PRODUCT DATASHEET

ES-HG-S18-F32-R160

Precision Transmission Component

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

Product Overview

Precision Transmission Component with rated Torque 178 N·m, instantaneous Maximum Torque 892 N·m and start/Stop Peak Torque 484 N·m.

Key Specifications

PARAMETER	VALUE	UNIT
Rated Torque	178	N·m
Instantaneous Maximum Torque	892	N·m
Start/Stop Peak Torque	484	N·m
Reduction Ratio	160	
Backlash	≤20	arc sec
Maximum Input Speed	4800	r/min
Allowable Average Torque	281	N·m
Frame Size	32	
Weight	2.7	kg

Technical Specifications

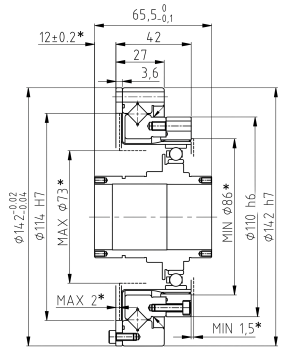
PARAMETER	SPECIFICATION	UNIT	NOTES
PERFORMANCE			
Rated Torque	178	N·m	Frame Size: 32; Reduction Ratio: 160; Size: 32
Instantaneous Maximum Torque	892	N·m	Frame Size: 32; Reduction Ratio: 160; Size: 32
Start/Stop Peak Torque	484	N·m	Frame Size: 32; Reduction Ratio: 160; Size: 32
Backlash	≤20	arc sec	Frame Size: 32; Reduction Ratio: 160; Size: 32
Allowable Average Torque	281	N·m	Frame Size: 32; Reduction Ratio: 160; Size: 32
MECHANICAL			
Frame Size	32		Frame Size: 32; Reduction Ratio: 160; Size: 32
Weight	2.7	kg	Frame Size: 32; Reduction Ratio: 160; Size: 32
RELIABILITY			
Design Life	15000	h	Frame Size: 32; Reduction Ratio: 160; Size: 32
CONFIGURATION			
Variant Style	Simple Integrated Hollow-Shaft Type		Frame Size: 32; Reduction Ratio: 160
Unit Structure	Complete Unit		Frame Size: 32; Reduction Ratio: 160
Series Family	High-Torque Hat-Type Harmonic Gear Series		Frame Size: 32; Reduction Ratio: 160
ADDITIONAL SPECIFICATIONS			
Reduction Ratio	160		Frame Size: 32; Reduction Ratio: 160; Size: 32
Maximum Input Speed	4800	r/min	Frame Size: 32; Reduction Ratio: 160; Size: 32
Average Input Speed	3500	r/min	Frame Size: 32; Reduction Ratio: 160; Size: 32
Angle Transmission Accuracy	1	arcmin	Frame Size: 32; Reduction Ratio Min: 50; Size: 32
Torsional Rigidity K2	11	×10⁴ N·m/rad	Frame Size: 32; Reduction Ratio: 160; Rigidity Scope: reduction ratio above 50; Size: 32
Torsional Rigidity K1	6.7	×10⁴ N·m/rad	Frame Size: 32; Reduction Ratio: 160; Rigidity Scope: reduction ratio above 50; Size: 32
Torsional Rigidity K3	12	×10⁴ N·m/rad	Frame Size: 32; Reduction Ratio: 160; Rigidity Scope: reduction ratio above 50; Size: 32
Torsional Rigidity T2	108	N·m	Frame Size: 32; Rigidity Scope: all reduction ratios; Size: 32
Hysteresis Loss	1	arcmin	Frame Size: 32; Reduction Ratio Min: 50; Size: 32
Torsional Rigidity T1	29	N·m	Frame Size: 32; Rigidity Scope: all reduction ratios; Size: 32
Starting Torque	15	N·m	Frame Size: 32; Reduction Ratio: 160; Size: 32

