PRODUCT DATASHEET

ES-HG-S08-F25-R120

Precision Transmission Component

Hat Harmonic Gearboxes | High-Torque Hat Unit Type II

Product Overview

Precision Transmission Component with rated Torque 87 N·m, instantaneous Maximum Torque 395 N·m and start/Stop Peak Torque 217 N·m.

Key Specifications

PARAMETER	VALUE	UNIT
Rated Torque	87	N·m
Instantaneous Maximum Torque	395	N·m
Start/Stop Peak Torque	217	N·m
Reduction Ratio	120	
Maximum Input Speed	5600	r/min
Allowable Average Torque	140	N·m
Backlash	≤20	arc sec
Frame Size	25	
Weight	1.22	kg

Technical Specifications

PARAMETER	SPECIFICATION	UNIT	NOTES
PERFORMANCE			
Rated Torque	87	N·m	Frame Size: 25; Reduction Ratio: 120; Size: 25
Instantaneous Maximum Torque	395	N·m	Frame Size: 25; Reduction Ratio: 120; Size: 25
Start/Stop Peak Torque	217	N·m	Frame Size: 25; Reduction Ratio: 120; Size: 25
Backlash	≤20	arc sec	Reduction Ratio: 120; Size: 25; Frame Size: 25
Allowable Average Torque	140	N·m	Frame Size: 25; Reduction Ratio: 120; Size: 25
Starting Torque	8 / 0.08	N·m	Frame Size: 25; Reduction Ratio: 120; Size: 25 / Reduction Ratio: 120; Size: 25; Frame Size: 25
Angular Transmission Accuracy	1	arcmin	Frame Size: 25; Reduction Ratio: 120; Reduction Ratio Min: 50; Size: 25
Hysteresis Loss	1	arcmin	Frame Size: 25; Reduction Ratio: 120; Reduction Ratio Min: 50; Size: 25
MECHANICAL			
Frame Size	25		Frame Size: 25; Reduction Ratio: 120; Size: 25
Weight	1.22	kg	Frame Size: 25; Reduction Ratio: 120

Technical Specifications

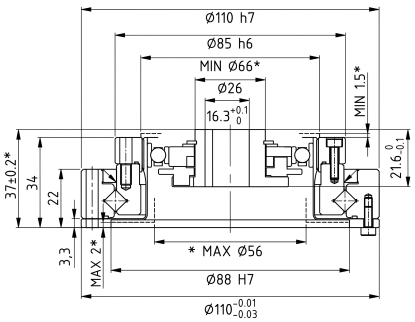
PARAMETER	SPECIFICATION	UNIT	NOTES
RELIABILITY			
Design Life	15000	h	Frame Size: 25; Reduction Ratio: 120; Size: 25
ADDITIONAL SPECIFICATIONS			
Reduction Ratio	120		Frame Size: 25; Reduction Ratio: 120; Size: 25
Maximum Input Speed	5600	r/min	Frame Size: 25; Reduction Ratio: 120; Size: 25
Average Input Speed	3500	r/min	Frame Size: 25; Reduction Ratio: 120; Size: 25
Torsional Rigidity K2	5	×10⁴ N·m/rad	Frame Size: 25; Reduction Ratio: 120; Reduction Ratio Min: 50; Size: 25
Torsional Rigidity K1	3.1	×10⁴ N·m/rad	Frame Size: 25; Reduction Ratio: 120; Reduction Ratio Min: 50; Size: 25
Torsional Rigidity K3	5.7	×10⁴ N·m/rad	Frame Size: 25; Reduction Ratio: 120; Reduction Ratio Min: 50; Size: 25
Torsional Rigidity T2	48	N·m	Frame Size: 25; Reduction Ratio: 120; Reduction Ratio Min: 50; Size: 25
Torsional Rigidity T1	14	N·m	Frame Size: 25; Reduction Ratio: 120; Reduction Ratio Min: 50; Size: 25

Dimensional & Integration Overview

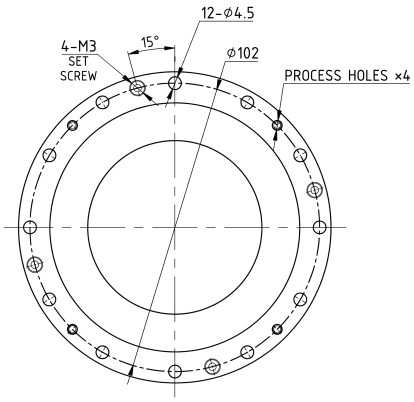
Mechanical Overview

PARAMETER	VALUE	UNIT
Frame Size	25	
Weight	1.22	kg

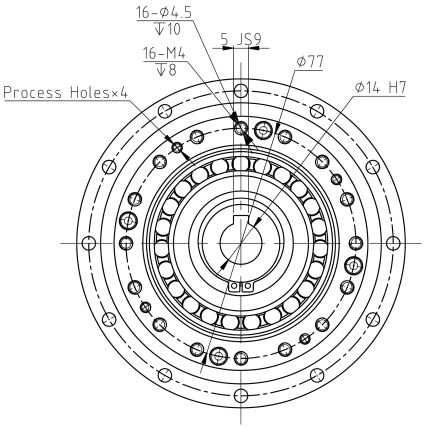
Dimensional Drawings



Mechanical View 1



Mechanical View 2



Mechanical View 3

2D Drawing Dimensions & Callouts

VIEW	FIELD	VALUE
Mechanical View 1	Mounting outer diameter fit tolerance (upper)	Φ110 h7
	Mounting inner diameter fit tolerance (upper)	Φ85 h6
	Minimum inner diameter clearance	MIN Φ66* (reference)
	Central bore diameter	Φ26
	Axial dimension (upper mating length)	16.3 +0.1/0
	Minimum wall thickness	MIN 1.5* (reference)
	Axial dimension (lower mating length)	21.6 0/-0.1
	Maximum inner diameter	MAX Φ56* (reference)
	Mounting outer diameter fit tolerance (lower)	Φ88 H7
	Mounting outer diameter fit tolerance (lower flange)	Φ110 -0.01/-0.03
	Overall height	37±0.2* (reference)
	Middle section height	34
	Internal height	22
	Lower step height	3.3
	Maximum chamfer or fillet	MAX 2* (reference)

2D Drawing Dimensions & Callouts

VIEW	FIELD	VALUE
Mechanical View 2	Through holes quantity and diameter	12 holes, Φ4.5 mm
	Hole angular spacing	15°
	Set screw specification and quantity	4× M3 set screws
	Mounting flange bolt circle diameter	Φ102 mm
	Set screw label	Set screw location
	Process holes quantity	4 process holes
Mechanical View 3	Mounting bolt holes	16 holes, Φ4.5 mm
	Surface finish for mounting holes	Ra 10 µm or √10
	Keyway width with tolerance	5 mm JS9
	Mounting threaded holes	16 threaded holes, M4
	Surface finish for threaded holes	Ra 8 µm or ▽8
	Outer diameter	Φ77 mm
	Center bore diameter with tolerance	Φ14 H7 mm
	Process holes	4 process 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.