

PRODUCT DATASHEET

ES-HG-S18-F14-R50

Precision Transmission Component

Ultra-Thin Harmonic Gearboxes | Ultra-Short Gear Unit

Product Overview

Precision Transmission Component with rated Torque 3.7 Nm, instantaneous Maximum Torque 24 Nm and start/Stop Peak Torque 12 Nm.

Key Specifications

PARAMETER	VALUE	UNIT
Rated Torque	3.7	Nm
Instantaneous Maximum Torque	24	Nm
Start/Stop Peak Torque	12	Nm
Reduction Ratio	50	
Maximum Input Speed	8500	r/min
Allowable Average Torque	4.8	Nm
Backlash	≤20	arc sec
Frame Size	14	
Weight	0.64 / 0.34	kg

Technical Specifications

PARAMETER	SPECIFICATION	UNIT	NOTES
PERFORMANCE			
Rated Torque	3.7	Nm	Frame Size: 14; Reduction Ratio: 50; Size: 14
Instantaneous Maximum Torque	24	Nm	Frame Size: 14; Reduction Ratio: 50
Start/Stop Peak Torque	12	Nm	Frame Size: 14; Reduction Ratio: 50; Size: 14
Backlash	≤20	arc sec	Reduction Ratio: 50; Size: 14; Frame Size: 14
Allowable Average Torque	4.8	Nm	Frame Size: 14; Reduction Ratio: 50; Size: 14
Angular Transmission Accuracy	1.5	arc min	Frame Size: 14; Ratio Bucket: 50; Reduction Ratio: 50; Size: 14
Hysteresis Loss	2.5	arc min	Frame Size: 14; Ratio Bucket: 50; Reduction Ratio: 50; Size: 14
MECHANICAL			
Frame Size	14		Frame Size: 14; Reduction Ratio: 50; Size: 14
Weight	0.64 / 0.34	kg	Frame Size: 14; Reduction Ratio: 50 / Frame Size: 14; Reduction Ratio: 50; Size: 14
Wave Generator Dimension T	7+0.10 / 9.4+0.10	mm	Frame Size: 14; Option Label: Wave generator - A ϕ 6; Reduction Ratio: 50; Wave Generator Option: wave-generator-39713db786bd / Frame Size: 14; Option Index: 1; Option Label: Wave generator - A ϕ 8; Reduction Ratio: 50; Wave Generator Option: wave-generator-0b03493338e1
Wave Generator Bore U	ϕ 8H7 / ϕ 6H7		Varies by published configuration.
Wave Generator Keyway W	2JS9/P9 / 3JS9/P9		Frame Size: 14; Option Label: Wave generator - A ϕ 6; Reduction Ratio: 50; Wave Generator Option: wave-generator-39713db786bd / Frame Size: 14; Option Index: 1; Option Label: Wave generator - A ϕ 8; Reduction Ratio: 50; Wave Generator Option: wave-generator-0b03493338e1

