The USD 15 Family

The high-performance ultrasonic dialog flaw detectors with a difference - in use world-wide

Our USD 15 ultrasonic flaw detectors for the quality and safety of your products.

It's no secret that quality assurance helps to reduce costs. However, this is only one reason why ultrasonic testing has established itself as an indispensable technology today. Its benefits are particularly obvious when it comes to increasing the service life of expensive equipment, as in the roll testing example illustrated, where a maximum roll life must be achieved at a minimum risk of failure.

Reduced costs

The USD 15 flaw detectors help you to make the right decisions - whether it's concerning repairs, the need to replace or the screening of critical components. The portability of the USD 15 allows you to take your ultrasonic test equipment into the field, eliminating the need to transport specimens to an ultrasonic testing laboratory. Settings for different applications and test results stored in the instrument are available for direct comparison at any time.

Just in case.

Whatever the test problem, our USD 15 instrument family will offer you the solution. From our range of instruments, select the one suitable for your specific needs - depending on whether you require to test in a portable or a stationary mode, whether single-channel or multichannel testing is to be made, or whether your applications are simple - e.g. precise thickness measurements - or demanding - e.g. weld tests, whether you need a particularly large screen display with high resolution, or whether your test task calls for the special features of a square-wave pulser.

USD 15 during testing of hard-faced rolls with squirter

The pick of test technology with high-speed data acquisition.

Flaw detection

The high resolution of the USD 15 instruments (0.4 mm/1/32" flat-bottom hole at a depth of 1.3 mm/0.060" using our 10 MHz probe IAP 10.6.3 in immersion technique) ensures that even small near-surface flaws will be reliably detected.

A high gain reserve and high far-field resolution also let all USD 15 instruments effectively detect small flaws near the backwall of the specimen. Eight frequency ranges are available enabling the use of a broad selection of probes. Besides all this, the USD 15 SQ with its square-wave pulser includes additional features for an optimized probe matching, which is of special advantage with low operating frequencies (< 2 MHz).

Versatile analysis

With their maximum of three gates - including a gate with echo-start function for all immersion test applications - the USD 15 instruments deliver high versatility. This means, for example, that you can monitor the backwall echo and the flaw expectancy range of a test object separately from one another in immersion testing.

A high pulse repetition frequency permits continuous scanning of specimens even at high test speeds. The reflectors detected can be easily analyzed by means of the distance-amplitude correction which is available either as a time-corrected gain (TCG) function or in the form of a distance-amplitude curve.

