# Product data sheet

Specifications



## servo motor BSH, Lexium 05, 3.4N.m, 2500rpm, 100mm, keyed shaft, Sincos multi turn, without brake, IP65

BSH1002P32A2A

**Product availability: Non-Stock - Not normally stocked in distribution facility**

## Main

| | |
|---|---|
| **Device short name** | BSH |
| **Product or Component Type** | Servo motor |
| **Maximum mechanical speed** | 6000 rpm |
| **Continuous stall torque** | 39.8 lbf.in (4.5 N.m) LXM15LD21M3, 230 V, single phase<br>30.09 lbf.in (3.4 N.m) LXM15LD13M3, 230 V, three phase<br>30.09 lbf.in (3.4 N.m) LXM15LD10N4, 230 V, three phase<br>30.09 lbf.in (3.4 N.m) LXM15LD10N4, 400 V, three phase<br>30.09 lbf.in (3.4 N.m) LXM15LD10N4, 480 V, three phase<br>51.3 lbf.in (5.8 N.m) LXM15LD17N4, 400 V, three phase<br>51.3 lbf.in (5.8 N.m) LXM15LD17N4, 480 V, three phase<br>51.3 lbf.in (5.8 N.m) LXM15LD21M3, 230 V, three phase<br>48.7 lbf.in (5.5 N.m) LXM05AD17M3X, 200...240 V, three phase<br>48.7 lbf.in (5.5 N.m) LXM05AD22N4 6 A, 380...480 V, three phase<br>48.7 lbf.in (5.5 N.m) LXM05AD28M2 6 A, 200...240 V, single phase<br>48.7 lbf.in (5.5 N.m) LXM05BD17M3X, 200...240 V, three phase<br>48.7 lbf.in (5.5 N.m) LXM05BD22N4, 380...480 V, three phase<br>48.7 lbf.in (5.5 N.m) LXM05BD28M2, 200...240 V, single phase<br>48.7 lbf.in (5.5 N.m) LXM05CD17M3X, 200...240 V, three phase<br>48.7 lbf.in (5.5 N.m) LXM05CD22N4, 380...480 V, three phase<br>48.7 lbf.in (5.5 N.m) LXM05CD28M2, 200...240 V, single phase<br>51.3 lbf.in (5.8 N.m) LXM32.D18N4 6 A, 400 V, three phase<br>51.3 lbf.in (5.8 N.m) LXM32.D18N4 6 A, 480 V, three phase |
| **Peak stall torque** | 83.11 lbf.in (9.39 N.m) LXM15LD21M3, 230 V, single phase<br>49.6 lbf.in (5.6 N.m) LXM15LD13M3, 230 V, three phase<br>70.8 lbf.in (8 N.m) LXM15LD10N4, 230 V, three phase<br>70.8 lbf.in (8 N.m) LXM15LD10N4, 400 V, three phase<br>70.8 lbf.in (8 N.m) LXM15LD10N4, 480 V, three phase<br>107.36 lbf.in (12.13 N.m) LXM15LD17N4, 400 V, three phase<br>107.36 lbf.in (12.13 N.m) LXM15LD17N4, 480 V, three phase<br>130.90 lbf.in (14.79 N.m) LXM15LD21M3, 230 V, three phase<br>99.39 lbf.in (11.23 N.m) LXM05AD17M3X, 200...240 V, three phase<br>123.20 lbf.in (13.92 N.m) LXM05AD22N4 6 A, 380...480 V, three phase<br>141.6 lbf.in (16 N.m) LXM05AD28M2 6 A, 200...240 V, single phase<br>99.39 lbf.in (11.23 N.m) LXM05BD17M3X, 200...240 V, three phase<br>123.20 lbf.in (13.92 N.m) LXM05BD22N4, 380...480 V, three phase<br>141.6 lbf.in (16 N.m) LXM05BD28M2, 200...240 V, single phase<br>99.39 lbf.in (11.23 N.m) LXM05CD17M3X, 200...240 V, three phase<br>123.20 lbf.in (13.92 N.m) LXM05CD22N4, 380...480 V, three phase<br>141.6 lbf.in (16 N.m) LXM05CD28M2, 200...240 V, single phase<br>162.0 lbf.in (18.3 N.m) LXM32.D18N4 6 A, 400 V, three phase<br>162.0 lbf.in (18.3 N.m) LXM32.D18N4 6 A, 480 V, three phase |

Disclaimer: This documentation is not intended as a substitute for and is not to be used for determining suitability or reliability of these products for specific user applications

Price is “List Price” and may be subject to a trade discount – check with your local distributor or retailer for actual price.

