# CETA® Newsletter



Dear readers,

Here is our CETA newsletter no. 8, issued on time for the CONTROL 2007 exhibition. In it, you will find a report on the successful recertification of the DKD calibration lab affiliated to CETA Testsysteme GmbH and on the extension of the pressure range accredited by the DKD (German calibration service).

Wishing you a pleasant reading of the new CETA newsletter,

Yours sincerely

*Günter Groß*

Managing Director

PS: This year as last year, CETA will be at the CONTROL exhibition in hall 1, stand 1104.

**Contents**



## News from the DKD calibration lab

Successful recertification, extension of pressure range, new devices with DKD calibration

The calibration lab affiliated to CETA Testsysteme GmbH (DKD-K-36001) has been accredited for the measurand pressure since July 2004. In February 2007, the DKD calibration lab was recertified successfully and without objection by the PTB (German metrology institute).
In addition, the accredited pressure range (-0,01 to 10 bar up till then) was extended into the range of negative gauge pressure. This allows us now to offer DKD calibrations (according to DIN EN ISO 17025) for the pressure range of -1 to 10 bar. All newly ordered CETA test devices of the 510 and 810 series with standard pressure ranges (-1 to 10 bar) and 400 Pa measuring cell will be delivered with a DKD calibration certificate instead of the standard factory calibration certificate without surcharge. The DKD calibration is performed according to DIN EN ISO 17025 and conforms to the requirements of the norm ISO / TS 16949, valid in the automotive industry.

## New manager of the DKD calibration lab

On March 13th, 2007, Mr. **Klaus Burger** (36) took over the management of the DKD calibration lab affiliated to CETA Testsysteme GmbH (DKD-K-36001). Mr. Burger is a graduate physicist and has been working for CETA since 2000. His scope of functions also includes development of the application software CETA Soft and management of the IT department.

## CETA internal news: Personnel reinforcement

CETA's development department was strengthened on April 17th, 2007: Mr. **Carsten Otto** (29) has completed his studies in electrotechnology with focus on communication technology at the university of applied science in Cologne, and will be assigned to hardware development and programming, as well as contributing to the further development of CETA test devices.

## CETA inside: Vibration test of CETA test devices

The effects of vibrations were analyzed on the basis of an endurance test. For this purpose, a vibrating table was modified to allow the installation of a differential pressure leak detector, type CETATEST 810.
Using an eccentric tappet, the test device has been exposed during five months to vibrations with a frequency of 20 Hz and amplitude of 0,15 mm. The vibration test was interrupted at regular intervals and various test situations (inherent tightness, measurement with connected volume and test leak) were simulated with different test pressures (up to 10 bar). At the end of the endurance test, the results of the measurements and the functional capability of the test device were analyzed. The device functioned correctly. There was no mechanical wear

(no apparent traces of friction, no loose components, no broken cables). On the whole, the device showed no signs of the five months long vibration test. This exemplary study proved that

the mechanical construction and capability of the test device completely fulfilled the requirements of the vibration test.

## CETA job posting

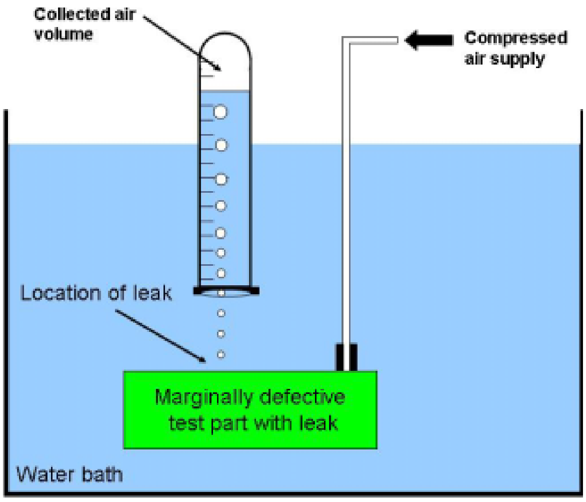
In the course of our further expansion, we currently need to fill the following positions:

- **Sales South Germany** (possibly with office in South Germany)
- **Export sales**
- **Technical inside sales**
- **Servicing** (inland and abroad)
- **Production**

The positions require a completed technical or commercial vocational training, good technical understanding, quick comprehension and self-reliant working. We expect fluent knowledge of the German and English languages in speech and writing as well as proficiency in standard computer programs. It would be ideal (but not a pre-requisite) if you had appropriate experience with measurement and test devices.
We offer you an interesting and multi-faceted job in a flexible team.
Please send your detailed application with your salary expectation in writing to:
CETA Testsysteme GmbH, Management,
Marie-Curie-Str. 35-37, 40721 Hilden, Germany

## CETA practical tip: Determination of air leak rate

When laying out the leak-detection process, we are faced with the question of determining the permissible air leak rate. In practice, this can be done as follows: Pressure is applied to a marginally defective part in a water bath. The air escaping from the leak is collected for a certain period of time in an upturned test tube which has been filled with water. The rising air bubbles displace the water in the test tube. At the end of the measuring time, the air volume in the test tube is read and the resulting air leak rate per minute is calculated.




Alternatively, the air leak rate can also be calculated on the basis of the number of air bubbles per time arising from the leak. The following chart shows the relationship between the number N of air bubbles per minute, the diameter d of the air bubble, and the air leak rate Q.

| d [mm] | Q [ml/min] |
|---|---|
| 1 | N • 0,0005 |
| 2 | N • 0,0042 |
| 3 | N • 0,0141 |
| 4 | N • 0,0335 |
| 5 | N • 0,0655 |
| 6 | N • 0,1131 |
| 7 | N • 0,1796 |
| 8 | N • 0,2681 |

Example: At the selected pressure, a number of 10 air bubbles per minute with a diameter of 5 mm each corresponds to an air leak rate of 0,65 ml/min.

However, the estimation of the bubble diameter is not always that easy.
On the basis of this preliminary test, it is possible to determine the allowable limit for air leak rate.
Leak testing methods where leaks are detected by pressing the test parts under water are hard to automatize, the test part is wet after the test and has to be dried. But they allow to find out the location of the leak. Leak testing methods using compressed air are easy to automatize, the leak test can be performed in a relatively short time, and the test results are determined objectively. However, the leaks can only be located by means of a leak spray.