GRC

A member of ATESTEO Group

ATESTEO

Innovative Testing Equipment

Series DF torque sensors

The DF sensor

ATESTEO is the leading specialist for drivetrain testing combined with component validation, vehicle measurement technology, and engineering services. Internationally, we are among the number one partners of the automotive and automotive supply industries. With the considerable specialist expertise of our employees in operative testing and pre- and post-processing, transmissions and products are reliably validated. ATESTEO is everywhere where transmission development takes place in the automotive industry. More than 150 test benches in Germany and China, as well as representative offices in the USA and Japan, enable our smoothly accomplishing your measurement, technical testing, and analytic tasks at any time.

With the DF series, ATESTEO offers you a new generation of highly available torque measuring flanges that enable the set-up and operation of test benches. The DF sensor is highly accurate and resistant to rotational speed. The signals from the flange serve to control the test bench and to analyse the components. Owing to its wide assortment of analog and digital outputs and two calibrated measurement ranges which are separate from each other and also compensated for, the flange is highly flexible. This renders various reconfiguration work unnecessary, which in turn reduces idle time, leading to higher utilisation of test benches.

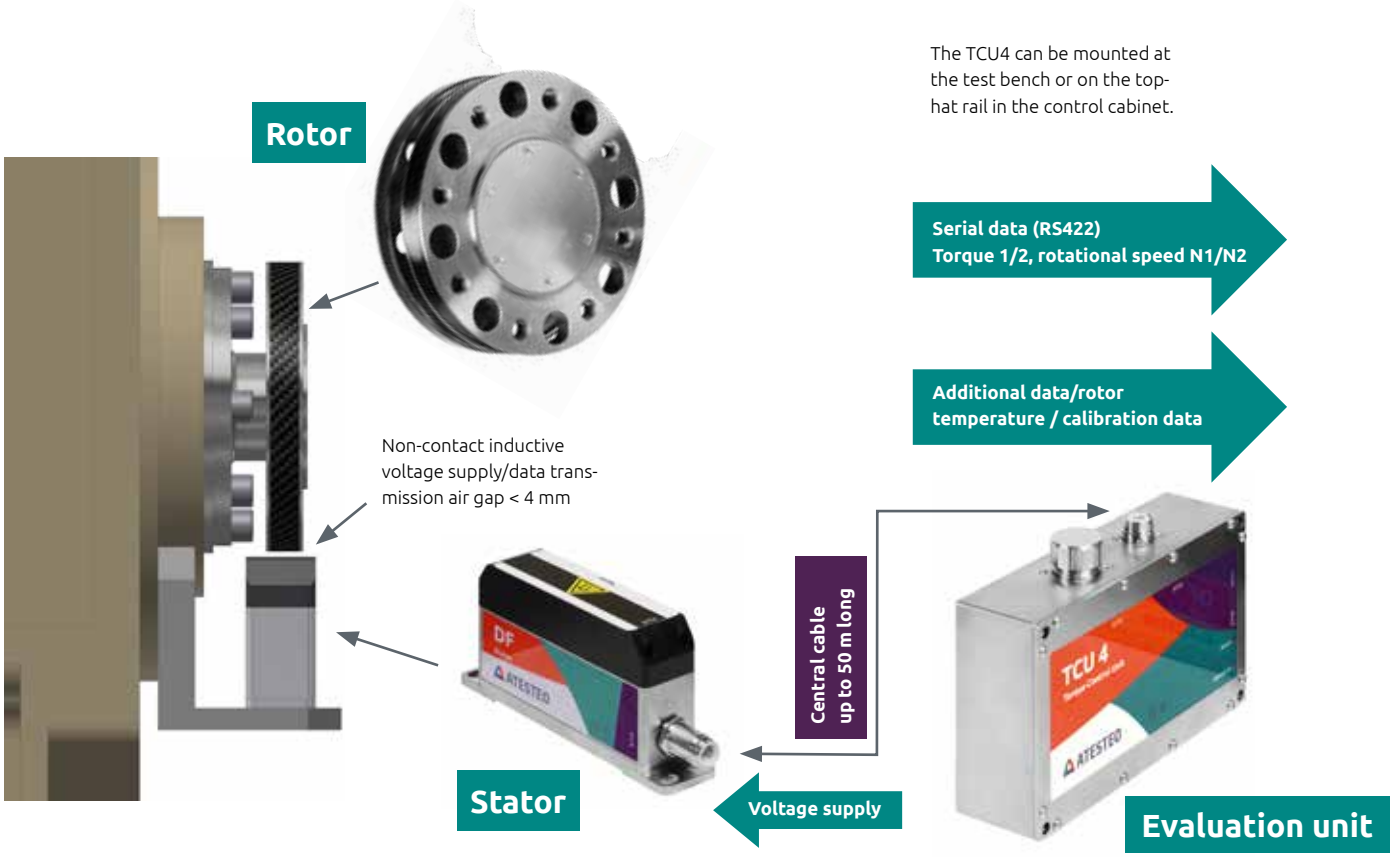
- Simple configuration via web interface reduces set-up time at the test bench.
- Digital multichannel telemetry permits an extremely wide bandwidth of measurement arrangements.
- Innovative measuring element increases the spectrum of installation possibilities.
- Two genuine strain gauge amplifiers in the rotor electronics offer two independent measurement value captures in parallel.
- To control the measurement system, an overload channel and the rotor temperature are transmitted as well.

