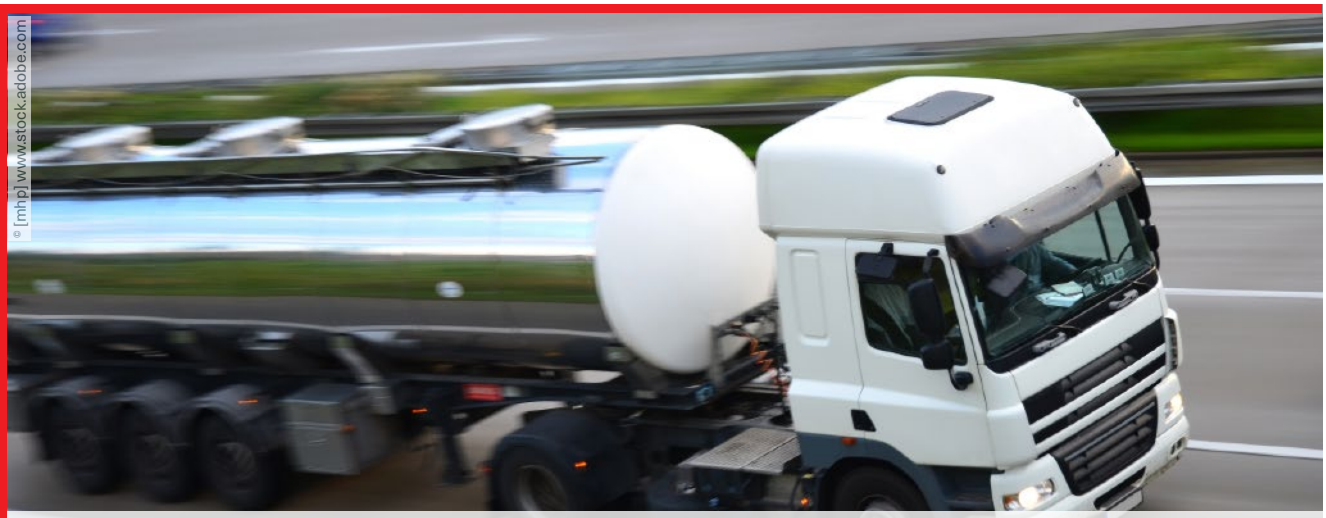
ARMANO

Pressure Measurement in the Field of Utility Vehicles

Application:

Pressure gauges for inspections of air brake systems on trucks

for supervisory organisations that are approved for the execution of the main inspection



According to the German Road Traffic Licensing Regulations (StVZO) art. 29, motor vehicles have to be inspected for road safety regularly. The general inspection (HU) has been performed in Germany since 1951. But meanwhile, also in the EU member states, in the USA and in other countries, similar regulations are applied.
As part of the general inspection the braking action is tested. For this purpose, brake test benches, so-called roller brake test stands, are used.

The problem:

The inspection of brake systems on trucks* is not feasible on public roads. Therefore, the braking force is measured on a brake test bench depending on the load conditions.

The brake test bench is an apparatus that is used for testing the brake system of motor vehicles.

Pressure gauges are applied to receive precise measuring results for the brake system. With pressure gauges it is possible to test the compressed-air system on trucks as well as on respective trailers.

The pressure gauge measures so-called "set pressures" when the brake pedal is pressed.

The current technical guidelines state that the difference of the braking action may only have a certain deviation from the maximum value. This places high demands on the pressure gauges.

Also, the scale layout has to comply with guidelines as to ensure the accuracy requirements for the instruments.

* For trucks with a total weight of 7.5 t pneumatic brake systems are used.

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Our solution:

Instruments for the use in supervisory organisations have to comply with certain laws and regulations.

The German calibration and measurement law states:
Measuring instruments for the inspection of air pressure in brake systems of vehicles with air pressure brakes are subject to the calibration obligation (conformity assessment) according to art. 2 para. 2

The calibration / conformity assessment is carried out externally by the Board of Weights and Measures.

The guidelines for the application, quality and inspection of brake test benches require instruments with a scale length of at least 150 mm (5.91") and with fine division of the scale. The brake pressure has to be indicated in bar or kPa (smallest subdivision 0.1 bar or 10 kPa).

Furthermore, the application of pressure gauges in horizontal position has prevailed in workshops. This is why our instruments bear the mark (⌐¬) for horizontal installation position.

We are able to manufacture our measuring instruments according to these criteria.

Our duplex pressure gauge has the advantage to indicate the pressures of the test connection on the pedal brake valve and the test connection on the wheel brake cylinder. The auditor has the ability to receive and evaluate two values at one glance. The pressure generated by the driver is measured. For comparison, the pressure that acts on the wheel brake cylinder is indicated.

Two single pressure gauges could be used alternatively. These are connected to the pedal brake valve and to the wheel brake cylinder. Here the values are indicated separately.

Other pneumatic pressures can be tested in the same way. The pressure gauges can be connected to the air spring or to the air supply, for example for brake balancing with a trailer.

Beyond the manufacturing of our pressure gauges, we also carry out repairs as well as the required repeat calibrations. The validity of the calibration is limited to 2 years by law. Afterwards, the instrument has to be tested and approved again.

Repeat calibrations also take place in-house by the Board of Weights and Measures.

Our advantages at a glance:

- **In-house repairs as well as repeat calibration**
- **Smallest subdivision of the scale 0.1 bar or 10 kPa**
- **Horizontal position of installation**
- **Duplex pressure gauge for comparative pressure measurement**
- **Case protection cap – protection of the instrument in rough workshop use (against shocks and impacts)**

Our instruments in detail:

Single pressure gauge: RCh 100 – 1

- Accuracy class 1.0
- Nominal case size 100 (4")
- Pressure range 0 – 16 bar
- Process connection M 16x1.5
- Fine division of the scale
- Horizontal position of installation
- Version appropriate for calibration
- Case protection cap

Duplex pressure gauge: DR 100 – 1 pn

- Accuracy class 1.0
- Nominal case size 100 (4")
- Pressure range 0 – 16 bar and 0 – 25 bar
- Process connection M 16x1.5 2 x in parallel (pn)
- 1 black pointer 1 red pointer – red marking
- Fine division of the scale
- Horizontal position of installation
- Version appropriate for calibration
- Case protection cap

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