PRODUCT DATASHEET

ES-HG-S29-F14-R80

Precision Transmission Component

Ultra-Thin Harmonic Gearboxes | Ultra-Short Gear Unit

Product Overview

Precision Transmission Component with rated Torque 5.4 N·m, instantaneous Maximum Torque 35 N·m and start/Stop Peak Torque 16 N·m.

Key Specifications

PARAMETER	VALUE	UNIT
Rated Torque	5.4	N·m
Instantaneous Maximum Torque	35	N·m
Start/Stop Peak Torque	16	N·m
Reduction Ratio	80	
Maximum Input Speed	8500	r/min
Allowable Average Torque	7.7	N·m
Frame Size	14	
Weight	0.34 / 0.64	kg
Average Input Speed	3500	r/min

Technical Specifications

PARAMETER	SPECIFICATION	UNIT	NOTES
PERFORMANCE			
Rated Torque	5.4	N·m	Frame Size: 14; Reduction Ratio: 80; Size: 14
Instantaneous Maximum Torque	35	N·m	Frame Size: 14; Reduction Ratio: 80; Size: 14
Start/Stop Peak Torque	16	N·m	Frame Size: 14; Reduction Ratio: 80; Size: 14
Allowable Average Torque	7.7	N·m	Frame Size: 14; Reduction Ratio: 80; Size: 14
Angle Transmission Accuracy	1.5	arc min	Frame Size: 14; Ratio Bucket: >50; Reduction Ratio: 80; Reduction Ratio Min: 50; Size: 14
Hysteresis Loss	2	arc min	Frame Size: 14; Ratio Bucket: >50; Reduction Ratio: 80; Reduction Ratio Min: 50; Size: 14
MECHANICAL			
Frame Size	14		Frame Size: 14; Reduction Ratio: 80; Size: 14
Weight	0.34 / 0.64	kg	Frame Size: 14; Reduction Ratio: 80; Size: 14 / Frame Size: 14; Reduction Ratio: 80
Wave Generator Dimension T	7+0.10 / 9.4+0.10	mm	Frame Size: 14; Option Label: Wave generator - A φ6; Reduction Ratio: 80; Wave Generator Option: wave-generator-39713db786bd / Frame Size: 14; Option Index: 1; Option Label: Wave generator - A φ8; Reduction Ratio: 80; Wave Generator Option: wave-generator-0b03493338e1
Wave Generator Bore U	φ6H7 / φ8H7		Varies by published configuration.

Technical Specifications

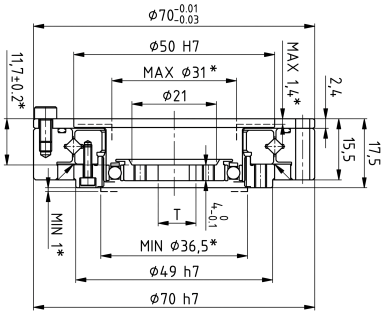
PARAMETER	SPECIFICATION	UNIT	NOTES
MECHANICAL			
Wave Generator Keyway W	3JS9/P9 / 2JS9/P9		Frame Size: 14; Option Index: 1; Option Label: Wave generator - A φ 8; Reduction Ratio: 80; Wave Generator Option: wave-generator-0b03493338e1 / Frame Size: 14; Option Label: Wave generator - A φ6; Reduction Ratio: 80; Wave Generator Option: wave-generator-39713db786bd
RELIABILITY			
Design Life	10000	h	Frame Size: 14; Reduction Ratio: 80; Size: 14
ADDITIONAL SPECIFICATIONS			
Reduction Ratio	80		Frame Size: 14; Reduction Ratio: 80; Size: 14
Maximum Input Speed	8500	r/min	Frame Size: 14; Reduction Ratio: 80; Size: 14
Average Input Speed	3500	r/min	Frame Size: 14; Reduction Ratio: 80; Size: 14
Torsional Rigidity K2	0.26	×10⁴ N·m/rad	Frame Size: 14; Ratio Bucket: >50; Reduction Ratio: 80; Reduction Ratio Min: 50; Size: 14; Source Condition: ratio>50
Torsional Rigidity K1	0.23	×10⁴ N·m/rad	Frame Size: 14; Ratio Bucket: >50; Reduction Ratio: 80; Reduction Ratio Min: 50; Size: 14; Source Condition: ratio>50
Torsional Rigidity K3	0.37	×10⁴ N·m/rad	Frame Size: 14; Ratio Bucket: >50; Reduction Ratio: 80; Reduction Ratio Min: 50; Size: 14; Source Condition: ratio>50
Torsional Rigidity T2	2	N·m	Frame Size: 14; Ratio Bucket: >50; Reduction Ratio: 80; Reduction Ratio Min: 50; Size: 14; Source Condition: all ratios
Torsional Rigidity T1	0.8	N·m	Frame Size: 14; Ratio Bucket: >50; Reduction Ratio: 80; Reduction Ratio Min: 50; Size: 14; Source Condition: all ratios

