

## BSH0702P01A2A

servo motor BSH, Lexium 05, 2.2N.m,  
3000rpm, 70mm, untapped shaft, Sincos single  
turn, without brake, IP50





## Main

|                           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
|---------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Product or component type | Servo motor                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
| Device short name         | BSH                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
| Maximum mechanical speed  | 8000 rpm                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
| Continuous stall torque   | <p>2.2 N.M for LXM32.D12N4 at 3 A, 400 V, three phase</p> <p>2.2 N.M for LXM32.D12N4 at 3 A, 480 V, three phase</p> <p>2.12 N.M for LXM05AD10M2, 200...240 V, single phase</p> <p>2.12 N.M for LXM05AD10M3X, 200...240 V, three phase</p> <p>2.12 N.M for LXM05BD10M2, 200...240 V, single phase</p> <p>2.12 N.M for LXM05BD10M3X, 200...240 V, three phase</p> <p>2.12 N.M for LXM05CD10M2, 200...240 V, single phase</p> <p>2.12 N.M for LXM05CD10M3X, 200...240 V, three phase</p> <p>2.2 N.M for LXM15LD13M3, 230 V, single phase</p> <p>2.12 N.M for LXM05AD17M2, 200...240 V, single phase</p> <p>2.12 N.M for LXM05BD17M2, 200...240 V, single phase</p> <p>2.12 N.M for LXM05CD17M2, 200...240 V, single phase</p> <p>2.2 N.M for LXM15LD10N4, 480 V, three phase</p> <p>2.12 N.M for LXM05AD17M3X, 200...240 V, three phase</p> <p>2.12 N.M for LXM05AD14N4, 380...480 V, three phase</p> <p>2.12 N.M for LXM05BD17M3X, 200...240 V, three phase</p> <p>2.12 N.M for LXM05BD14N4, 380...480 V, three phase</p> <p>2.12 N.M for LXM05CD17M3X, 200...240 V, three phase</p> <p>2.12 N.M for LXM05CD14N4, 380...480 V, three phase</p> <p>2.2 N.M for LXM15LD10N4, 230 V, three phase</p> <p>2.2 N.m for LXM15LD10N4, 400 V, three phase</p> |

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|----------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Peak stall torque    | <p>7.6 N.M for LXM32.D12N4 at 3 A, 400 V, three phase</p> <p>7.6 N.M for LXM32.D12N4 at 3 A, 480 V, three phase</p> <p>5.63 N.M for LXM15LD13M3, 230 V, single phase</p> <p>4.57 N.M for LXM05AD10M2, 200...240 V, single phase</p> <p>5.63 N.M for LXM05AD17M2, 200...240 V, single phase</p> <p>4.57 N.M for LXM05BD10M2, 200...240 V, single phase</p> <p>5.63 N.M for LXM05BD17M2, 200...240 V, single phase</p> <p>4.57 N.M for LXM05CD10M2, 200...240 V, single phase</p> <p>5.63 N.M for LXM05CD17M2, 200...240 V, single phase</p> <p>4.85 N.M for LXM15LD10N4, 230 V, three phase</p> <p>4.85 N.M for LXM15LD10N4, 400 V, three phase</p> <p>4.85 N.M for LXM15LD10N4, 480 V, three phase</p> <p>4.57 N.M for LXM05AD10M3X, 200...240 V, three phase</p> <p>5.63 N.M for LXM05AD17M3X, 200...240 V, three phase</p> <p>5.63 N.M for LXM05AD14N4, 380...480 V, three phase</p> <p>4.57 N.M for LXM05BD10M3X, 200...240 V, three phase</p> <p>5.63 N.M for LXM05BD17M3X, 200...240 V, three phase</p> <p>5.63 N.M for LXM05BD14N4, 380...480 V, three phase</p> <p>4.57 N.M for LXM05CD10M3X, 200...240 V, three phase</p> <p>5.63 N.M for LXM05CD17M3X, 200...240 V, three phase</p> <p>5.63 N.m for LXM05CD14N4, 380...480 V, three phase</p> |
| Nominal output power | <p>850 W for LXM32.D12N4 at 3 A, 400 V, three phase</p> <p>850 W for LXM32.D12N4 at 3 A, 480 V, three phase</p> <p>1000 W for LXM15LD10N4, 400 V, three phase</p> <p>597 W for LXM15LD13M3, 230 V, single phase</p> <p>600 W for LXM05AD10M2, 200...240 V, single phase</p> <p>600 W for LXM05AD17M2, 200...240 V, single phase</p> <p>600 W for LXM05BD10M2, 200...240 V, single phase</p> <p>600 W for LXM05BD17M2, 200...240 V, single phase</p> <p>600 W for LXM05CD10M2, 200...240 V, single phase</p> <p>600 W for LXM05CD17M2, 200...240 V, single phase</p> <p>1300 W for LXM15LD10N4, 480 V, three phase</p> <p>597 W for LXM15LD10N4, 230 V, three phase</p> <p>600 W for LXM05AD10M3X, 200...240 V, three phase</p> <p>600 W for LXM05AD14N4, 380...480 V, three phase</p> <p>600 W for LXM05AD17M3X, 200...240 V, three phase</p> <p>600 W for LXM05BD10M3X, 200...240 V, three phase</p> <p>600 W for LXM05BD14N4, 380...480 V, three phase</p> <p>600 W for LXM05BD17M3X, 200...240 V, three phase</p> <p>600 W for LXM05CD10M3X, 200...240 V, three phase</p> <p>600 W for LXM05CD14N4, 380...480 V, three phase</p> <p>600 W for LXM05CD17M3X, 200...240 V, three phase</p>                                                            |

