PRODUCT DATASHEET

ES-HG-S10-F25-R50

Precision Transmission Component

Hat Harmonic Gearboxes | High-Torque Shaft-Input Gear Unit

Product Overview

Precision Transmission Component with rated Torque 51 N·m, instantaneous Maximum Torque 242 N·m and start/Stop Peak Torque 127 N·m.

Key Specifications

PARAMETER	VALUE	UNIT
Rated Torque	51	N·m
Instantaneous Maximum Torque	242	N·m
Start/Stop Peak Torque	127	N·m
Reduction Ratio	50	
Maximum Input Speed	5600	r/min
Allowable Average Torque	72	N·m
Backlash	≤20	arc sec
Frame Size	25	
Weight	1.99	kg

Technical Specifications

PARAMETER	SPECIFICATION	UNIT	NOTES
PERFORMANCE			
Rated Torque	51	N·m	Frame Size: 25; Reduction Ratio: 50; Size: 25
Instantaneous Maximum Torque	242	N·m	Frame Size: 25; Reduction Ratio: 50; Size: 25
Start/Stop Peak Torque	127	N·m	Frame Size: 25; Reduction Ratio: 50; Size: 25
Backlash	≤20	arc sec	Reduction Ratio: 50; Size: 25; Frame Size: 25
Allowable Average Torque	72	N·m	Frame Size: 25; Reduction Ratio: 50; Size: 25
Starting Torque	22 / 0.22	N·m	Frame Size: 25; Reduction Ratio: 50; Size: 25 / Reduction Ratio: 50; Size: 25; Frame Size: 25
Angular Transmission Accuracy	1	arcmin	Frame Size: 25; Reduction Ratio: 50; Size: 25
Hysteresis Loss	2	arcmin	Frame Size: 25; Reduction Ratio: 50; Size: 25
MECHANICAL			
Frame Size	25		Frame Size: 25; Reduction Ratio: 50; Size: 25
Weight	1.99	kg	Frame Size: 25; Reduction Ratio: 50; Size: 25

Technical Specifications

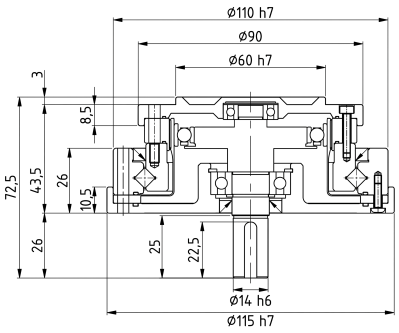
PARAMETER	SPECIFICATION	UNIT	NOTES
RELIABILITY			
Design Life	10000	h	Frame Size: 25; Reduction Ratio: 50; Size: 25
ADDITIONAL SPECIFICATIONS			
Reduction Ratio	50		Frame Size: 25; Reduction Ratio: 50; Size: 25
Maximum Input Speed	5600	r/min	Frame Size: 25; Reduction Ratio: 50; Size: 25
Average Input Speed	3500	r/min	Frame Size: 25; Reduction Ratio: 50; Size: 25
Torsional Rigidity K2	3.4	$\times 10^4$ N·m/rad	Frame Size: 25; Reduction Ratio: 50; Size: 25
Torsional Rigidity K1	2.5	$\times 10^4$ N·m/rad	Frame Size: 25; Reduction Ratio: 50; Size: 25
Torsional Rigidity K3	4.4	$\times 10^4$ N·m/rad	Frame Size: 25; Reduction Ratio: 50; Size: 25
Torsional Rigidity T2	48	N·m	Frame Size: 25; Reduction Ratio: 50; Size: 25
Torsional Rigidity T1	14	N·m	Frame Size: 25; Reduction Ratio: 50; Size: 25

Dimensional & Integration Overview

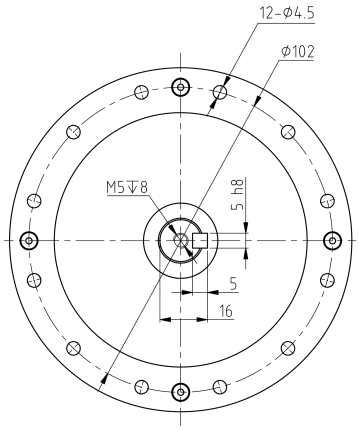
Mechanical Overview

PARAMETER	VALUE	UNIT
Frame Size	25	
Weight	1.99	kg

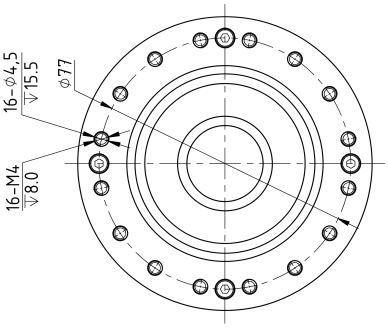
Dimensional Drawings



Mechanical View 1



Mechanical View 2



Mechanical View 3

2D Drawing Dimensions & Callouts

VIEW	FIELD	VALUE
Mechanical View 1	Mounting flange outer diameter	Φ110 h7
	Mounting flange intermediate diameter	Φ90
	Mounting flange inner diameter	Φ60 h7
	Upper step height	3
	Middle groove depth	8.5
	Upper section total height	26
	Overall height	72.5
	Middle section height	43.5
	Central boss height	10.5
	Lower section height	26
	Central hole longitudinal position	25
	Central hole transverse position	22.5
	Shaft hole diameter	Φ14 h6
	Bottom flange diameter	Φ115 h7

2D Drawing Dimensions & Callouts

VIEW	FIELD	VALUE
Mechanical View 2	Mounting hole bolt circle diameter and hole diameter	12 holes, Φ4.5 mm
	Outer circle diameter	Φ102 mm
	Threaded hole specification and counterbore depth	M5 threaded hole with 8 mm counterbore depth
	Shaft diameter with tolerance	Φ5 h8
	Shaft segment length or boss thickness	5 mm
	Total shaft segment length or overall boss width	16 mm
Mechanical View 3	Number and diameter of through holes	16 holes, φ4.5 mm
	Pitch circle diameter (PCD) for mounting holes	φ77 mm PCD
	Counterbore depth for through holes	▽15.5 mm
	Number and specification of threaded holes	16 threaded holes, M4
	Counterbore depth for M4 threaded holes	▽8.0 mm

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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.