Technical Specifications

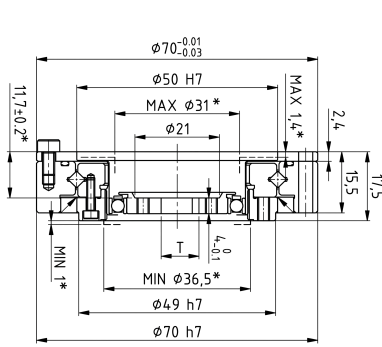
PARAMETER	SPECIFICATION	UNIT	NOTES
RELIABILITY			
Design Life	9000	h	Frame Size: 14; Reduction Ratio: 50; Size: 14
ADDITIONAL SPECIFICATIONS			
Reduction Ratio	50		Frame Size: 14; Reduction Ratio: 50; Size: 14
Maximum Input Speed	8500	r/min	Frame Size: 14; Reduction Ratio: 50; Size: 14
Average Input Speed	3500	r/min	Frame Size: 14; Reduction Ratio: 50; Size: 14
Wave Generator T	7 ^{+0.1_0} / 9.4 ^{+0.1_0}	mm	Reduction Ratio: 50; Size: 14; Frame Size: 14; Wave Generator Option: Wave Generator - A Ø6 / Reduction Ratio: 50; Size: 14; Frame Size: 14; Wave Generator Option: Wave Generator - A Ø8; Option Index: 1
Wave Generator U	Ø6H7 / Ø8H7		Varies by published configuration.
Wave Generator W	2JS9/P9 / 3JS9/P9		Reduction Ratio: 50; Size: 14; Frame Size: 14; Wave Generator Option: Wave Generator - A Ø6 / Reduction Ratio: 50; Size: 14; Frame Size: 14; Wave Generator Option: Wave Generator - A Ø8; Option Index: 1
Torsional Rigidity K2	0.23	×10 ⁴ Nm/rad	Frame Size: 14; Ratio Bucket: 50; Reduction Ratio: 50; Size: 14; Source Condition: ratio=50
Torsional Rigidity K1	0.19	×10 ⁴ Nm/rad	Frame Size: 14; Ratio Bucket: 50; Reduction Ratio: 50; Size: 14; Source Condition: ratio=50
Torsional Rigidity K3	0.27	×10 ⁴ Nm/rad	Frame Size: 14; Ratio Bucket: 50; Reduction Ratio: 50; Size: 14; Source Condition: ratio=50
Torsional Rigidity T2	2	Nm	Frame Size: 14; Ratio Bucket: 50; Reduction Ratio: 50; Size: 14; Source Condition: all ratios
Torsional Rigidity T1	0.8	Nm	Frame Size: 14; Ratio Bucket: 50; Reduction Ratio: 50; Size: 14; Source Condition: all ratios

Dimensional & Integration Overview

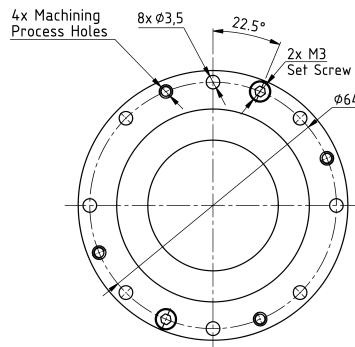
Mechanical Overview

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

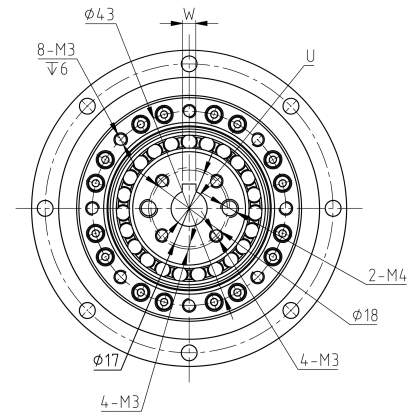
Dimensional Drawings



Mechanical View 1



Mechanical View 2



Mechanical View 3

2D Drawing Dimensions & Callouts

VIEW	FIELD	VALUE
Mechanical View 1	Overall outer diameter (top end)	$\Phi 70 - 0.01 / - 0.03$ mm
	Mounting hole/shaft fit diameter	$\Phi 50$ H7
	Inner hole maximum diameter	MAX $\Phi 31$ mm (reference)
	Inner hole diameter	$\Phi 21$ 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 $\Phi 36.5$ mm (reference)
	Lower shaft diameter	$\Phi 49$ h7
	Bottom shaft diameter	$\Phi 70$ 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× Ø3.5 mm holes
	Hole angular spacing	22.5° angular spacing
	Set screw thread specification and quantity	2× M3 set screws
	Outer diameter	Ø64 mm
Mechanical View 3	Mounting circle diameter	Ø43
	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	Ø18
	Bottom through hole diameter	Ø17
	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.