

**Produkt / Product:** Knock Sensor**Typ / Type:** KS-1-K**Bestellnummer / Part Number:** 0 261 231 ...**Angebotszeichnung / Offer Drawing:** A 261 230 ...**Kenndaten / Characteristic Data:** Seite/Page 2 bis/to 2

Prüfmethoden / Test Method: Seite/Page 3 bis/to 3

Prüfdaten / Test Data: Seite/Page 3 bis/to 4

Gültig ab / Valid from:

Bemerkungen / Comment:

1. Characteristic Data

1.1 <u>Temperature Range</u>	Sensorhead	-40 ... 150°C
	Wire and Connector	-40 ... 130°C

1.2 Fitment

Screw: M8x25, grade 8.8 for cast iron engine block
M8x30, grade 8.8 for aluminium engine block

Torque: see offer drawing

No washer of any kind permissible.

Only the metallic part of the sensor (ϕ 22 mm) may have contact with the engine.

Sensor should be mounted at a location where it is only for short times exposed to liquids such as gasoline, antifreeze, oil, brake fluid, etc.

The wire of the sensor should be laid in such way, that resonance vibration can not occur (danger of breaking).

2. Electrical performance

Measurement equipment as described at page 4 and 5.

Measured with a capacitive load of 190 pF

(capacitive load of measuring amplifier: 90 pF; connecting wire 100 pF).

Measured without housing of the appropriate plug, as the output signal can be influenced by the use of different plugs.

Data measured at room-temperature $23^{\circ}\text{C} \pm 5^{\circ}\text{C}$; humidity of $60\% \pm 15\%$ rH.

- Sensitivity at 5 kHz (with new sensor)	26 ± 8 mV/g
- Change of sensitivity over lifetime	max. -17%
- Linearity between 5 ... 15 kHz at resonance (bandwidth ≤ 2 kHz)	$\pm 15\%$ from 5 kHz value 15 ... 39 mV/g
- Main resonance frequency	> 20 kHz
- Impedance (between the 2 signal leads) included wire capacitance	$R > 1$ M Ω $C = 1200 \pm 400$ pF $c_1 = 280 \pm 60$ pF/m cable
- Shunt resistor (resistor between 2 signal leads)	$4,9$ M $\Omega \pm 20\%$
- Temperature-dependence of sensitivity	$\leq -0,06$ mV/g $^{\circ}\text{C}$

3. Test Method

Acceleration of the sensor with shaker at constant acceleration between 1 and 10 g rms sine vibration.

Test bench see page 4 and 5.

Test and electrical data see sec. 2

Sensor is fixed on test bench with 15 ± 2 Nm, M8x25 screw, Quality 8.8.

4. Environmental tests

The test samples must be mounted on a body. It's material should be similar to typical applications.

The wire harness connector must be connected to the sensor during the test.

For the tests new sensors have to be taken. After the test the sensors must meet the electrical specification, see sec. 2.

No changes of the surfaces, cracks or other mechanical deterioration are allowed.

4.1 Thermal shock test (IEC 68-2-6, Test FC)

288 thermal shocks cycles between the limits of $t_A = -40^\circ\text{C}$ and $t_B = +130^\circ\text{C}$

Exposure time at t_A and t_B in air

30 min

Change over time

< 10 sec

4.2 Vibration test

For Sensorhead:

$a = 300 \text{ m/s}^2$, $f = 50 \dots 250 \text{ Hz}$
8 h per axis, $25^\circ\text{C} \pm 5^\circ\text{C}$

For Connector

$a = 100 \text{ m/s}^2$, $f = 50 \dots 250 \text{ Hz}$
8 h per axis, $25^\circ\text{C} \pm 5^\circ\text{C}$

4.3 Salt spray test

Test according to SS DIN 50021 (similar to IEC 68-2-11)

