

## PRODUCT DATASHEET

# ES-HG-S06-F25-R120

## Precision Transmission Component

Cup Harmonic Gearboxes | High-Torque Cup Unit Type II

### Product Overview

Precision Transmission Component with rated Torque 87 N·m, instantaneous Maximum Torque 395 N·m and start/Stop Peak Torque 217 N·m.

### Key Specifications

| PARAMETER                    | VALUE    | UNIT    |
|------------------------------|----------|---------|
| Rated Torque                 | 87       | N·m     |
| Instantaneous Maximum Torque | 395      | N·m     |
| Start/Stop Peak Torque       | 217      | N·m     |
| Reduction Ratio              | 120      |         |
| Backlash                     | ≤20 / 20 | arc sec |
| Maximum Input Speed          | 5600     | r/min   |
| Allowable Average Torque     | 140      | N·m     |
| Frame Size                   | 25       |         |
| Weight                       | 1.46     | kg      |

## Technical Specifications

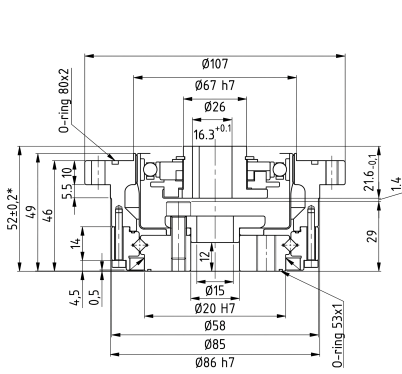
| PARAMETER                     | SPECIFICATION | UNIT    |
|-------------------------------|---------------|---------|
| PERFORMANCE                   |               |         |
| Rated Torque                  | 87            | Nm      |
| Instantaneous Maximum Torque  | 395           | Nm      |
| Start/Stop Peak Torque        | 217           | Nm      |
| Backlash                      | ≤20 / 20      | arc sec |
| Allowable Average Torque      | 140           | Nm      |
| Angular Transmission Accuracy | 1             | arc min |
| Hysteresis Loss               | 1             | arc min |
| Starting Torque               | 8 / 0.08      | Nm      |
| MECHANICAL                    |               |         |
| Frame Size                    | 25            |         |
| Weight                        | 1.46          | kg      |
| RELIABILITY                   |               |         |
| Design Life                   | 15000         | h       |
| ADDITIONAL SPECIFICATIONS     |               |         |
| Reduction Ratio               | 120           |         |
| Maximum Input Speed           | 5600          | r/min   |
| Average Input Speed           | 3500          | r/min   |
| Torsional Rigidity K1         | 3.1 / 31000   | Nm/rad  |
| Torsional Rigidity K2         | 5 / 50000     | Nm/rad  |
| Torsional Rigidity K3         | 5.7 / 57000   | Nm/rad  |
| Torsional Rigidity T2         | 48            | Nm      |
| Torsional Rigidity T1         | 14            | Nm      |

## Dimensional & Integration Overview

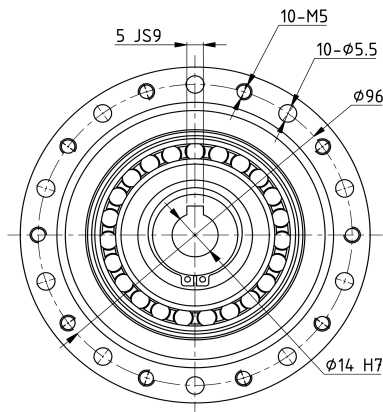
### Mechanical Overview

| PARAMETER  | VALUE | UNIT |
|------------|-------|------|
| Frame Size | 25    |      |
| Weight     | 1.46  | kg   |

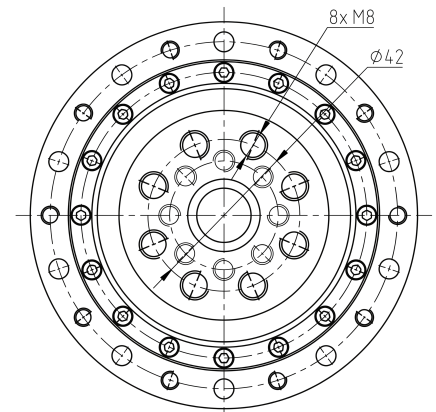
### Dimensional Drawings



Mechanical View 1



Mechanical View 2



Mechanical View 3

## 2D Drawing Dimensions & Callouts

| VIEW              | FIELD                       | VALUE                 |
|-------------------|-----------------------------|-----------------------|
| Mechanical View 1 | Outer diameter              | Φ107 mm               |
|                   | Shaft diameter (upper side) | Φ67 h7                |
|                   | Central shaft bore diameter | Φ26 mm                |
|                   | Shaft length (upper side)   | 16.3 +0.1/0 mm        |
|                   | Shaft length (lower side)   | 21.6 0/-0.1 mm        |
|                   | Feature dimension           | 1.4 mm                |
|                   | Mounting feature dimension  | 5.5 mm                |
|                   |                             | 10 mm                 |
|                   | Overall height (reference)  | 52±0.2 mm (reference) |
|                   | Middle section height       | 49 mm                 |
|                   |                             | 46 mm                 |
|                   | Local height                | 29 mm                 |
|                   | Mounting shoulder height    | 14 mm                 |
|                   |                             | 12 mm                 |
|                   | Central hole diameter       | Φ15 mm                |
|                   | Groove depth                | 0.5 mm                |
|                   |                             | 4.5 mm                |
|                   | Shaft diameter (lower side) | Φ20 H7                |

2D Drawing Dimensions & Callouts

| VIEW              | FIELD                                   | VALUE          |
|-------------------|-----------------------------------------|----------------|
| Mechanical View 1 | Middle diameter                         | Φ58 mm         |
|                   | Shaft diameter (lower side, outer ring) | Φ86 h7         |
|                   | O-ring specification (upper side)       | O-ring 80×2 mm |
|                   | O-ring specification (lower side)       | O-ring 53×1 mm |

## 2D Drawing Dimensions & Callouts

| VIEW              | FIELD                                    | VALUE                        |
|-------------------|------------------------------------------|------------------------------|
| Mechanical View 2 | Threaded hole quantity and thread size   | 10 × M5 threaded holes       |
|                   | Keyway width tolerance class             | Keyway width 5 JS9           |
|                   | Hole quantity and diameter               | 10 × Ø5.5 holes              |
|                   | Pitch circle diameter                    | Ø96 pitch circle diameter    |
| Mechanical View 3 | Mounting threaded hole quantity and size | 8 × M8 threaded holes        |
|                   | Mounting hole pitch circle diameter      | Pitch circle diameter Ø42 mm |

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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.