



## **DEUTROFLUX UMT**

Universal Stationary Magnetic Particle Crack Detectors

**KARL DEUTSCH**

# DEUTROFLUX UMT – At a Glance

The DEUTROFLUX UMT crack detection system sets new standards in magnetic particle crack detection. Two phase-shifted AC magnetic fields reliably detect cracks of all orientations. The clamping length of the detector can be easily adjusted - even after long periods of use, as the adjustment mechanism is located outside the spray area. The modular machine construction allows many designs in order to optimally adapt the testing system to your testing task.

## **A** MEMORY Control

The test parameters are managed via an (optional) touch panel and incorrect operation is avoided.

## **B** Contacts

Two combined contacts for current and field flow

## **C** UV-Lamp

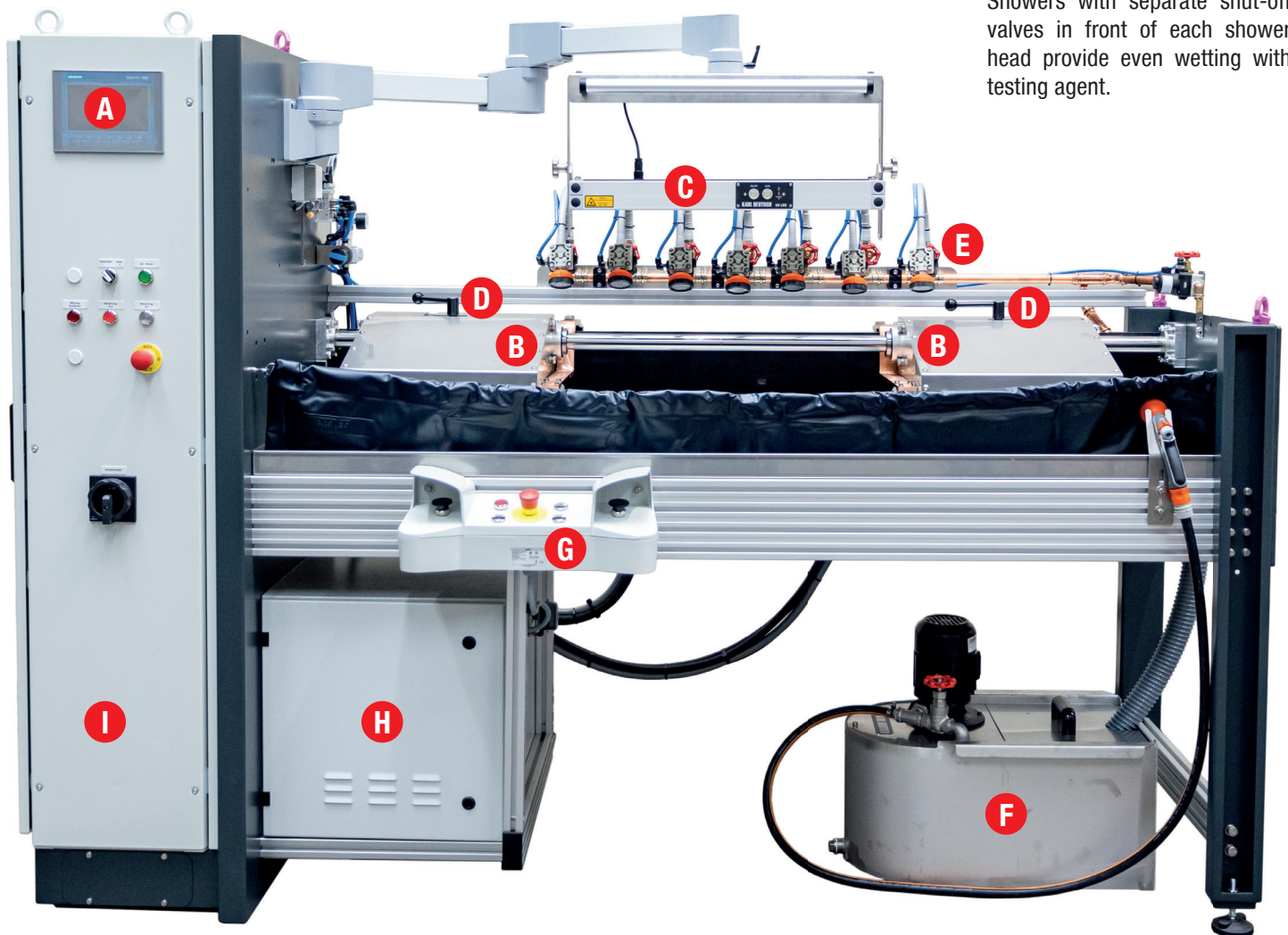
The UV-LED large-area lamp enables convenient and energy-saving work (option: freely adjustable).

