PRODUCT DATASHEET

ES-HG-S10-F20-R120

Precision Transmission Component

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

Product Overview

Precision Transmission Component with rated Torque 52 N·m, instantaneous Maximum Torque 191 N·m and start/Stop Peak Torque 113 N·m.

Key Specifications

PARAMETER	VALUE	UNIT
Rated Torque	52	N·m
Instantaneous Maximum Torque	191	N·m
Start/Stop Peak Torque	113	N·m
Reduction Ratio	120	
Maximum Input Speed	6500	r/min
Allowable Average Torque	64	N·m
Backlash	≤20	arc sec
Frame Size	20	
Weight	1.29	kg

Technical Specifications

PARAMETER	SPECIFICATION	UNIT	NOTES
PERFORMANCE			
Rated Torque	52	N·m	Frame Size: 20; Reduction Ratio: 120; Size: 20
Instantaneous Maximum Torque	191	N·m	Frame Size: 20; Reduction Ratio: 120; Size: 20
Start/Stop Peak Torque	113	N·m	Frame Size: 20; Reduction Ratio: 120; Size: 20
Backlash	≤20	arc sec	Reduction Ratio: 120; Size: 20; Frame Size: 20
Allowable Average Torque	64	N·m	Frame Size: 20; Reduction Ratio: 120; Size: 20
Starting Torque	9.3 / 0.093	N·m	Frame Size: 20; Reduction Ratio: 120; Size: 20 / Reduction Ratio: 120; Size: 20; Frame Size: 20
Angular Transmission Accuracy	1	arcmin	Frame Size: 20; Reduction Ratio: 120; Reduction Ratio Min: 50; Size: 20
Hysteresis Loss	1	arcmin	Frame Size: 20; Reduction Ratio: 120; Reduction Ratio Min: 50; Size: 20
MECHANICAL			
Frame Size	20		Frame Size: 20; Reduction Ratio: 120; Size: 20
Weight	1.29	kg	Frame Size: 20; Reduction Ratio: 120; Size: 20

Technical Specifications

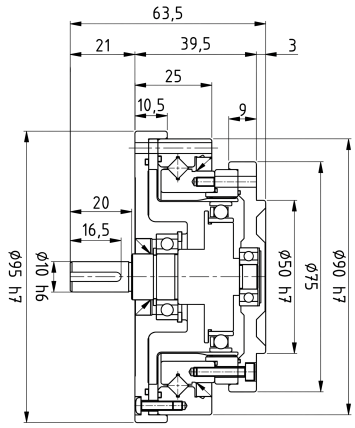
PARAMETER	SPECIFICATION	UNIT	NOTES
RELIABILITY			
Design Life	15000	h	Frame Size: 20; Reduction Ratio: 120; Size: 20
ADDITIONAL SPECIFICATIONS			
Reduction Ratio	120		Frame Size: 20; Reduction Ratio: 120; Size: 20
Maximum Input Speed	6500	r/min	Frame Size: 20; Reduction Ratio: 120; Size: 20
Average Input Speed	3500	r/min	Frame Size: 20; Reduction Ratio: 120; Size: 20
Torsional Rigidity K2	2.5	$\times 10^4$ N·m/rad	Frame Size: 20; Reduction Ratio: 120; Reduction Ratio Min: 50; Size: 20
Torsional Rigidity K1	1.6	$\times 10^4$ N·m/rad	Frame Size: 20; Reduction Ratio: 120; Reduction Ratio Min: 50; Size: 20
Torsional Rigidity K3	2.9	$\times 10^4$ N·m/rad	Frame Size: 20; Reduction Ratio: 120; Reduction Ratio Min: 50; Size: 20
Torsional Rigidity T2	25	N·m	Frame Size: 20; Reduction Ratio: 120; Reduction Ratio Min: 50; Size: 20
Torsional Rigidity T1	7	N·m	Frame Size: 20; Reduction Ratio: 120; Reduction Ratio Min: 50; Size: 20

Dimensional & Integration Overview

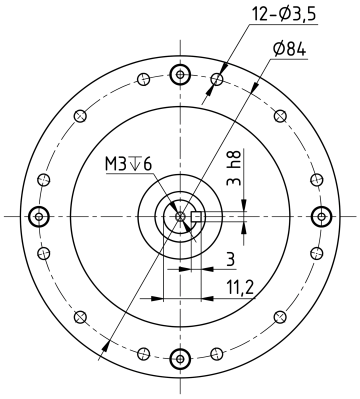
Mechanical Overview

PARAMETER	VALUE	UNIT
Frame Size	20	
Weight	1.29	kg

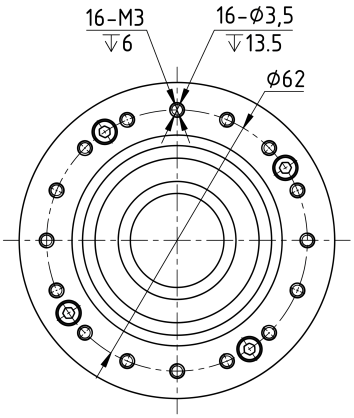
Dimensional Drawings



Mechanical View 1



Mechanical View 2



Mechanical View 3

2D Drawing Dimensions & Callouts

VIEW	FIELD	VALUE
Mechanical View 1	Overall length	63.5 mm
	Intermediate axial length	39.5 mm
	Left axial segment length	21 mm
	Right end axial offset	3 mm
	Internal axial distance	25 mm
	Local axial length	10.5 mm
	Right local axial width	9 mm
	Lower axial length	20 mm
	Lower local axial length	16.5 mm
	Right outer diameter fit	Diameter 90 mm, tolerance h7
	Left small shaft diameter fit	Diameter 10 mm, tolerance h6
	Left outer diameter fit	Diameter 95 mm, tolerance h7
	Middle outer diameter fit	Diameter 50 mm, tolerance h7
	Middle diameter	Diameter 75 mm

2D Drawing Dimensions & Callouts

VIEW	FIELD	VALUE
Mechanical View 2	Number and diameter of equally spaced holes	12 holes, diameter 3.5
	Bolt circle diameter	Diameter 84 bolt circle
	M3 hole with triangular depth/countersink callout	M3 with ▽6 callout
	Keyway width tolerance	Width 3 h8
	Keyway local dimension	3
	Keyway related dimension	11.2
Mechanical View 3	Threaded mounting holes and depth	16 × M3 threaded holes, depth 6
	Hole diameter and depth	16 × diameter 3.5 holes, depth 13.5
	Bolt circle diameter	Bolt circle diameter 62

View Product Online Request Engineering Data Request a Quote

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.