Features:

- DIN flange dimensions combined with a compact design.
- Inline concept: The one-sided hollow measuring element is installed on the drive shaft close to the engine. This permits deactivation of critical operating parameters such as “connectable mass” or limiting speeds.
- The overall installation of the measuring system and exchange of individual components is very easy owing to the lack of a stator ring and the broad positioning distance between the rotor and stator head. The analysis unit needed to operate the measuring system makes all interfaces available for convenient and timely processing of the measurement data.
- Extension of the dual range measurement flange to a torque ratio of up to 1:5 through a largely free design of the torque measuring element without affecting its mechanical properties.
- Extensive diagnostics possibilities: Over Ethernet and CAN, rotor temperature and overload torque values can be output at up to 300% over the rated range.

Interfaces:	The DF series torque sensors by the numbers:
Ethernet (10/100 Mbit)	Maximum speeds of up to 25,000 rpm
CAN 2.0 (111 bit, up to 1 kHz)	Accuracy class: 0.04 % F.S. (optional: 0.03 %)
Analog output: 0–5 V, 0–10 V, ±5 V, ±10 V	A/D converter: 24 bit
Frequency output: 10±5 kHz, 60±20 kHz, 60±30 kHz, 240±120 kHz	D/A for analog output: 16 bit
Optional power output: 4–20 mA	Total sampling rate: 25 kHz
Optional magnetic speed sensor	Operating temperature range: 0…85 °C
	Rated gap distance < 4 mm (distance between rotor and stator)
	Limit torque: 300 %
	Custom measuring ranges on request

Mechanical design



The mechanical design of the DF torque sensor makes it easy to use. There is only one stator, which is used for all sizes of rotor. When exchanging a rotor of the same or a different size, the available stator may be reused. The calibration data are stored in the rotor. The ringless construction of the stator, which permits a larger air gap, simplifies its installation on the engine.

