

# BSH1002P22F2A

AC servo motor BSH, Lexium 05, 3.4N.m,  
2500rpm, untapped shaft, with brake, IP65





## Main

|                           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
|---------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Product or component type | Servo motor                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
| Device short name         | BSH                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
| Maximum mechanical speed  | 6000 rpm                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
| Continuous stall torque   | 4.5 N.M for LXM15LD21M3, 230 V, single phase<br>3.4 N.M for LXM15LD13M3, 230 V, three phase<br>3.4 N.M for LXM15LD10N4, 230 V, three phase<br>3.4 N.M for LXM15LD10N4, 400 V, three phase<br>3.4 N.M for LXM15LD10N4, 480 V, three phase<br>5.8 N.M for LXM15LD17N4, 400 V, three phase<br>5.8 N.M for LXM15LD17N4, 480 V, three phase<br>5.8 N.M for LXM15LD21M3, 230 V, three phase<br>5.5 N.M for LXM05AD17M3X, 200...240 V, three phase<br>5.5 N.M for LXM05AD22N4, 380...480 V, three phase<br>5.5 N.M for LXM05AD28M2, 200...240 V, single phase<br>5.5 N.M for LXM05BD17M3X, 200...240 V, three phase<br>5.5 N.M for LXM05BD22N4, 380...480 V, three phase<br>5.5 N.M for LXM05BD28M2, 200...240 V, single phase<br>5.5 N.M for LXM05CD17M3X, 200...240 V, three phase<br>5.5 N.M for LXM05CD22N4, 380...480 V, three phase<br>5.5 N.M for LXM05CD28M2, 200...240 V, single phase<br>5.8 N.M for LXM32.D18N4 at 6 A, 400 V, three phase<br>5.8 N.m for LXM32.D18N4 at 6 A, 480 V, three phase             |
| Peak stall torque         | 9.39 N.M for LXM15LD21M3, 230 V, single phase<br>5.6 N.M for LXM15LD13M3, 230 V, three phase<br>8 N.M for LXM15LD10N4, 230 V, three phase<br>8 N.M for LXM15LD10N4, 400 V, three phase<br>8 N.M for LXM15LD10N4, 480 V, three phase<br>12.13 N.M for LXM15LD17N4, 400 V, three phase<br>12.13 N.M for LXM15LD17N4, 480 V, three phase<br>14.79 N.M for LXM15LD21M3, 230 V, three phase<br>11.23 N.M for LXM05AD17M3X, 200...240 V, three phase<br>13.92 N.M for LXM05AD22N4, 380...480 V, three phase<br>16 N.M for LXM05AD28M2, 200...240 V, single phase<br>11.23 N.M for LXM05BD17M3X, 200...240 V, three phase<br>13.92 N.M for LXM05BD22N4, 380...480 V, three phase<br>16 N.M for LXM05BD28M2, 200...240 V, single phase<br>11.23 N.M for LXM05CD17M3X, 200...240 V, three phase<br>13.92 N.M for LXM05CD22N4, 380...480 V, three phase<br>16 N.M for LXM05CD28M2, 200...240 V, single phase<br>18.3 N.M for LXM32.D18N4 at 6 A, 400 V, three phase<br>18.3 N.m for LXM32.D18N4 at 6 A, 480 V, three phase |

