PRODUCT DATASHEET

ES-HG-S29-F20-R80

Precision Transmission Component

Ultra-Thin Harmonic Gearboxes | Ultra-Short Gear Unit

Product Overview

Precision Transmission Component with rated Torque 24 N·m, instantaneous Maximum Torque 89 N·m and start/Stop Peak Torque 51 N·m.

Key Specifications

PARAMETER	VALUE	UNIT
Rated Torque	24	N·m
Instantaneous Maximum Torque	89	N·m
Start/Stop Peak Torque	51	N·m
Reduction Ratio	80	
Maximum Input Speed	6500	r/min
Allowable Average Torque	33	N·m
Frame Size	20	
Weight	0.54	kg
Average Input Speed	3500	r/min

Technical Specifications

PARAMETER	SPECIFICATION	UNIT	NOTES
PERFORMANCE			
Rated Torque	24	N·m	Frame Size: 20; Reduction Ratio: 80; Size: 20
Instantaneous Maximum Torque	89	N·m	Frame Size: 20; Reduction Ratio: 80; Size: 20
Start/Stop Peak Torque	51	N·m	Frame Size: 20; Reduction Ratio: 80; Size: 20
Allowable Average Torque	33	N·m	Frame Size: 20; Reduction Ratio: 80; Size: 20
Angle Transmission Accuracy	1	arc min	Frame Size: 20; Ratio Bucket: >50; Reduction Ratio: 80; Reduction Ratio Min: 50; Size: 20
Hysteresis Loss	1	arc min	Frame Size: 20; Ratio Bucket: >50; Reduction Ratio: 80; Reduction Ratio Min: 50; Size: 20
MECHANICAL			
Frame Size	20		Frame Size: 20; Reduction Ratio: 80; Size: 20
Weight	0.54	kg	Frame Size: 20; Reduction Ratio: 80; Size: 20
RELIABILITY			
Design Life	10000	h	Frame Size: 20; Reduction Ratio: 80; Size: 20

Technical Specifications

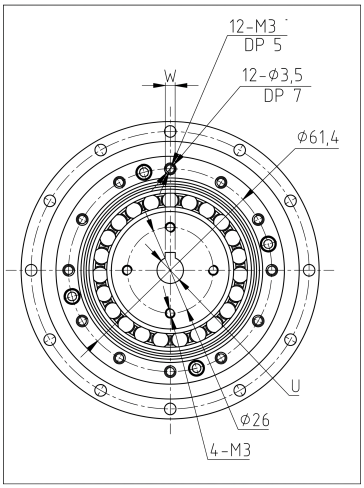
PARAMETER	SPECIFICATION	UNIT	NOTES
ADDITIONAL SPECIFICATIONS			
Reduction Ratio	80		Frame Size: 20; Reduction Ratio: 80; Size: 20
Maximum Input Speed	6500	r/min	Frame Size: 20; Reduction Ratio: 80; Size: 20
Average Input Speed	3500	r/min	Frame Size: 20; Reduction Ratio: 80; Size: 20
Torsional Rigidity K2	0.94	×10⁴ N·m/rad	Frame Size: 20; Ratio Bucket: >50; Reduction Ratio: 80; Reduction Ratio Min: 50; Size: 20; Source Condition: ratio>50
Torsional Rigidity K1	0.84	×10⁴ N·m/rad	Frame Size: 20; Ratio Bucket: >50; Reduction Ratio: 80; Reduction Ratio Min: 50; Size: 20; Source Condition: ratio>50
Torsional Rigidity K3	1.3	×10⁴ N·m/rad	Frame Size: 20; Ratio Bucket: >50; Reduction Ratio: 80; Reduction Ratio Min: 50; Size: 20; Source Condition: ratio>50
Torsional Rigidity T2	12	N·m	Frame Size: 20; Ratio Bucket: >50; Reduction Ratio: 80; Reduction Ratio Min: 50; Size: 20; Source Condition: all ratios
Torsional Rigidity T1	3.9	N·m	Frame Size: 20; Ratio Bucket: >50; Reduction Ratio: 80; Reduction Ratio Min: 50; Size: 20; Source Condition: all ratios

Dimensional & Integration Overview

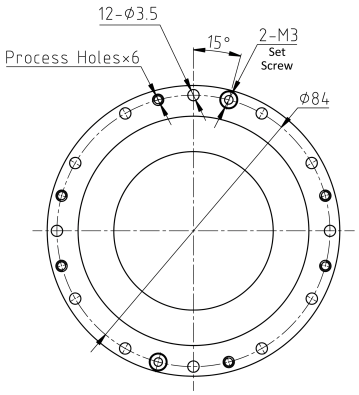
Mechanical Overview

PARAMETER	VALUE	UNIT
Frame Size	20	
Weight	0.54	kg

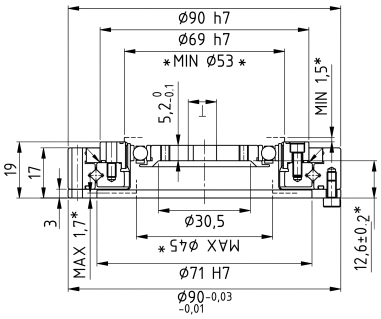
Dimensional Drawings



Mechanical View 1



Mechanical View 2



Mechanical View 3

2D Drawing Dimensions & Callouts

VIEW	FIELD	VALUE
Mechanical View 1	12 threaded M3 holes	12x M3 threaded holes
	Pitch circle diameter for 12 M3 holes	PCD/DP 5 for 12x M3 holes
	12 holes diameter 3.5	12x Ø3.5 holes
	Pitch circle diameter for 12 Ø3.5 holes	PCD/DP 7 for 12x Ø3.5 holes
	Keyway width W	W, numeric value not specified in this crop
	Outer diameter	Ø61.4
	Interface or orientation label U	U label, numeric value not specified
	Diameter 26	Ø26
	4 threaded M3 holes	4x M3 threaded holes
Mechanical View 2	12 holes diameter 3.5	12 × Ø3.5 holes
	Process hole count	Process holes ×6
	Angular spacing between features	15 degrees
	M3 set screw holes	2 × M3 set screw holes
	Diameter 84 circular feature	Ø84

2D Drawing Dimensions & Callouts

VIEW	FIELD	VALUE
Mechanical View 3	Outer diameter fit dimension	Diameter 90 h7
	Intermediate diameter fit dimension	Diameter 69 h7
	Minimum inside diameter	Minimum diameter 53, marked with asterisk
	Minimum clearance or dimension	Minimum 1.5, marked with asterisk
	Local dimension with unilateral tolerance	5.2 +0/-0.1
	Left overall height	19
	Left inner height	17
	Shaft or bearing fit diameter	Diameter 30.5
	Local width	3
	Right local dimension	12.6 ±0.2
	Maximum diameter limit	Maximum diameter 45, marked with asterisk
	Maximum limit label	Maximum, associated numeric value not reliably OCR-captured
	Hole or fit diameter	Diameter 71 H7
	Diameter 90 deviation tolerance	Diameter 90 with deviations -0.03/-0.01

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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.