PRODUCT DATASHEET

ES-HG-S21-F20-R160

Precision Transmission Component

Cup Harmonic Gearboxes | Special Standard Cup Unit

Product Overview

Precision Transmission Component with rated Torque 40 N·m, instantaneous Maximum Torque 147 N·m and start/Stop Peak Torque 92 N·m.

Key Specifications

PARAMETER	VALUE	UNIT
Rated Torque	40	N·m
Instantaneous Maximum Torque	147	N·m
Start/Stop Peak Torque	92	N·m
Reduction Ratio	160	
Backlash	≤20	arc sec
Maximum Input Speed	6500	r/min
Allowable Average Torque	49	N·m
Frame Size	20	
Weight	0.96	kg

Technical Specifications

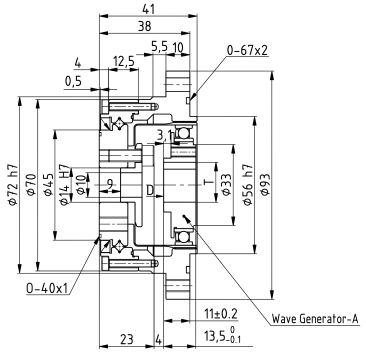
PARAMETER	SPECIFICATION	UNIT	NOTES
PERFORMANCE			
Rated Torque	40	N·m	Frame Size: 20; Reduction Ratio: 160
Instantaneous Maximum Torque	147	N·m	Frame Size: 20; Reduction Ratio: 160
Start/Stop Peak Torque	92	N·m	Frame Size: 20; Reduction Ratio: 160
Backlash	≤20	arc sec	Frame Size: 20; Reduction Ratio: 160
Allowable Average Torque	49	N·m	Frame Size: 20; Reduction Ratio: 160
MECHANICAL			
Frame Size	20		Frame Size: 20; Reduction Ratio: 160
Weight	0.96	kg	Frame Size: 20; Reduction Ratio: 160
Wave Generator Dimension T	12.8+0.10 / 9.4+0.10 / 16.3+0.10	mm	Varies by published configuration.
Wave Generator Bore U	φ14H7 / φ8H7 / φ11H7		Varies by published configuration.
Wave Generator Keyway W	4JS9/P9 / 3JS9/P9 / 5JS9/P9		Varies by published configuration.
RELIABILITY			
Design Life	15000	h	Frame Size: 20; Reduction Ratio: 160
ADDITIONAL SPECIFICATIONS			
Reduction Ratio	160		Frame Size: 20; Reduction Ratio: 160
Maximum Input Speed	6500	r/min	Frame Size: 20; Reduction Ratio: 160
Average Input Speed	3500	r/min	Frame Size: 20; Reduction Ratio: 160

Dimensional & Integration Overview

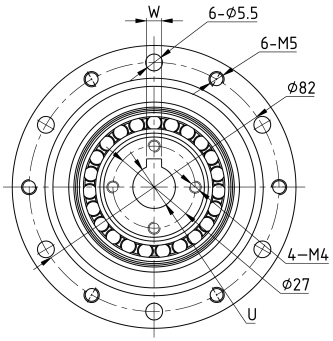
Mechanical Overview

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

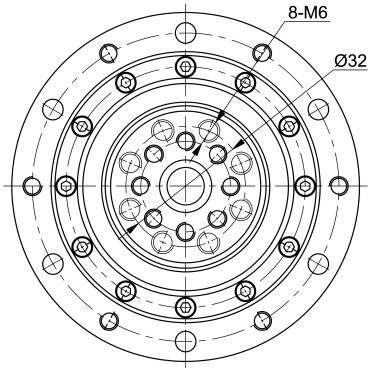
Dimensional Drawings



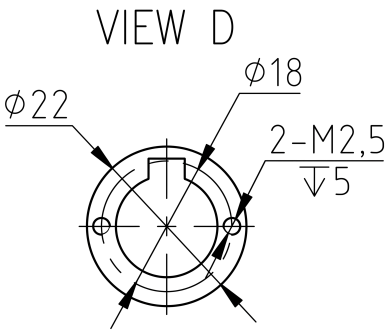
Mechanical View 1



Mechanical View 2



Mechanical View 3



Mechanical View 4

2D Drawing Dimensions & Callouts

VIEW	FIELD	VALUE
Mechanical View 1	Overall axial length	41
	Inner axial length	38
	Local stepped axial dimensions	5.5 and 10
	Chamfer or relief callout	0-67 x 2
	Local axial length	12.5
	Local clearance or step width	0.5
	Shaft diameter with tolerance	Diameter 14 h7
	T dimension symbol	T
	Diameter 45	
	Outer diameter	Diameter 93
	Shaft diameter	Diameter 33
	Outer fitted diameter	Diameter 72 h7
	Fitted diameter	Diameter 56 h7
	Diameter 70	
	Diameter 10	
	D dimension symbol	D
	Chamfer or relief callout	0-40 x 1
	Local axial dimension with bilateral tolerance	11 +/- 0.2

2D Drawing Dimensions & Callouts

VIEW	FIELD	VALUE
Mechanical View 1	Component name	Wave Generator-A
	Local axial dimension with unilateral tolerance	13.5 +0/-0.1

2D Drawing Dimensions & Callouts

VIEW	FIELD	VALUE
Mechanical View 2	Keyway width symbol	W keyway width designation; numeric value not specified in this crop
	Through hole quantity and diameter	6 holes, diameter 5.5 mm
	M5 threaded hole quantity	6 × M5 threaded holes
	Outer diameter	Outer diameter 82 mm
	M4 threaded hole quantity	4 × M4 threaded holes
	Central interface diameter	Diameter 27 mm
	U designation	U designation; numeric value not specified in this crop
Mechanical View 3	Threaded mounting holes quantity and thread size	8 × M6 threaded holes
	Diameter dimension	Diameter 32 mm
Mechanical View 4	View designation	View D
	Diameter 18 callout	Diameter 18 mm
	Diameter 22 callout	Diameter 22 mm
	Threaded hole quantity and size	2 × M2.5 threaded holes
	Triangular symbol 5 callout	▽5

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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.