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|----------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Nominal output power | <p>950 W for LXM15LD21M3, 230 V, single phase</p> <p>950 W for LXM15LD21M3, 230 V, three phase</p> <p>780 W for LXM05AD28M2, 200...240 V, single phase</p> <p>780 W for LXM05BD28M2, 200...240 V, single phase</p> <p>780 W for LXM05CD28M2, 200...240 V, single phase</p> <p>1400 W for LXM05AD22N4, 380...480 V, three phase</p> <p>1400 W for LXM05BD22N4, 380...480 V, three phase</p> <p>1400 W for LXM05CD22N4, 380...480 V, three phase</p> <p>1600 W for LXM15LD10N4, 400 V, three phase</p> <p>1700 W for LXM15LD17N4, 400 V, three phase</p> <p>1950 W for LXM15LD17N4, 480 V, three phase</p> <p>2150 W for LXM15LD10N4, 480 V, three phase</p> <p>780 W for LXM05AD17M3X, 200...240 V, three phase</p> <p>780 W for LXM05BD17M3X, 200...240 V, three phase</p> <p>780 W for LXM05CD17M3X, 200...240 V, three phase</p> <p>840 W for LXM15LD13M3, 230 V, three phase</p> <p>890 W for LXM15LD10N4, 230 V, three phase</p> <p>1700 W for LXM32.D18N4 at 6 A, 400 V, three phase</p> <p>1700 W for LXM32.D18N4 at 6 A, 480 V, three phase</p>                              |
| Nominal torque       | <p>4.5 N.M for LXM15LD21M3, 230 V, single phase</p> <p>4.96 N.M for LXM05AD28M2, 200...240 V, single phase</p> <p>4.96 N.M for LXM05BD28M2, 200...240 V, single phase</p> <p>4.96 N.M for LXM05CD28M2, 200...240 V, single phase</p> <p>3.4 N.M for LXM15LD10N4, 230 V, three phase</p> <p>3.4 N.M for LXM15LD10N4, 400 V, three phase</p> <p>3.4 N.M for LXM15LD10N4, 480 V, three phase</p> <p>3.4 N.M for LXM15LD13M3, 230 V, three phase</p> <p>3.7 N.M for LXM15LD17N4, 480 V, three phase</p> <p>4 N.M for LXM15LD17N4, 400 V, three phase</p> <p>4.4 N.M for LXM05AD22N4, 380...480 V, three phase</p> <p>4.4 N.M for LXM05BD22N4, 380...480 V, three phase</p> <p>4.4 N.M for LXM05CD22N4, 380...480 V, three phase</p> <p>4.96 N.M for LXM05AD17M3X, 200...240 V, three phase</p> <p>4.96 N.M for LXM05BD17M3X, 200...240 V, three phase</p> <p>4.96 N.M for LXM05CD17M3X, 200...240 V, three phase</p> <p>5.8 N.M for LXM15LD21M3, 230 V, three phase</p> <p>4 N.M for LXM32.D18N4 at 6 A, 400 V, three phase</p> <p>4 N.m for LXM32.D18N4 at 6 A, 480 V, three phase</p> |

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|---------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Nominal speed             | 3000 rpm for LXM05AD22N4, 380...480 V, three phase<br>3000 rpm for LXM05BD22N4, 380...480 V, three phase<br>3000 rpm for LXM05CD22N4, 380...480 V, three phase<br>1500 rpm for LXM05AD17M3X, 200...240 V, three phase<br>1500 rpm for LXM05BD17M3X, 200...240 V, three phase<br>1500 rpm for LXM05CD17M3X, 200...240 V, three phase<br>4500 rpm for LXM15LD10N4, 400 V, three phase<br>6000 rpm for LXM15LD10N4, 480 V, three phase<br>4000 rpm for LXM32.D18N4 at 6 A, 400 V, three phase<br>4000 rpm for LXM32.D18N4 at 6 A, 480 V, three phase<br>1500 rpm for LXM05AD28M2, 200...240 V, single phase<br>1500 rpm for LXM05BD28M2, 200...240 V, single phase<br>1500 rpm for LXM05CD28M2, 200...240 V, single phase<br>2000 rpm for LXM15LD21M3, 230 V, single phase<br>2000 rpm for LXM15LD21M3, 230 V, three phase<br>2500 rpm for LXM15LD10N4, 230 V, three phase<br>2500 rpm for LXM15LD13M3, 230 V, three phase<br>4000 rpm for LXM15LD17N4, 400 V, three phase<br>5000 rpm for LXM15LD17N4, 480 V, three phase |
| Product compatibility     | LXM05AD28M2 at 200...240 V single phase<br>LXM05BD28M2 at 200...240 V single phase<br>LXM05CD28M2 at 200...240 V single phase<br>LXM15LD21M3 at 230 V single phase<br>LXM15LD13M3 at 230 V three phase<br>LXM15LD10N4 at 400 V three 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<br>LXM15LD10N4 at 230 V three phase<br>LXM15LD10N4 at 480 V three phase<br>LXM15LD21M3 at 230 V three phase<br>LXM05AD22N4 at 380...480 V three phase<br>LXM05BD22N4 at 380...480 V three phase<br>LXM05CD22N4 at 380...480 V three phase<br>LXM15LD17N4 at 400 V three phase<br>LXM15LD17N4 at 480 V three phase<br>LXM32.D18N4 at 400 V three phase<br>LXM32.D18N4 at 480 V three phase                                                                                                                                                                                                                                                   |
| Shaft end                 | Untapped                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
| IP degree of protection   | IP65 standard<br>IP67 with IP67 kit                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
| Speed feedback resolution | 131072 points/turn x 4096 turns                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
| Holding brake             | With                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
| 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 | 4.8 A                               |
| Maximum continuous power | 2.51 W                              |

