

PRODUCT DATASHEET

ES-HG-S09-F17-R120

Precision Transmission Component

Hollow Shaft Harmonic Gearboxes | High-Torque Hollow Shaft Gear Unit

Product Overview

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

Key Specifications

PARAMETER	VALUE	UNIT
Rated Torque	31	Nm
Instantaneous Maximum Torque	112	Nm
Start/Stop Peak Torque	70	Nm
Reduction Ratio	120	
Maximum Input Speed	7300	r/min
Allowable Average Torque	51	Nm
Backlash	≤20	arc sec
Frame Size	17	
Weight	0.99	kg

Technical Specifications

PARAMETER	SPECIFICATION	UNIT	NOTES
PERFORMANCE			
Rated Torque	31	Nm	Frame Size: 17; Reduction Ratio: 120; Size: 17
Instantaneous Maximum Torque	112	Nm	Frame Size: 17; Reduction Ratio: 120; Size: 17
Start/Stop Peak Torque	70	Nm	Frame Size: 17; Reduction Ratio: 120; Size: 17
Backlash	≤20	arc sec	Reduction Ratio: 120; Size: 17; Frame Size: 17
Allowable Average Torque	51	Nm	Frame Size: 17; Reduction Ratio: 120; 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	0.99	kg	Frame Size: 17; Reduction Ratio: 120; Size: 17

Technical Specifications

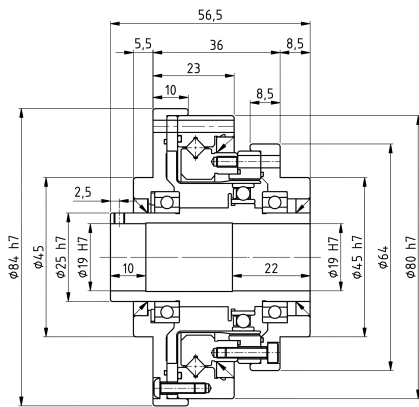
PARAMETER	SPECIFICATION	UNIT	NOTES
RELIABILITY			
Design Life	15000	h	Frame Size: 17; Reduction Ratio: 120; Size: 17
ADDITIONAL SPECIFICATIONS			
Reduction Ratio	120		Frame Size: 17; Reduction Ratio: 120; Size: 17
Maximum Input Speed	7300	r/min	Frame Size: 17; Reduction Ratio: 120; Size: 17
Average Input Speed	3500	r/min	Frame Size: 17; Reduction Ratio: 120; Size: 17
Torsional Rigidity K2	1.4	$\times 10^4$ Nm/rad	Frame Size: 17; Reduction Ratio: 120; Reduction Ratio Min: 50; Size: 17
Torsional Rigidity K1	1	$\times 10^4$ Nm/rad	Frame Size: 17; Reduction Ratio: 120; Reduction Ratio Min: 50; Size: 17
Torsional Rigidity K3	1.6	$\times 10^4$ Nm/rad	Frame Size: 17; Reduction Ratio: 120; Reduction Ratio Min: 50; Size: 17
Torsional Rigidity T2	12	Nm	Frame Size: 17; Reduction Ratio: 120; Reduction Ratio Min: 50; Size: 17
Torsional Rigidity T1	3.9	Nm	Frame Size: 17; Reduction Ratio: 120; Reduction Ratio Min: 50; Size: 17

Dimensional & Integration Overview

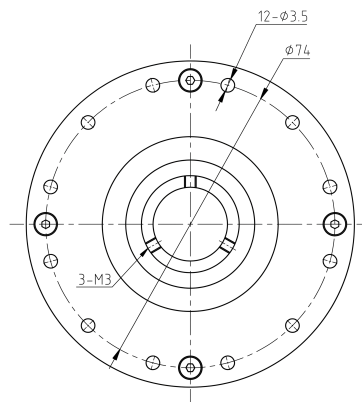
Mechanical Overview

PARAMETER	VALUE	UNIT
Frame Size	17	
Weight	0.99	kg

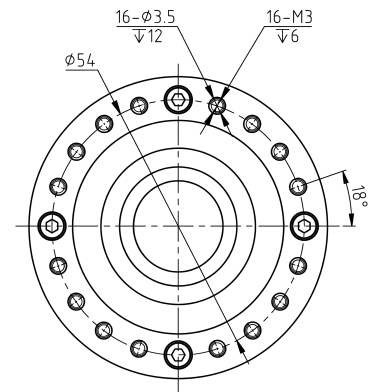
Dimensional Drawings



Mechanical View 1



Mechanical View 2



Mechanical View 3

2D Drawing Dimensions & Callouts

VIEW	FIELD	VALUE
Mechanical View 1	Overall width	56.5
	Upper-left step offset	5.5
	Upper-right step offset	8.5
	Upper central span	36
	Upper internal span	23
	Internal small step distance	10
	Right local offset	8.5
	Left local offset	2.5
	Left outer shaft fit diameter	Diameter 84 h7
	Left diameter	Diameter 45
	Left diameter 25 shaft fit	Diameter 25 h7
	Left diameter 19 hole fit	Diameter 19 H7
	Lower-left axial distance	10
	Lower-right axial distance	22
	Right diameter 19 hole fit	Diameter 19 H7
	Right diameter 45 shaft fit	Diameter 45 h7
	Right diameter 64	Diameter 64
	Right diameter 80 shaft fit	Diameter 80 h7

2D Drawing Dimensions & Callouts

VIEW	FIELD	VALUE
Mechanical View 2	12 hole diameter	12 holes, diameter 3.5
	Hole pitch circle diameter	Pitch circle diameter 74
	3 M3 threaded holes	3 × M3 threaded holes
Mechanical View 3	Quantity, diameter and depth of plain holes	16 holes, diameter 3.5, depth 12
	Quantity, thread size and depth of threaded mounting holes	16 M3 threaded holes, depth 6
	Hole pitch circle diameter	Pitch circle diameter 54
	Angular spacing between repeated holes	Angular spacing 18 degrees

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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.