### Technical Information

| Model   | Max. length of workpiece* | Max. diameter of workpiece* | Max. weight of workpiece | Current flow (max. current) | Field flow (max. flux density) | Power supply | Max. current consumption | Max. power consumption | Control voltage | Type of control | Rel. duty cycle | Air pressure | Air consumption per cycle | Clamping stroke | Number of spraying showers w/o (optionally) | Total weight (with switch cabinet and container for testing agent) | Dimensions (L x W x H) |
|---------|---------------------------|----------------------------|--------------------------|-----------------------------|----------------------------|-------------|--------------------------|----------------------|----------------|----------------|----------------|--------------|----------------|------------------------|-----------------|------------------------------------------------|----------------------------------|---------------------|
| UWE 350 | 350 mm                    | 300 mm                     | 25 kg                    | 2,000 A                     | > 1 Tesla (10,000 AW)       | 400 V / 50 Hz | 43 A                     | 18 KVA               | 24 VDC          | SIMATIC PLC     | 40 % (optionally 60 %) | 5-6 bar (500-600 kPa) | 0.5 NI       | 8 mm                      | 5 pcs (optionally 3 pcs) | 550 kg approx.  |
| UWE 600 | 600 mm                    | 400 mm                     | 75 kg                    | 2,000 A                     | > 1 Tesla (10,000 AW)       | 400 V / 50 Hz | 50 A                     | 20 KVA               |                |                |                |              |                | 7 pcs                    | 650 kg approx.  |
| UWE 900 | 900 mm                    | 400 mm                     | 75 kg                    | 2,000 A                     | > 1 Tesla (14,000 AW)       | 400 V / 50 Hz | 70 A                     | 28 KVA               |                |                |                |              |                | 7 pcs                    | 780 kg approx.  |

* These values represent the maximum available space in the machine for the workpiece. Depending on the dimensions of the workpieces and the test task, special equipment may be required. Further information can be found on our website [www.karldeutsch.de » English » Products » Magnetic Particle Testing](http://www.karldeutsch.de)

**KARL DEUTSCH**

Prüf- und Messgerätebau GmbH + Co. KG
Otto-Hausmann-Ring 101 · 42115 Wuppertal · Germany
Phone (+49-202) 7192-0 · Fax (+49-202) 7192-32
info@karldeutsch.de · www.karldeutsch.de

DIN EN ISO 9001 certified
Reliable testing for cracks in all directions

Most application problems in magnetic particle testing can be solved by testing systems with two contacts. In this case, the parts to be tested are often manually placed into the respective supports of the testing system, and, subsequently, it pneumatically clamps the test piece. The next step comprises magnetization and spraying with a crack detection agent. This takes about 4 seconds.

Usually a multi-directional magnetization is employed. A longitudinal current is fed through the test piece, generating a circular magnetic field (direct current flow). This circular field enables the detection of longitudinal cracks. Additionally, coils are mounted to the workpiece supports of the testing system. Therefore, at the same time, a longitudinal magnetic field is produced which allows the detection of transverse cracks (field flow).

The resulting rotating magnetic field facilitates the detection of defects of all orientations.

For the next step of the test cycle, spraying with crack detection agent is stopped and the magnetic field is kept constant for another 2 seconds approx.: this is the so-called post-magnetization. During this time, the magnetic particles (iron or iron-oxide powder) in the agent form the crack indications. Most agents use fluorescent particles and therefore the crack indications are evaluated under UV-light. The particles are usually applied to the test part in an aqueous suspension via spraying showers.

The demagnetization can be carried out directly within the testing system by reducing the field strengths to zero. Alternatively, a separate coil outside the testing system can be used.

Usually both magnetic fields are phase-shifted alternating fields which oscillate according to the mains frequency (50 or 60 Hz, respectively).
Features at a glance

- Uses the skin effect of alternating current for uniform magnetization and problem-free demagnetizing, also with complicated workpieces
- Two phase-shifted alternating currents generate a rotating magnetic field, cracks in each direction are displayed in a single process step
- Operating errors are excluded by automatic cycling of the test sequence (clamping, rinsing, magnetizing, post-magnetizing and demagnetizing)
- Electronic and pneumatic components from renowned manufacturers ensure high operational reliability and trouble-free service, even after years
- Flanged control cabinet, easily accessible for operation and service
- Each spraying shower can be adjusted individually, and jointly pneumatically switched on and off: Short rinsing times, no dripping
- Guiding and adjusting mechanism outside the wet area, powder coating on the outside - no painted parts, stainless steel in the interior
- Double flexibility: The compact unit can easily be moved to other places, the stable construction with strut or groove profiles allows subsequent mounting of tubs, holders etc.
- Container for inspection media with inclined bottom, circulation device and without corners in the pump area: no settling of the flux agent
- Rotating and height adjustment of contact plates for long service life and low transition losses
- Tailored inspection booth and LED illumination
- Four times economical: reasonable price/performance ratio, low space requirement, long service life, maintenance-friendly

Ample range of accessories - individually tailored to your needs

UWE 900 with magnetizing bar for testing of ring-shaped components. The image shows spraying with the hand shower, both sides with clamping stroke.