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|----------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Nominal torque | 1.64 N.M for LXM32.D12N4 at 3 A, 400 V, three phase<br>1.64 N.M for LXM32.D12N4 at 3 A, 480 V, three phase<br>1.9 N.M for LXM05AD10M2, 200...240 V, single phase<br>1.9 N.M for LXM05AD17M2, 200...240 V, single phase<br>1.9 N.M for LXM05BD10M2, 200...240 V, single phase<br>1.9 N.M for LXM05BD17M2, 200...240 V, single phase<br>1.9 N.M for LXM05CD10M2, 200...240 V, single phase<br>1.9 N.M for LXM05CD17M2, 200...240 V, single phase<br>1.9 N.M for LXM15LD13M3, 230 V, single phase<br>1.55 N.M for LXM15LD10N4, 480 V, three phase<br>1.65 N.M for LXM15LD10N4, 400 V, three phase<br>1.9 N.M for LXM05AD10M3X, 200...240 V, three phase<br>1.9 N.M for LXM05AD14N4, 380...480 V, three phase<br>1.9 N.M for LXM05AD17M3X, 200...240 V, three phase<br>1.9 N.M for LXM05BD10M3X, 200...240 V, three phase<br>1.9 N.M for LXM05BD14N4, 380...480 V, three phase<br>1.9 N.M for LXM05BD17M3X, 200...240 V, three phase<br>1.9 N.M for LXM05CD10M3X, 200...240 V, three phase<br>1.9 N.M for LXM05CD14N4, 380...480 V, three phase<br>1.9 N.M for LXM05CD17M3X, 200...240 V, three phase<br>1.9 N.m for LXM15LD10N4, 230 V, three phase                  |
| Nominal speed  | 5000 rpm for LXM32.D12N4 at 3 A, 400 V, three phase<br>5000 rpm for LXM32.D12N4 at 3 A, 480 V, three phase<br>3000 rpm for LXM05AD10M2, 200...240 V, single phase<br>3000 rpm for LXM05BD10M2, 200...240 V, single phase<br>3000 rpm for LXM05CD10M2, 200...240 V, single phase<br>3000 rpm for LXM05AD10M3X, 200...240 V, three phase<br>3000 rpm for LXM05AD14N4, 380...480 V, three phase<br>3000 rpm for LXM05BD10M3X, 200...240 V, three phase<br>3000 rpm for LXM05BD14N4, 380...480 V, three phase<br>3000 rpm for LXM05CD10M3X, 200...240 V, three phase<br>3000 rpm for LXM05CD14N4, 380...480 V, three phase<br>3000 rpm for LXM15LD13M3, 230 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 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<br>8000 rpm for LXM15LD10N4, 480 V, three phase<br>3000 rpm for LXM15LD10N4, 230 V, three phase<br>6000 rpm for LXM15LD10N4, 400 V, three phase |