INLINE DF1
50–500 Nm
PCD 84

INLINE DF2
200 Nm–1 kNm
PCD 101.5

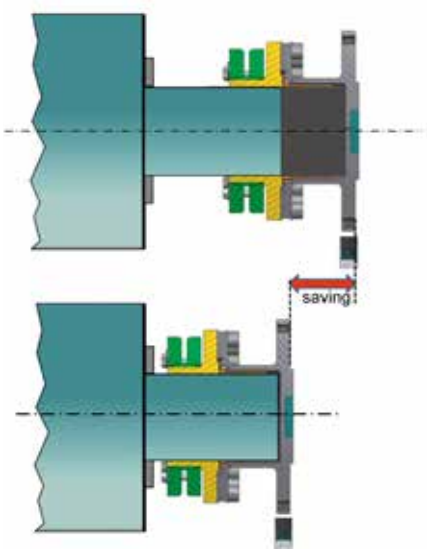
INLINE DF3
1–3 kNm
PCD 130

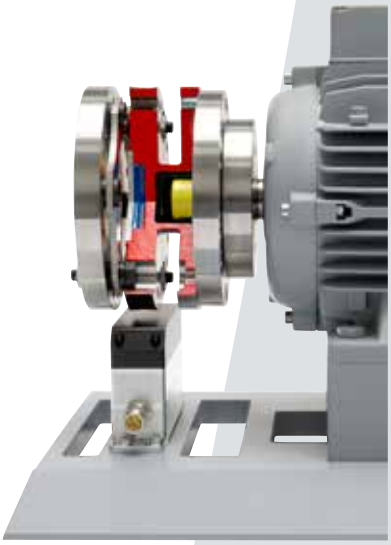
INLINE DF4
4–5 kNm
PCD 155.5

INLINE DF5
5–10 kNm
PCD 196

Your advantage: the inline concept

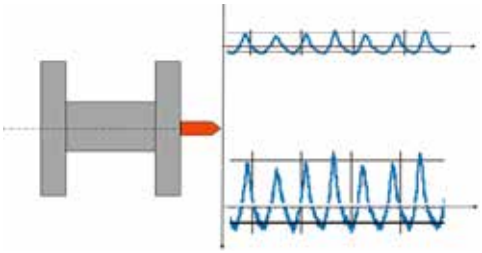
The unique advantage of the DF torque flange lies in its innovative measuring element. Designed as a one-sided hollow shaft torque transducer, it can be completely directly positioned on a cylindrical drive shaft. Thus, critical operating parameters of the dynamometer, such as radial load and maximum rotation, are greatly improved.



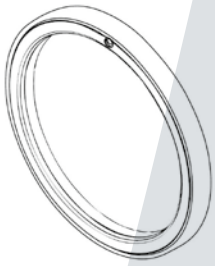


Options for adaptation to your test bench

The DF series has two real measurement ranges. The signals are processed and then compensated for over two separate amplifiers. Each range is individually calibrated.



For measurements and control, the DF series may be equipped with a high-resolution magnetic rotational speed measurement system. For control, several additional alarm outputs are available.



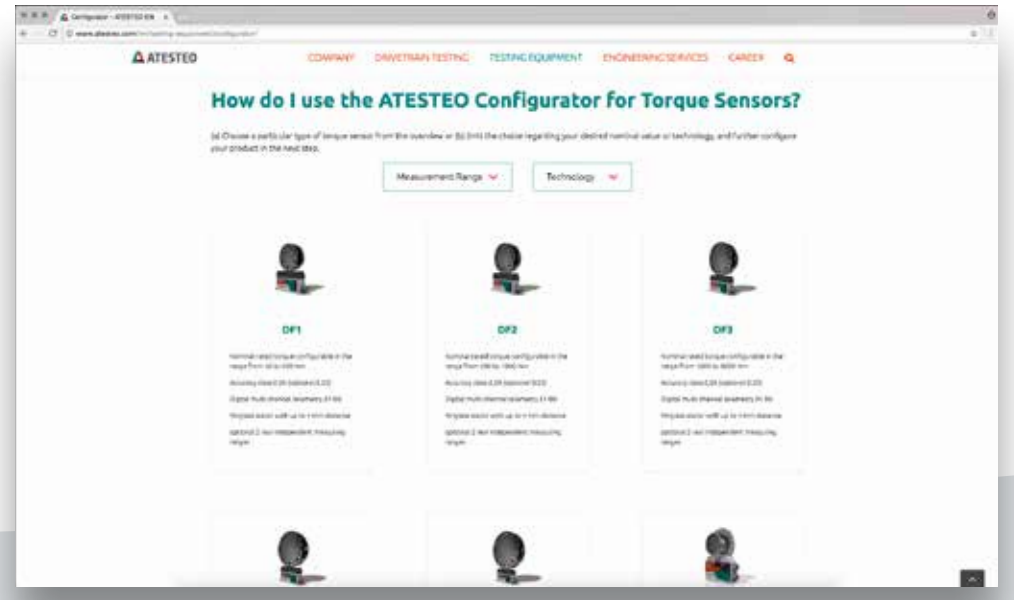
For mechanical integration, there is a choice of customized couplings or adapters for adaptation to the shaft, along with brackets for installation on the electric motor.

Web Interface

The DF series features a web interface that can be opened by a standard web browser and which assists in configuring (for example, the CAN output) and controlling the measured values.

Configurator

Products and options in the DF series may easily be selected with the configurator. For the chosen configuration, technical documents such as data sheets, drawings, or operating instructions are made available to download.



http://www.atesteo.com/en/testing-equipment/configurator/

Manufacturing and calibration laboratory

The DF series torque sensors are all developed and produced at ATESTEO in Germany. That we execute so many steps in house – from the mechanical machining and assembly to final testing and calibration – means consistently high quality made in Germany.

In addition, our DAkkS-accredited calibration laboratory offers a factory calibration service and calibration according to DIN 51309.

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ISO 14001:2015

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Would you like to know more about the innovative technology and the many advantages of our DF series torque sensors for your measurement challenges? Then call us at +86 512 6289 6069 or send us email to info@atesteo.cn.com. Your personal ATESTEO contact will be pleased to assist you.

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