| | |
|---|---|
| **Nominal output power** | 950 W LXM15LD21M3, 230 V, single phase<br>950 W LXM15LD21M3, 230 V, three phase<br>780 W LXM05AD28M2, 200...240 V, single phase<br>780 W LXM05BD28M2, 200...240 V, single phase<br>780 W LXM05CD28M2, 200...240 V, single phase<br>1400 W LXM05AD22N4, 380...480 V, three phase<br>1400 W LXM05BD22N4, 380...480 V, three phase<br>1400 W LXM05CD22N4, 380...480 V, three phase<br>1600 W LXM15LD10N4, 400 V, three phase<br>1700 W LXM15LD17N4 6 A, 400 V, three phase<br>1950 W LXM15LD17N4 6 A, 480 V, three phase<br>2150 W LXM15LD10N4, 480 V, three phase<br>780 W LXM05AD17M3X, 200...240 V, three phase<br>780 W LXM05BD17M3X, 200...240 V, three phase<br>780 W LXM05CD17M3X, 200...240 V, three phase<br>840 W LXM15LD13M3, 230 V, three phase<br>890 W LXM15LD10N4, 230 V, three phase<br>1700 W LXM32.D18N4 6 A, 400 V, three phase<br>1700 W LXM32.D18N4 6 A, 480 V, three phase |
| **Nominal torque** | 39.8 lbf.in (4.5 N.m) LXM15LD21M3, 230 V, single phase<br>43.90 lbf.in (4.96 N.m) LXM05AD28M2, 200...240 V, single phase<br>43.90 lbf.in (4.96 N.m) LXM05BD28M2, 200...240 V, single phase<br>43.90 lbf.in (4.96 N.m) LXM05CD28M2, 200...240 V, single phase<br>30.09 lbf.in (3.4 N.m) LXM15LD10N4, 230 V, three phase<br>30.09 lbf.in (3.4 N.m) LXM15LD10N4, 400 V, three phase<br>30.09 lbf.in (3.4 N.m) LXM15LD10N4, 480 V, three phase<br>30.09 lbf.in (3.4 N.m) LXM15LD13M3, 230 V, three phase<br>32.7 lbf.in (3.7 N.m) LXM15LD17N4, 480 V, three phase<br>35.4 lbf.in (4 N.m) LXM15LD17N4 6 A, 400 V, three phase<br>38.9 lbf.in (4.4 N.m) LXM05AD22N4 6 A, 380...480 V, three phase<br>38.9 lbf.in (4.4 N.m) LXM05BD22N4, 380...480 V, three phase<br>38.9 lbf.in (4.4 N.m) LXM05CD22N4, 380...480 V, three phase<br>43.90 lbf.in (4.96 N.m) LXM05AD17M3X, 200...240 V, three phase<br>43.90 lbf.in (4.96 N.m) LXM05BD17M3X, 200...240 V, three phase<br>43.90 lbf.in (4.96 N.m) LXM05CD17M3X, 200...240 V, three phase<br>51.3 lbf.in (5.8 N.m) LXM15LD21M3, 230 V, three phase<br>35.4 lbf.in (4 N.m) LXM32.D18N4 6 A, 400 V, three phase<br>35.4 lbf.in (4 N.m) LXM32.D18N4 6 A, 480 V, three phase |
| **Nominal speed** | 3000 rpm LXM05AD22N4, 380...480 V, three phase<br>3000 rpm LXM05BD22N4 6 A, 380...480 V, three phase<br>3000 rpm LXM05CD22N4, 380...480 V, three phase<br>1500 rpm LXM05AD17M3X, 200...240 V, three phase<br>1500 rpm LXM05BD17M3X, 200...240 V, three phase<br>1500 rpm LXM05CD17M3X, 200...240 V, three phase<br>4500 rpm LXM15LD10N4, 400 V, three phase<br>6000 rpm LXM15LD10N4, 480 V, three phase<br>4000 rpm LXM32.D18N4 6 A, 400 V, three phase<br>4000 rpm LXM32.D18N4 6 A, 480 V, three phase<br>1500 rpm LXM05AD28M2, 200...240 V, single phase<br>1500 rpm LXM05BD28M2, 200...240 V, single phase<br>1500 rpm LXM05CD28M2, 200...240 V, single phase<br>2000 rpm LXM15LD21M3, 230 V, single phase<br>2000 rpm LXM15LD21M3, 230 V, three phase<br>2500 rpm LXM15LD10N4, 230 V, three phase<br>2500 rpm LXM15LD13M3, 230 V, three phase<br>4000 rpm LXM15LD17N4, 400 V, three phase<br>5000 rpm LXM15LD17N4 6 A, 480 V, three phase |
| **Product compatibility** | LXM05AD28M2 200...240 V single phase<br>LXM05BD28M2 200...240 V single phase<br>LXM05CD28M2 200...240 V single phase<br>LXM15LD21M3 230 V single phase<br>LXM15LD13M3 230 V three phase<br>LXM15LD10N4 400 V three phase<br>LXM05AD17M3X 200...240 V three phase<br>LXM05BD17M3X 200...240 V three phase<br>LXM05CD17M3X 200...240 V three phase<br>LXM15LD10N4 230 V three phase<br>LXM15LD10N4 480 V three phase<br>LXM15LD21M3 230 V three phase<br>LXM05AD22N4 380...480 V three phase<br>LXM05BD22N4 380...480 V three phase<br>LXM05CD22N4 380...480 V three phase<br>LXM15LD17N4 400 V three phase<br>LXM15LD17N4 480 V three phase<br>LXM32.D18N4 400 V three phase<br>LXM32.D18N4 480 V three phase |

