PRODUCT DATASHEET

ES-HG-S09-F40-R80

Precision Transmission Component

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

Product Overview

Precision Transmission Component with rated Torque 268 N·m, instantaneous Maximum Torque 1270 N·m and start/Stop Peak Torque 675 N·m.

Key Specifications

PARAMETER	VALUE	UNIT
Rated Torque	268	N·m
Instantaneous Maximum Torque	1270	N·m
Start/Stop Peak Torque	675	N·m
Reduction Ratio	80	
Maximum Input Speed	4000	r/min
Allowable Average Torque	369	N·m
Backlash	≤20	arc sec
Frame Size	40	
Weight	7.2	kg

Technical Specifications

PARAMETER	SPECIFICATION	UNIT	NOTES
PERFORMANCE			
Rated Torque	268	N·m	Frame Size: 40; Reduction Ratio: 80; Size: 40
Instantaneous Maximum Torque	1270	N·m	Frame Size: 40; Reduction Ratio: 80; Size: 40
Start/Stop Peak Torque	675	N·m	Frame Size: 40; Reduction Ratio: 80; Size: 40
Backlash	≤20	arc sec	Reduction Ratio: 80; Size: 40; Frame Size: 40
Allowable Average Torque	369	N·m	Frame Size: 40; Reduction Ratio: 80; Size: 40
Angular Transmission Accuracy	1	arcmin	Frame Size: 40; Reduction Ratio: 80; Reduction Ratio Min: 50; Size: 40
Hysteresis Loss	1	arcmin	Frame Size: 40; Reduction Ratio: 80; Reduction Ratio Min: 50; Size: 40
MECHANICAL			
Frame Size	40		Frame Size: 40; Reduction Ratio: 80; Size: 40
Weight	7.2	kg	Frame Size: 40; Reduction Ratio: 80; Size: 40

Technical Specifications

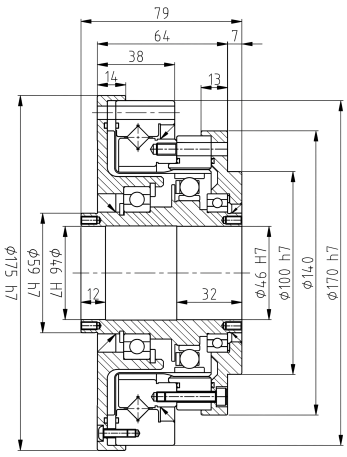
PARAMETER	SPECIFICATION	UNIT	NOTES
RELIABILITY			
Design Life	15000	h	Frame Size: 40; Reduction Ratio: 80; Size: 40
ADDITIONAL SPECIFICATIONS			
Reduction Ratio	80		Frame Size: 40; Reduction Ratio: 80; Size: 40
Maximum Input Speed	4000	r/min	Frame Size: 40; Reduction Ratio: 80; Size: 40
Average Input Speed	3000 / 3500	r/min	Frame Size: 40; Reduction Ratio: 80; Size: 40 / Frame Size: 40; Reduction Ratio: 80
Torsional Rigidity K2	20	×10⁴ N·m/rad	Frame Size: 40; Reduction Ratio: 80; Reduction Ratio Min: 50; Size: 40
Torsional Rigidity K1	13	×10⁴ N·m/rad	Frame Size: 40; Reduction Ratio: 80; Reduction Ratio Min: 50; Size: 40
Torsional Rigidity K3	23	×10⁴ N·m/rad	Frame Size: 40; Reduction Ratio: 80; Reduction Ratio Min: 50; Size: 40
Torsional Rigidity T2	196	N·m	Frame Size: 40; Reduction Ratio: 80; Reduction Ratio Min: 50; Size: 40
Torsional Rigidity T1	54	N·m	Frame Size: 40; Reduction Ratio: 80; Reduction Ratio Min: 50; Size: 40

Dimensional & Integration Overview

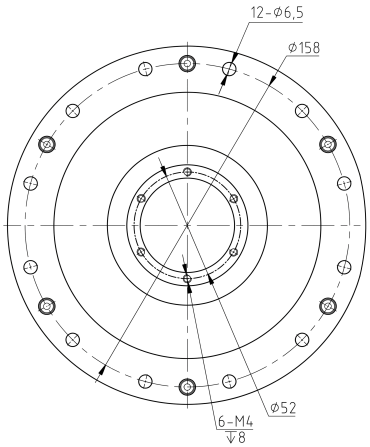
Mechanical Overview

PARAMETER	VALUE	UNIT
Frame Size	40	
Weight	7.2	kg

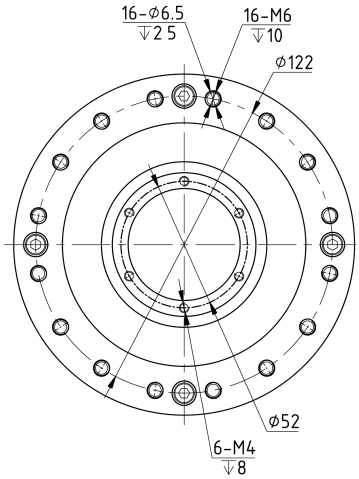
Dimensional Drawings



Mechanical View 1



Mechanical View 2



Mechanical View 3

2D Drawing Dimensions & Callouts

VIEW	FIELD	VALUE
Mechanical View 1	Overall width	79 mm
	Intermediate step width	64 mm
	Inner step width	38 mm
	Right minor step width	7 mm
	Right step dimension	13 mm
	Left inner step depth	14 mm
	Central axial dimension	32 mm
	Lower step axial dimension	12 mm
	Outer diameter max with tolerance	Φ175 h7
	Second outer diameter with tolerance	Φ59 h7
	Left bore diameter with fit	Φ46 H7
	Right bore diameter with fit	
	Right mid outer diameter with tolerance	Φ100 h7
	Right large outer diameter with tolerance	Φ170 h7
	Flange intermediate circle diameter	Φ140

2D Drawing Dimensions & Callouts

VIEW	FIELD	VALUE
Mechanical View 2	12 evenly distributed mounting holes diameter	12 holes, Φ6.5 mm
	Outer flange diameter	Φ158 mm
	Center pilot bore diameter	Φ52 mm
	6 threaded holes M4	6 holes, M4 thread
	Threaded hole depth	8 mm depth
Mechanical View 3	Outer mounting hole pattern (quantity and diameter)	16 holes, φ6.5 mm
	Outer mounting hole pattern (quantity and thread)	16 holes, M6 thread
	Outer mounting hole counterbore depth	Counterbore depth 25 mm
	Outer mounting hole depth	Hole depth 10 mm
	Outer diameter	φ122 mm
	Center mounting hole diameter	φ52 mm
	Inner mounting hole pattern (quantity and thread)	6 holes, M4 thread
	Inner mounting hole counterbore depth	Counterbore depth 8 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.