

# KD-INFO

Edition 2021

**ECHOGRAPH-ALPT: Testing of Aluminium Round Bars According to Aviation Standards**

**DEUTROFLUX: Magnetic Particle Crack Detection System for Precision Bearing Rings**

**ECHOMETER 1077: Sophisticated Testing Task for Eccentricity Measurement Solved**



## Multichannel ECHOGRAPH 1170 Testing Electronics

The Perfect Solution for Integrators

# KARL DEUTSCH

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Title Image: Modules of the Multichannel ECHOGRAPH 1170 System Electronics in a Plug-In Rack

## Editorial

Dear customers, partners and friends!

We are in the second lockdown and no one knows how long COVID-19 won't let us calm down. Many clients still do not allow on-site visits, but in the meantime our meeting rooms are professionally equipped and online meetings are part of our daily business. Nevertheless, direct client contact is sorely missed! However, the lack of business trips makes it possible to intensify local contacts: The Maschinenbaunetzwerk Bergisch Land (a mechanical engineering network, [www.maschinenbaunetzwerk.de](http://www.maschinenbaunetzwerk.de)), the Kompetenznetzwerk für Oberflächentechnik e.V. (an expertise network for surface technique, [www.netzwerk-surface.net](http://www.netzwerk-surface.net)), the 3D network ([www.3dnetzwerk.com](http://www.3dnetzwerk.com)), and the Marketing Club Bergisch Land ([www.marketingclub-bergischland.de](http://www.marketingclub-bergischland.de)) are local platforms to meet interesting people and companies. It is possible to exchange ideas about common challenges and also discuss at CEO level the mutual hiring out or transfer of staff in order to ensure the most consistent utilisation possible among the network members. KARL DEUTSCH also joined a transregional network of German SMEs in 2021,

i. e. the Verband Deutscher Hidden Champions e.V. (Association of German Hidden Champions, [www.verband-deutscher-hidden-champions.de](http://www.verband-deutscher-hidden-champions.de)). KARL DEUTSCH was the venue for a Hidden Champions event, which aims to establish contacts between German companies and the Chinese business metropolis of Xuzhou. In Xuzhou, 15 of our testing machines for large bearing rings are installed at the company ThyssenKrupp Rothe Erde, so we were happy to take the opportunity to present ourselves.

In October we will invite our international trading partners to an awesome event. Whether in presence, via video or as a hybrid event - in any case we will professionally prepare and demonstrate our new products. In the past, often only the principals of our trade partners came to Wuppertal. Online, we will certainly reach a larger group of participants, and thus this time also offers exciting new opportunities.

Sincerely yours

**Dietger Schäle and**  
**Dr. (USA) Wolfram A. Karl Deutsch**



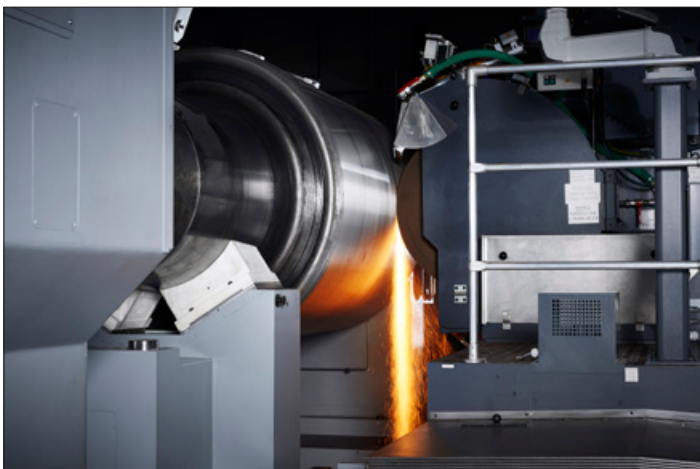
**Dr. (USA) Wolfram A. Karl Deutsch** (President, left) and  
**Dipl.-Ing. Dietger Schäle** (Managing Director)

## ECHOGRAPH Ultrasonic Probes: Optimised Durability

The companies of the HerkulesGroup are regarded worldwide as the definite experts for precise and efficient machining of large workpieces. Whether grinding, texturing, turning, milling or drilling – as specialists for large machine tools, the independent companies of the owner-managed group offer versatile and customised solutions.

The name Herkules is synonymous worldwide with pioneering technology in the high-precision machining of rollers and other workpieces. With over 100 years of history, the family-owned company stands for tradition paired with innovation and constant optimisation of its machine tools.

Regarding the probes used to measure the quality of rollers and their machining, the HerkulesGroup has a long co-working experience with the company KARL DEUTSCH in Wuppertal. In 2020, the durability of the probes used was further optimised in a joint development project. In cooperation with the KARL DEUTSCH probes department, a special sensor alternative was developed that increases the service life and at the same time precisely meets the test task.



The combination of ultra-fast control and measuring systems allows "correction grinding on the fly" in one pass.



Probe holder with flow water coupling, equipped with five ECHOGRAPH ultrasonic sensors for roller inspection

The previously used sensor was optimised for the requirement of achieving a very high sensitivity with a short pulse shape at the same time. As it is generally the case, a thin protective layer with the thickness of the best acoustic adaptation was used. To improve the service life, a protective coating resin more resistant to coupling agent attack was used and its thickness was increased. This way,

it was possible to develop a sensor with only slightly reduced sensitivity and a somewhat longer pulse length, which, however, has a very great advantage for the HerkulesGroup as a user in terms of service life.

Development support for the solution of customer requirements is a basic principle of the KARL DEUTSCH company. The high level of reliability in bringing feasible product optimisations to production maturity in a timely manner is an important reason why the HerkulesGroup has been working successfully with KARL DEUTSCH for many years. **La/Lh**



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## ECHOGRAPH 1170: Multichannel Testing Electronics – The Perfect Solution for Integrators!

For several years now, the ECHOGRAPH 1170 testing electronics has been very successfully established in the NDT market. KARL DEUTSCH's own testing systems as well as testing systems from integrators are equipped with this compact and price-efficient module.

