

The solution to your torque measuring needs



Torductor[®]-S

- Robust and durable
- True non-contact measurement
- Compact design
- Developed for volume production

The Torductor®-S is the ideal choice for torque measurement in areas where cost and reliability used to make this impossible.

Automotive Production Cars <u>Trucks</u> <u>Motorsport</u> <u>Industry</u> <u>Nutrunners</u> <u>Aerospace</u> <u>Pumps</u> <u>Other</u>



<u>The Torductor®-S</u> represents unbeatable transducer performance, thanks to its unique combination of accuracy, overload capacity and ability to withstand harsh environments.

ABB

ABB Force Measurement provides accurate and reliable equipment for measurement and control in a broad range of applications These include heavy steel making and paper converting. With a working experience and knowledge of over 40 years in industrial force measurement, ABB is the unrivalled market leader in this field.

We work closely with our customers and with other partners to develop tailor-made solutions to suit specific requirements suitable for volume production.



A major feature of Torductor®-S load cells is the ability to operate in hostile environments with a high degree of accuracy and long term stability due to the robust design and high output signal.

Automotive

Lower Emission

Increasing demands on performance and fuel efficiency stress the need for a precise control of the combustion process. With the Torductor[®]-S a sensor is finally available that measures the actual mechanical output of the engine. This gives the engine management system direct insight to the operation of the engine and a measure independent of wear and other uncertainties of engine components, including the fuel itself.

Improve Gearshifts

In the transmission the Torductor[®]-S can be used to monitor and control transients and oscillations due to backlash and wheel slip. It is an excellent tool to optimize the speed and comfort levels of gearshifts.



Another effective use of the torque sensor is as an overload protection, eliminating the need for overdesign of transmission components.



Proven Technology

The Torductor[®]-S can be applied in production cars and trucks and also provide the cutting edge over the competition in motorsport. The Torductor[®]-S has been proven in close cooperation with many of the major car manufacturers.

The Torductor[®]-S is the ideal choice for the highly stressed gearbox input shaft in Formula 1, with rotational speeds of 18,000 rpm and temperatures in excess of 200°C.

Using the Torductor[®]-S to monitor gearshifts will provide critical information that will improve both comfort levels and shift speed.







Engine Performance

The Torductor®-S not only measures the overall torque, but also subtle changes in torque during individual combustions. This makes it capable of engine diagnostics such as misfire detection and control of cylinder balance. It can also be used for calibration of the engine output and to alert the driver at an early stage of engine malfunction.

Power Steering

The feel and performance of an electric or semi-electric power steering system is highly dependent on the characteristics of the torque sensor. The Torductor®-S exhibits features such as high overload capacity and noncompliance, which are essential for a distinct and quick response of the system.

Industry

Other Applications



In a pulse nutrunner, the Torductor[®]-S can give a direct indication of the tightening torque.

Several industrial processes use torque on a rotating shaft as a primary means of operation. Although torque is the desired quantity, only indirect means are usually available to measure the torque, such as motor current, air pressure, or reaction force. The compact dimensions of the Torductor®-S allow installation directly in the power train of the machinery, without the need for major modifications.

Nutrunners

In handheld tools such as pulse nutrunners, ²¹ the Torductor[®]-S can be installed on the output shaft, thereby directly measuring the actual tightening torque. The compact and flexible design of the sensor allows for an integration appropriate to endure the vibrations within the tool. The fast response of the sensor ensures an accurate measure of the short torque pulses.

Aerospace

The aerospace industry, with high demands on performance and reliability, make the Torductor[®]-S well suited for torque measuring applications in this area. The temperature durability of the sensor makes it possible to integrate in close vicinity to the combustion chamber. With actual torque data, wear on engine parts can be monitored and lifetime calculations can be performed.



The Torductor[®]-S is also used in various other applications where torque is a desired measure. For bicycles, where torque sensors have not been used due to size or cost, the Torductor[®]-S is the ideal choice.

With the compact design of the sensor it can be installed inside the bottom bracket of a standard bicycle, where it continuously measures the effort of the cyclist on the road. In power assisted bicycles the torque signal can be used for a true correlation of the pedaling effort of the cyclist to the power output of the motor.



The Torductor[®]-S fits easily inside the bottom bracket of a standard bicycle.

Rotating Shafts

In any area requiring the monitoring or control of a rotating shaft, where indirect means are either unavailable or inadequate, the Torductor[®]-S should be the first choice.





Technology

The design of the Torductor®-S gives a true non-contact and rugged torque sensor without moving parts. Since the sensor is part of the load-carrying shaft, the measured torque is the true transmitted torque. This enables the Torductor®-S to combine high accuracy with high overload capacity and fast response at all times. A high output signal ensures integrity against electrical or magnetic interference from the surroundings.

The Torductor[®]-S is designed to work in harsh environments where other sensors have poor reliability. The typical environment found within an engine power train in terms of vibrations, temperature, lubricants or magnetic components is no problem for the sensor. The Torductor[®]-S is the ideal choice for measurement under demanding and hostile conditions.



The measuring principle of the Torductor®-S is based on the magnetoelastic property of ferromagnetic materials. In the ABB Torductor®-S torque sensor this leads to changes in the magnetic flux depending on the actual torque in the shaft. The flux change is converted into a high output signal proportional to the torque. This gives a rugged sensor without moving parts.

ABB Force Measurement place a high value on research into sensor design, materials and applications.



Together with ABB Force Measurement you will create a competitive advantage using up-to-date torque measuring technology.

R&D

ABB Force Measurement place a high value on research into sensor design, materials and applications. With a team of highly qualified engineers and scientists, we have developed some of the most advanced sensors of their kind. We have a strong commitment to constantly improve our technology and intend to continue keeping our products at the leading edge.

With our assistance you will achieve a competitive advantage using up-to-date torque measuring technology as developed by ABB.





ABB is a world-wide organization committed to providing solutions for the generation, transmission, distribution and use of electrical power. It consists of 1000 companies in 140 countries.

As part of that group ABB Automation Products is one of the world's largest suppliers of industrial automation, products and services. Unique global resources provide the highest levels of customer value growing from in-depth knowledge and understanding of industry needs. Leading edge technology, specific application knowledge and an uncompromising commitment to quality make ABB Automation Products an important partner for industries in their drive for productivity, quality and profitability.

ABB Force Measurement is a division within ABB Automation Products. It provides equipment for accurate, reliable measurement and control in a broad range of applications from steel making to paper converting industries.



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