|                                       |                                                                                                                                                                                                                                                                                                                                                                             |
|---------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Maximum current Irms                  | 17.1 A for LXM15LD13M3<br>17.1 A for LXM15LD21M3<br>17.1 A for LXM15LD10N4<br>17.1 A for LXM15LD17N4<br>17.1 A for LXM05AD28M2<br>17.1 A for LXM05AD17M3X<br>17.1 A for LXM05AD22N4<br>17.1 A for LXM05BD28M2<br>17.1 A for LXM05BD17M3X<br>17.1 A for LXM05BD22N4<br>17.1 A for LXM05CD28M2<br>17.1 A for LXM05CD17M3X<br>17.1 A for LXM05CD22N4<br>17.1 A for LXM32.D18N4 |
| Maximum permanent current             | 17.1 A                                                                                                                                                                                                                                                                                                                                                                      |
| Switching frequency                   | 8 kHz                                                                                                                                                                                                                                                                                                                                                                       |
| Second shaft                          | Without second shaft end                                                                                                                                                                                                                                                                                                                                                    |
| Shaft diameter                        | 19 mm                                                                                                                                                                                                                                                                                                                                                                       |
| Shaft length                          | 40 mm                                                                                                                                                                                                                                                                                                                                                                       |
| Feedback type                         | Multiturn SinCos Hiperface                                                                                                                                                                                                                                                                                                                                                  |
| Holding torque                        | 9 N.m holding brake                                                                                                                                                                                                                                                                                                                                                         |
| Motor flange size                     | 100 mm                                                                                                                                                                                                                                                                                                                                                                      |
| Number of motor stacks                | 2                                                                                                                                                                                                                                                                                                                                                                           |
| Torque constant                       | 1.21 N.m/A at 120 °C                                                                                                                                                                                                                                                                                                                                                        |
| Back emf constant                     | 77 V/krpm at 120 °C                                                                                                                                                                                                                                                                                                                                                         |
| Number of motor poles                 | 8                                                                                                                                                                                                                                                                                                                                                                           |
| Rotor inertia                         | 2.928 kg.cm <sup>2</sup>                                                                                                                                                                                                                                                                                                                                                    |
| Stator resistance                     | 2.4 Ohm at 20 °C                                                                                                                                                                                                                                                                                                                                                            |
| Stator inductance                     | 12.7 mH at 20 °C                                                                                                                                                                                                                                                                                                                                                            |
| Stator electrical time constant       | 5.29 ms at 20 °C                                                                                                                                                                                                                                                                                                                                                            |
| Maximum radial force Fr               | 620 N at 4000 rpm<br>690 N at 3000 rpm<br>790 N at 2000 rpm<br>990 N at 1000 rpm                                                                                                                                                                                                                                                                                            |
| Maximum axial force Fa                | 0.2 x Fr                                                                                                                                                                                                                                                                                                                                                                    |
| Brake pull-in power                   | 18 W                                                                                                                                                                                                                                                                                                                                                                        |
| Type of cooling                       | Natural convection                                                                                                                                                                                                                                                                                                                                                          |
| Length                                | 235.5 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                            | 6.3 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             | 6.45 kg |

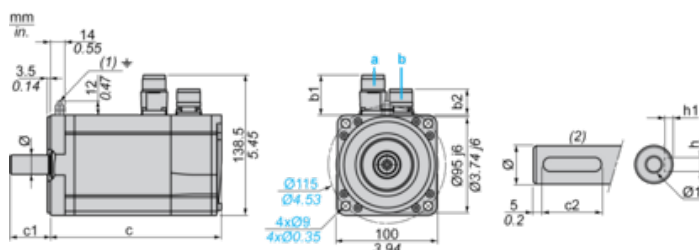
## Offer Sustainability

|                          |                                                                                                                            |
|--------------------------|----------------------------------------------------------------------------------------------------------------------------|
| 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)

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 | 205               | 236            | 40 | 30 | 6 N9 | $3.5^{+0.1}_0$ | 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 | 8.07              | 9.29           | 1.57 | 1.18 | 0.24 N9 | $0.14^{+0.1}_0$ | 0.75 k6 | M6 x 0.63     |

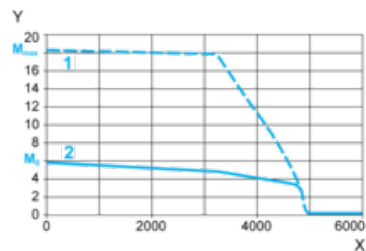
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### 400 V 3-Phase Supply Voltage

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#### Torque/Speed Curves

Servo motor with LXM32•D18N4 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•D18N4 servo drive



X Speed in rpm

Y Torque in Nm

1 Peak torque

2 Continuous torque