



## Main

|                           |                       |
|---------------------------|-----------------------|
| Range compatibility       | Lexium SD3            |
| Product or component type | Motion control motor  |
| Device short name         | BRS3                  |
| Maximum mechanical speed  | 3000 rpm              |
| Motor type                | 3-phase stepper motor |
| Number of motor poles     | 6                     |
| Supply voltage limits     | 230 V AC<br>325 V DC  |
| Mounting support          | Flange                |
| Motor flange size         | 85 mm                 |
| Length                    | 217 mm                |
| Centring collar diameter  | 73 mm                 |

## Complementary

|                                       |                          |
|---------------------------------------|--------------------------|
| Centring collar depth                 | 2 mm                     |
| Number of mounting holes              | 4                        |
| Mounting holes diameter               | 6.5 mm                   |
| Circle diameter of the mounting holes | 98.99 mm                 |
| Electrical connection                 | Connector                |
| Feedback type                         | Single turn encoder      |
| Speed feedback resolution             | 10000 points/turn        |
| Holding brake                         | With                     |
| Shaft end                             | Untapped                 |
| Second shaft                          | Without second shaft end |
| Shaft diameter                        | 14 mm                    |
| Shaft length                          | 30 mm                    |
| Nominal torque                        | 6 N.m                    |
| Peak stall torque                     | 5.78 N.m                 |
| Continuous stall torque               | 5.78 N.m                 |
| Holding torque                        | 6.78 N.m                 |
| Rotor inertia                         | 3.3 kg.cm²               |
| Resolution                            | 1000 points/turn         |

1.8 °, 0.9 °, 0.72 °, 0.36 °, 0.18 °, 0.09 °, 0.072 °, 0.036 ° step angle  
 200, 400, 500, 1000, 2000, 4000, 5000, 10000 steps number of full steps per revolution

|                            |                                                    |
|----------------------------|----------------------------------------------------|
| Accuracy error             | +/- 6 arc min                                      |
| Maximum starting frequency | 5.3 kHz                                            |
| [In] rated current         | 2.25 A                                             |
| Resistance                 | 6.5 Ohm (winding)                                  |
| Time constant              | 10 ms                                              |
| Maximum radial force Fr    | 110 N (first shaft end)<br>50 N (second shaft end) |
| Maximum axial force Fa     | 175 N (tensile force)<br>30 N (force pressure)     |
| Service life in hours      | 20000 h (bearing)                                  |
| Angular acceleration       | 200000 rad/s <sup>2</sup>                          |
| Product weight             | 4.3 kg                                             |

## Environment

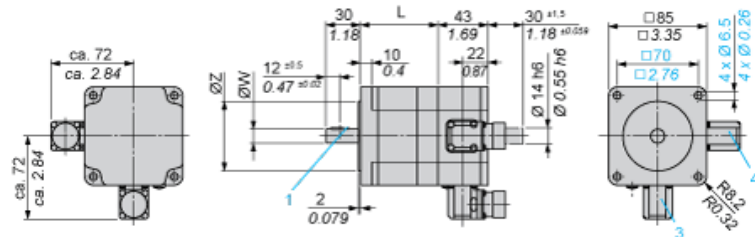
|                                       |                                                                                                                   |
|---------------------------------------|-------------------------------------------------------------------------------------------------------------------|
| Standards                             | EN 50347<br>IEC 60072-1                                                                                           |
| Type of cooling                       | Natural convection                                                                                                |
| Ambient air temperature for operation | -25...40 °C                                                                                                       |
| Ambient air temperature for storage   | -25...70 °C                                                                                                       |
| Operating altitude                    | <= 1000 m without power derating                                                                                  |
| Relative humidity                     | 15...85 % without condensation                                                                                    |
| Vibration resistance                  | 20 m/s <sup>2</sup> maximum<br>A conforming to EN/IEC 60034-14                                                    |
| IP degree of protection               | IP56 shaft bushing: conforming to EN/IEC 60034-5<br>IP56 total except shaft bushing: conforming to EN/IEC 60034-5 |
| Temperature class                     | F winding conforming to IEC/EN 60034-1                                                                            |

