

# BSH1001T21F2A

AC servo motor BSH, Lexium 05, 3.39N.m,  
4000rpm, untapped shaft, with brake, IP65





## Main

|                           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
|---------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Product or component type | Servo motor                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
| Device short name         | BSH                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
| Maximum mechanical speed  | 6000 rpm                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| Continuous stall torque   | 3.3 N.M for LXM32.D30M2 at 10 A, 115 V, single phase<br>3.39 N.M for LXM15LD28M3, 230 V, three phase<br>3.4 N.M for LXM05AD28F1, 110...120 V, single phase<br>3.4 N.M for LXM05AD28M2, 200...240 V, single phase<br>3.4 N.M for LXM05AD42M3X, 200...240 V, three phase<br>3.4 N.M for LXM05BD28F1, 110...120 V, single phase<br>3.4 N.M for LXM05BD28M2, 200...240 V, single phase<br>3.4 N.M for LXM05BD42M3X, 200...240 V, three phase<br>3.4 N.M for LXM05CD28F1, 110...120 V, single phase<br>3.4 N.M for LXM05CD28M2, 200...240 V, single phase<br>3.4 N.M for LXM05CD42M3X, 200...240 V, three phase<br>2.7 N.m for LXM32.D18M2 at 6 A, 230 V, single phase |
| Peak stall torque         | 6.3 N.M for LXM32.D30M2 at 10 A, 115 V, single phase<br>8.5 N.M for LXM05AD28F1, 110...120 V, single phase<br>8.5 N.M for LXM05AD28M2, 200...240 V, single phase<br>8.5 N.M for LXM05BD28F1, 110...120 V, single phase<br>8.5 N.M for LXM05BD28M2, 200...240 V, single phase<br>8.5 N.M for LXM05CD28F1, 110...120 V, single phase<br>8.5 N.M for LXM05CD28M2, 200...240 V, single phase<br>7.5 N.M for LXM32.D18M2 at 6 A, 230 V, single phase<br>8.5 N.M for LXM15LD28M3, 230 V, three phase<br>8.5 N.M for LXM05AD42M3X, 200...240 V, three phase<br>8.5 N.M for LXM05BD42M3X, 200...240 V, three phase<br>8.5 N.m for LXM05CD42M3X, 200...240 V, three phase  |
| Nominal output power      | 700 W for LXM32.D30M2 at 10 A, 115 V, single phase<br>900 W for LXM32.D18M2 at 6 A, 230 V, single phase<br>500 W for LXM05AD28F1, 110...120 V, single phase<br>500 W for LXM05BD28F1, 110...120 V, single phase<br>500 W for LXM05CD28F1, 110...120 V, single phase<br>900 W for LXM05AD28M2, 200...240 V, single phase<br>900 W for LXM05BD28M2, 200...240 V, single phase<br>900 W for LXM05CD28M2, 200...240 V, single phase<br>1150 W for LXM15LD28M3, 230 V, three phase<br>900 W for LXM05AD42M3X, 200...240 V, three phase<br>900 W for LXM05BD42M3X, 200...240 V, three phase<br>900 W for LXM05CD42M3X, 200...240 V, three phase                         |