Test duration

72 h

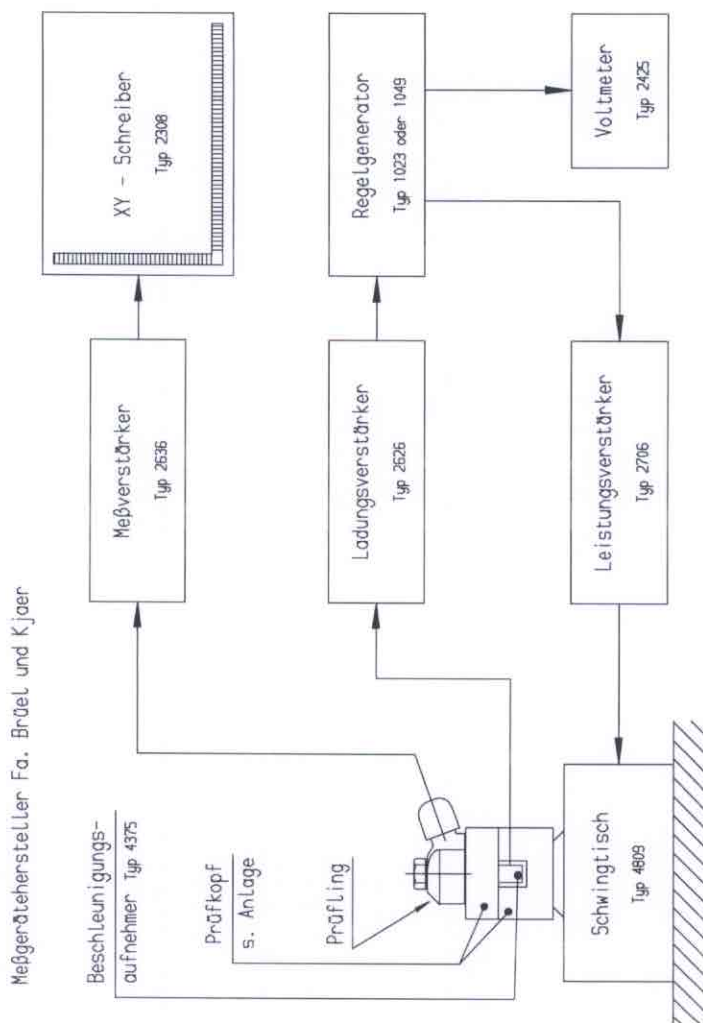
4.4 SO₂ corrosion test

Test according to SFW 2,0 S DIN 50018 (similar to IEC 68-2-42)

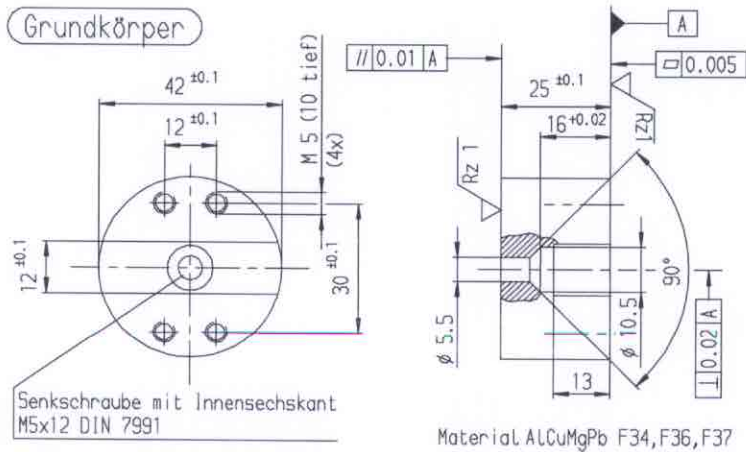
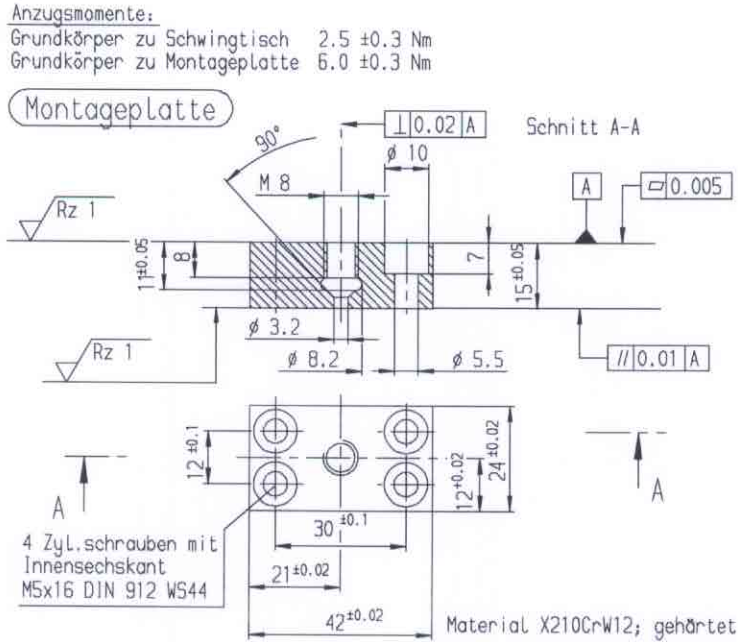
Test duration

6 cycles

5. Setup of test bench



6. Description of adapter which is mounted on the shaker



Für Fertigung mit Gummiplatte (1 280 106 034) zwischen Shaker und Grundkörper