Dimensional & Integration Overview

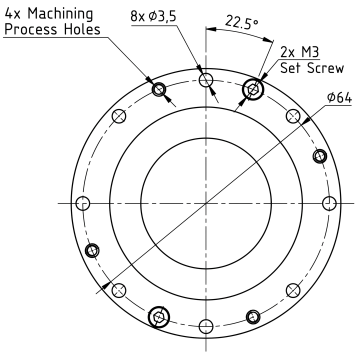
Mechanical Overview

PARAMETER	VALUE	UNIT
Frame Size	14	
Weight	0.34 / 0.64	kg
Wave Generator Dimension T	7+0.10 / 9.4+0.10	mm
Wave Generator Bore U	φ6H7 / φ8H7	
Wave Generator Keyway W	3JS9/P9 / 2JS9/P9	

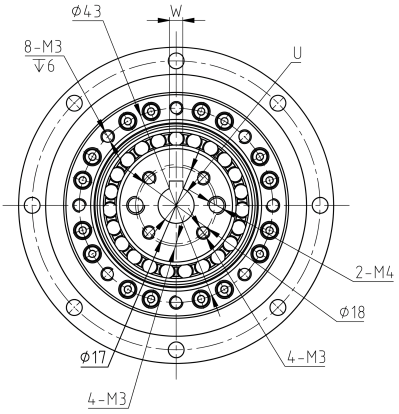
Dimensional Drawings



Mechanical View 1



Mechanical View 2



Mechanical View 3

2D Drawing Dimensions & Callouts

VIEW	FIELD	VALUE
Mechanical View 1	Overall outer diameter (top end)	Φ70 -0.01/-0.03 mm
	Mounting hole/shaft fit diameter	Φ50 H7
	Inner hole maximum diameter	MAX Φ31 mm (reference)
	Inner hole diameter	Φ21 mm
	Protrusion height maximum	MAX 1.4 mm (reference)
	Step height	2.4 mm
	Lower face height position	15.5 mm
	Overall height	17.5 mm
	Left protrusion height	11.7±0.2 mm (reference)
	Bottom minimum height	MIN 1 mm (reference)
	Feature width T	4 0/-0.1 mm
	Bottom outer diameter minimum	MIN Φ36.5 mm (reference)
	Lower shaft diameter	Φ49 h7
	Bottom shaft diameter	Φ70 h7

2D Drawing Dimensions & Callouts

VIEW	FIELD	VALUE
Mechanical View 2	Machining process holes quantity	4 machining process holes
	Mounting hole diameter and quantity	8× Φ3.5 mm holes
	Hole angular spacing	22.5° angular spacing
	Set screw thread specification and quantity	2× M3 set screws
	Outer diameter	Φ64 mm
Mechanical View 3	Mounting circle diameter	Φ43
	Keyway width	Not specified
	Outer mounting holes	8×M3 threaded holes
	Surface roughness	Ra 6 µm
	Datum reference U	Datum U
	Side mounting holes	2×M4 threaded holes
	Side through hole diameter	Φ18
	Bottom through hole diameter	Φ17
	Right side mounting holes	4×M3 threaded holes
	Bottom mounting holes	

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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.