|                           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
|---------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Nominal torque            | 2.75 N.M for LXM32.D30M2 at 10 A, 115 V, single phase<br>2.9 N.M for LXM05AD28M2, 200...240 V, single phase<br>2.9 N.M for LXM05BD28M2, 200...240 V, single phase<br>2.9 N.M for LXM05CD28M2, 200...240 V, single phase<br>3.16 N.M for LXM05AD28F1, 110...120 V, single phase<br>3.16 N.M for LXM05BD28F1, 110...120 V, single phase<br>3.16 N.M for LXM05CD28F1, 110...120 V, single phase<br>2.2 N.M for LXM32.D18M2 at 6 A, 230 V, single phase<br>2.75 N.M for LXM15LD28M3, 230 V, three phase<br>2.9 N.M for LXM05AD42M3X, 200...240 V, three phase<br>2.9 N.M for LXM05BD42M3X, 200...240 V, three phase<br>2.9 N.m for LXM05CD42M3X, 200...240 V, three phase        |
| Nominal speed             | 2500 rpm for LXM32.D30M2 at 10 A, 115 V, single phase<br>3000 rpm for LXM05AD28M2, 200...240 V, single phase<br>3000 rpm for LXM05BD28M2, 200...240 V, single phase<br>3000 rpm for LXM05CD28M2, 200...240 V, single phase<br>3000 rpm for LXM05AD42M3X, 200...240 V, three phase<br>3000 rpm for LXM05BD42M3X, 200...240 V, three phase<br>3000 rpm for LXM05CD42M3X, 200...240 V, three phase<br>4000 rpm for LXM32.D18M2 at 6 A, 230 V, single phase<br>1500 rpm for LXM05AD28F1, 110...120 V, single phase<br>1500 rpm for LXM05BD28F1, 110...120 V, single phase<br>1500 rpm for LXM05CD28F1, 110...120 V, single phase<br>4000 rpm for LXM15LD28M3, 230 V, three phase |
| Product compatibility     | LXM05AD28F1 at 110...120 V single phase<br>LXM05AD28M2 at 200...240 V single phase<br>LXM05BD28F1 at 110...120 V single phase<br>LXM05BD28M2 at 200...240 V single phase<br>LXM05CD28F1 at 110...120 V single phase<br>LXM05CD28M2 at 200...240 V single phase<br>LXM32.D30M2 at 115 V single phase<br>LXM32.D18M2 at 230 V single phase<br>LXM05AD42M3X at 200...240 V three phase<br>LXM05BD42M3X at 200...240 V three phase<br>LXM05CD42M3X at 200...240 V three phase<br>LXM15LD28M3 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             | With                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
| Mounting support          | International standard flange                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
| Electrical connection     | Rotatable right-angled 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              | 7.3 A                                                                                                                                                                                                                                                                                                                               |
| Maximum continuous power              | 1.6 W                                                                                                                                                                                                                                                                                                                               |
| Maximum current Irms                  | 18 A for LXM32.D18M2 at 230 V<br>15 A for LXM32.D30M2 at 115 V<br>23 A for LXM15LD28M3<br>25.1 A for LXM05AD28F1<br>25.1 A for LXM05AD28M2<br>25.1 A for LXM05AD42M3X<br>25.1 A for LXM05BD28F1<br>25.1 A for LXM05BD28M2<br>25.1 A for LXM05BD42M3X<br>25.1 A for LXM05CD28F1<br>25.1 A for LXM05CD28M2<br>25.1 A for LXM05CD42M3X |
| Maximum permanent current             | 25.1 A                                                                                                                                                                                                                                                                                                                              |
| Switching frequency                   | 8 kHz                                                                                                                                                                                                                                                                                                                               |
| Second shaft                          | Without second shaft end                                                                                                                                                                                                                                                                                                            |
| Shaft diameter                        | 19 mm                                                                                                                                                                                                                                                                                                                               |
| Shaft length                          | 40 mm                                                                                                                                                                                                                                                                                                                               |
| Feedback type                         | Single turn SinCos Hiperface                                                                                                                                                                                                                                                                                                        |
| Holding torque                        | 9 N.m holding brake                                                                                                                                                                                                                                                                                                                 |
| Motor flange size                     | 100 mm                                                                                                                                                                                                                                                                                                                              |
| Number of motor stacks                | 1                                                                                                                                                                                                                                                                                                                                   |
| Torque constant                       | 0.45 N.m/A at 120 °C                                                                                                                                                                                                                                                                                                                |
| Back emf constant                     | 29 V/krpm at 120 °C                                                                                                                                                                                                                                                                                                                 |
| Number of motor poles                 | 8                                                                                                                                                                                                                                                                                                                                   |
| Rotor inertia                         | 2.018 kg.cm <sup>2</sup>                                                                                                                                                                                                                                                                                                            |
| Stator resistance                     | 0.87 Ohm at 20 °C                                                                                                                                                                                                                                                                                                                   |
| Stator inductance                     | 4 mH at 20 °C                                                                                                                                                                                                                                                                                                                       |
| Stator electrical time constant       | 4.6 ms at 20 °C                                                                                                                                                                                                                                                                                                                     |
| Maximum radial force Fr               | 530 N at 5000 rpm<br>570 N at 4000 rpm<br>630 N at 3000 rpm<br>720 N at 2000 rpm<br>900 N at 1000 rpm                                                                                                                                                                                                                               |
| Maximum axial force Fa                | 0.2 x Fr                                                                                                                                                                                                                                                                                                                            |
| Brake pull-in power                   | 18 W                                                                                                                                                                                                                                                                                                                                |
| Type of cooling                       | Natural convection                                                                                                                                                                                                                                                                                                                  |
| Length                                | 199.5 mm                                                                                                                                                                                                                                                                                                                            |
| Centring collar diameter              | 95 mm                                                                                                                                                                                                                                                                                                                               |
| Centring collar depth                 | 3.5 mm                                                                                                                                                                                                                                                                                                                              |
| Number of mounting holes              | 4                                                                                                                                                                                                                                                                                                                                   |
| Mounting holes diameter               | 9 mm                                                                                                                                                                                                                                                                                                                                |
| Circle diameter of the mounting holes | 115 mm                                                                                                                                                                                                                                                                                                                              |
| Net weight                            | 4.8 kg                                                                                                                                                                                                                                                                                                                              |

