PRODUCT DATASHEET

ES-HG-S09-F32-R50

Precision Transmission Component

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

Product Overview

Precision Transmission Component with rated Torque 99 N·m, instantaneous Maximum Torque 497 N·m and start/Stop Peak Torque 281 N·m.

Key Specifications

PARAMETER	VALUE	UNIT
Rated Torque	99	N·m
Instantaneous Maximum Torque	497	N·m
Start/Stop Peak Torque	281	N·m
Reduction Ratio	50	
Maximum Input Speed	4800	r/min
Allowable Average Torque	140	N·m
Backlash	≤20	arc sec
Frame Size	32	
Weight	4.2	kg

Technical Specifications

PARAMETER	SPECIFICATION	UNIT	NOTES
PERFORMANCE			
Rated Torque	99	N·m	Frame Size: 32; Reduction Ratio: 50; Size: 32
Instantaneous Maximum Torque	497	N·m	Frame Size: 32; Reduction Ratio: 50; Size: 32
Start/Stop Peak Torque	281	N·m	Frame Size: 32; Reduction Ratio: 50; Size: 32
Backlash	≤20	arc sec	Reduction Ratio: 50; Size: 32; Frame Size: 32
Allowable Average Torque	140	N·m	Frame Size: 32; Reduction Ratio: 50; Size: 32
Angular Transmission Accuracy	1	arcmin	Frame Size: 32; Reduction Ratio: 50; Size: 32
Hysteresis Loss	2	arcmin	Frame Size: 32; Reduction Ratio: 50; Size: 32
MECHANICAL			
Frame Size	32		Frame Size: 32; Reduction Ratio: 50; Size: 32
Weight	4.2	kg	Frame Size: 32; Reduction Ratio: 50; Size: 32

Technical Specifications

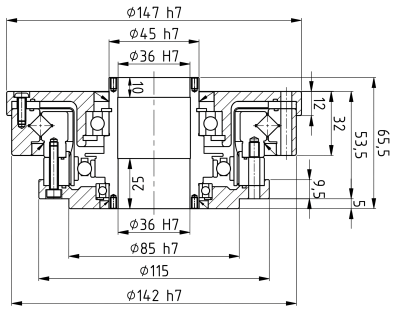
PARAMETER	SPECIFICATION	UNIT	NOTES
RELIABILITY			
Design Life	10000 / 15000	h	Frame Size: 32; Reduction Ratio: 50; Size: 32 / Frame Size: 32; Reduction Ratio: 50
ADDITIONAL SPECIFICATIONS			
Reduction Ratio	50		Frame Size: 32; Reduction Ratio: 50; Size: 32
Maximum Input Speed	4800	r/min	Frame Size: 32; Reduction Ratio: 50; Size: 32
Average Input Speed	3500	r/min	Frame Size: 32; Reduction Ratio: 50; Size: 32
Torsional Rigidity K2	7.8	×10⁴ N·m/rad	Frame Size: 32; Reduction Ratio: 50; Size: 32
Torsional Rigidity K1	5.4	×10⁴ N·m/rad	Frame Size: 32; Reduction Ratio: 50; Size: 32
Torsional Rigidity K3	9.8	×10⁴ N·m/rad	Frame Size: 32; Reduction Ratio: 50; Size: 32
Torsional Rigidity T2	108	N·m	Frame Size: 32; Reduction Ratio: 50; Size: 32
Torsional Rigidity T1	29	N·m	Frame Size: 32; Reduction Ratio: 50; Size: 32

Dimensional & Integration Overview

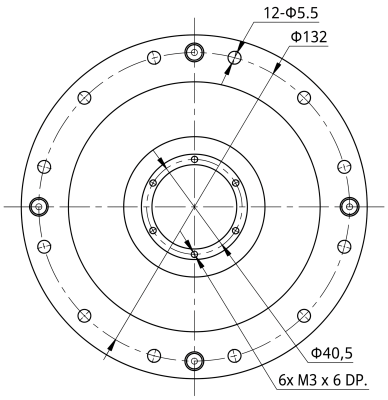
Mechanical Overview

PARAMETER	VALUE	UNIT
Frame Size	32	
Weight	4.2	kg

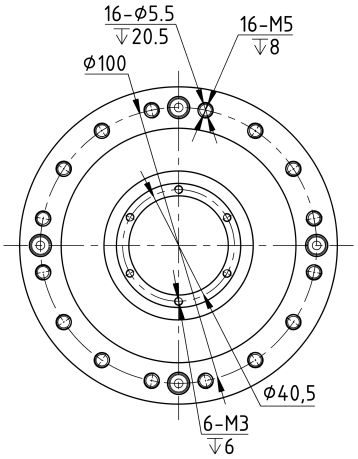
Dimensional Drawings



Mechanical View 1



Mechanical View 2



Mechanical View 3

2D Drawing Dimensions & Callouts

VIEW	FIELD	VALUE
Mechanical View 1	Overall outer diameter	Φ147 h7
	Inner shaft diameter (upper)	Φ45 h7
	Central bore diameter (upper)	Φ36 H7
	Mounting depth / flange height	10
	Mid-section height	25
	Central bore diameter (lower)	Φ36 H7
	Groove depth / step dimension	9.5
	Outer shaft diameter	Φ85 h7
	Intermediate outer diameter	Φ115
	Bottom outer diameter	Φ142 h7
	Small dimension marking	2
	Vertical dimension	32
		53.5
		65
Mechanical View 2	Flange mounting hole count and diameter	12 holes, Φ5.5 mm
	Mounting hole pitch circle diameter (PCD)	Φ132 mm PCD
	Center positioning hole diameter	Φ40.5 mm
	Threaded hole specification and depth	6 holes, M3 thread, 6 mm depth

2D Drawing Dimensions & Callouts

VIEW	FIELD	VALUE
Mechanical View 3	Hole diameter and quantity	16 holes, Φ5.5 mm
	Hole depth	Depth 20.5 mm
	Threaded hole specification and quantity	16 threaded holes, M5
	Threaded hole depth	Depth 8 mm
	Outer diameter	Φ100 mm
	Bolt circle diameter	Φ40.5 mm
	Inner threaded hole specification and quantity	6 threaded holes, M3
	Inner threaded hole depth	Depth 6 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.