PRODUCT DATASHEET

ES-HG-S05-F25-R80

Precision Transmission Component

Cup Harmonic Gearboxes | High-Torque Cup Unit Type I

Product Overview

Precision Transmission Component with rated Torque 82 N·m, instantaneous Maximum Torque 332 N·m and start/Stop Peak Torque 178 N·m.

Key Specifications

PARAMETER	VALUE	UNIT
Rated Torque	82	N·m
Instantaneous Maximum Torque	332	N·m
Start/Stop Peak Torque	178	N·m
Reduction Ratio	80	
Backlash	≤20 / 20	arc sec
Maximum Input Speed	5600	r/min
Allowable Average Torque	113	N·m
Frame Size	25	
Weight	1.46	kg

Technical Specifications

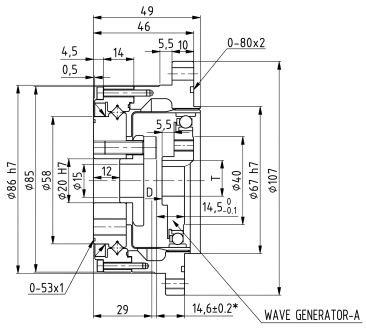
PARAMETER	SPECIFICATION	UNIT	NOTES
PERFORMANCE			
Rated Torque	82	N·m	
Instantaneous Maximum Torque	332	N·m	
Start/Stop Peak Torque	178	N·m	
Backlash	≤20 / 20	arc sec	
Allowable Average Torque	113	N·m	
Angular Transmission Accuracy	1	arc min	
Hysteresis Loss	1	arc min	
Starting Torque	10 / 0.1	N·m	
MECHANICAL			
Frame Size	25		
Weight	1.46	kg	
Wave Generator Dimension T	16.3+0.10 / 12.8+0.10	mm	Varies by published configuration.
Wave Generator Bore U	φ14H7 / φ11H7		Varies by published configuration.
Wave Generator Keyway W	5JS9/P9 / 4JS9/P9		Varies by published configuration.
RELIABILITY			
Design Life	15000	h	
ADDITIONAL SPECIFICATIONS			
Reduction Ratio	80		
Maximum Input Speed	5600	r/min	
Average Input Speed	3500	r/min	
Torsional Rigidity K1	3.1 / 31000	N·m/rad	
Torsional Rigidity K2	5 / 50000	N·m/rad	
Torsional Rigidity K3	5.7 / 57000	N·m/rad	
Torsional Rigidity T2	48	N·m	
Torsional Rigidity T1	14	N·m	

Dimensional & Integration Overview

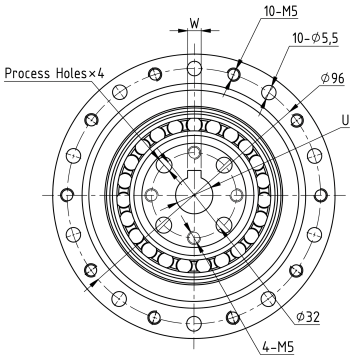
Mechanical Overview

PARAMETER	VALUE	UNIT
Frame Size	25	
Weight	1.46	kg
Wave Generator Dimension T	16.3+0.10 / 12.8+0.10	mm
Wave Generator Bore U	φ14H7 / φ11H7	
Wave Generator Keyway W	5JS9/P9 / 4JS9/P9	

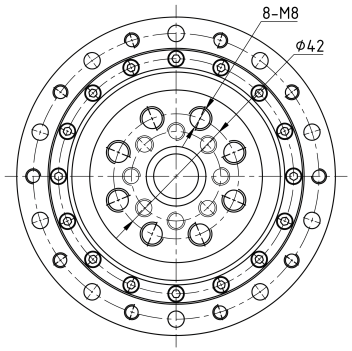
Dimensional Drawings



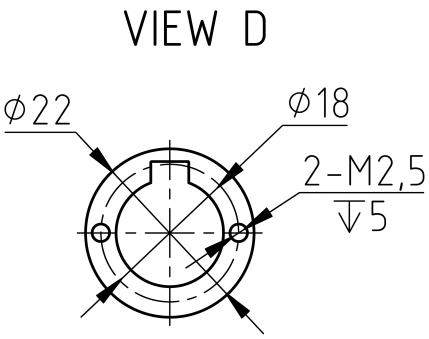
Mechanical View 1



Mechanical View 2



Mechanical View 3



Mechanical View 4

2D Drawing Dimensions & Callouts

VIEW	FIELD	VALUE
Mechanical View 1	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.