| | |
|---|---|
| **Shaft end** | Keyed |
| **IP Degree of Protection** | IP65 standard<br>IP67 with IP67 kit |
| **Speed feedback resolution** | 131072 points/turn x 4096 turns |
| **Holding brake** | Without |
| **Mounting Support** | International standard flange |
| **Electrical Connection** | Rotatable right-angled connectors |

## Complementary

| | |
|---|---|
| **Range Compatibility** | Lexium 32<br>Lexium 15<br>Lexium 05 |
| **supply voltage max** | 480 V |
| **Phase** | Three phase |
| **Continuous stall current** | 4.8 A |
| **maximum continuous power** | 2.51 W |
| **Maximum current Irms** | 17.1 A LXM15LD13M3<br>17.1 A LXM15LD21M3<br>17.1 A LXM15LD10N4<br>17.1 A LXM15LD17N4<br>17.1 A LXM05AD28M2<br>17.1 A LXM05AD17M3X<br>17.1 A LXM05AD22N4<br>17.1 A LXM05BD28M2<br>17.1 A LXM05BD17M3X<br>17.1 A LXM05BD22N4<br>17.1 A LXM05CD28M2<br>17.1 A LXM05CD17M3X<br>17.1 A LXM05CD22N4<br>17.1 A LXM32.D18N4 |
| **Maximum permanent current** | 17.1 A |
| **Switching frequency** | 8 kHz |
| **Second shaft** | Without second shaft end |
| **Shaft diameter** | 0.7 in (19 mm) |
| **Shaft length** | 1.6 in (40 mm) |
| **Key width** | 1.2 in (30 mm) |
| **Feedback type** | Multiturn SinCos Hiperface |
| **Motor flange size** | 3.9 in (100 mm) |
| **Number of motor stacks** | 2 |
| **Torque constant** | 1.21 N.m/A 248 °F (120 °C) |
| **Back emf constant** | 77 V/krpm 248 °F (120 °C) |
| **Number of motor poles** | 4.0 |
| **Rotor inertia** | 2.31 kg.cm² |
| **Stator resistance** | 2.4 Ohm 68 °F (20 °C) |
| **Stator inductance** | 6.75 mH 68 °F (20 °C) |
| **Stator electrical time constant** | 5.29 ms 68 °F (20 °C) |
| **Maximum radial force Fr** | 620 N 4000 rpm<br>690 N 3000 rpm<br>790 N 2000 rpm<br>990 N 1000 rpm |

| | |
|---|---|
| **Maximum axial force Fa** | 0.2 x Fr |
| **Type of cooling** | Natural convection |
| **Length** | 8.05 in (204.5 mm) |
| **Centring collar diameter** | 3.7 in (95 mm) |
| **Centring collar depth** | 0.1 in (3.5 mm) |
| **Number of mounting holes** | 4 |
| **Mounting holes diameter** | 0.4 in (9 mm) |
| **Circle diameter of the mounting holes** | 4.5 in (115 mm) |
| **Product Weight** | 13.007 lb(US) (5.9 kg) |
| **Sizing reference** | BSH1002P |
| **Network number of phases** | 3 |
| **Accuracy error [angular]** | 1.4 ° |
| **Temperature copper hot** | 248 °F (120 °C) |
| **Temperature magnet hot** | 212 °F (100 °C) |
| **Temperature magnet rt** | 68 °F (20 °C) |
| **Output current 3s peak** | 17.1 A |
| **Inertia** | 0.0 kg.cm² of brake<br>2.31 kg.cm² of motor |

## Ordering and shipping details

| | |
|---|---|
| **Category** | US1PC5318282 |
| **Discount Schedule** | PC53 |
| **GTIN** | 3389118139367 |
| **Returnability** | No |
| **Country of origin** | DE |

## Packing Units

| | |
|---|---|
| **Unit Type of Package 1** | PCE |
| **Nbr. of units in pkg.** | 1 |
| **Package 1 Height** | 6.06 in (15.4 cm) |
| **Package 1 Width** | 6.4 in (16.3 cm) |
| **Package 1 Length** | 16.02 in (40.7 cm) |
| **Package weight(Lbs)** | 12.8 lb(US) (5.8 kg) |

## Contractual warranty

| | |
|---|---|
| **Warranty (in months)** | 18 |

## Environmental Data

Schneider Electric aims to achieve Net Zero status by 2050 through supply chain partnerships, lower impact materials, and circularity via our ongoing “Use Better, Use Longer, Use Again” campaign to extend product lifetimes and recyclability.