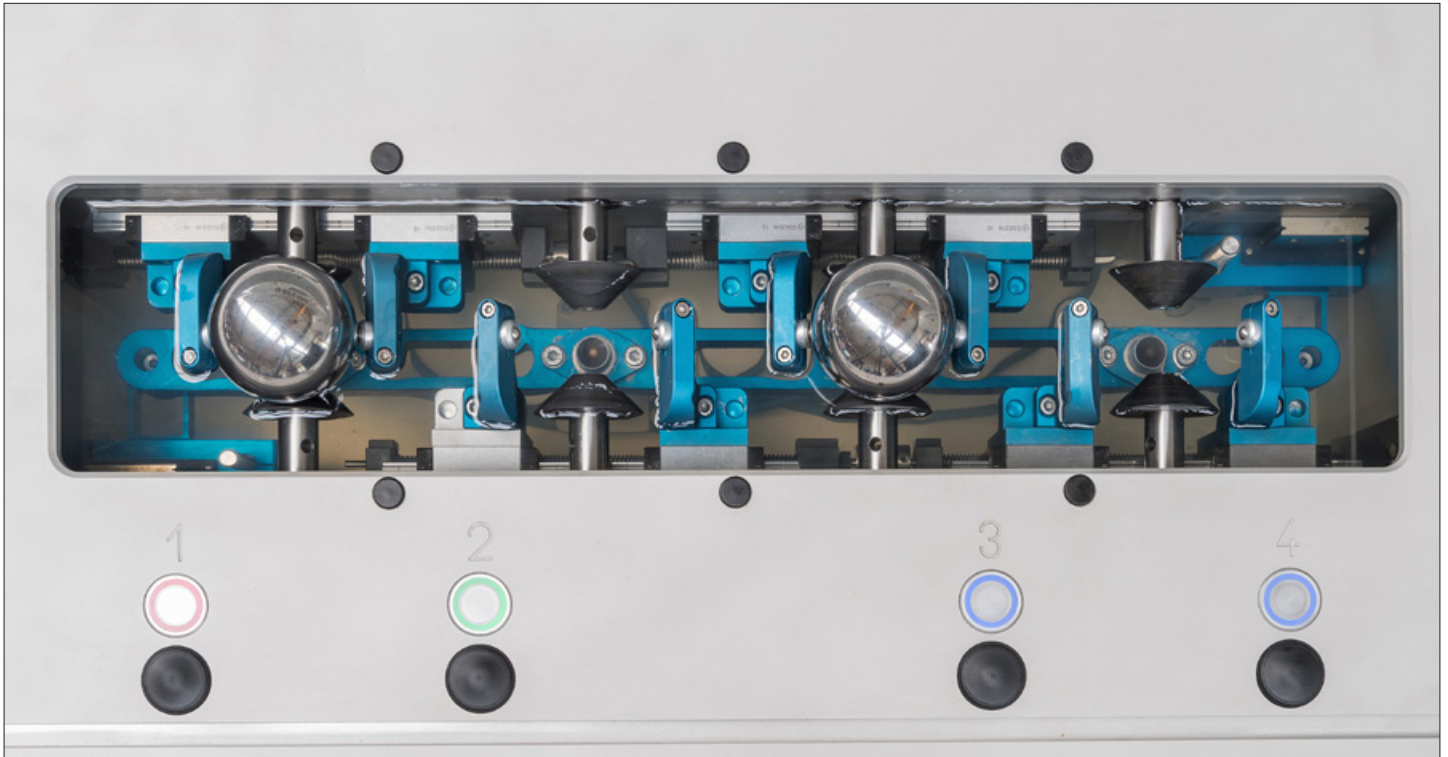
The fast testing electronics is completely self-sufficient and is controlled via an industrial PC. In the PC, the ultrasonic data are processed to customer's specifications with the help of the specially developed ECHOVIEW software. Strip charts, C-scans, tables and statistics are available, amongst others. Experienced integrators can also employ their own data software and use the ECHOGRAPH 1170 electronics as an OEM module. Combined inspection systems using several inspection methods (e.g. eddy current and ultrasound with shared data software) have also been successfully implemented.

Also for a small number of channels the price-efficient ECHOGRAPH 1170 testing electronics is frequently utilized. Typical examples comprise the inspection of bearing rings, rollers and balls. Several of the world's leading bearing manufacturers rely on KARL DEUTSCH for these applications! In this context, our worldwide sales and service network is important as well, ensuring short response times for our international customers.

One of our many integrators is the company N-DECT, based in Pretzfeld (north of Nuremberg, Germany). Managing Director Jens Geiger was very satisfied with the smooth integration of the testing electronics into his roller inspection mechanisms and with the good support during the projects in Germany, Europe and China.



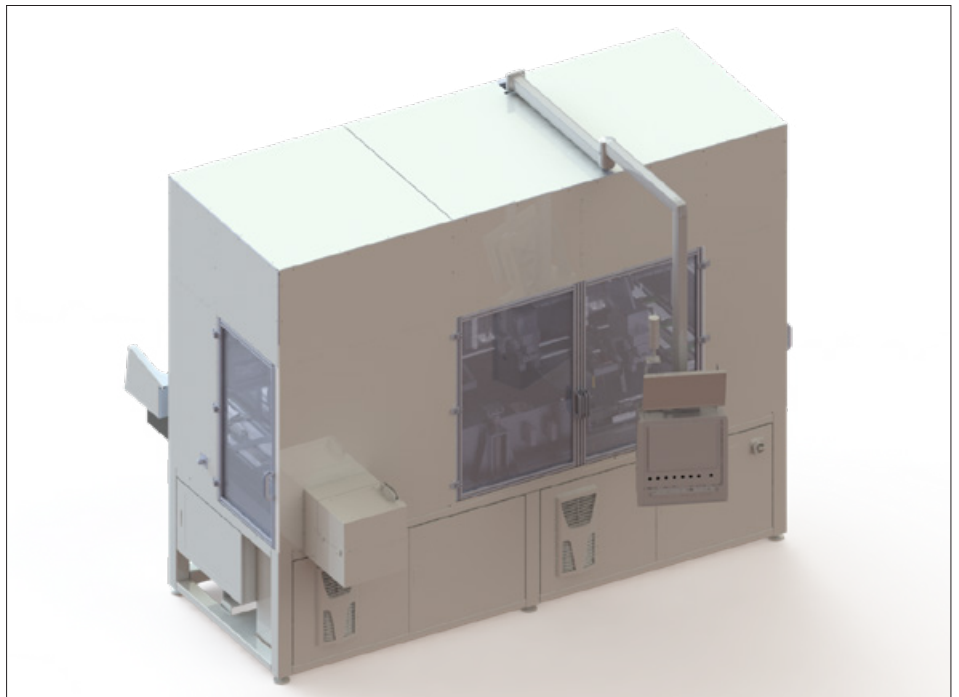
The ECHOGRAPH 1170 testing electronics is based on very compact, four-channel modules that are interconnected according to the number of channels. Since special through-transmission methods are also supported (e.g. for nodularity testing on castings), eight LEMO sockets can be seen.



**Top view of a testing system for ball testing with four stations (two of which are equipped with a part to be tested)**

Fast and simple communication between the testing electronics and the electrical control system via suitable interfaces (e.g. TCP/IP, Profinet) is important. In addition, roller inspection has some special features. Since the sound paths change constantly during the probe movement relative to the roller, the ultrasonic parameters (e.g. the monitor gate length) must be dynamically adjusted with reference to the probe position. The test sensitivity is often defined by 0.5 mm FBH and therefore requires particularly low-noise electronics with a large adjustment range for depth compensation (TCG Time-Corrected Gain). The demands on the test mechanics are high as well. The probes need to be guided precisely along the surface of the roller, in the case of spherical rollers via a three-dimensional axis control.

This makes the multichannel ECHOGRAPH 1170 testing electronics the perfect tool for a wide range of inspection tasks: Laser-welded gear parts, SEP-1927



**Compact ultrasonic testing system for roller inspection from the company N-DECT with automated infeed and outfeed of the rollers**

immersion tanks for testing of the cleanliness rate, pistons, valves, bearing components and many more. **WD**



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ECHOGRAPH 1170



## ECHOGRAPH 1170: Testing of Bearing Rings

For the testing of rings, two electronic systems were supplied to an internationally operating machine manufacturer for integration into a mechanical system including control.

The inspection task involves detecting a 0.5 mm FBH at a depth of 0.5 mm in front of the rear wall.