## **D** Adjustment of the clamping length

Quick and easy adjustment is ensured via one (optionally two) clamping levers.

## **E** Wetting

Showers with separate shut-off valves in front of each shower head provide even wetting with testing agent.



## **I** Control Cabinet

The control cabinet contains high-quality components from SIEMENS and other well-known manufacturers. The control system can be adapted very individually to your wishes.

## **H** Transformers

Powerful transformers ensure many years of trouble-free operation, even in three-shift operation.

## **G** Two-Hand Operation

Start the test cycle using an optional two-hand control or a foot switch (standard).

## **F** Container for testing agent

The stainless steel test agent container with circulation pump and coarse dirt filter ensures testing agent in top form.



# DEUTROFLUX UMT – Specifications and Options

## Three clamping lengths

The clamping length depends on the maximum component length. Three sizes are available: 350, 600 and 900 mm



UMT 350



UMT 600



UMT 900

## Adjustable test cycle

A test cycle includes several phases: Clamping, magnetising, rinsing, re-magnetising, demagnetising if necessary (optional) and unclamping. In total, the magnetic particle crack detection usually takes between 8 and 10 seconds. All process parameters can be freely selected and thus optimally adapted to the respective testing task.



## High-quality and durable components

KARL DEUTSCH relies exclusively on high-quality machine components from renowned manufacturers. In addition to SIEMENS controls and switchgear, pneumatic components from FESTO are used.

## Container for testing agents, machine tub and machine parts in contact with the agent

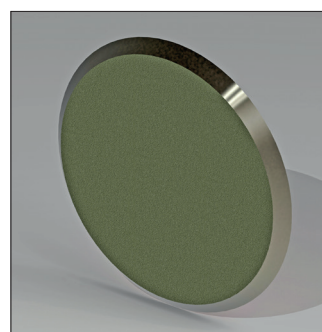
The machine tub, the container for testing agent and covers in the wet area of the system are made of stainless steel. All other machine elements in contact with the agent are made of rustproof materials. Corrosion is thus avoided in the long term.

**Container for testing agent:** The magnetic particles are continuously moved by the circulation so subsiding to the bottom of the container is impossible. With the additionally available trolley, cleaning of the stainless steel container is now even easier.

**Machine tub:** All surfaces of the one-piece machine tub are inclined towards the centre and the drain. This leads to a rapid run-off of the testing agent and thus to a reduced settling of the magnetic particles. Deposits are reduced as a result.

## Contact plates

The contact plate between the machine and the test part is crucial for stable and reliable magnetisation. Manufacturing possibilities at KARL DEUTSCH ensure the optimum transition even for very complex shapes. Our contact plates are characterised by particularly long service lives. In particular, the possibility of rotating the round contact plate allows it to be worn evenly over the entire circumference and thus enables very long operating times.