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|---------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Product compatibility     | LXM05AD10M2 at 200...240 V single phase<br>LXM05AD17M2 at 200...240 V single phase<br>LXM05BD10M2 at 200...240 V single phase<br>LXM05BD17M2 at 200...240 V single phase<br>LXM05CD10M2 at 200...240 V single phase<br>LXM05CD17M2 at 200...240 V single phase<br>LXM15LD13M3 at 230 V single phase<br>LXM05AD10M3X at 200...240 V three phase<br>LXM05BD10M3X at 200...240 V three phase<br>LXM05CD10M3X at 200...240 V three phase<br>LXM05AD14N4 at 380...480 V three phase<br>LXM05BD14N4 at 380...480 V three phase<br>LXM05CD14N4 at 380...480 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>LXM32.D12N4 at 400 V three phase<br>LXM32.D12N4 at 480 V three phase<br>LXM15LD10N4 at 230 V three phase<br>LXM15LD10N4 at 480 V three phase |
| Shaft end                 | Untapped                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
| IP degree of protection   | IP50 standard                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
| Speed feedback resolution | 131072 points/turn                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
| Holding brake             | Without                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
| Mounting support          | International standard flange                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
| Electrical connection     | Rotatable right-angled connectors                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |

## Complementary

|                           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
|---------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Range compatibility       | Lexium 05<br>Lexium 32<br>Lexium 15                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
| Supply voltage max        | 480 V                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
| Network number of phases  | Three phase                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
| Continuous stall current  | 2.9 A                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
| Maximum continuous power  | 1.51 W                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
| Maximum current Irms      | 11.8 A for LXM15LD13M3<br>11.8 A for LXM15LD10N4<br>11.8 A for LXM05AD10M2<br>11.8 A for LXM05AD17M2<br>11.8 A for LXM05AD10M3X<br>11.8 A for LXM05AD17M3X<br>11.8 A for LXM05AD14N4<br>11.8 A for LXM05BD10M2<br>11.8 A for LXM05BD17M2<br>11.8 A for LXM05BD10M3X<br>11.8 A for LXM05BD17M3X<br>11.8 A for LXM05BD14N4<br>11.8 A for LXM05CD10M2<br>11.8 A for LXM05CD17M2<br>11.8 A for LXM05CD10M3X<br>11.8 A for LXM05CD17M3X<br>11.8 A for LXM05CD14N4<br>11.8 A for LXM32.D12N4 |
| Maximum permanent current | 11.8 A                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
| Switching frequency       | 8 kHz                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
| Second shaft              | Without second shaft end                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
| Shaft diameter            | 11 mm                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
| Shaft length              | 23 mm                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
| Feedback type             | Single turn SinCos Hiperface                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
| Motor flange size         | 70 mm                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
| Number of motor stacks    | 2                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
| Torque constant           | 0.77 N.m/A at 120 °C                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
| Back emf constant         | 48 V/krpm at 120 °C                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
| Number of motor poles     | 6                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
| Rotor inertia             | 0.41 kg.cm <sup>2</sup>                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
| Stator resistance         | 4.2 Ohm at 20 °C                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |

