up to 50.000 Nm
1 Channel

F3i S

Torquemeter

with integrated evaluation unit

Description

The new F3i S torque measurement system represents a further development of the GIF torque-meter model family. The appropriate evaluation unit is now integrated in the stator. With the exception of a 24VDC power supply no external components are required for operation. A high end temperature compensation guarantees a very good stability and repeatability of the output signals. The customer interface is very flexible, due to the availibility of multiple outputs.

Significant technical data

- Bearingless torque flange with IR-signal transmission
- Evaluation unit integrated in stator
- High overload capability
- Active temperature compensation to reduce temperature effect on zero balance
- Accuracy 0.1
- Optical speed encoder 1000 ppr (Option)
- Fits to cardan shaft types 228 and 587
- Compact design
- Transmission of characteristic values

GESELLSCHAFT FÜR
INDUSTRIEFORSCHUNG MBH
Konrad-Zuse-Str. 3
D - 52477 Alsdorf / Germany
Tel.: +49 (0)2404-9870-570
Fax: +49 (0)2404-9870-59
www.gif.net
info@gif.net

Rated torque T_r	Nm	≤50,000
Overload capability torsional shaft	Nm	$5T_r$
Accuracy including hysteresis and nonlinearity	% F.S.	<±0.1
Temperature effect on zero	% F.S./10K	<±0.1
Operating temperature range	°C	0...+70
Maximum speed	rpm	5,000

Technical Data Torquemeter Type F3i S

TORQUEMETER		
Rated torque nominal T_r	Nm	≤50,000
Torque limit of torque shaft related to T_r	Nm	>5T_r
Maximum speed	rpm	5,000
Nonlinearity and hysteresis related to T_r	%	<±0.1
Temperature effect on zero per 10K related to T_r	%	<±0.1
Nominal temperature range	°C	0...+70
Operating temperature range	°C	-10...+80

OUTPUT SPECIFICATION TORQUE		
Frequency output	kHz	60 ± 20
Dynamic response up to	kHz	2
Analog output voltage	V DC	+/- 10
Analog output current	mA	0...20 / 4...20
Conversion rate / resolution	MV/s	1,000 with 16bit
Shunt calibration	-	approx. 30% of T_r

OUTPUT SPECIFICATION SPEED

ADDITIONAL INTERFACES / FEATURES		
Serial interface RS232	Baud	19,200
CAN Bus		CAN2B up to 1 MBit
Status output	additional control line, assignable with status signal	
Remote via additional control line		

MECHANICAL DATA		
Weight (rotor) at 10,000 Nm	kg	approx. 45
Inertia (rotor) at 10,000 Nm	gm²	approx. 584
Twist angle at 10,000 Nm	grad	0.0048
Torsional stiffness	kNm/rad	36,700
Coupling mass (typ.)	kg	3500

OPTIONS		
Nonlinearity and hysteresis related to T_r	%	<±0.05
Temperature effect on zero per 10K related to T_r	%	<±0.05
High resolution optical speed encoder with 1,000 ppr (2 tracks)		