Contact plate, round (standard)

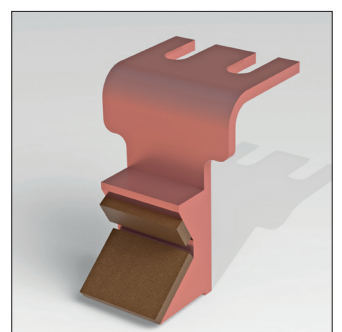
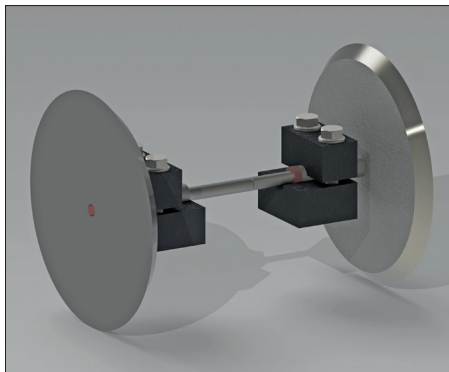
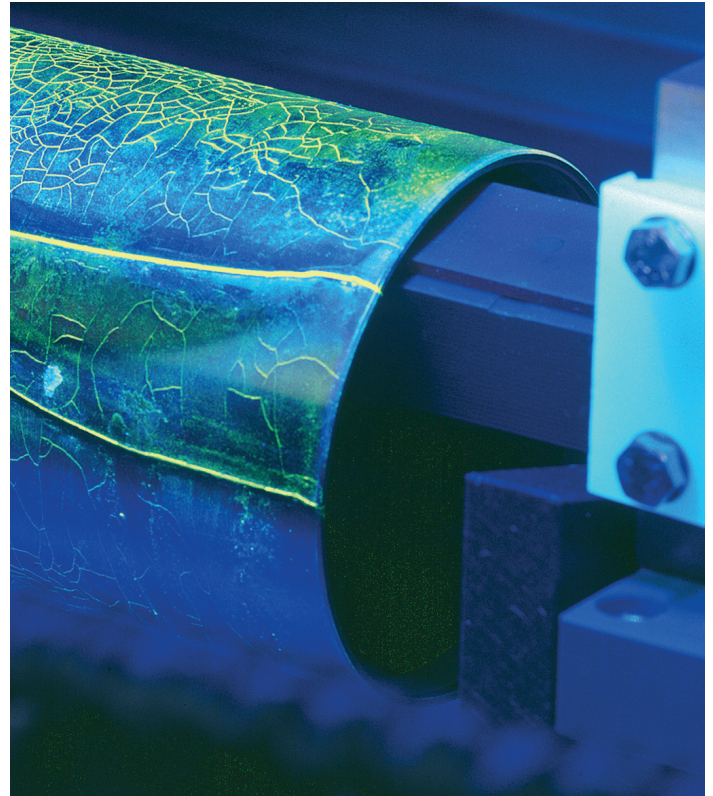


Plate for con-rod, cranked (option)

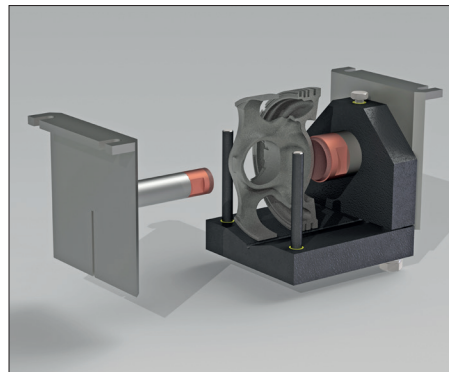
# DEUTROFLUX UMT – Extensive Options

We offer an extensive portfolio of options and extensions for all KARL DEUTSCH machine types:

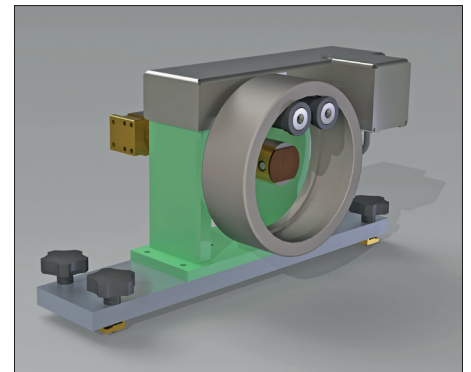
- Customised workpiece holders
- Contact plates built to part shapes
- Magnetic mandrels in a wide variety of designs
- Contact rockers for testing fork-shaped parts
- Motorised rotating devices for rotationally symmetrical parts
- Clamping stroke extensions and double-sided execution of the stroke movement
- Trolley for the container of testing agents
- The control cabinet can be flanged to the left or right of the machine frame (without surcharge). Alternatively, a free-standing control cabinet is also possible.
- UV lamp holder optionally axially movable or freely adjustable in any direction with support arm
- Circuit of testing agents executed as circular rinsing (to prevent deposits of testing agents during testing breaks)
- Special rinsing for complex geometries
- Fitting the testing agent circuit for the use of oil-based testing agents (safety devices: fire and explosion protection to prevent oil ignition in the event of sparking or overtemperature.)
- Magnetising circuits in DC technology
- Special paint
- Transport rollers on the machine frame for easy transport to different locations (testing services)
- Remote maintenance via network or mobile communications