For this purpose, the ring to be tested is positioned centrally on a turntable. Depending on the type of ring, the inspection can be carried out under rotation from either the inside or the outside in an immersion tank. By setting the appropriate parameters in the control system, the rotational speed and the gradient per rotation can be adjusted according to the dimensions of the ring.

The evaluation is carried out by means of KARL DEUTSCH's own software ECHOVIEW in the strip chart version.



**View of the rotating ring at maximum test speed**

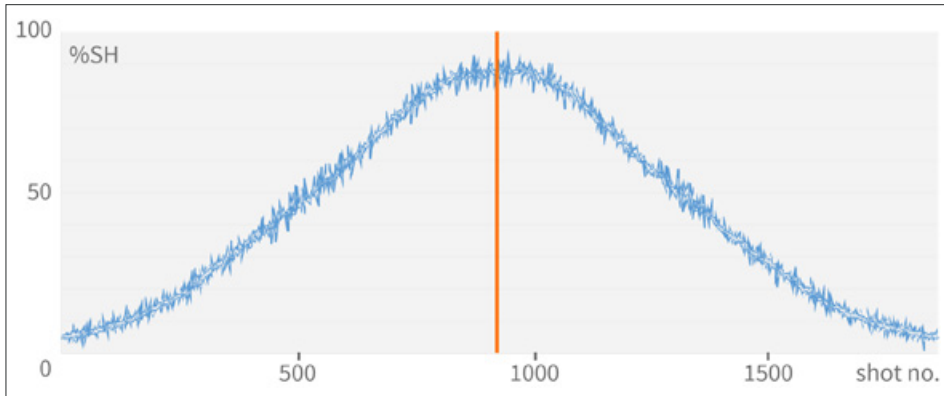
Here, the back wall is monitored during the entire test cycle by means of a pre-set monitor gate. During the test, results are visualised via a live strip chart. In the event of a flaw, the lifting/rotation stops and the operator is given the opportu-

nity to take a closer look at the suspected defect or to continue the inspection.

Since the manual alignment of the probe is generally very time-consuming,



**Water nozzle coupling for bearing ring testing with a robot**



Recording of the maximum amplitude per shot across the angular range



Test setup with horizontal ring for automatic vertical alignment of the probe

KARL DEUTSCH took this test task as challenge to automate the alignment of the probe to the test specimen by means of a collaborative robot. The probe is attached to the robot arm as a so-called tool and the focus point of the probe is defined as a reference point (Tool Center Point – TCP).

In ECHOVIEW, an algorithm was implemented as a link between the robot and the evaluation, which takes over the control of the robot and thus provides the basis for automation.

Starting from a initial position, the vertical alignment of the probe is carried out by rotating it with respect to the x- or y-axis of the workpiece surface. To do this, the amplitude is recorded for a large angular panning of one axis (approx.  $\pm 7^\circ$ ) and the best orientation is determined using curve fitting.

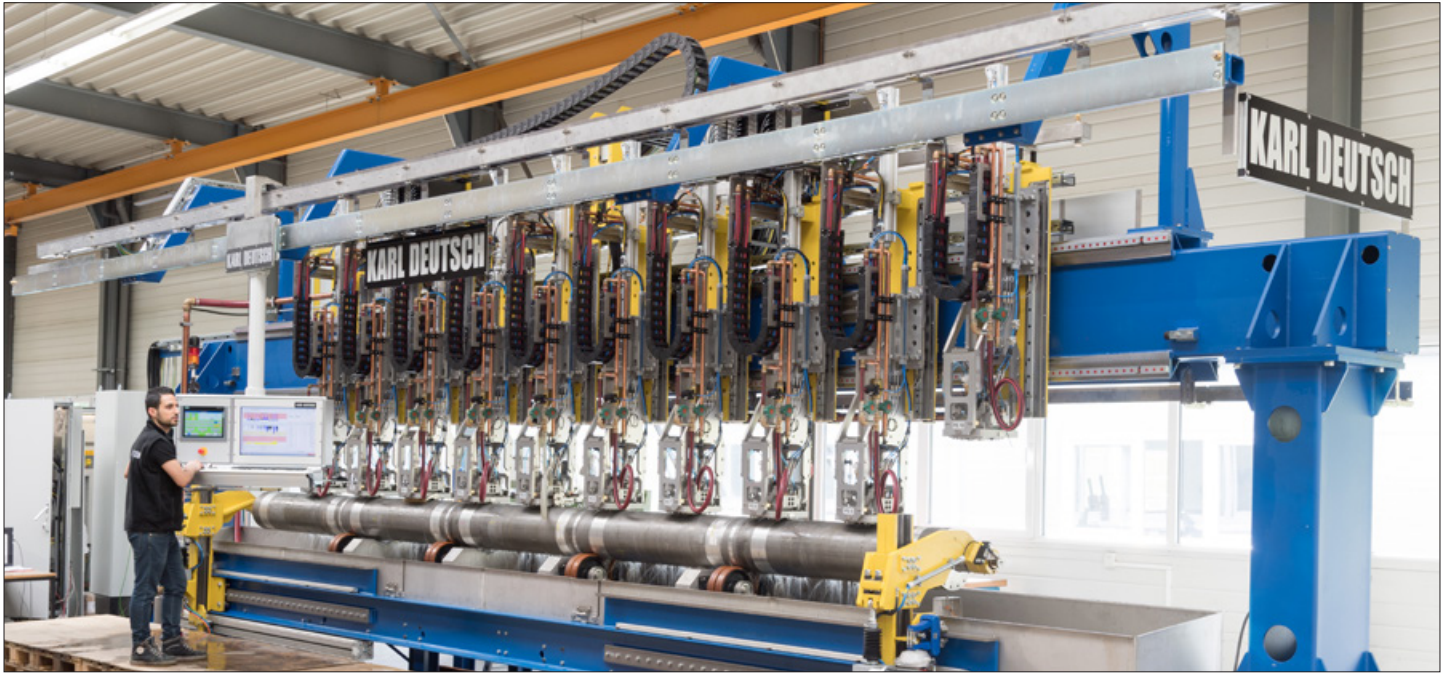
The procedure is then repeated for the other axis based on the determined orientation. To further increase the accuracy, the procedure is repeated in a second step with a smaller angular range. **Rz**



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## ECHOGRAPH-ALPT: Testing of Aluminium Round Bars According to Aviation Standards



ECHOGRAPH ALPT test bridge for aluminium round bars with eight test systems

**Recently, an ECHOGRAPH ALPT testing system was successfully commissioned for our customer Otto Fuchs in the German town of Meinerzhagen.**

The system is a test bridge whose unsupported length allows testing of aluminium billets (round bars) up to 7 m. The bar diameters are between 130 mm and 530 mm. On this test bridge a test carriage with 10 test systems is mounted. These test systems can be lowered individually. The central height adjustment is done automatically by entering the bar diameter. After determining the exact axial position of each part to be tested (by means of linear positioning system located at the stops), it is automatically selected which of the test systems will be used. Then, by entering the untested ends, the corresponding start and end positions of the test systems are set.