Order Number

F3i S-1000-1024-KLN

Type

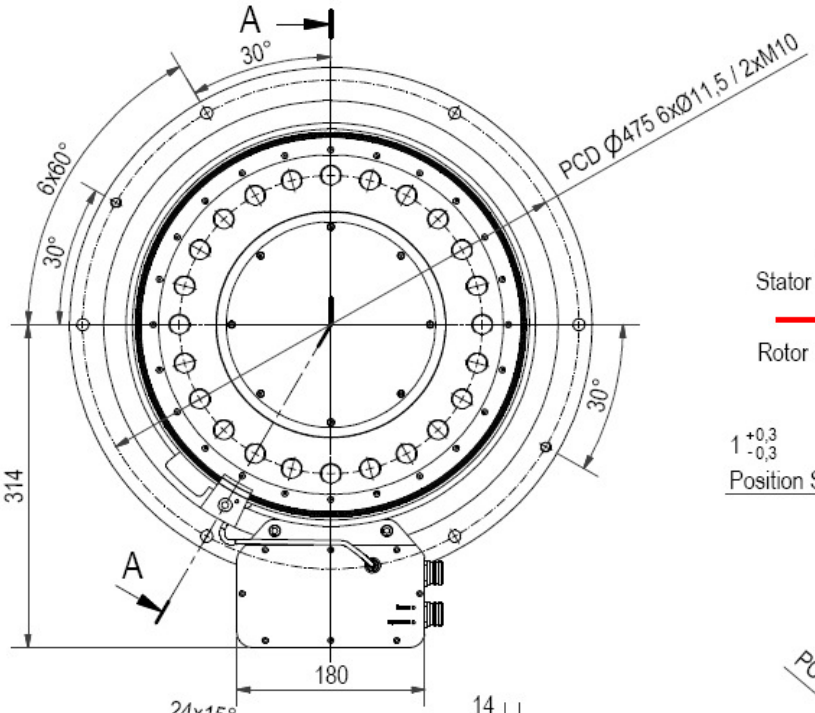
Rated torque

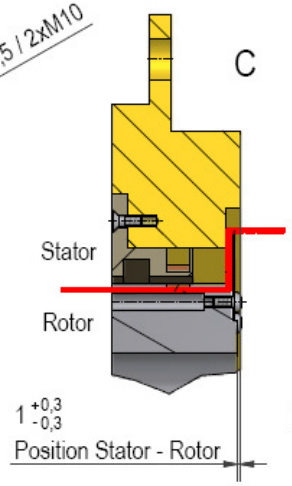
P-1,000 Pulses per rev

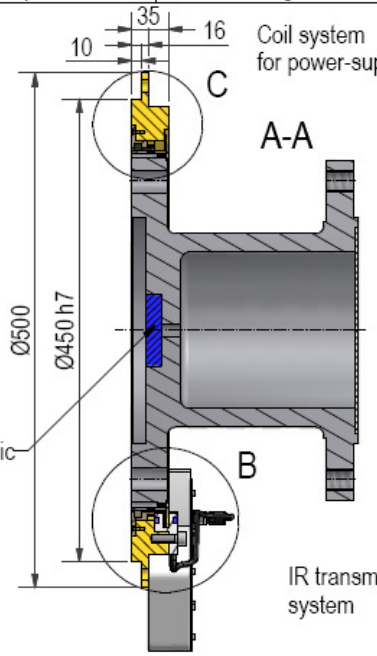
K-Nominal temperature range 0...+70 °C
S-Temperature range -25...+125 °C

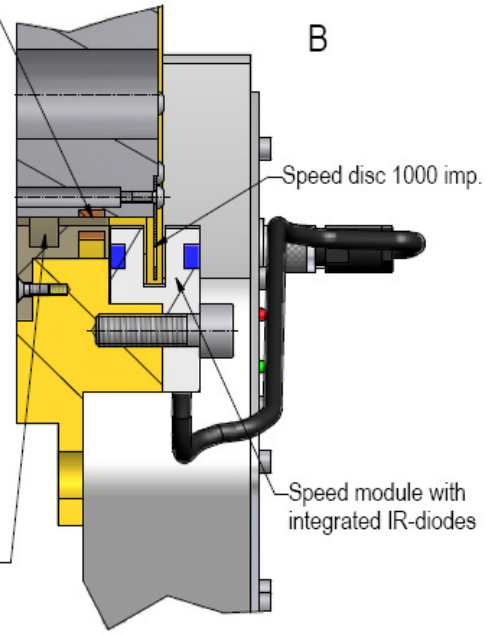
L-Speed limit up to 0-4,500 rpm
H-Speed limit up to 0-6,000 rpm