Environmental Data explained >

How we assess product sustainability >

### Environmental footprint

| | |
|---|---|
| Total lifecycle Carbon footprint | **2 351 kg CO2 eq.** |
| Carbon footprint of the manufacturing phase [A1 to A3] | **25 kg CO2 eq.** |
| Carbon footprint of the distribution phase [A4] | **0.7 kg CO2 eq.** |
| Carbon footprint of the installation phase [A5] | **0.1 kg CO2 eq.** |
| Carbon footprint of the use phase [B2, B3, B4, B6] | **2 324 kg CO2 eq.** |
| Carbon footprint of the end-of-life phase [C1 to C4] | **0.5 kg CO2 eq.** |

## Use Better

### Materials and Substances

| | |
|---|---|
| Packaging made with recycled cardboard | **Yes** |
| Packaging without single use plastic | **No** |
| SCIP Number | **A7df881f-135f-4256-b8c2-ea55d4c9a151** |
| EU RoHS Directive | **Compliant By Exemption** |
| REACh Regulation | **Reference contains Substances of Very High Concern above the threshold** |
| California proposition 65 | **WARNING: This product can expose you to chemicals including: Lead and lead compounds, which is known to the State of California to cause cancer and birth defects or other reproductive harm. For more information go to www.P65Warnings.ca.gov** |
| PVC free | **Yes** |

## Use Longer

### Lifetime extension

| | |
|---|---|
| Repair | **No** |

## Use Again

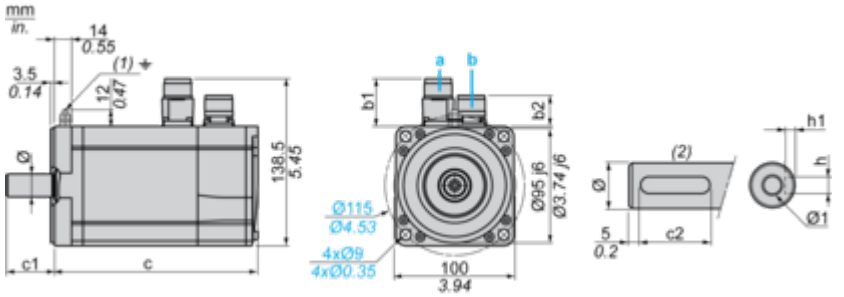
### Repack and remanufacture

| | |
|---|---|
| Circularity Profile | **No need of specific recycling operations** |
| Take-back | **No** |
| WEEE Label | **The product must be disposed on European Union markets following specific waste collection and never end up in rubbish bins.** |

## Dimensions Drawings

### 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.

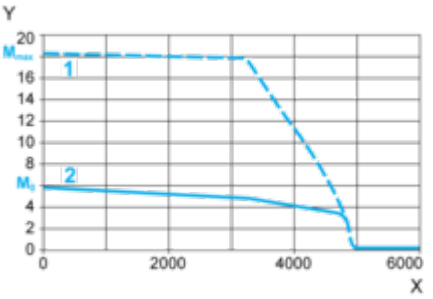
| Straight connectors | | Rotatable angled connectors | | c (without brake) | c (with brake) | c1 | c2 | h | h1 | Ø | Ø1 for screws |
|---|---|---|---|---|---|---|---|---|---|---|---|
| b1 | b2 | b1 | b2 | | | | | | | | |
| 1.55 | 1.00 | 1.55 | 1.55 | 8.07 | 9.29 | 1.57 | 1.18 | 0.24 N9 | $0.14^{+0.1}_{0}$ | 0.75 k6 | M6 x 0.63 |

## Performance Curves

### 400 V 3-Phase Supply Voltage

#### Torque/Speed Curves

**Servo motor with LXM32•D18N4 servo drive**

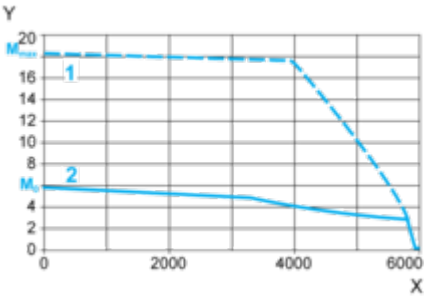



**X** Speed in rpm
**Y** Torque in Nm
**1** Peak torque
**2** Continuous torque

## 480 V 3-Phase Supply Voltage

### Torque/Speed Curves

**Servo motor with LXM32•D18N4 servo drive**




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