PRODUCT DATASHEET

ES-HG-S05-F20-R80

Precision Transmission Component

Cup Harmonic Gearboxes | High-Torque Cup Unit Type I

Product Overview

Precision Transmission Component with rated Torque 44 N·m, instantaneous Maximum Torque 165 N·m and start/Stop Peak Torque 96 N·m.

Key Specifications

PARAMETER	VALUE	UNIT
Rated Torque	44	N·m
Instantaneous Maximum Torque	165	N·m
Start/Stop Peak Torque	96	N·m
Reduction Ratio	80	
Backlash	≤20 / 20	arc sec
Maximum Input Speed	6500	r/min
Allowable Average Torque	61	N·m
Frame Size	20	
Weight	0.96	kg

Technical Specifications

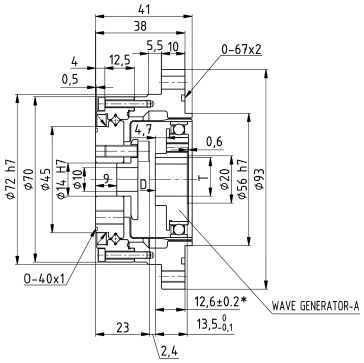
PARAMETER	SPECIFICATION	UNIT	NOTES
PERFORMANCE			
Rated Torque	44	N·m	
Instantaneous Maximum Torque	165	N·m	
Start/Stop Peak Torque	96	N·m	
Backlash	≤20 / 20	arc sec	
Allowable Average Torque	61	N·m	
Angular Transmission Accuracy	1	arc min	
Hysteresis Loss	1	arc min	
Starting Torque	5.4 / 0.054	N·m	
MECHANICAL			
Frame Size	20		
Weight	0.96	kg	
Wave Generator Dimension T	12.8+0.10 / 16.3+0.10 / 9.4+0.10	mm	Varies by published configuration.
Wave Generator Bore U	φ11H7 / φ14H7 / φ8H7		Varies by published configuration.
Wave Generator Keyway W	3JS9/P9 / 4JS9/P9 / 5JS9/P9		Varies by published configuration.
RELIABILITY			
Design Life	15000	h	
ADDITIONAL SPECIFICATIONS			
Reduction Ratio	80		
Maximum Input Speed	6500	r/min	
Average Input Speed	3500	r/min	
Torsional Rigidity K1	1.6 / 16000	N·m/rad	
Torsional Rigidity K2	2.5 / 25000	N·m/rad	
Torsional Rigidity K3	2.9 / 29000	N·m/rad	
Torsional Rigidity T2	25	N·m	
Torsional Rigidity T1	7	N·m	

Dimensional & Integration Overview

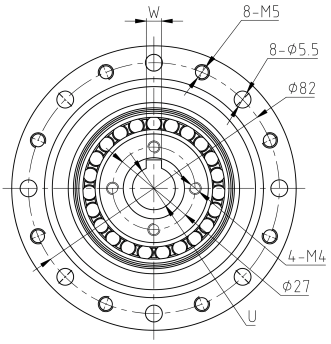
Mechanical Overview

PARAMETER	VALUE	UNIT
Frame Size	20	
Weight	0.96	kg
Wave Generator Dimension T	12.8+0.10 / 16.3+0.10 / 9.4+0.10	mm
Wave Generator Bore U	φ11H7 / φ14H7 / φ8H7	
Wave Generator Keyway W	3JS9/P9 / 4JS9/P9 / 5JS9/P9	

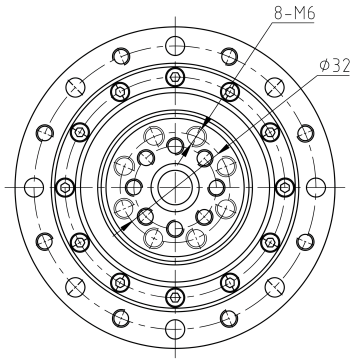
Dimensional Drawings



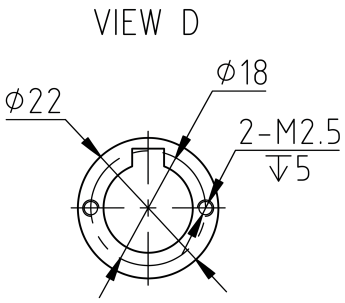
Mechanical View 1



Mechanical View 2



Mechanical View 3



Mechanical View 4

2D Drawing Dimensions & Callouts

VIEW	FIELD	VALUE
Mechanical View 1	Top overall length	41
	Top inner length	38
	Local step dimensions	5.5 and 10
	Local length	12.5
	Local offset	4
	Local clearance	0.5
		0.6
	Diameter fit	Diameter 72 h7
	Diameter	Diameter 70
		Diameter 45
	Hole diameter fit	Diameter 14 H7
	Hole diameter	Diameter 10
	Local dimension	9
	Datum or label D	D
	Diameter	Diameter 20
	Diameter fit	Diameter 56 h7
	Outer diameter	Diameter 93
	Chamfer or edge treatment callout	0-40x1

2D Drawing Dimensions & Callouts

VIEW	FIELD	VALUE
Mechanical View 1	Toleranced length	12.6 ±0.2
	Component label	WAVE GENERATOR-A
	Leader callout	0-67x2

2D Drawing Dimensions & Callouts

VIEW	FIELD	VALUE
Mechanical View 2	Threaded hole quantity and thread size	8 × M5 threaded holes
	Slot width	Width W, value not specified in this crop
	Through hole quantity and diameter	8 × Ø5.5 holes
	Diameter callout	Ø82
	Threaded hole quantity and thread size	4 × M4 threaded holes
Mechanical View 3	Mounting threaded hole quantity and thread size	8 x M6 threaded holes
	Hole diameter	Diameter 32 mm
Mechanical View 4	View identifier	View D
	Hole diameter	Diameter 18
	Outer or fitting diameter	Diameter 22
	Threaded hole quantity and size	2 threaded holes, M2.5
	Local feature mark	V5

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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.