Measurement data

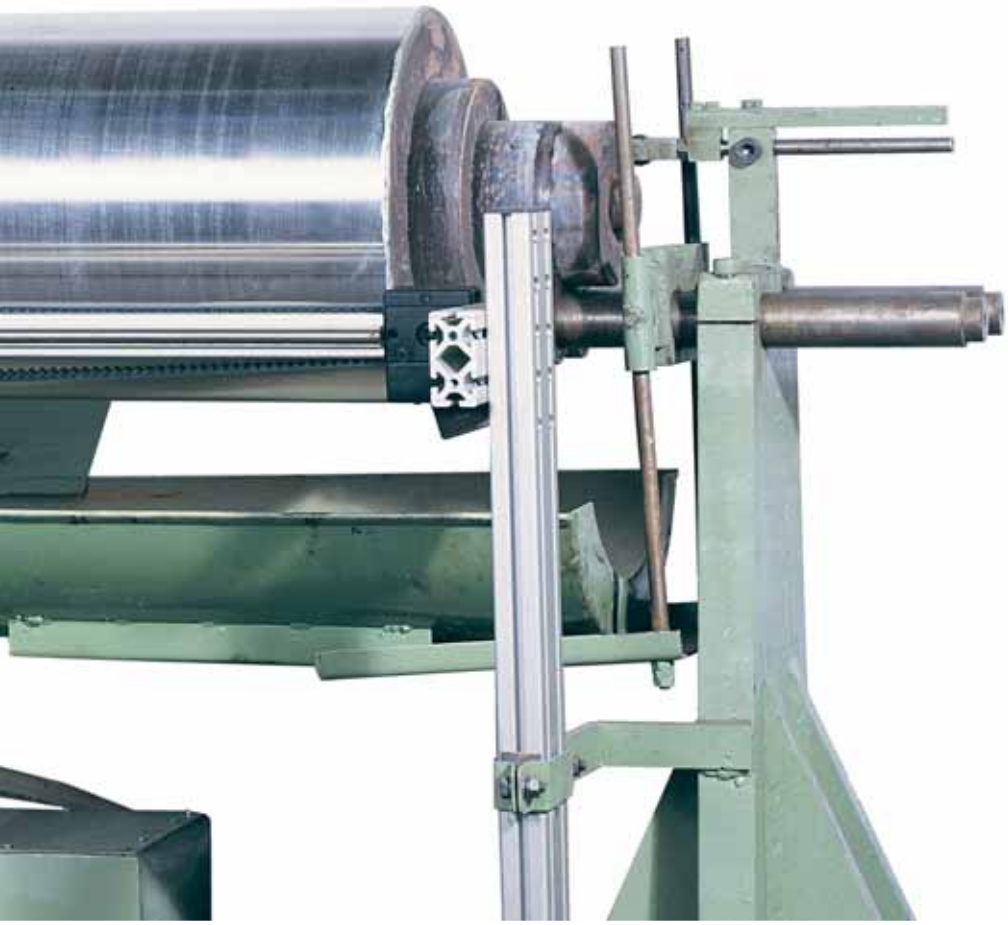
You can compile your very own measurement data display in the measurement data line:

- echo times of flight, including the calculated flaw position data with anglebeam probes
- amplitudes in all gates
- delay path (in immersion testing)
- sound path differences between the individual gates
- total sound paths (delay path + sound path within the test object)

All readings are updated with each ultrasonic pulse at analog and digital outputs. In addition, the complete echo display is available with the display re-fresh frequency at the LINK interface for transfer to a PC.

Documentation

The serial interface enables you to print out your measurement data, display contents, adjustment data or complete test reports at a single press of a key. It also allows you to transfer a test sequence to a standard television monitor via a video interface and to simultaneously record the process on a video recorder.



The range of functions depends on the version of your USD 15 (please see the attached Technical Specifications).

The USD 15 family leaves no wishes unfulfilled.

The USD 15 product family with Double Rack and Rack, USD 15 SX (USD 15 SQ) and USD 15 X (USD 15B)

For simple applications

The basic version USD 15 B was designed as an economical solution for simple test tasks. The more sophisticated functions - e.g. DAC/TCG, Echo Start and Angle functions - were left out, however, no compromises were made regarding the ultrasonic performance capabilities.

The universal genius

The **USD 15 X** represents the enhanced standard version of the product family offering all the extra features that you need for an easy reproducible ultrasonic testing in portable or stationary mode. These extras include DAC/TCG, reflector location using angle-beam probes, A-scan comparison, video output and many other fascinating features.

With extra large display

The **USD 15 SX** has a high-resolution, extra large screen display. This enables you to obtain an "almost analog" A-scan display of echo details with small calibration ranges or echo sequences from thin test objects, e.g. spot welds.

With square-wave pulser

Though seemingly identical to the **USD 15 SX**, which has a spike pulser (like the other instrument versions), the **USD 15 SQ** is provided with a variable square-wave initial pulse. This means that the probe is excited with its natural frequency. You will benefit from a considerable sensitivity increase of up to 12 dB, especially with operating frequencies of less than 2 MHz. Therefore, the instrument is particularly suitable for testing strongly sound attenuating and sound scattering materials. In addition, its tolerance monitor and thickness data logger make it just the right choice if you have to document (automated) thickness measurements.