## Packing Units

|                              |         |
|------------------------------|---------|
| Unit Type of Package 1       | PCE     |
| Number of Units in Package 1 | 1       |
| Package 1 Height             | 15.4 cm |
| Package 1 Width              | 16.3 cm |
| Package 1 Length             | 40.7 cm |
| Package 1 Weight             | 4.95 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 |  <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     |

## 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 | h    | h1                               | Ø     | Ø1 for screws |
|---------------------|------|-----------------------------|------|-------------------|----------------|----|----|------|----------------------------------|-------|---------------|
| b1                  | b2   | b1                          | b2   |                   |                |    |    |      |                                  |       |               |
| 39.5                | 25.5 | 39.5                        | 39.5 | 169               | 200            | 40 | 30 | 6 N9 | 3.5 <sup>+0.1</sup> <sub>0</sub> | 19 k6 | M6 x 16       |

Dimensions in in.

| Straight connectors |      | Rotatable angled connectors |      | c (without brake) | c (with brake) | c1   | c2   | h       | h1                                | Ø       | Ø1 for screws |
|---------------------|------|-----------------------------|------|-------------------|----------------|------|------|---------|-----------------------------------|---------|---------------|
| b1                  | b2   | b1                          | b2   |                   |                |      |      |         |                                   |         |               |
| 1.55                | 1.00 | 1.55                        | 1.55 | 6.65              | 7.87           | 1.57 | 1.18 | 0.24 N9 | 0.14 <sup>+0.1</sup> <sub>0</sub> | 0.75 k6 | M6 x 0.63     |

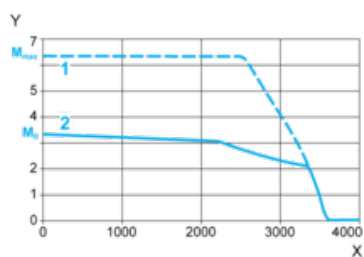
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### 115 V Single-Phase Supply Voltage

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#### Torque/Speed Curves

Servo motor with LXM32•D30M2 servo drive



X Speed in rpm

Y Torque in Nm

1 Peak torque

2 Continuous torque

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### 230 V Single-Phase Supply Voltage

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#### Torque/Speed Curves

Servo motor with LXM32•D18M2 servo drive



X Speed in rpm

Y Torque in Nm

1 Peak torque

2 Continuous torque