PRODUCT DATASHEET

ES-HG-S08-F17-R120

Precision Transmission Component

Hat Harmonic Gearboxes | High-Torque Hat Unit Type II

Product Overview

Precision Transmission Component with rated Torque 31 N·m, instantaneous Maximum Torque 112 N·m and start/Stop Peak Torque 70 N·m.

Key Specifications

PARAMETER	VALUE	UNIT
Rated Torque	31	N·m
Instantaneous Maximum Torque	112	N·m
Start/Stop Peak Torque	70	N·m
Reduction Ratio	120	
Maximum Input Speed	7300	r/min
Allowable Average Torque	51	N·m
Backlash	≤20	arc sec
Frame Size	17	
Weight	0.54	kg

Technical Specifications

PARAMETER	SPECIFICATION	UNIT	NOTES
PERFORMANCE			
Rated Torque	31	N·m	Frame Size: 17; Reduction Ratio: 120; Size: 17
Instantaneous Maximum Torque	112	N·m	Frame Size: 17; Reduction Ratio: 120; Size: 17
Start/Stop Peak Torque	70	N·m	Frame Size: 17; Reduction Ratio: 120; Size: 17
Backlash	≤20	arc sec	Reduction Ratio: 120; Size: 17; Frame Size: 17
Allowable Average Torque	51	N·m	Frame Size: 17; Reduction Ratio: 120; Size: 17
Starting Torque	3.4 / 0.034	N·m	Frame Size: 17; Reduction Ratio: 120; Size: 17 / Reduction Ratio: 120; Size: 17; Frame Size: 17
Angular Transmission Accuracy	1.5	arcmin	Frame Size: 17; Reduction Ratio: 120; Reduction Ratio Min: 50; Size: 17
Hysteresis Loss	1	arcmin	Frame Size: 17; Reduction Ratio: 120; Reduction Ratio Min: 50; Size: 17
MECHANICAL			
Frame Size	17		Frame Size: 17; Reduction Ratio: 120; Size: 17
Weight	0.54	kg	Frame Size: 17; Reduction Ratio: 120
Wave Generator Dimension T	12.8+0.10 / 9.4+0.10	mm	Frame Size: 17; Option Index: 2; Option Label: Wave generator - A φ11; Reduction Ratio: 120; Wave Generator Option: wave-generator-fd26f6670d9b / Frame Size: 17; Option Index: 1; Option Label: Wave generator - A φ8; Reduction Ratio: 120; Wave Generator Option: wave-generator-e6e55a341aa3
Wave Generator Bore U	φ11H7 / φ8H7		Varies by published configuration.
Wave Generator Keyway W	3JS9/P9 / 4JS9/P9		Frame Size: 17; Option Index: 1; Option Label: Wave generator - A φ8; Reduction Ratio: 120; Wave Generator Option: wave-generator-e6e55a341aa3 / Frame Size: 17; Option Index: 2; Option Label: Wave generator - A φ11; Reduction Ratio: 120; Wave Generator Option: wave-generator-fd26f6670d9b

Technical Specifications

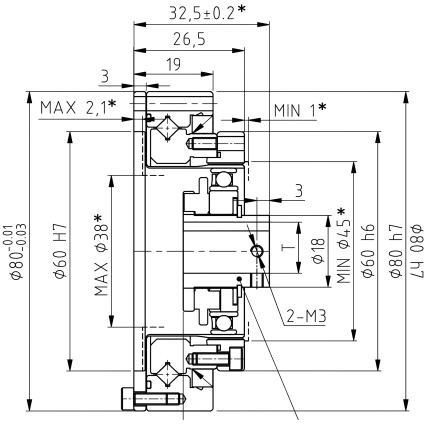
PARAMETER	SPECIFICATION	UNIT	NOTES
RELIABILITY			
Design Life	15000	h	Frame Size: 17; Reduction Ratio: 120; Size: 17
ADDITIONAL SPECIFICATIONS			
Reduction Ratio	120		Frame Size: 17; Reduction Ratio: 120; Size: 17
Maximum Input Speed	7300	r/min	Frame Size: 17; Reduction Ratio: 120; Size: 17
Average Input Speed	3500	r/min	Frame Size: 17; Reduction Ratio: 120; Size: 17
Wave Generator T	12.8^+0.1_0 / 9.4^+0.1_0	mm	Reduction Ratio: 120; Size: 17; Frame Size: 17; Option Index: 2 / Reduction Ratio: 120; Size: 17; Frame Size: 17; Option Index: 1
Wave Generator U	φ11H7 / φ8H7		Varies by published configuration.
Wave Generator W	3JS9/P9 / 4JS9/P9		Reduction Ratio: 120; Size: 17; Frame Size: 17; Option Index: 1 / Reduction Ratio: 120; Size: 17; Frame Size: 17; Option Index: 2
Torsional Rigidity K2	1.4	×10⁴ N·m/rad	Frame Size: 17; Reduction Ratio: 120; Reduction Ratio Min: 50; Size: 17
Torsional Rigidity K1	1	×10⁴ N·m/rad	Frame Size: 17; Reduction Ratio: 120; Reduction Ratio Min: 50; Size: 17
Torsional Rigidity K3	1.6	×10⁴ N·m/rad	Frame Size: 17; Reduction Ratio: 120; Reduction Ratio Min: 50; Size: 17
Torsional Rigidity T2	12	N·m	Frame Size: 17; Reduction Ratio: 120; Reduction Ratio Min: 50; Size: 17
Torsional Rigidity T1	3.9	N·m	Frame Size: 17; Reduction Ratio: 120; Reduction Ratio Min: 50; Size: 17