For testing, continuous rotation of the bar is started with the help of a rotating roller

station, whereby the rotational speed is individually selected according to the maximum possible pulse repetition frequency. Each of the test systems can be lowered onto the surface of the round bars and is guided on the surface with the help of a protective base and four rollers. The height clearance of the test systems is  $\pm 40$  mm to compensate for any straightness deviations. In addition, the inspection systems have a cardanic suspension with three degrees of freedom.

The ultrasound enters the bars via a guided water jet. During the test, internal defects are checked by means of perpendicular insonification. The coupling check is carried out by monitoring the surface echo and the backwall echo. Inspection with two angle probes per inspection system enables the detection of surface cracks.

After inspection, the bars are taken to the exit side of the inspection bridge by means of a transport trolley and deposited

there on another rotary roller station. While the next bar is examined in the inspection station, the detected defects as well as the uninspected ends are marked in colour at this exit-side rotary roller station.

In addition to the ECHOGRAPH-ALPT testing system, the scope of supply also included the infeed with separation, the rotary roller stations below the test bridge and in the outfeed, the marking station as well as the bar deposit in the outfeed and the entire safety fencing with CE declaration of conformity.

The test is based on the specification AMS-STD-2154A according to class AA (0.8 mm FBH) up to a diameter of 264 mm and class A (1.2 mm FBH) for larger diameters. Due to a fast transverse transport underneath the test bridge and the high circumferential speed of up to 1 m/s, a total cycle time between 2.5 and 10 minutes can be achieved. The findings are





Cardanically suspended testing systems, each with one vertical probe and two angle probes



Convenient adjustment of the testing system by a laterally movable control panel

provided in the form of strip charts and flaw tables.

Set-up of the test system is carried out by means of adjusting blocks of different diameters. The elaborately manufactured adjusting blocks were provided with eroded flat bottom holes at different depths and with surface grooves. Each test flaw was applied five times into the adjusting blocks to enable fast and efficient adjustment of the 10 testing systems. **WD**



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ECHOGRAPH-ALPT/RPTS

## GEKKO and MANTIS: Latest Version of the Operating Software CAPTURE

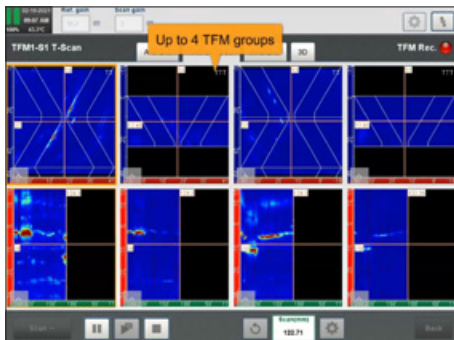
The **CAPTURE** operating software for **GEKKO** and **MANTIS** portable PA flaw detectors has reached the next level in terms of user-friendliness and functionality.

In addition to improved ergonomics, the current version 3.2 offers many new fea-

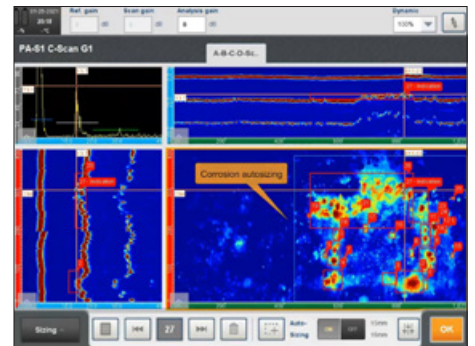
tures that simplify everyday testing. As part of the test data analysis, corrosion measurements can now be automatically evaluated and indication areas can be merged. An integrated scan planning module allows test parameters to be set up quickly and accurately.

Now, TFM technology is multi-group capable, both multimodally and with multiple probes! Improved image processing also ensures clearer and less noisy phased array and TFM displays.

And last but not least, software updates are now automatically imported via a cloud connection if required. You may therefore concentrate on your actual task, i.e. testing. **Ki**



TFM test with up to 4 groups simultaneously



Automatic evaluation of corrosion measurements

Contact: [kierspel@karldeutsch.de](mailto:kierspel@karldeutsch.de)



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## ScanMaster UT/x: Convincing Performance in Spot Weld Inspection with Phased Arrays

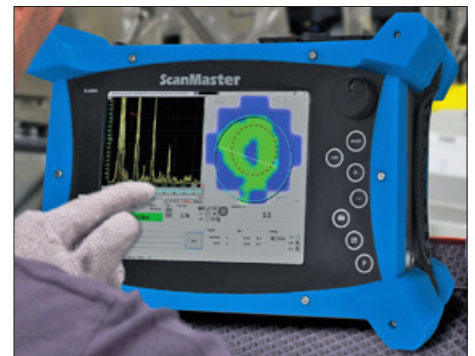
During recent months, phased array spot weld inspection with the **ScanMaster System UT/x** has been put through its paces in numerous test series in the automotive industry.



The image was taken during a speed test, which once again confirmed that the UT/x is capable of reading, analysing and classifying spot weld inspection results in a fraction of a second.

Thickness accuracy as well as speed, prediction, correlation and repeatability tests were used as comparison parameters in the tests. All measurements were automatically documented and then statistically compared with the results from destructive testing.

The tests showed that the ScanMaster UT/x is a highly accurate and fast solution with excellent reproducibility for spot weld inspection in automotive production! **Ki**



The UT/x provides A and C images of the spot welds.



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Spot Weld Testing

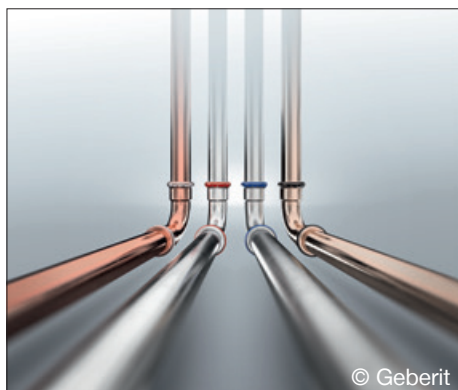


## ECHOGRAPH 1095: Testing of Press-Fit Joints

The globally active Geberit Group is the European market leader for sanitary products. Geberit has a strong local presence in most European countries and can therefore offer unique added value in the field of sanitary technology as well as in the area of bathroom ceramics.

The manufacturing capacities comprise 29 production plants, six of which are overseas. The group headquarters is located in Rapperswil-Jona, Switzerland. With approximately 12,000 employees in around 50 countries, Geberit achieved sales of CHF 3.0 billion in 2020. Geberit shares are listed on the SIX Swiss Exchange and have been a component of the SMI (Swiss Market Index) since 2012.

Geberit uses the EST5 insertion depth measuring device to check insertion depths on pressed Geberit Mapress fittings in drained metallic piping systems. It enables the press connections to be checked directly after installation. Possible leaks can thus be located and repaired at an early stage and before the piping system is put into operation. The EST5 device from Geberit consists of several customised KARL DEUTSCH products: In addition to



There is hardly an application in the residential, commercial and industrial sectors that cannot be solved with the Geberit Mapress supply system.



