PRODUCT DATASHEET

# ES-HG-S04-F25-R160

Precision Transmission Component

Harmonic Component Sets | High-Torque Hat Component Set

## Product Overview

Precision Transmission Component with rated Torque 87 N·m, instantaneous Maximum Torque 408 N·m and start/Stop Peak Torque 229 N·m.

## Key Specifications

| PARAMETER | VALUE | UNIT |
|---|---|---|
| Rated Torque | 87 | N·m |
| Instantaneous Maximum Torque | 408 | N·m |
| Start/Stop Peak Torque | 229 | N·m |
| Reduction Ratio | 160 | |
| Backlash | ≤20 | arc sec |
| Maximum Input Speed | 5600 | r/min |
| Allowable Average Torque | 140 | N·m |
| Frame Size | 25 | |
| Weight | 0.46 | kg |

# Technical Specifications

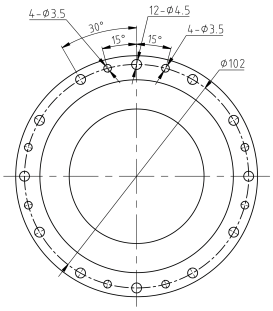
| PARAMETER | SPECIFICATION | UNIT | NOTES |
|---|---|---|---|
| **PERFORMANCE** | | | |
| Rated Torque | 87 | N·m | Frame Size: 25; Reduction Ratio: 160 |
| Instantaneous Maximum Torque | 408 | N·m | Frame Size: 25; Reduction Ratio: 160 |
| Start/Stop Peak Torque | 229 | N·m | Frame Size: 25; Reduction Ratio: 160 |
| Backlash | ≤20 | arc sec | Frame Size: 25; Reduction Ratio: 160 |
| Allowable Average Torque | 140 | N·m | Frame Size: 25; Reduction Ratio: 160 |
| **MECHANICAL** | | | |
| Frame Size | 25 | | Frame Size: 25; Reduction Ratio: 160 |
| Weight | 0.46 | kg | Frame Size: 25; Reduction Ratio: 160 |
| Wave Generator Dimension T | 12.8+0.10 / 16.3+0.10 | mm | Frame Size: 25; Option Label: Wave generator - A φ11; Reduction Ratio: 160; Wave Generator Option: wave-generator-fd26f6670d9b / Frame Size: 25; Option Index: 1; Option Label: Wave generator - A φ14; Reduction Ratio: 160; Wave Generator Option: wave-generator-307ae5fd0846 |
| Wave Generator Bore U | φ14H7 / φ11H7 | | Frame Size: 25; Option Index: 1; Option Label: Wave generator - A φ 14; Reduction Ratio: 160; Wave Generator Option: wave-generator-307ae5fd0846 / Frame Size: 25; Option Label: Wave generator - A φ11; Reduction Ratio: 160; Wave Generator Option: wave-generator-fd26f6670d9b |
| Wave Generator Keyway W | 5JS9/P9 / 4JS9/P9 | | Frame Size: 25; Option Index: 1; Option Label: Wave generator - A φ 14; Reduction Ratio: 160; Wave Generator Option: wave-generator-307ae5fd0846 / Frame Size: 25; Option Label: Wave generator - A φ11; Reduction Ratio: 160; Wave Generator Option: wave-generator-fd26f6670d9b |
| **RELIABILITY** | | | |
| Design Life | 15000 | h | Frame Size: 25; Reduction Ratio: 160 |
| **ADDITIONAL SPECIFICATIONS** | | | |
| Reduction Ratio | 160 | | Frame Size: 25; Reduction Ratio: 160 |
| Maximum Input Speed | 5600 | r/min | Frame Size: 25; Reduction Ratio: 160 |
| Average Input Speed | 3500 | r/min | Frame Size: 25; Reduction Ratio: 160 |

