PRODUCT DATASHEET

ES-HG-S22-F20-R120

Precision Transmission Component

Cup Harmonic Gearboxes | Standard Cup Unit Type I

Product Overview

Precision Transmission Component with rated Torque 40 N·m, instantaneous Maximum Torque 147 N·m and start/Stop Peak Torque 87 N·m.

Key Specifications

PARAMETER	VALUE	UNIT
Rated Torque	40	N·m
Instantaneous Maximum Torque	147	N·m
Start/Stop Peak Torque	87	N·m
Reduction Ratio	120	
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

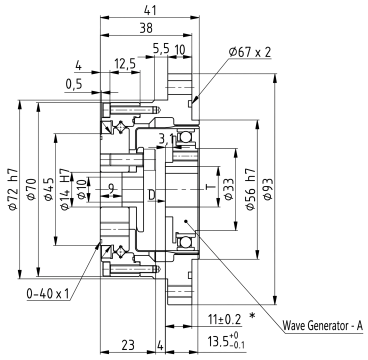
PARAMETER	SPECIFICATION	UNIT	NOTES
PERFORMANCE			
Rated Torque	40	N·m	Frame Size: 20; Reduction Ratio: 120
Instantaneous Maximum Torque	147	N·m	Frame Size: 20; Reduction Ratio: 120
Start/Stop Peak Torque	87	N·m	Frame Size: 20; Reduction Ratio: 120
Backlash	≤20	arc sec	Frame Size: 20; Reduction Ratio: 120
Allowable Average Torque	49	N·m	Frame Size: 20; Reduction Ratio: 120
MECHANICAL			
Frame Size	20		Frame Size: 20; Reduction Ratio: 120
Weight	0.96	kg	Frame Size: 20; Reduction Ratio: 120
Wave Generator Dimension T	16.3+0.10 / 9.4+0.10 / 12.8+0.10	mm	Varies by published configuration.
Wave Generator Bore U	φ8H7 / φ11H7 / φ14H7		Varies by published configuration.
Wave Generator Keyway W	3JS9/P9 / 4JS9/P9 / 5JS9/P9		Varies by published configuration.
RELIABILITY			
Design Life	15000	h	Frame Size: 20; Reduction Ratio: 120
ADDITIONAL SPECIFICATIONS			
Reduction Ratio	120		Frame Size: 20; Reduction Ratio: 120
Maximum Input Speed	6500	r/min	Frame Size: 20; Reduction Ratio: 120
Average Input Speed	3500	r/min	Frame Size: 20; Reduction Ratio: 120

Dimensional & Integration Overview

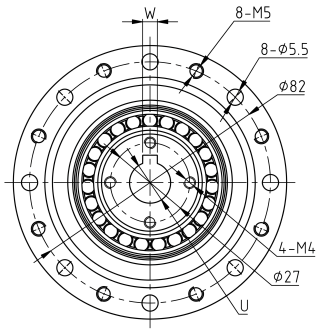
Mechanical Overview

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

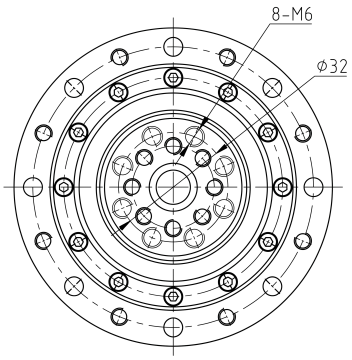
Dimensional Drawings



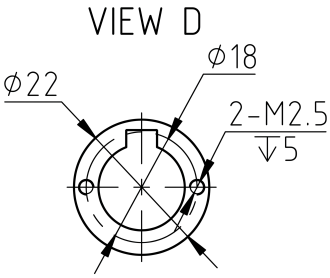
Mechanical View 1



Mechanical View 2



Mechanical View 3



Mechanical View 4

2D Drawing Dimensions & Callouts

VIEW	FIELD	VALUE
Mechanical View 1	Overall length	41 mm
	Mid-section length	38 mm
	Step width	5.5 mm
	Boss length	10 mm
	Bolt circle and quantity	Ø67 mm × 2 holes
	Step depth	12.5 mm
	Flange thickness	4 mm
	Edge chamfer	0.5 mm
	Left shaft diameter with tolerance	Ø72 h7
	Left bearing housing diameter	Ø70 mm
	Internal shaft diameter	Ø45 mm
	Center bore with tolerance	Ø14 H7
	Bolt hole diameter	Ø10 mm
	Local spacing	9 mm
	Feature dimension	3.10 mm
	Datum D	
	Right inner diameter	Ø33 mm
	Right shaft diameter with tolerance	Ø56 h7

2D Drawing Dimensions & Callouts

VIEW	FIELD	VALUE
Mechanical View 1	Right outer diameter	Ø93 mm
	Bottom hole circle and quantity	Ø40 mm × 1 hole
	Bottom step width	23 mm
	Bottom step height	4 mm
	Lower section tolerance	11 ±0.2 mm
	Lower section unilateral tolerance	13.5 +0/-0.1 mm
	Wave Generator - A	

2D Drawing Dimensions & Callouts

VIEW	FIELD	VALUE
Mechanical View 2	Keyway or slot width designation	Width designation W; numeric value not specified in this crop
	M5 threaded hole quantity	8 × M5 threaded holes
	Through hole quantity and diameter	8 × Ø5.5 holes
	Diameter 82	Ø82
	M4 threaded hole quantity	4 × M4 threaded holes
	Diameter 27	Ø27
	Feature designation U	Feature designation U; numeric value not specified in this crop
Mechanical View 3	A-side threaded mounting holes quantity and thread size	8 × M6 threaded holes
	Hole diameter	Diameter 32 mm
Mechanical View 4	View designation	View D
	Hole diameter	Diameter 18 mm
	Outer diameter	Diameter 22 mm
	Threaded hole quantity and size	2 × M2.5 threaded holes
	Hole or feature depth	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.