Checking the insertion depth in the connection sleeve

the ECHOGRAPH 1095 ultrasonic flaw detector, several special probes and miniature wedges are used to adapt to different geometries and materials of Geberit Mapress fittings. Ultrasonic testing is based on plate waves that are reflected at the pipe end in the pressed joints. Refraction angles of the plate wave of 90° are generated by means of adapted wedges.

example, the assignment of the function keys with a configuration browser and the activation of password protection. The user can open the preset data sets and carry out further adaptation to the test situation. However, overwriting the data sets or adjusting test-relevant parameters is not possible due to the activated password protection. **Gd**



Different probes for different materials of the pipelines to be examined



For an optimum test result, configuration settings were defined in the KARL DEUTSCH application technology laboratory for each test situation, checked on test pieces and optimised. The EST5 base unit ECHOGRAPH 1095 is delivered with these configurations stored exworks at KARL DEUTSCH, additional presettings and a customer-specific start screen with Geberit logo. The presettings include, for



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ECHOGRAPH 1095

## LEPTOSKOP 2042: Coating Thickness Measurement with a System

**The brand name LEPTOSKOP stands for decades of experience in the development of precise and reliable coating thickness gauges from KARL DEUTSCH.**

Depending on the probe, the handheld device with the clear display determines the thickness of non-magnetic layers on magnetisable base material (Fe) (according to DIN EN ISO 2178) and the thickness of non-conductive layers on non-magnetic, conductive base material (NFe) according to the eddy current principle (according to DIN EN ISO 2360).

The range of functions of the LEPTOSKOP can be adapted to the user's individual requirements. If required, functions such

as data memory, statistics and further calibration options can be retrofitted directly on site at any time.

The LEPTOSKOP works with interchangeable plug-in probes designed for either Fe or NFe base materials.

KARL DEUTSCH offers a very large variety of probe models so that a wide range of testing problems can be solved. We would like to direct your attention to the manifold calibration possibilities of the gauge. We have illustrated these in a new LEPTOSKOP video on our YouTube channel. **Ra**



Calibrating the LEPTOSKOP 2042



Video about the calibration of the LEPTOSKOP 2042 gauge on our YouTube channel "NDTChannel"

## DEUTROFLUX: Magnetic Particle Crack Detection System for Precision Bearing Rings

**In February 2021, KARL DEUTSCH delivered a small yet special magnetic particle crack testing system for high-precision bearing rings from a Russian manufacturer. As is typical for a ring inspection, the combined, contactless and pole-free magnetisation by means of current and field flow via a laminated mandrel is used. As a special feature, the mandrel is positioned decentrally.**

At customer's request, we have implemented a motorised rotation of the bearing rings in their system not only during the visual inspection, but also during the magnetisation cycle. The rotation is program-

mable to customer's needs, depending on the part geometry and the inspection requirements. Parameter setting and recipe management for a wide range of parts is achieved conveniently and clearly via the MEMORY touch panel with a customised graphical user interface. Demagnetisation of the components takes place following visual inspection by means of an ESV coil. **Zb**



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Magnetising unit for ring testing with decentralised mandrel



Conveyor belt with integrated ESV demagnetising coil



## DEUTROFLUX-UWE: Inspection of Tools at the Wera Company

The Wera company was founded in Wuppertal in 1936 and is thus even 13 years older than KARL DEUTSCH. More than 1000 employees work for the company, which has been part of the Bitburger Brewery Group since 2016.

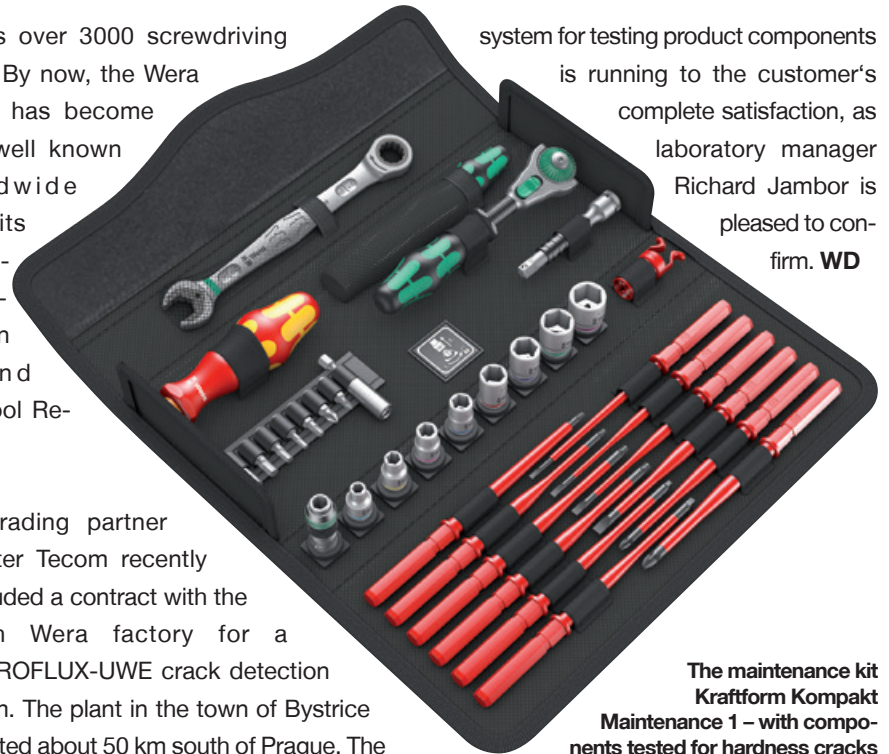


Wera is still headquartered in Wuppertal today. Employees and customers are self-confidently called "Tool Rebels". Other subsidiaries are operated around the globe, for example in England, the USA and the Czech Republic. The product range in-

cludes over 3000 screwdriving tools. By now, the Wera brand has become very well known worldwide with its communication around the Tool Rebels.

Our trading partner Foerster Tecom recently concluded a contract with the Czech Wera factory for a DEUTROFLUX-UWE crack detection system. The plant in the town of Bystrice is located about 50 km south of Prague. The

system for testing product components is running to the customer's complete satisfaction, as laboratory manager Richard Jambor is pleased to confirm. **WD**



The maintenance kit Kraftform Kompakt Maintenance 1 – with components tested for hardness cracks



DEUTROFLUX-UWE crack detection system with two contacts and a UV-LED large-area lamp



Wera – Be a Tool Rebel!  
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Particle Crack Detection »  
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## DEUTROFLUX: Crack Testing on Components for High-Efficiency Combustion Engines

**Progress and innovation in electromobility have given the market for combustion engines a good shake-up. In a global comparison, however, the combustion engine is still indispensable.**

There have also been many innovations in the technology of internal combustion engines in recent years. In order to increase the amount of oxygen in the combustion chamber, the fresh gas pressures have been increased more and more with the aid of turbocharging. By increasing the fuel injection pressures, it became possi-

ble to significantly reduce the amount of fuel needed. In particular, to reduce the friction values, the weights of components such as pistons, crankshafts and connecting rods were considerably lowered. Combustion chamber sizes and fuel consumption have almost halved in recent years, leading to high-compression engines.