|                                       |                                                                                                                            |
|---------------------------------------|----------------------------------------------------------------------------------------------------------------------------|
| Stator inductance                     | 19 mH at 20 °C                                                                                                             |
| Stator electrical time constant       | 4.52 ms at 20 °C                                                                                                           |
| Maximum radial force Fr               | 390 N at 6000 rpm<br>410 N at 5000 rpm<br>450 N at 4000 rpm<br>490 N at 3000 rpm<br>560 N at 2000 rpm<br>710 N at 1000 rpm |
| Maximum axial force Fa                | 0.2 x Fr                                                                                                                   |
| Type of cooling                       | Natural convection                                                                                                         |
| Length                                | 187 mm                                                                                                                     |
| Centring collar diameter              | 60 mm                                                                                                                      |
| Centring collar depth                 | 2.5 mm                                                                                                                     |
| Number of mounting holes              | 4                                                                                                                          |
| Mounting holes diameter               | 5.5 mm                                                                                                                     |
| Circle diameter of the mounting holes | 82 mm                                                                                                                      |
| Net weight                            | 2.89 kg                                                                                                                    |

### Packing Units

|                              |          |
|------------------------------|----------|
| Unit Type of Package 1       | PCE      |
| Number of Units in Package 1 | 1        |
| Package 1 Height             | 22 cm    |
| Package 1 Width              | 19.5 cm  |
| Package 1 Length             | 48.5 cm  |
| Package 1 Weight             | 3.356 kg |
| Unit Type of Package 2       | S06      |
| Number of Units in Package 2 | 15       |
| Package 2 Height             | 73.5 cm  |
| Package 2 Width              | 60 cm    |
| Package 2 Length             | 80 cm    |
| Package 2 Weight             | 63.34 kg |
| Unit Type of Package 3       | P06      |
| Number of Units in Package 3 | 15       |
| Package 3 Height             | 77 cm    |
| Package 3 Width              | 80 cm    |
| Package 3 Length             | 60 cm    |
| Package 3 Weight             | 59.44 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       |
| PVC free                   | Yes                                                                                                                               |

### Contractual warranty

|          |           |
|----------|-----------|
| Warranty | 18 months |
|----------|-----------|

Servo Motors Dimensions

Example with Straight Connectors



- a: Power supply for servo motor brake  
b: Power supply for servo motor encoder  
(1) M4 screw  
(2) Shaft end, keyed slot (optional)

Dimensions in mm

| Straight connectors |      | Rotatable angled connectors |      | c (without brake) | c (with brake) | c1 | c2 | c3  | h    | h1             | Ø     | Ø1 for screws |
|---------------------|------|-----------------------------|------|-------------------|----------------|----|----|-----|------|----------------|-------|---------------|
| b1                  | b2   | b1                          | b2   |                   |                |    |    |     |      |                |       |               |
| 39.5                | 25.5 | 39.5                        | 39.5 | 187               | 213            | 23 | 18 | 2.5 | 4 N9 | $2.5^{+0.1}_0$ | 11 k6 | M4 x 10       |

Dimensions in in.

| Straight connectors |      | Rotatable angled connectors |      | c (without brake) | c (with brake) | c1   | c2   | c3   | h       | h1                | Ø       | Ø1 for screws |
|---------------------|------|-----------------------------|------|-------------------|----------------|------|------|------|---------|-------------------|---------|---------------|
| b1                  | b2   | b1                          | b2   |                   |                |      |      |      |         |                   |         |               |
| 1.55                | 1.00 | 1.55                        | 1.55 | 7.36              | 8.38           | 0.90 | 0.70 | 0.09 | 0.16 N9 | $0.01^{+0.004}_0$ | 0.43 k6 | M4 x 0.39     |

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### 400 V 3-Phase Supply Voltage

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#### Torque/Speed Curves

Servo motor with LXM32•D12N4 servo drive



X Speed in rpm

Y Torque in Nm

1 Peak torque

2 Continuous torque

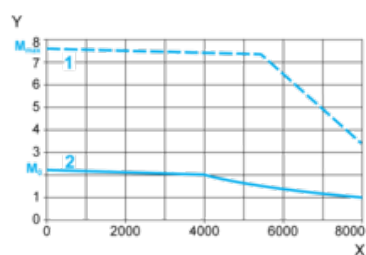
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### 480 V 3-Phase Supply Voltage

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#### Torque/Speed Curves

Servo motor with LXM32•D12N4 servo drive



X Speed in rpm

Y Torque in Nm

1 Peak torque

2 Continuous torque