**THE MEASUREMENT SOLUTION.**

**Quality leading the way TO THE BEST SOLUTION FOR YOU - WITH PASSION AND PRECISION MEASUREMENT AUTOMOTIVE APPLICATIONS**

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**Measuring pedal actuating forces**

- The actuating forces applied to pedals under different operating conditions are measured during test drives on the road and in the driving simulator to obtain a human/machine response profile and to determine the loads exerted on individual components.
- The sensor used in these tests has a low-profile design to minimize any impact on the feel of the pedal.
- It must be designed to be insensitive to side loads over its entire surface, be able to track rapid load changes when using the ABS system, have overload protection and be easy to fit securely.

**Torque/angle readings**

- Torque/angle readings are checked continuously during cyclical testing of motor vehicle controls to assess their haptic response when rotated forward and back.
- The sensor can pick up minimal adjustment torques and any number of detent positions for analysis by the DigiVision PC software.

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**Highlights**

- Non-linearity ±0.25 % F.S.
- Low-profile design
- Insensitive to side loads

**Benefits**

- Measuring ranges of 0 … 500 N up to 0 ... 2 kN
- IP67 degree of protection

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**Precise measurement of ultra-low torques of up to 1 N*cm**

- High-speed synchronous acquisition of measurement signal
- Ultra-fine angular resolution

**Benefits**

- Measuring ranges from 0 ... 0.02 N*m up to 0 … 1000 N*m
- USB signal transfer and innovative visualization and analysis software

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Endurance testing involves simulating various load profiles applied to the individual suspension springs. The tension & compression load cell used in the tests features impressive durability with excellent precision to 0.05 % F.S. even under the toughest environmental conditions.

Even autonomous driving needs some tasks done by hand; for instance charging an electrically powered vehicle. Inserting a charging plug in the charging socket involves overcoming a slight friction force to make sure it engages positively in place. The plug must have a high breaking strength for safety reasons yet also be comfortable to operate using a small amount of manual strength. The 8524 load cell is ideally suited to integration in a test facility and provides high resolution measurements of the required friction, latching and end-point forces.

Steering rods, as a safety-related component, must undergo a defined test procedure both in pre-production testing and during the production process. After compression of the bearing, it is tested for low breakaway force measurements. Practically any number of locations can be measured in this way. The process step can be used to prevent admissible component tolerances being exceeded.

Vehicle tire testing places particular demands on our load cells. Measurements must be acquired and analyzed simultaneously in two directions, X and Y, which demands low cross-talk between the two channels. The other challenge is posed by the very large number of load cycles. In the event of a fault, maintenance staff must be able to replace the sensors quickly and reliably to minimize down times.

New developments in the motor industry involve comprehensive testing of safety-critical components such as control/suspension links. In these tests, strain gages are adhesively bonded to critical locations and readings taken by a high-speed measuring system. Versatile data recording using the AUTOSOFT software allows comprehensive analysis and post-processing of the measurement data in downstream systems and processes. Practically any number of locations can be measured in this way.
The actuating forces applied to pedals under different operating conditions are measured during test drives on the road and in the driving simulator to obtain a human/machine response profile and to determine the loads exerted on individual components. The sensor used in these tests has a low-profile design to minimize any impact on the feel of the pedal. It must be designed to be insensitive to side loads over its entire surface, be able to track rapid load changes when using the ABS system, have overload protection and be easy to fit securely.

**PEDAL LOAD CELL 8400-B001**

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**Highlights**
- Non-linearity ±0.25% F.S.
- Low-profile design
- Insensitive to side loads

**Benefits**
- Measuring ranges of 0…500 N up to 0…2 kN
- IP67 degree of protection

**PRECISION TORQUE SENSOR 8661**

- **Testing the haptic response in vehicle controls**

Torque/angle readings are checked continuously during cyclical testing of motor vehicle controls to assess their haptic response when rotated forward and back. The sensor can pick up minimal adjustment torques and any number of detent positions for analysis by the DigiVision PC software.

**Highlights**
- Precise measurement of ultra-low torques of up to 1 N*cm
- High-speed synchronous acquisition of measurement signal
- Ultra-fine angular resolution

**Benefits**
- Measuring ranges from 0…0.02 N*m up to 0…1000 N*m
- USB signal transfer and innovative visualization and analysis software

**Measuring technology with perspective.**