Due to technical development of the engines, the quality demands on the components have raised considerably. All components of a modern combustion engine must be able to withstand higher loads,

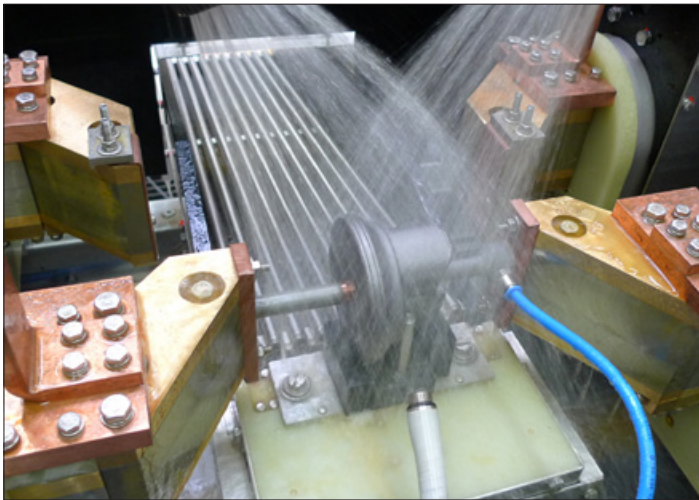
and this to a much greater extent than it was the case just a few years ago - while maintaining the longest possible running and operating times.

Faulty components can lead to significant damage in the engine compartment. In addition to the material dam-

age, however, the associated immaterial damage in the form of loss of image, for example, may also not be inconsiderable. It is therefore all the more important to detect and sort out faulty components at an early stage in the production process. With its versatile inspection systems, KARL DEUTSCH offers the right solution for every test part family.

An essential and at the same time highly stressed part of the engine mechanics is the crankshaft. It is the central link in the engine block and converts the oscillating motion of the pistons into a circular motion. The main loads on a crankshaft occur in the area of the main bearings and the bearings of the connecting rod. Therefore, a major focus of its material testing is on the mentioned bearing surfaces and the connecting shaft areas. This testing task is optimally solved by test benches of the DEUTROFLUX UWS series with combined magnetisation and a moving coil.

This also applies to the latest project for a well-known Indian manufacturer of crankshafts for three-cylinder engines. In order to meet the cycle time specifications, the machine was designed as a



Piston test in a DEUTROMAT with four contacts



DEUTROMAT crankshaft test with two contacts



Connecting rod testing in a DEUTROMAT with chain conveyor





**DEUTROFLUX UWS dual station for fast crankshaft testing with moving coil**

double system and provides two separate magnetising stations. The completed system is currently on its way to the customer in India and will be commissioned in the next few weeks. On site, the system will be operated in the interlinking of

the fully automated production line. Feeding is carried out by a robot system with double gripper.

A careful interface coordination before delivery was important for this project. Com-

munication with the higher-level control system had already been tested in detail at the Wuppertal plant, so commissioning at the customer's site is carried out independently and without the support of KARL DEUTSCH service engineers. Thus, the business trip in Corona times can be avoided. Thanks to our global network of sales partners, we are able to provide expert support worldwide. In this case, the initial training is provided by NDT TECHNOLOGIES based in Mumbai. **Ba**



**Full commissioning of the DEUTROFLUX UWS testing system in Wuppertal**



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## KD-CHECK SYSTEMS: Test Station for Penetrant Testing

A PT laboratory test station with extensive equipment has been constructed for a major automotive customer. Complying with applicable regulations, all steps of PT testing can be carried out in accordance with standards. The main focus was put on the implementation of demanding customer requirements regarding a compact design and the integration of auxiliary equipment as well as work ergonomics and safety.



Splash guard door with access openings

The modern test station has an integrated hot air blower with temperature monitoring so that the test parts do not

have to be dried laboriously by hand. A turntable as well as a holder for hanging up components make the work processes easier for the inspector.

station. Any wash water is treated in a central filter system and can thus be used in the cycle. The evaluation takes place at a separate viewing table directly next to the test cabin. **Rb**



KD-CHECK SYSTEMS: Test station with splash guard door, daylight lamp, extraction unit and hot air blower

Connections for washing water and compressed air in the test room support the requirement for a clean working environment at the test



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Testing Stations



Test chamber with turntable and internal connections for water and compressed air (with a laboratory test part)



## ECHOMETER 1077: Sophisticated Testing Task for Eccentricity Measurement Solved



Wall thickness measurement of a metallic protective sleeve at several circumferential points to assess the eccentricity

**Gustav Möller GmbH from the German town of Limeshain is a mechanics company with over 40 years of experience. The focus of production is on turned parts made of stainless steels and various special materials such as Hastelloy®, Inconel® or Monel®. The company specialises in individual pieces and small series and also offers milling and deep-hole drilling work, as well as CNC-milled components, using partner companies.**

Turned and deep-hole drilled protective sleeves are manufactured for a nuclear application. These sleeves have an outer diameter of approx. 6 mm in the deep-hole drilled area with a wall thickness of approx. 1 mm, which is similar to the dimensions of a drinking straw.

The end customer requires a proof of low eccentricity in this area, i.e. the most even distribution of the wall thickness possible over the circumference.

KARL DEUTSCH was able to successfully solve this demanding testing task with the ECHOMETER 1077 and a high-frequency 22 Mhz delay line probe. For better guidance of the probe (vertically and centrally on the highly curved surface), our customer manufactured a centering aid in his workshop. With this setup, the wall thickness of the sleeve can be measured precisely all around. While the component is slowly rotated by hand in a prism, the wall thickness value can be observed. The largest and smallest wall thickness values are recorded. During measurement, the image of the echo sequence can be checked at any

time to rule out faulty measurements caused by poor coupling.

Our conclusion: This was a good cooperation despite difficult conditions! Due to Corona travel restrictions, this challenging testing task was successfully solved by the mutual exchange of sample parts, a loaner device provided by us and some telephone and video conferences. **KS**



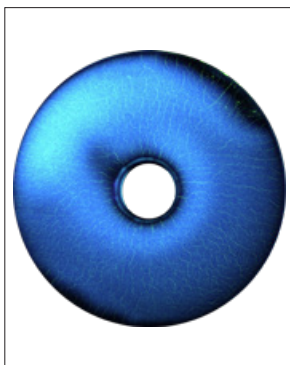
[www.karldeutsch.de](http://www.karldeutsch.de) »  
Products » Wall Thickness  
Gauges » ECHOMETER 1077 Data

## FLUXA Testing Oils for Magnetic Particle Testing

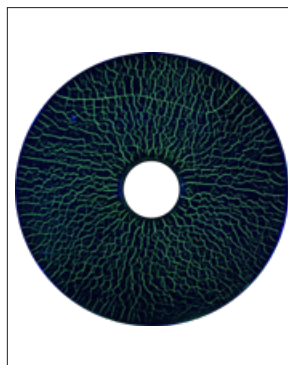
An important criterion for the selection of a suitable testing oil is the intrinsic fluorescence. When wet testing with oil, it is very important for the detectability of possible indications that the carrier medium has a very low intrinsic fluorescence under UV light.

All FLUXA testing oils as well as concentrates and finished preparations made with them, are optimised in this respect so that the inspector receives high-contrast readings when using KARL DEUTSCH products.

