

PRODUCT DATASHEET

ES-HG-S05-F25-R160

Precision Transmission Component

Cup Harmonic Gearboxes | High-Torque Cup Unit Type I

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 / 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	NOTES
PERFORMANCE			
Rated Torque	87	Nm	
Instantaneous Maximum Torque	408	Nm	
Start/Stop Peak Torque	229	Nm	
Backlash	≤20 / 20	arc sec	
Allowable Average Torque	140	Nm	
Angular Transmission Accuracy	1	arc min	
Hysteresis Loss	1	arc min	
Starting Torque	6.9 / 0.069	Nm	
MECHANICAL			
Frame Size	25		
Weight	1.46	kg	
Wave Generator Dimension T	12.8+0.10 / 16.3+0.10	mm	Varies by published configuration.
Wave Generator Bore U	φ14H7 / φ11H7		Varies by published configuration.
Wave Generator Keyway W	4JS9/P9 / 5JS9/P9		Varies by published configuration.
RELIABILITY			
Design Life	15000	h	
ADDITIONAL SPECIFICATIONS			
Reduction Ratio	160		
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	

2D Drawing Dimensions & Callouts

VIEW	FIELD	VALUE
Mechanical View 1	Overall length	49 mm
	Middle section length	46 mm
	Mounting hole specification	0-80x2
	Right radial dimension	5.5 mm
	Right shaft segment length	10 mm
	Left radial dimension	4.5 mm
	Left keyway segment length	14 mm
	Left shaft radial step	0.5 mm
	Mid-section axial dimension	5.5 mm
	Internal shaft segment length	12 mm
	Outer diameter with tolerance	Φ86 h7
	Outer diameter	Φ85
	Inner or middle diameter	Φ58
	Hole diameter with tolerance	Φ20 H7
	Hole diameter	Φ15
	Datum D	
	Parameter T	T
	Right inner diameter	Φ40

2D Drawing Dimensions & Callouts

VIEW	FIELD	VALUE
Mechanical View 1	Right outer diameter with tolerance	Φ67 h7
	Maximum outer diameter	Φ107
	Dimensional tolerance	14.5 -0.1 mm
	Mounting hole specification	0-53x1
	Bottom shaft segment length	29 mm
	Dimensional tolerance with note	14.6±0.2* mm

2D Drawing Dimensions & Callouts

VIEW	FIELD	VALUE
Mechanical View 2	Outer mounting threaded holes (M5)	10 holes, M5 threaded
	Outer mounting through holes (Φ5.5)	10 holes, Φ5.5 mm diameter
	Process holes	4 process holes
	Outer circle diameter	Φ96 mm
	Datum U	
	Inner circle diameter	Φ32 mm
	Bottom mounting threaded holes (M5)	4 holes, M5 threaded
	Dimension W	Dimension W (value not specified)
Mechanical View 3	Mounting hole specification	8 holes, M8 thread
	Bolt circle diameter for mounting holes	Φ42
Mechanical View 4	Left hole diameter	Φ22
	Right hole diameter	Φ18
	Threaded holes specification and quantity	2× M2.5 threaded holes
	Surface finish	Ra 5 μm

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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.