Dimensional & Integration Overview

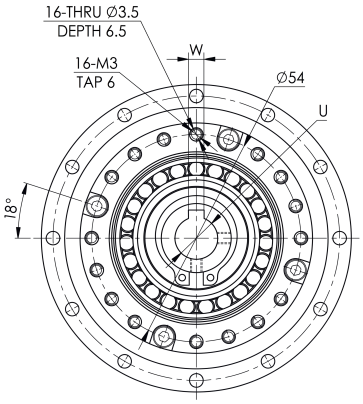
Mechanical Overview

PARAMETER	VALUE	UNIT
Frame Size	17	
Weight	0.54	kg
Wave Generator Dimension T	12.8+0.10 / 9.4+0.10	mm
Wave Generator Bore U	φ11H7 / φ8H7	
Wave Generator Keyway W	3JS9/P9 / 4JS9/P9	

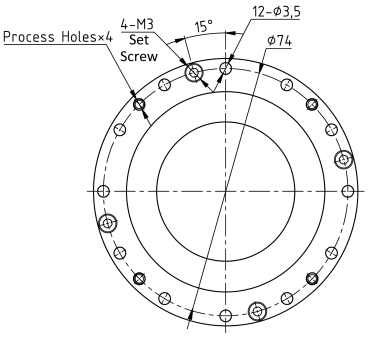
Dimensional Drawings



Mechanical View 1



Mechanical View 2



Mechanical View 3

2D Drawing Dimensions & Callouts

VIEW	FIELD	VALUE
Mechanical View 1	Overall Length	32.5 ±0.2 mm
	Intermediate Section Length	26.5 mm
	Inner Section Length	19 mm
	Small Feature Dimension	3 mm
	Maximum Radial Dimension	MAX 2.1 mm (reference)
	Minimum Radial Dimension	MIN 1 mm (reference)
	Right Side Dimension	3 mm
	Maximum Inner Diameter	MAX Φ38 mm (reference)
	Mounting Hole Diameter and Tolerance (Left)	Φ60 H7
	Shaft Diameter and Tolerance (Right)	Φ60 h6
	Outer Diameter and Tolerance (Left)	Φ80 -0.01/-0.03 mm
	Hole Diameter	Φ18 mm
	Shaft Diameter and Tolerance (Right Outer)	Φ80 h7
	Threaded Holes	2 × M3 threaded holes
	Minimum Inner Diameter	MIN Φ45 mm (reference)

2D Drawing Dimensions & Callouts

VIEW	FIELD	VALUE
Mechanical View 2	Through hole diameter	16 holes, Φ3.5 mm through
	Through hole depth	Depth 6.5 mm
	Threaded hole specification	16 holes, M3 thread
	Tap depth	Tap depth 6 mm
	Outer diameter	Φ54 mm
	Width dimension label	Width dimension indicator
	Dimension label U	Dimension indicator U
	Angular distribution	18° angular spacing
Mechanical View 3	12 holes of Φ3.5mm diameter, spaced at 15° intervals	12×Φ3.5, 15° pitch
	4 M3 threaded holes for set screws	4×M3 threaded holes
	4 process holes	4 process holes (size not specified)
	Bolt circle diameter / pitch circle diameter	Φ74

View Product Online Request Engineering Data Request a Quote

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.