UWE 350 with centre contact for simultaneous testing of two components.

UWE 350: The image shows a unit equipped with Memory II and spraying showers (option).

UWE 900 with pneumatically movable lamp holder for easy loading of the components from the top (also available with a light barrier).
DEUTROFLUX UWE 350, 600, 900

Specifications and Options*

UWE 350: Test of small components with special contacts and component holders

UWE 600 with pneumatically movable showers

UWE 600 with movable, expanded attachment yoke for secure contacting of u-shaped, equal leg components

UWE 600 with AC/FWDC for the current flow, on the right-hand side the changeover device for AC-FWDC is shown

Adjustable supporting rollers for rotation of the component during viewing within the machine

UWE 600 with pull-out container for easy filling of test agents

* further options on request
DEUTROFLUX UWE 350, 600, 900
Technical Information

Standard Model

Current flow
- Max. test current: 2,000 A, effective
- Open circuit voltage: 3.5 V (350), 5 V (600/900)
- Adjustment: infinitely variable
- Display: kA analog
- Flow monitoring: 1 limit value

Cycle control
- Without / individually / switchable
- Magnetizing and spraying time individually selectable
- Max. magnetizing time: 6 s approx.

Field flow
- Max. flux density: > 1 T
- Required number of ampere windings: 10,000 (UWE 350 / 600), 14,000 (UWE 900)
- Adjustment: infinitely variable
- Display: % AW, analog

Spraying
- Without cycle: no time limit
- Single cycle: only during magnetizing, automatically switched off during post-magnetization

Demagnetization
- Included as standard
- Individual switch off of both directions
- Release switchable: manually / automatically
- Demagnetizing frequency: 50 Hz
- Demagnetizing time: 1 s approx.

Container of test agent
- Content: 40 l
- Electrical power of pump: 0.78 kW
- Pump capacity: 228 l/min
- Delivery height of pump: 2 m approx.

Machine upgrades
- Heavy-duty rollers for dislocation of the machine
- Workpiece ejector
- Darkening booth
- Mounting rollers
- Full-wave DC (FWDC) for current and field flow
- Max. AC test current 3,000-5,000 A, effective
- Field flow monitoring
- Low frequency demagnetizing
- Memory II (operating via Siemens touch panel with parameter memory and for documentation)

Alternative magnetic particle devices
- DEUTROFLUX UWS, device with movable coil
- DEUTROMAT special machines
- DEUTROPULS handyoke and current flow units

Special leaflets are available. Technical literature and teaching material is provided on request.

The principle of magnetic particle crack testing
Magnetizing method according to DIN EN ISO 9934-1

The combined magnetic particle crack testing reliably indicates cracks of all directions.

Current flow (axially)  
Field flow (yoke magnetizing)  
Field flow with inserted through conductor  
Induction flow

combinable  
combinable  
combinable
## DEUTROFLUX UWE 350, 600, 900

### Technical Information

<table>
<thead>
<tr>
<th></th>
<th>UWE 350</th>
<th>UWE 600</th>
<th>UWE 900</th>
</tr>
</thead>
<tbody>
<tr>
<td>Max. length of workpiece*</td>
<td>350 mm</td>
<td>600 mm</td>
<td>900 mm</td>
</tr>
<tr>
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<td>300 mm</td>
<td>400 mm</td>
<td>400 mm</td>
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<tr>
<td>Max. weight of workpiece</td>
<td>25 kg</td>
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<td>&gt; 1 Tesla (14,000 AW)</td>
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<tr>
<td>Power supply</td>
<td>400 V / 50 Hz</td>
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</tr>
<tr>
<td>Max. current consumption</td>
<td>43 A</td>
<td>50 A</td>
<td>70 A</td>
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<tr>
<td>Max. power consumption</td>
<td>18 KVA</td>
<td>20 KVA</td>
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<tr>
<td>Control voltage</td>
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<td>24 VDC</td>
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</tr>
<tr>
<td>Type of control</td>
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<td>SIMATIC PLC</td>
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<tr>
<td>Rel. duty cycle</td>
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<td>2.0 m x 0.9 m x 1.8 m</td>
<td>2.3 m x 0.9 m x 1.9 m</td>
<td>2.6 m x 0.9 m x 1.9 m</td>
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