9 A for LXM05CD17M3X<br>10 A for LXM32.D18M2<br>9 A for LXM32.U90M2 |
| Maximum permanent current             | 11.9 A                                                                                                                                                                                                                                                                                   |
| Switching frequency                   | 8 kHz                                                                                                                                                                                                                                                                                    |
| Second shaft                          | Without second shaft end                                                                                                                                                                                                                                                                 |
| Shaft diameter                        | 9 mm                                                                                                                                                                                                                                                                                     |
| Shaft length                          | 20 mm                                                                                                                                                                                                                                                                                    |
| Key width                             | 12 mm                                                                                                                                                                                                                                                                                    |
| Feedback type                         | Multiturn SinCos Hiperface                                                                                                                                                                                                                                                               |
| Motor flange size                     | 55 mm                                                                                                                                                                                                                                                                                    |
| Number of motor stacks                | 3                                                                                                                                                                                                                                                                                        |
| Torque constant                       | 0.39 N.m/A at 120 °C                                                                                                                                                                                                                                                                     |
| Back emf constant                     | 22 V/krpm at 120 °C                                                                                                                                                                                                                                                                      |
| Number of motor poles                 | 6                                                                                                                                                                                                                                                                                        |
| Rotor inertia                         | 0.134 kg.cm <sup>2</sup>                                                                                                                                                                                                                                                                 |
| Stator resistance                     | 3.1 Ohm at 20 °C                                                                                                                                                                                                                                                                         |
| Stator inductance                     | 7.4 mH at 20 °C                                                                                                                                                                                                                                                                          |
| Stator electrical time constant       | 2.39 ms at 20 °C                                                                                                                                                                                                                                                                         |
| Maximum radial force Fr               | 190 N at 8000 rpm<br>200 N at 7000 rpm<br>210 N at 6000 rpm<br>230 N at 5000 rpm<br>240 N at 4000 rpm<br>270 N at 3000 rpm<br>310 N at 2000 rpm<br>390 N at 1000 rpm                                                                                                                     |
| Maximum axial force Fa                | 0.2 x Fr                                                                                                                                                                                                                                                                                 |
| Type of cooling                       | Natural convection                                                                                                                                                                                                                                                                       |
| Length                                | 176.5 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                                                                                                                                                                                                                                                                                    |
| Net weight                            | 1.76 kg                                                                                                                                                                                                                                                                                  |

### Packing Units

|                              |         |
|------------------------------|---------|
| Unit Type of Package 1       | PCE     |
| Number of Units in Package 1 | 1       |
| Package 1 Height             | 12.3 cm |
| Package 1 Width              | 12.8 cm |
| Package 1 Length             | 37.7 cm |
| Package 1 Weight             | 1.4 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)                                                                 |
| Mercury free             | Yes                                                                                                                        |
| China RoHS Regulation    |  <a href="#">China RoHS Declaration</a> |

|                             |                                                                                                                                 |
|-----------------------------|---------------------------------------------------------------------------------------------------------------------------------|
| RoHS exemption information  |  Yes                                            |
| 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                                                                                                                             |
| <b>Contractual warranty</b> |                                                                                                                                 |
| 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           |

## 115 V Single-Phase Supply Voltage

### Torque/Speed Curves

Servo motor with LXM32•D18M2 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•U90M2 servo drive



X Speed in rpm

Y Torque in Nm

1 Peak torque

2 Continuous torque