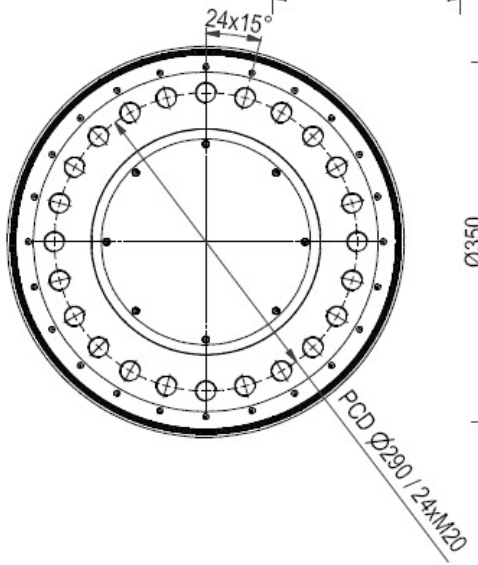
N-Accuracy 0.1
X-Accuracy 0.05

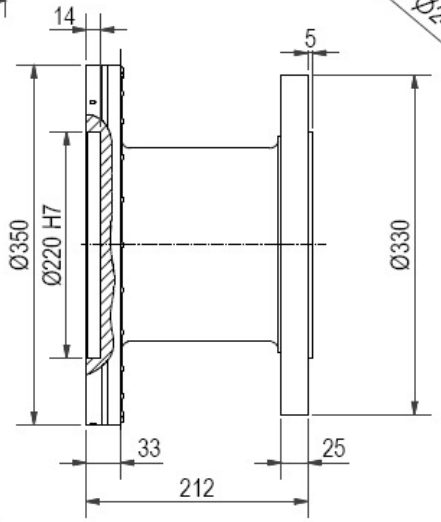


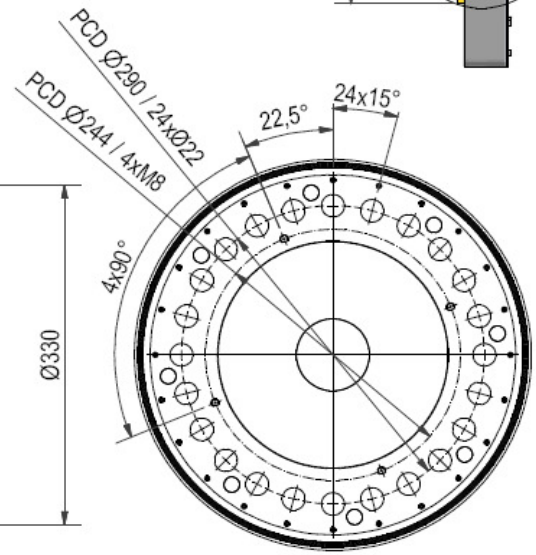


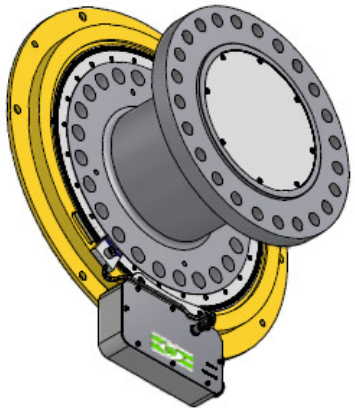












Distances to be kept between rotor and stator:
with speed encoder: radial +/-1mm / axial +/-1mm
without speed encoder: radial +/-1,5mm / axial +/-2mm

				Allgemeintoleranz DIN ISO 2768 - m		Oberfläche DIN ISO 1302	Maßstab / Position / Menge
Projekt					Datum	Name	F3iS 50kNm with optical speed detection 1000imp
Rev. No.	GF070308L1-DE			Bearb.	07.03.2008	RL	composition
				Gepr.			
				Norm			
Zulieferer							

GIF - Gesellschaft für Industrieforschung mbH
Konrad-Zuse-Str. 3
52477 Alsdorf
Tel.: 02404-9870-570 Fax: 02404-9870-59

GF070308L1-DE

Blatt A3

EDV Nr. F3iS Zusammenstellung 30kNm mit opt Drehzahl.idw

Installation Example

This application example shows the compact torque measuring system directly mounted to the dynamometer. Up to the torque limit (Tr) all ranges are covered by identical flange dimensions.