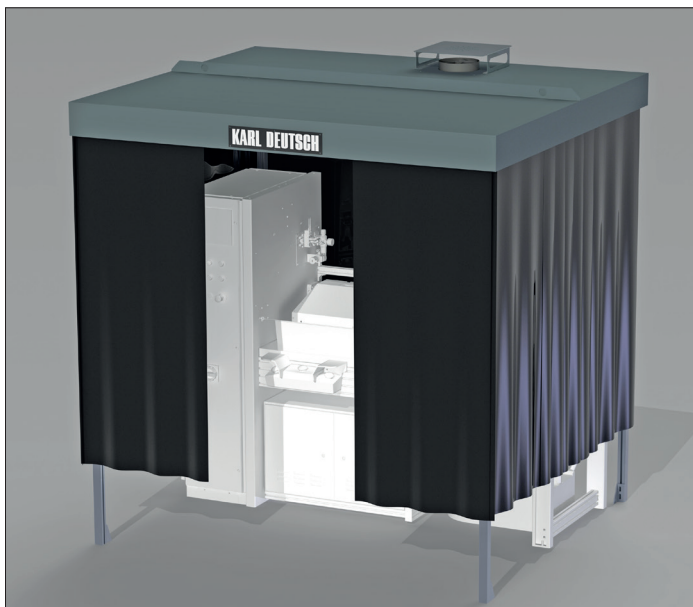
Inspection of small parts



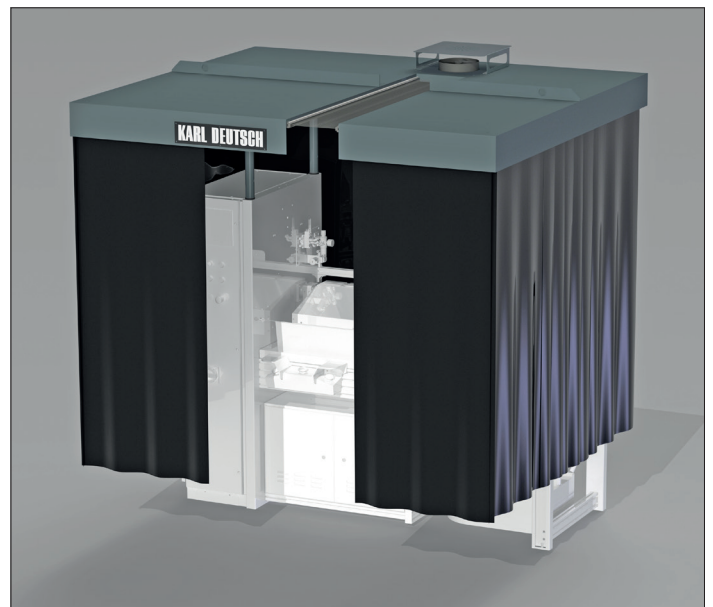
Fixtures for parts to be tested



Electric rotating device for ring testing



Darkening cabin, self-supporting



Darkening cabin flanged to the machine body with crane loading opening

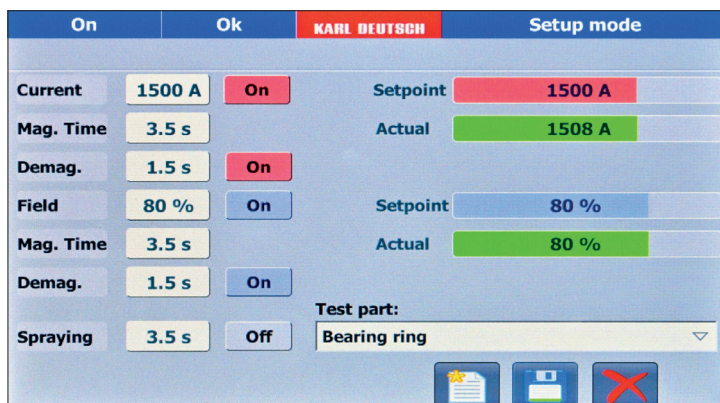


# DEUTROFLUX MEMORY – Parameter Storage

We offer three different controls for our UMT series:

## Conventional control

Still the simplest operation: Both field directions are set via a rotary knob and can be activated or deactivated via rotary switches. Three further toggle switches are used to preselect automatic demagnetisation for the respective circuits or demagnetisation as a single function without a preceding magnetisation cycle. Another toggle switch is used to switch the wetting on or off in single or continuous cycle.



## MEMORY

The standard version of the parameter memory with 7" touch panel can already do a lot: menus and error messages appear as plain text. The essential test parameters are stored in the test system as a recipe for up to 50 components. Up to 50 inspectors can log in with their names. Storage of the test result (OK, NOK) is executed as an accumulating counter with date and number of pieces. For the order storage, date and time are added.

## MEMORY CONNECT

The CONNECT version has many other features that make your testing process even more convenient: The control can be operated via a 9" touch panel. Up to 500 test pieces can be managed and data can be stored via USB stick or network hard drive. This enables data transfer to the customer's network. Operator registration is possible by means of a chip. Component scanners and the interface for automated loading and unloading can be integrated. Access via remote maintenance is another important feature. With MEMORY CONNECT, many special functions can be easily implemented. These include, for example, light grids for cycle start and safety controls.