Dimensional & Integration Overview

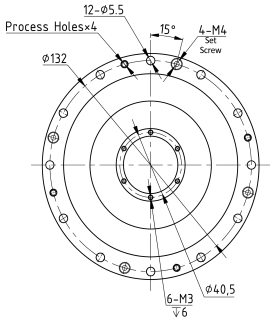
Mechanical Overview

PARAMETER	VALUE	UNIT
Frame Size	32	
Weight	2.7	kg

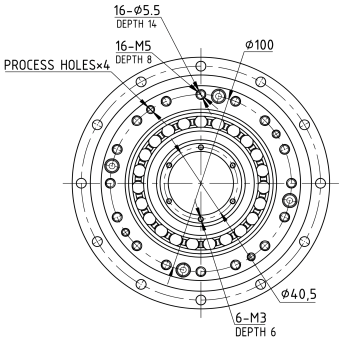
Dimensional Drawings



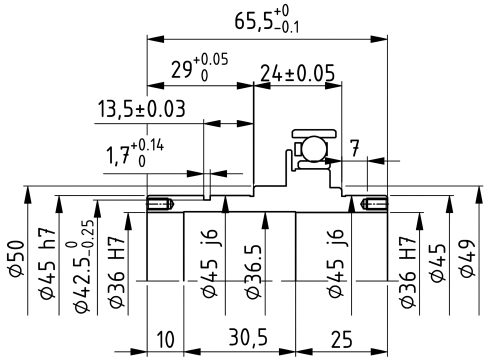
Mechanical View 1



Mechanical View 2



Mechanical View 3



Mechanical View 4

2D Drawing Dimensions & Callouts

VIEW	FIELD	VALUE
Mechanical View 1	Overall length	65.5 +0/-0.1
	Left offset distance	12 ±0.2, marked with asterisk
	Upper horizontal span	42
	Internal horizontal span	27
	Local clearance or step dimension	3.6
	Bore diameter fit	Diameter 114 H7
	Outside diameter with tolerance	Diameter 142 -0.02/-0.04
	Maximum outside diameter	Maximum diameter 73, marked with asterisk
	Minimum diameter	Minimum diameter 86, marked with asterisk
	Shaft diameter fit	Diameter 110 h7
	Diameter fit dimension	Diameter 142 h7
	Maximum clearance or protrusion	Maximum 2, marked with asterisk

2D Drawing Dimensions & Callouts

VIEW	FIELD	VALUE
Mechanical View 2	12 hole diameter callout	12 holes, diameter 5.5 mm
	process hole quantity	Process holes x4
	hole angular spacing or offset	15 degrees
	set screw thread callout	4 x M4 set screws
	outer diameter	Diameter 132 mm
	inner circular feature diameter	Diameter 40.5 mm
	M3 threaded hole callout with depth indication	6 x M3 threaded holes, depth/feature value 6 mm
Mechanical View 3	16 countersunk/counterbored process hole diameter	16 holes, diameter 5.5, depth 14
	16 M5 threaded holes	16 threaded holes M5, depth 8
	Process hole quantity	Process holes quantity 4
	Outer diameter	Diameter 100
	Circular feature diameter	Diameter 40.5
	6 M3 threaded holes	6 threaded holes M3, depth 6

2D Drawing Dimensions & Callouts

VIEW	FIELD	VALUE
Mechanical View 4	Overall length with tolerance	65.5 +0.000/-0.100 mm
	Shoulder/step length with upper tolerance	29 +0.050/0.000 mm
	End section length with bilateral tolerance	24 ±0.050 mm
	Mounting/locating length with bilateral tolerance	13.5 ±0.030 mm
	Small step/shoulder length with upper tolerance	1.7 +0.140/0.000 mm
	Local/detail dimension	7 mm
	Outer diameter	Ø50 mm
	Shaft journal diameter with h7 fit tolerance	Ø45 h7 mm
	Shaft diameter with unilateral tolerance	Ø42.5 +0.000/-0.250 mm
	Bore diameter with H7 fit tolerance (left)	Ø36 H7 mm
	Bore diameter with H7 fit tolerance (right)	
	Shaft diameter with j6 fit tolerance (left-center)	Ø45 j6 mm
	Inner bore diameter	Ø36.5 mm
	Bottom axial length (left section)	10 mm
	Bottom axial length (center section)	30.5 mm
	Bottom axial length (right section)	25 mm
	Shaft diameter with j6 fit tolerance (right-center)	Ø45 j6 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.