

# BRS3ADW851ACA

3-phase stepper motor - 19.7Nm - shaft  
 $\varnothing$ 19mm - L=230mm - w/o brake - connector



## 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         | 110 mm                |
| Length                    | 228 mm                |
| Centring collar diameter  | 56 mm                 |

## Complementary

|                                       |                                                                                                                                                                                         |
|---------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Centring collar depth                 | 3 mm                                                                                                                                                                                    |
| Number of mounting holes              | 4                                                                                                                                                                                       |
| Mounting holes diameter               | 9 mm                                                                                                                                                                                    |
| Circle diameter of the mounting holes | 125.86 mm                                                                                                                                                                               |
| Electrical connection                 | Connector                                                                                                                                                                               |
| Feedback type                         | Index pulse                                                                                                                                                                             |
| Speed feedback resolution             | 10000 points/turn                                                                                                                                                                       |
| Holding brake                         | Without                                                                                                                                                                                 |
| Shaft end                             | Parallel key                                                                                                                                                                            |
| Second shaft                          | Without second shaft end                                                                                                                                                                |
| Shaft diameter                        | 19 mm                                                                                                                                                                                   |
| Shaft length                          | 40 mm                                                                                                                                                                                   |
| Nominal torque                        | 16.5 N.m                                                                                                                                                                                |
| Peak stall torque                     | 16.45 N.m                                                                                                                                                                               |
| Continuous stall torque               | 16.45 N.m                                                                                                                                                                               |
| Holding torque                        | 19.7 N.m                                                                                                                                                                                |
| Rotor inertia                         | 16 kg.cm <sup>2</sup>                                                                                                                                                                   |
| Resolution                            | 1.8 °, 0.9 °, 0.72 °, 0.36 °, 0.18 °, 0.09 °, 0.072 °, 0.036 ° step angle<br>200, 400, 500, 1000, 2000, 4000, 5000, 10000 steps number of full steps per revolution<br>1000 points/turn |
| Accuracy error                        | +/- 6 arc min                                                                                                                                                                           |
| Maximum starting frequency            | 4.7 kHz                                                                                                                                                                                 |
| [In] rated current                    | 4.75 A                                                                                                                                                                                  |
| Resistance                            | 1.9 Ohm (winding)                                                                                                                                                                       |
| Time constant                         | 22 ms                                                                                                                                                                                   |
| Maximum radial force Fr               | 150 N (second shaft end)<br>300 N (first shaft end)                                                                                                                                     |
| Maximum axial force Fa                | 330 N (tensile force)<br>60 N (force pressure)                                                                                                                                          |
| Service life in hours                 | 20000 h (bearing)                                                                                                                                                                       |

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|                      |                           |
|----------------------|---------------------------|
| Angular acceleration | 200000 rad/s <sup>2</sup> |
| Net weight           | 11.2 kg                   |

## Environment

|                                       |                                                                                                             |
|---------------------------------------|-------------------------------------------------------------------------------------------------------------|
| Standards                             | IEC 60072-1<br>IEC 50347                                                                                    |
| 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 IEC 60034-14                                                 |
| IP degree of protection               | IP41 shaft bushing: conforming to IEC 60034-5<br>IP56 total except shaft bushing: conforming to IEC 60034-5 |
| Temperature class                     | F winding conforming to IEC 60034-1                                                                         |

## Packing Units

|                              |         |
|------------------------------|---------|
| Unit Type of Package 1       | PCE     |
| Number of Units in Package 1 | 1       |
| Package 1 Height             | 19.0 cm |
| Package 1 Width              | 18.0 cm |
| Package 1 Length             | 39.0 cm |
| Package 1 Weight             | 11.4 kg |

## Offer Sustainability

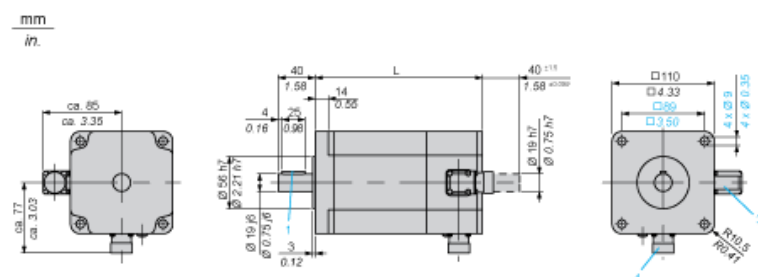
|                            |                                                                                                                                   |
|----------------------------|-----------------------------------------------------------------------------------------------------------------------------------|
| 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 |
|----------|-----------|

## Dimensions

### 3-Phase Stepper Motor in Connector Version



- 3 : Plug connection encoder (optional) 12 poles  
4 : Plug connection motor 6 poles

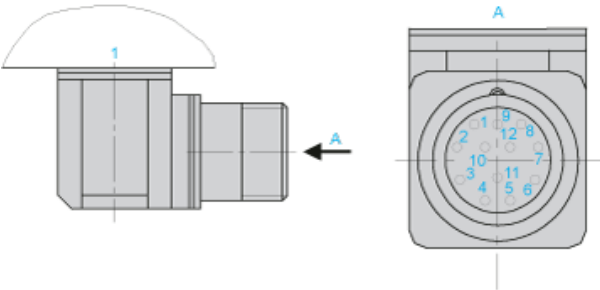
Dimensions in mm

|        |                           |
|--------|---------------------------|
| L      | Parallel key DIN 6885 (1) |
| 228 ±1 | 6 x 6 x 25                |

Dimensions in in.

|             |                           |
|-------------|---------------------------|
| L           | Parallel key DIN 6885 (1) |
| 8.98 ±0.039 | 0.24 x 0.24 x 0.98        |

Wiring Diagram of Encoder Plug on BRS3••

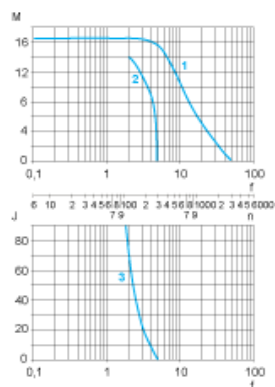


1 : Motor housing

| 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