In addition, our testing oils comply with many national and international standards



Testing oil with excessive intrinsic fluorescence



FLUXA testing oil



FLUXA HS-O, ready-to-use

such as DIN EN ISO 3452, SAE AMS 2641, ASTM E 1444, ASTM E 709, ASME Code Sec. V Art. 7 etc. We would be happy to send you a sample for testing. **Rb**



[www.karldeutsch.de](http://www.karldeutsch.de) »  
Products » Chemical  
Products » Magnetic Parti-  
cle Testing w/ FLUXA Test-  
ing Agents » Testing Oils

## KARL DEUTSCH Donates Computers

During the Corona pandemic, it is even more important than usual to have access to a computer being in working order. School, work, culture: many activities take place digitally.

But many people do not have a PC and also do not have the means to spontaneously purchase one. For this reason, used PCs were collected in Wuppertal in order to pass them on to people with a corresponding need.

The campaign was organised jointly by the groups „Miteinander Füreinander Heckinghausen“, „Sozialdienst katholischer Frauen“, the refugee initiative „KOMM“ and the „Gestalterkreis“ (people around the new Lord Mayor of Wuppertal Uwe Schneidewind). Volunteers have refurbished the computers and installed a basic set of software so that the computers are ready for use in



Photo: SkF Bergisch Land

Handover of the donated computers (from left to right): Jeannette Remberg-Trump (SkF), Marie Haus and Dirk Emde (Gestalterkreis Uwe Schneidewind), Uwe Schneidewind (Lord Mayor of Wuppertal), Dorothee van den Borre (SkF) and Günter Wahle (Initiative Miteinander Füreinander Heckinghausen).

schools and at home. KARL DEUTSCH was very happy to participate in this

campaign and donated several used computers. **Kr**



## 10 Years of Support for the Junior Uni by KARL DEUTSCH

**The Wuppertal Junior Uni for the Bergisches Land region is a teaching and research institution for young people between the ages of four and twenty. It is unique in Germany to date. Various areas of interest – from natural sciences, social sciences, business administration and sports – can be explored and learned about by curious girls and boys in age-appropriate courses. Every semester, more than 400 courses show the diversity of the teaching offers.**

The lecturers of the Junior Uni come from science, business and industry and enjoy passing on their knowledge to the young generation. In addition to technical knowledge, the aim is to enthuse them for a field of knowledge. The young students gain experience at the Junior Uni that often helps them to decide on a career or study programme.

The participation fee for an 8-week course is at about 10 € so every interested young person can participate. Of course, this fee does not cover the expenses of the Junior Uni. The institution is supported by a high level of commitment from local companies, foundations, its friends' association and also supra-regional supporters. The company KARL DEUTSCH has been a partner of the Junior Uni since the very beginning – i.e. for more than 10 years now.

Our former employee Ulrich Engelke offers a physics and electrical engineering course. KARL DEUTSCH funds the procurement of electronic components. At the end of the course, there is always an excursion to the company headquarters of KARL DEUTSCH. Here,



Photo: Junior Uni

**Dipl.-Ing. Ulrich Engelke imparts exciting knowledge at the Wuppertal Junior Uni**

the junior students see how measuring devices are developed and produced based on theoretical knowledge and

learn about their industrial application in materials testing. We are always happy about this great visit! **Eg**



**Visit of the young researchers to KARL DEUTSCH**

## Foundation of KARL DEUTSCH RUS

For several years now, we have been working successfully with the Russian company USPS in Chelyabinsk under the management of Anton Sevryukov. USPS has done a great job in recent years, despite the difficult economic situation in Russia and strong local competition. In 2020, for example, a magnetic particle crack detection system for bearing rings was sold (see page 12) and many promising projects are also underway this year.

In spring 2021, we put our cooperation with the USPS company on a new footing: The company KARL DEUTSCH RUS was founded in Moscow. Since decisions on many investments are made in Moscow, a company based there is a great advantage. The company name also testifies to the trust in our partner Anton Sevryukov and in the Russian market.

So it's a happy coincidence that there are employees in Wuppertal who are able to communicate with our Russian customers and colleagues without a language barrier:



**Anton Sevryukov from KARL DEUTSCH RUS and Dr. Nadezhda Volkova from the NDT training centre TESTING AND DIAGNOSTICS work closely together regarding NDT training.**



**Training at the NDT training centre TESTING AND DIAGNOSTICS in Moscow with ECHOGRAPH ultrasonic testing equipment (from left to right: Aleksey Alekseev, Anton Sevryukov, Sergey Bobrov, Natalya Makovchuk).**

Dr. Kirill Zilberberg – a native of Chelyabinsk – studied electrical engineering and received his doctorate at the University of Wuppertal and has built up a close relationship with our Russian sales partner and customers. Timur Sayfullaev – a native of Uzbekistan – studied in Russia and Cologne and supports not only Russian customers as a Level 3 employee of our laboratory for ultrasonic testing equipment.

We are sure that with this new constellation we will be able to serve the Russian market even better in the future and are looking forward to exciting projects!



**Dr. Wolfgang Weber (KARL DEUTSCH Sales Manager), Anton Sevryukov (KARL DEUTSCH RUS) and Timur Sayfullaev (KARL DEUTSCH UT-Systems Test Laboratory) are pleased with the good cooperation during a trade fair in Moscow (from left to right).**

KARL DEUTSCH RUS works closely with the NDT Training Centre - Research and Training Centre TESTING AND DIAGNOSTICS under the direction of Dr. Nadezhda Volkova. The NDT training centre has been a partner of the DGZfP for a long time and has worked with ECHOGRAPH ultrasonic testing equipment already before. **Zb/WD**



## Quality “Made in Germany” for the Whole World

Due to its high product quality, **KARL DEUTSCH** has been known in German-speaking countries for decades. The reliable service and customer-oriented on-site advice are highly appreciated. But **KARL DEUTSCH** is also optimally positioned in the EU and in faraway countries with its four subsidiaries in Sweden, Italy, Russia and China as well as a further 46 sales partners worldwide.

We have a long history and many years (even decades) of successful cooperation with most of our partners abroad, for which we would like to thank them wholeheartedly. **KARL DEUTSCH** is known abroad as an attractive supplier of complex solutions. As a result, we have recently been able to add 11 new competent agencies in Ukraine, Saudi Arabia, the Baltic States, Greece, Turkey, Brazil, Croatia, Serbia, Slovenia and the USA, among others.

In 2020, the Corona pandemic also put our international cooperation to a tough



**Festive dinner at the last International Sales Meeting**

test. Due to travel restrictions and pandemic measures by the respective local governments, most of the planned national and international trade fairs, conferences, workshops and other customer-facing marketing events were cancelled. However, the support of existing partners and the integration of new ones will continue in a very time-effective and modern way, among others by means of our online product training offer.