For the automatic testing

The rack and double-rack versions **USD 15-19"** and **USD 15/2-19"**, designed for the 19" equipment cabinet or as desktop version, are gaining ground in stationary applications. These "members of the family" are suitable both for testing with an immersion tank and for integration into a testing machine. Our unique instrument design enables the flexible combination of a number of channels: you can synchronize a group of instruments into a small multi-channel setup. The 19" housing of the double-rack version offers space and cost advantages for a dual-channel unit. And what's more: each channel has its own A-scan!

A stationary highlight: the rack versions.

USD 15 Rack attached to an immersion tank

Software

Make use of our application software to further expand the range of functions of your USD 15 test systems. Our UltraDOC software series for the manual testing solves all your problems regarding data transfer and analysis, data management in databases, integration into internal quality assurance systems as well as documentation, and opens up a variety of possibilities for data processing.

Our Testing Machines team will tailor software solutions to meet your individual automatic test requirements.

Solutions for automatic testing

Built into a modular housing having three height units, one or two USD 15 X instruments can be easily integrated into a 19" equipment cabinet. In this way you can easily combine several modules to form a multichannel test system. The system is synchronized by a common trigger signal that may even be generated by one of the units (master) which would then control all other units (slaves).

Versatility

Whether single- or multichannel, whether attached to an immersion testing tank or used in a testing machine - the USD 15 X can be converted into a universal test system.

A total remote control of the units from a computer is then possible; all outputs and inputs required for an automatic test are available.

It makes no difference whether your readings are analog or digital, they are all updated with the pulse repe-tition frequency. Another control signal calls a preset dataset, which enables for example to take changes in the test object's geometry into account without interrupting the test sequence.

USD 15 Rack in the 19" cabinet

State-of-the-art test technology made easy to use.

All data at a glance

The bright, high-contrast electroluminescent screen not only shows the A-scan, but at the same time also the function group you are currently using. Direct function key assignments ensure that the required func- tions are activated quickly and without any detours. In addition, the USD 15 always makes a number of data available:

- The menu line provides an overview of the function groups and shows the currently selected function group in an inverted display.
- The status line shows apart from the gate alarms additional important information about the current state of the instrument.
- The measurement data line contains the four measurement data types selected by you, or it displays short messages and warning notes.

Five of the function keys are user-definable for optimum convenience. In addition, the USD 15 offers a selection of six languages for communication with the system.

Practice-oriented functions

Functions that do not affect the echo display are arranged on a second operating level.

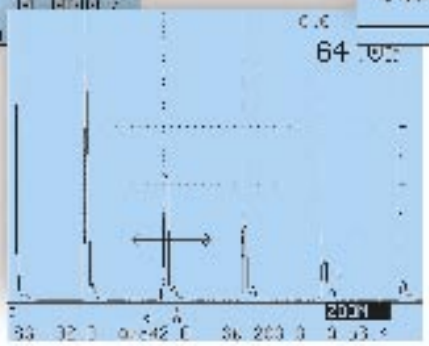
The panoramic view makes instrument calibration easy, especially in immersion test applications.

After instrument calibration, you can switch over to zoom display mode and use the full screen width for the A-scan.

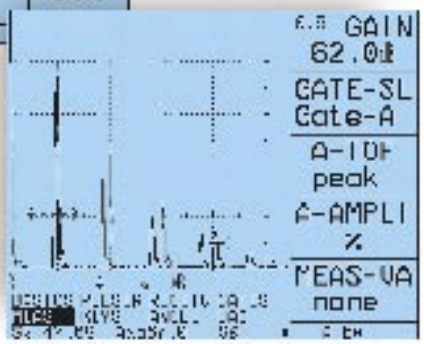
The echo comparison function enables the direct comparison between the currently active signal and a stored test result.

Panoramic view

Second operating level



ZOOM display



Echo comparison (not in the basic version)