## Customised

Additional customer requirements can be met individually, as we develop the PLC software in-house. For this purpose, e.g. pictures of components can be displayed or the test instruction can be digitally mapped in the machine. Also extended requirements on the testing technology, e.g. aviation requirements (e.g. NADCAP), can be implemented. In addition, we offer comprehensive monitoring devices to ensure a stable inspection process for fully automated and interlinked applications.



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# DEUTROFLUX UMT – Technical Data

	UMT 350	UMT 600	UMT 900
Maximum length of workpiece*	350 mm	600 mm	900 mm
Maximum diameter of workpiece*	470 mm	470 mm	470 mm
Maximum weight of workpiece	75 kg	75 kg	75 kg
Current flow (maximum current)	2,000–5,000 A	2,000–5,000 A	2,000–5,000 A
Field flow (maximum flow density)	> 1 Tesla (10,000 AT)	> 1 Tesla (10,000 AT)	> 1 Tesla (14,000 AT)
Mains supply	400 V / 50 Hz	400 V / 50 Hz	400 V / 50 Hz
Maximum current consumption	43 A	50 A	70 A
Maximum power consumption	18 KVA	20 KVA	28 KVA
Control voltage	24 V =		
Control type	SIMATIC SPS		
Relative duty cycle	40 % (60 % as option)		
Compressed air	5–6 bar		
Air consumption per cycle	1.2 standard litre		
Clamping stroke	8 mm		
Number of wetting showers	3 pcs.	5 pcs.	7 pcs.
Total weight (with control cabinet and container for testing agent)	550 kg	650 kg	780 kg
Size (L x W x H)	1950 mm x 890 mm x 1750 mm	2160 mm x 890 mm x 1750 mm	2455 mm x 890 mm x 1750 mm

\* These values show the maximum space available in the machine for the workpiece.  
Depending on the dimensions of the workpieces and the inspection task, special equipment may be necessary.

Further information on our website [www.karldeutsch.de](http://www.karldeutsch.de) » Products » Magnetic Particle Crack Detection

