



Dear readers,

Here is our newsletter no. 17, issued at the occasion of the CONTROL 2011 trade fair. In this issue, we will introduce our new two-channel leak tester CETATEST 815 Twin, which allows simultaneous testing of two test parts. We will also inform you about our Chinese cooperation partner Dantsin, who recently became our representative in China.

In our practical tip, we will deal with the causes of negative readings. At our exhibition stand (hall 1, stand 1423), we will present some practical applications. We are looking forward to your visit.

Wishing you a pleasant reading,  
Yours,

*Günther Groß*

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### Chinese cooperation partner Dantsin

Several hundred CETA test devices are in use all over China. We were therefore particularly interested in finding a Chinese cooperation partner. We have now succeeded in this endeavour: The company Dantsin with headquarter in Peking also has other offices in Shenzhen, Shenyang, Guangzhou, Shanghai, Chengdu, Xi'an and Wuxi.

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Mr. Chen Haidong has received a basic training in our office and is central contact partner for leak-testing applications.

### The new differential pressure leak tester CETATEST 815 Twin



After the successful launch in the market of our single-channel leak tester CETATEST 815 with differential pressure sensor (testing medium: compressed air) in 2009, we are now introducing the two-channel version of the CETATEST 815, which will be available from the 3<sup>rd</sup> quarter 2011. The single-channel CETATEST 815 with 24-bit A/D converter is the technical basis. The test device is designed for synchronous two-channel operation and is therefore suitable for all applications where similar test parts can be tested simultaneously with the same time parameters and the same pressure. If the testing program is aborted in one of the channels (in case of a gross leak, for example), this does not lead to a complete interruption of the test – the test cycle goes on in the other channel. An adjustment to the test part adaption of the specific channel is possible (for example by offset, reject levels). Control of the test pressure is performed for each channel. In the future, we are planning further test modes in addition to the pressure decay test. Optionally, it is possible to integrate pneumatic control outputs, which allow the switching of external valves. The test device is equipped with an extensive automatic self-diagnostics system able to detect and signal defects inside the device. The differential pressure measuring cells are protected against unbalanced pressure load by quick-response safety functions. Each of the 64 available testing programs can be operated ei-



ther with channel 1, channel 2 or both channels. The function „endless filling“, which can be activated for each channel independently, supports the search for leaks in the adaption. On the front, there are two test leak connections as well as the USB connection for storage media. These can be used to store measuring series, curves and

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parameters. In addition to the standard interfaces (digital I/O, RS 232), Profibus and Ethernet are available as options.

The 3U compact construction allows optimum integration in the production lines. The type of valve chosen allows easy maintenance without opening the housing. All test devices of the CETATEST x15 series are EMC compatible and are delivered with a 3-year warranty (under regular maintenance) at no additional charge. Beyond that, we offer the option of a warranty prolongation of 2 years at a reasonable cost. This would result in a total warranty period of 5 years. This ensures the long-term value preservation of the test devices in the production line.

All CETATEST 815 devices with pressure range from -1 bar to +17 bar are serially delivered with DKD calibration (in compliance with DIN ISO 17025).

#### Information about the pneumatically controlled outputs of the CETATEST x15 series

The leak and flow testers of the x15 series can be optionally equipped with pneumatically controlled outputs (3 valves maximum). These outputs can be configured as cycle valve, program valve, stamp valve or phase valve. The cycle valve is active during the complete test cycle and falls back into place at the end of it. The program valve is active during the whole program and falls back into place when the test program is changed. The phase valve can be activated in special ways which are not represented by the above-mentioned standard valve functions. Typical applications for the use of a cycle valve are for example switching of the test points by a switch valve, pneumatic activating of an adapter or external venting.

#### CETA practical tip: The causes of negative readings

With the CETA leak testers, pressure decay due to a leakage is represented by a positive reading during the test phase. In practice, one is confronted time and time again with the question of explaining negative readings. For this purpose, it is necessary to bear in mind that the test device used in the testing fixture measures the total pressure change between the built-in measuring cell and the test part, therefore also the influences in the test line and the adaption.

Negative readings can have different causes:

#### 1. Volume effects

This includes effects inside the test part (membranes flapping back) and also "breathing" plastic housings which somewhat contract during the test phase, thereby producing an increase in pressure. Other reasons for an increase of volume and consequently an increase of pressure, particularly during a test with negative pressure, can be fumigation of electrolytic capacitors or incompletely hardened adhesives.

#### 2. Too short phases

In case of too short phase times, the test volume remains unstable during the measuring phase. This leads during the testing phase to widely scattered – and also negative – test results, even with the same test part. By extending the phase times (particularly the filling and stabilizing times), the values can "settle down".

#### 3. Influence of the temperature

If there is any residual heat left in the test part (for example due to welding processes in the line leading to the part), the expansion of the warmed air can produce a negative reading. But temperature-dependent pressure rise can also be caused by temperature variations in the test line, which acts as a „thermal antenna“.

#### 4. Movement of the adaption

Another possible cause is the movement of the adaption during the test phase. Fixing the test part in the final position is recommended (i.e. not only floating between the o-ring), in order to avoid movement effects as far as possible. Alternatively, the cylinder can be locked in the end position. Increase the cylinder control pressure may also help. In order to measure the supposed movement of the cylinder, one can use a dial indicator gauge on the cylinder to „observe“ its movement during the testing process.

On the whole, „small“ negative readings, measured on good parts (or with master tight part) during the testing phase are relatively harmless. In order to account for slight "inadequacies" and disturbances, the reference limit is usually set to -10 Pa. As a result, a slight increase of pressure will not immediately lead to termination of the test process.