In the current global economic situation, it is our unique diversification of products and industry solutions, but above all – with an export share of over 50 % – also our diversification on the global market that allows us to master these difficult times with confidence and remain an

employee-friendly, family-run and independent company. **Zb**



**We train our partners in all product areas: On-site and online.**



**Joint international trade fair presentation**



**Fun is not neglected either!**



## KARL DEUTSCH is a True Hidden Champion!

This year, KARL DEUTSCH joined the association Verband Deutsche Hidden Champions e.V. (VDHC) and immediately hosted an online event with the business metropolis of Xuzhou. More than 150 participants from Germany and China joined the event. In Xuzhou, ThyssenKrupp Rothe Erde operates a plant for rolling contact bearings in wind turbines, using more than 15 KARL DEUTSCH crack detection systems. **WD**

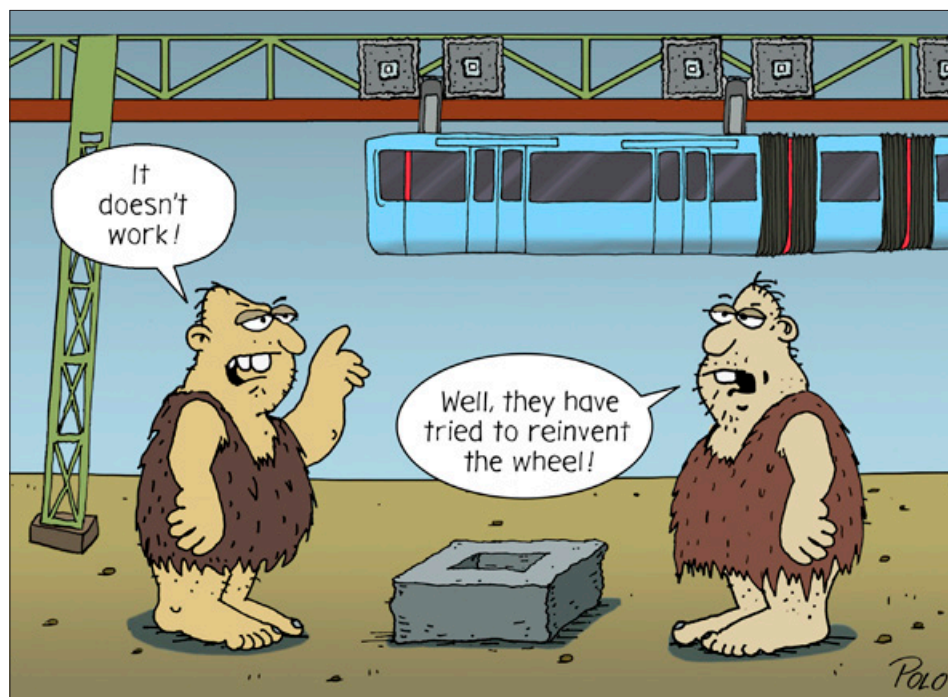


**Dr. (USA) Wolfram Deutsch (KARL DEUTSCH) and Georg Türk (MD VDHC) after signing the accession document during the presentation of gifts.**



**Dieter Böning (Chairman VDHC), Olaf Deutsch (KD-China), Dr. (USA) Wolfram Deutsch (KARL DEUTSCH), Georg Türk (MD VDHC) and Songtao Xie (CIPA Magdeburg), from left to right, after the successful event in the newly designed meeting room of KARL DEUTSCH with a bust of the famous Wuppertal-born Friedrich Engels.**

## Cartoon



Unfortunately, the suspension railway, the landmark of our town of Wuppertal, is currently not running because the development of the new wheels led to unforeseen problems in daily use. The wheels wear out after a very short time and now, just a few months after their new introduction, they have to be fundamentally overhauled. We are already looking forward to when our suspension railway moves through the valley again. **Kr**

*For the KD-INFO, graphic artist André Poloczec, aka POLO, from Wuppertal prepares scenes of non-destructive testing or current topics at KARL DEUTSCH in a humorous way.*



## New Employees at KARL DEUTSCH

Since KARL DEUTSCH was founded over 70 years ago, our employees have made a special contribution to the company's success. Many have been working for KARL DEUTSCH for decades, so that our customers benefit again and again from the long-standing, close relationships and the jointly acquired know-how.

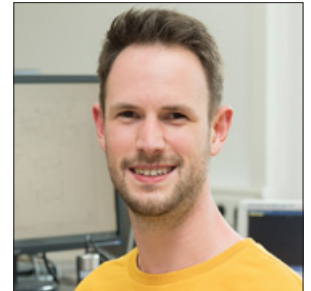
In the past few months, we have welcomed new colleagues to KARL DEUTSCH. We are pleased about the team expansion and would like to introduce them briefly here.



**Katja Huth**  
Order Processing Export



**Niklas Pfersdorf**  
Marketing Student Trainee



**Jens Weber**  
Development of  
Portable Instruments



The KARL DEUTSCH team is looking forward to the future teamwork.

## New Head of Division for Crack Detection Systems



**Dr. (USA) Wolfram A. Karl Deutsch (Director), Daniel Braun (Head of Division Crack Detection Systems) and Dietger Schäle (Managing Director), from left to right.**

Since March 1<sup>st</sup>, 2021, Daniel Braun has been working at KARL DEUTSCH as head of the product division Crack Detection Systems. With a total of 20 employees, this includes the departments of design, production and assembly of systems for magnetic particle crack detection and dye penetrant testing.

Mr. Braun has over 20 years of experience in special machine construction, including the areas of process engineering and power plant technology. He may look back on seven years of international assembly and commissioning activities and has a sound knowledge in the field of PLC programming and electrical design. **Kr**

## Trade Fair Outlook



**09 June 2021, 7:00 p.m. Saudi Time**  
**ASNT-SAS Saudi Arabian Section**  
**Virtual Technical Meeting**  
Online Event  
<https://www.asnt.org/SaudiArabian.aspx>



**19 – 21 October 2021**  
**49<sup>th</sup> National Conference of NDT**  
Hotel AQUARIUS SPA  
78-100 Kołobrzeg, Poland



**11 – 14 October 2021**  
**testXpo**  
**29<sup>th</sup> International Expo for**  
**Materials Testing**  
Zwick Company  
89079 Ulm, Germany



**28 February – 04 March 2022**  
**20<sup>th</sup> WCNDT**  
**World Conference on**  
**Non-Destructive Testing**  
Songdo Convensia  
Incheon, Korea



**03 – 06 May 2022**  
**34<sup>th</sup> Control**  
**International Trade Fair for**  
**Quality Assurance**  
Stuttgart Fair, Germany



The titles of our lectures given at trade fairs and conferences and other current dates can be found on our homepage:

[www.karldeutsch.de](http://www.karldeutsch.de) » News & Dates » Dates

## About KARL DEUTSCH

### KARL DEUTSCH

**Pruef- und Messgeraetebau**  
**GmbH + Co KG**

The privately owned company KARL DEUTSCH was founded in 1949 and develops and produces instruments for non-destructive material testing. Portable instruments, stationary testing systems, sensors and crack detection liquids are produced by 130 motivated employees in two works in Wuppertal. Additional 20 employees in international offices and a worldwide network of dealers support the export business which accounts for more than 50 % of the turnover. Characterised by continuous innovation and product reliability, the trade marks



**Main offices and manufacturing site for portables, sensors and chemicals (Works 1)**

**ECHOGRAPH, ECHOMETER, DEUTRO-FLUX, LEPTOSKOP, FLUXA, KD-CHECK** and **RMG** are well-recognised. Our customers are metal producing and processing industries, e. g. steel works, automotive companies and bearing manufacturers. Typical

test tasks are ultrasonic weld testing, detection of shrink holes in castings, crack detection in forgings with magnetic particles and dye penetrants, safety components for railway and aerospace as well as the wall and coating thickness measurement.



**Offices and manufacturing site for testing systems (Works 2)**

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# KARL DEUTSCH