## Contractual warranty

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

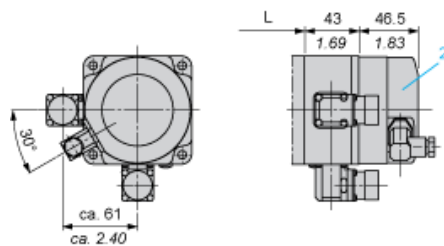
## Dimensions

### 3-Phase Stepper Motor in Connector Version

$$\frac{\text{mm}}{\text{in.}}$$


- 3 : Motor connection 6 poles  
4 : Motor connection (optional) 12 poles

## Holding Brake

$$\frac{\partial \mathcal{L}}{\partial \mathbf{M}}$$


- 2 : Holding brake (optional)

Dimensions in mm

| L                   | Shaft diameter ØW | Centring collar ØZ | Woodruff key DIN 6888 (1) |
|---------------------|-------------------|--------------------|---------------------------|
| 127.5 (+0.6) (-0.8) | 14 h6             | 73 h8              | 5 x 6.5                   |

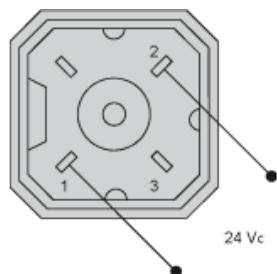
Dimensions in in.

| L                      | Shaft diameter ØW | Centring collar ØZ | Woodruff key DIN 6888 (1) |
|------------------------|-------------------|--------------------|---------------------------|
| 5.02 (+0.023) (-0.031) | 0.55 h6           | 2.87 h8            | 0.20 x 0.25               |

---

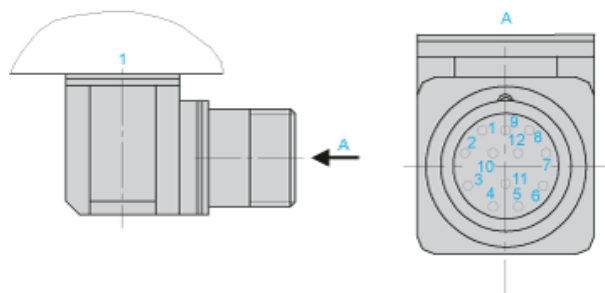
Wiring Diagram of Holding Brake

---



The connector is part of the scope of delivery. Connector designation: Hirschmann type G4 A 5M

## Wiring Diagram of Encoder Plug on BRS3••

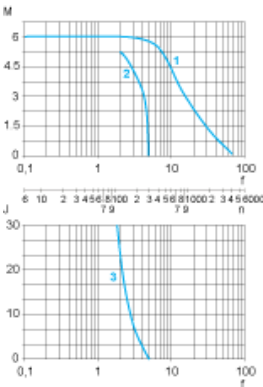


1 : Motor housing

| Pin | Designation          |
|-----|----------------------|
| 1   | A                    |
| 2   | A negated            |
| 3   | B                    |
| 4   | B negated            |
| 5   | C, I                 |
| 6   | C negated, I negated |
| 7   | 5 V <sub>GND</sub>   |
| 8   | + 5                  |
| 9   | -SENSE               |
| 10  | +SENSE               |
| 11  | Temperature sensor   |
| 12  | Not connected        |

Torque Characteristics

Measurement at 1000 Steps/Revolution, Nominal Voltage DC Bus  $U_N$  and Phase Current  $I_N$



- M : Torque in Nm
- n : Speed in rpm
- f : Frequency in kHz
- J : Rotor inertia in kg.cm<sup>2</sup>
- 1 : Pull-out torque
- 2 : Pull-in torque
- 3 : Maximum load inertia