# Dimensional & Integration Overview

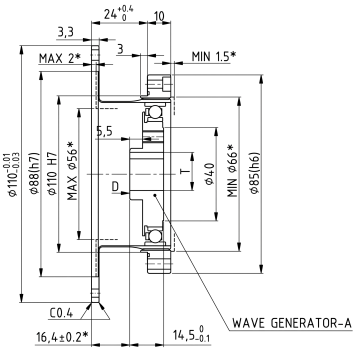
## Mechanical Overview

| PARAMETER | VALUE | UNIT |
|---|---|---|
| Frame Size | 25 | |
| Weight | 0.46 | kg |
| Wave Generator Dimension T | 12.8+0.10 / 16.3+0.10 | mm |
| Wave Generator Bore U | φ14H7 / φ11H7 | |
| Wave Generator Keyway W | 5JS9/P9 / 4JS9/P9 | |

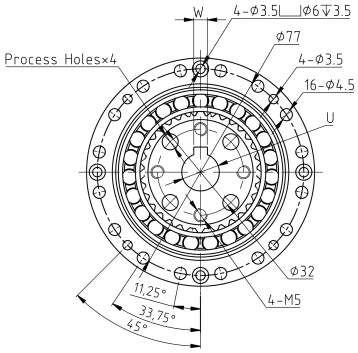
## Dimensional Drawings



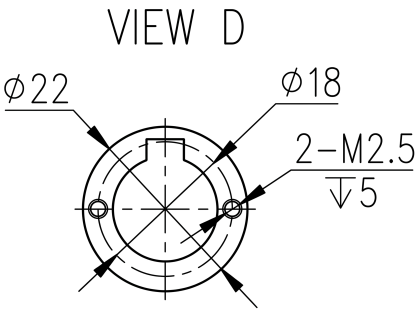

Mechanical View 1




Mechanical View 2




Mechanical View 3




Mechanical View 4

## 2D Drawing Dimensions & Callouts

| VIEW | FIELD | VALUE |
|---|---|---|
| Mechanical View 1 | Diameter of 12 holes | 12 holes, diameter 4.5 |
| | Diameter of left 4 holes | 4 holes, diameter 3.5 |
| | Diameter of right 4 holes | |
| | Hole angular spacing | 30 degree angular spacing |
| | Left hole angular offset | 15 degree angular offset |
| | Right hole angular offset | |
| | Bolt circle diameter | Bolt circle diameter 102 |

## 2D Drawing Dimensions & Callouts

| VIEW | FIELD | VALUE |
|---|---|---|
| Mechanical View 2 | Upper axial distance | 24 +0.4/0 |
| | Adjacent upper axial distance | 10 |
| | Upper left local spacing | 3.3 |
| | Upper local thickness | 3 |
| | Minimum clearance | Minimum 1.5 |
| | Maximum clearance | Maximum 2 |
| | Middle local spacing | 5.5 |
| | Maximum outside diameter | Maximum diameter 56 |
| | Minimum clearance diameter | Minimum diameter 66 |
| | Shaft fit diameter | Diameter 85 h6 |
| | Bore fit diameter | Diameter 110 H7 |
| | Shaft fit diameter | Diameter 88 h7 |
| | Shaft diameter | Diameter 40 |
| | Diameter tolerance | Diameter 110 -0.01/-0.03 |
| | Datum D | |
| | Chamfer | Chamfer C0.4 |
| | Component name | Wave generator-A |
| | Bottom axial distance | 14.5 0/-0.1 |

## 2D Drawing Dimensions & Callouts

| VIEW | FIELD | VALUE |
|---|---|---|
| Mechanical View 3 | W labeled width | W dimension value Not specified |
| | 4-hole counterbore/depth callout | 4 holes Ø3.5 with Ø6 counterbore or spotface, depth 3.5 |
| | Hole pitch circle diameter | Ø77 |
| | Process holes quantity | Process holes quantity: 4 |
| | 4 holes diameter | 4 holes Ø3.5 |
| | 16 holes diameter | 16 holes Ø4.5 |
| | U labeled feature | U value Not specified |
| | Hole pitch circle diameter | Ø32 |
| | Angular spacing 11.25 degrees | 11.25° |
| | 4 M5 threaded holes | |
| | Angular spacing 33.75 degrees | 33.75° |
| | Angular spacing 45 degrees | 45° |
| Mechanical View 4 | View designation | View D |
| | Diameter 22 circular feature | Diameter 22 mm |
| | Diameter 18 circular feature | Diameter 18 mm |
| | Two M2.5 threaded holes with depth | 2 × M2.5 threaded holes, depth 5 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.