

PRODUCT DATASHEET

# ES-FM-U01-OD085-T1P5NM-001

85 mm Frameless Torque Motor

Ultra Thin Frameless Torque Motors | ES-FM-U01-OD085 Ultra-Thin 85 mm Frameless Torque Motor Series

## Product Overview

85 mm outer diameter, 42 mm rotor bore, 13 mm axial stack ultra thin frameless torque motor.

### Typical Applications

Robot joints | Direct-drive rotary axes | Integrated actuator modules

### Configuration Context

DC link: 48 V DC | Temperature sensor: None | Lead wire: 100 mm lead, no connector

## Key Specifications

| PARAMETER                     | VALUE                     | UNIT |
|-------------------------------|---------------------------|------|
| Rated Speed                   | 3000                      | rpm  |
| Continuous Rated Output Power | 470                       | W    |
| DC link voltage               | 48                        | V DC |
| Body Outer Diameter           | 85                        | mm   |
| Rotor Inner Diameter          | 42                        | mm   |
| Axial Stack Length            | 13                        | mm   |
| Lead Wire Configuration       | 100 mm lead, no connector |      |
| Motor Version                 | S version                 |      |
| Number of Poles               | 16                        |      |

## Technical Specifications

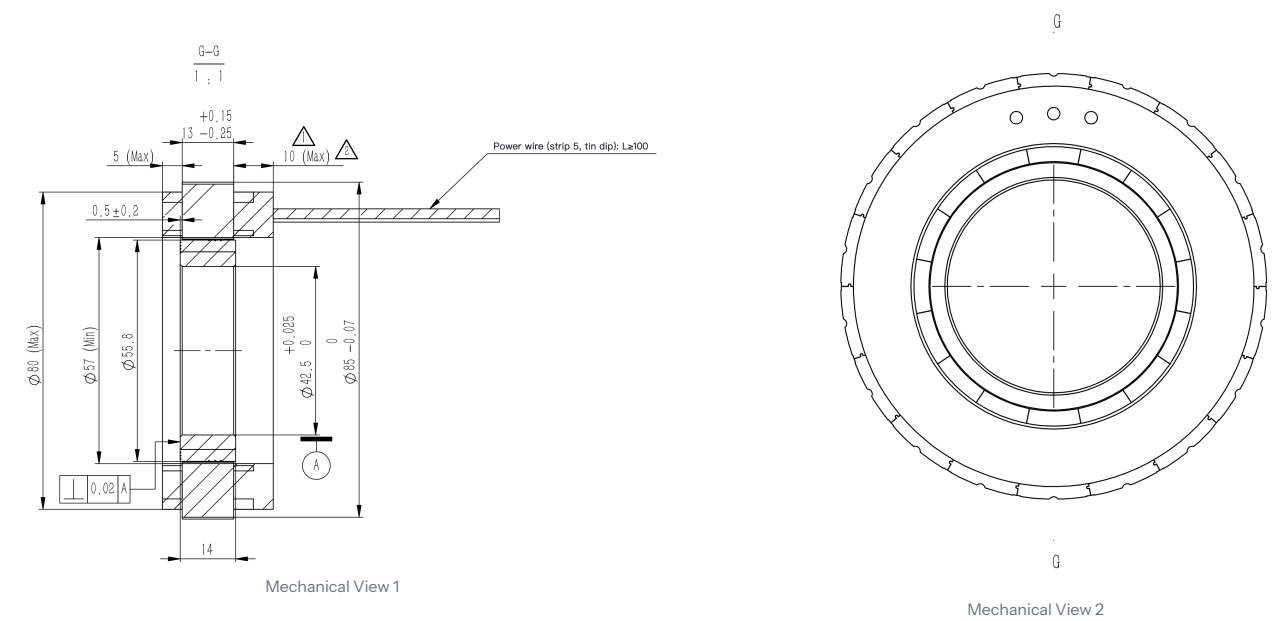
| PARAMETER                     | SPECIFICATION             | UNIT     |
|-------------------------------|---------------------------|----------|
| PERFORMANCE                   |                           |          |
| Rated Speed                   | 3000                      | rpm      |
| Continuous Rated Output Power | 470                       | W        |
| ELECTRICAL                    |                           |          |
| DC link voltage               | 48                        | V DC     |
| Rated Current                 | 13.5                      | A        |
| THERMAL                       |                           |          |
| Temperature Sensor            | None                      |          |
| MECHANICAL                    |                           |          |
| Body Outer Diameter           | 85                        | mm       |
| Rotor Inner Diameter          | 42                        | mm       |
| Axial Stack Length            | 13                        | mm       |
| INTEGRATION                   |                           |          |
| Lead Wire Configuration       | 100 mm lead, no connector |          |
| Number of Pole Pairs          | 8 pole pairs / 8          |          |
| CONFIGURATION                 |                           |          |
| Motor Version                 | S version                 |          |
| ADDITIONAL SPECIFICATIONS     |                           |          |
| Number of Poles               | 16                        |          |
| Line-to-Line Resistance       | 0.14                      | $\Omega$ |

## Dimensional & Integration Overview

### Mechanical Overview

| PARAMETER            | VALUE | UNIT |
|----------------------|-------|------|
| Body Outer Diameter  | 85    | mm   |
| Rotor Inner Diameter | 42    | mm   |
| Axial Stack Length   | 13    | mm   |

### Dimensional Drawings



## 2D Drawing Dimensions & Callouts

| VIEW              | FIELD                                   | VALUE                                                |
|-------------------|-----------------------------------------|------------------------------------------------------|
| Mechanical View 1 | Section view identifier                 | Section G-G                                          |
|                   | Axial step width                        | 13 mm, +0.15/-0.25                                   |
|                   | Triangle note number                    | Note 2                                               |
|                   | Right-side maximum axial projection     | 10 mm maximum                                        |
|                   | Left-side maximum projection            | Numeric value not specified by OCR source            |
|                   | Local axial clearance or step dimension | 0.5 mm $\pm$ 0.2                                     |
|                   | Maximum outer diameter                  | Diameter 80 mm maximum                               |
|                   | Minimum bore or pilot diameter          | Diameter 57 mm minimum                               |
|                   | Mounting cylindrical diameter           | Diameter 55.8 mm                                     |
|                   | Shaft or bore fit diameter              | Diameter 42.5 mm, +0.025/0                           |
|                   | Outer diameter fit dimension            | Diameter 85 mm, 0/-0.07                              |
|                   | Datum A                                 |                                                      |
|                   | Perpendicularity relative to datum A    | Perpendicularity tolerance 0.02 mm to datum A        |
| Mechanical View 2 | Bottom width                            | 14 mm                                                |
|                   | View identifier                         | View label G, repeated at top and bottom of the view |

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**01** Specifications are subject to change without notice. Verify the current product configuration before final design release.

**02** 2D drawings, CAD files and integration documentation are controlled documents and are supplied separately on request.