

## PRODUCT DATASHEET

# ES-HG-S05-F17-R50

## Precision Transmission Component

Cup Harmonic Gearboxes | High-Torque Cup Unit Type I

### Product Overview

Precision Transmission Component with rated Torque 21 N·m, instantaneous Maximum Torque 91 N·m and start/Stop Peak Torque 44 N·m.

### Key Specifications

| PARAMETER                    | VALUE    | UNIT    |
|------------------------------|----------|---------|
| Rated Torque                 | 21       | N·m     |
| Instantaneous Maximum Torque | 91       | N·m     |
| Start/Stop Peak Torque       | 44       | N·m     |
| Reduction Ratio              | 50       |         |
| Backlash                     | ≤20 / 20 | arc sec |
| Maximum Input Speed          | 7300     | r/min   |
| Allowable Average Torque     | 34       | N·m     |
| Frame Size                   | 17       |         |
| Weight                       | 0.67     | kg      |

## Technical Specifications

| PARAMETER                     | SPECIFICATION        | UNIT    | NOTES                              |
|-------------------------------|----------------------|---------|------------------------------------|
| PERFORMANCE                   |                      |         |                                    |
| Rated Torque                  | 21                   | Nm      |                                    |
| Instantaneous Maximum Torque  | 91                   | Nm      |                                    |
| Start/Stop Peak Torque        | 44                   | Nm      |                                    |
| Backlash                      | $\leq 20 / 20$       | arc sec |                                    |
| Allowable Average Torque      | 34                   | Nm      |                                    |
| Angular Transmission Accuracy | 1.5                  | arc min |                                    |
| Hysteresis Loss               | 2                    | arc min |                                    |
| Starting Torque               | 6.7 / 0.067          | Nm      |                                    |
| MECHANICAL                    |                      |         |                                    |
| Frame Size                    | 17                   |         |                                    |
| Weight                        | 0.67                 | kg      |                                    |
| Wave Generator Dimension T    | 12.8+0.10 / 9.4+0.10 | mm      | Varies by published configuration. |

## Technical Specifications

| PARAMETER                 | SPECIFICATION     | UNIT   | NOTES                              |
|---------------------------|-------------------|--------|------------------------------------|
| MECHANICAL                |                   |        |                                    |
| Wave Generator Bore U     | φ8H7 / φ11H7      |        | Varies by published configuration. |
| Wave Generator Keyway W   | 4JS9/P9 / 3JS9/P9 |        | Varies by published configuration. |
| RELIABILITY               |                   |        |                                    |
| Design Life               | 10000             | h      |                                    |
| ADDITIONAL SPECIFICATIONS |                   |        |                                    |
| Reduction Ratio           | 50                |        |                                    |
| Maximum Input Speed       | 7300              | r/min  |                                    |
| Average Input Speed       | 3500              | r/min  |                                    |
| Torsional Rigidity K1     | 0.81 / 8100       | Nm/rad |                                    |
| Torsional Rigidity K2     | 1.1 / 11000       | Nm/rad |                                    |
| Torsional Rigidity K3     | 1.3 / 13000       | Nm/rad |                                    |
| Torsional Rigidity T2     | 12                | Nm     |                                    |
| Torsional Rigidity T1     | 3.9               | Nm     |                                    |

## Dimensional & Integration Overview

### Mechanical Overview

| PARAMETER                  | VALUE                | UNIT |
|----------------------------|----------------------|------|
| Frame Size                 | 17                   |      |
| Weight                     | 0.67                 | kg   |
| Wave Generator Dimension T | 12.8+0.10 / 9.4+0.10 | mm   |
| Wave Generator Bore U      | φ8H7 / φ11H7         |      |
| Wave Generator Keyway W    | 4JS9/P9 / 3JS9/P9    |      |

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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.