MAGNETIC PARTICLE TESTING

OVERVIEW

UV-meter J 221
Intensity measurement at fluorescent method

ASTM/ASME
Field Indicator
Magnetic flux orientation

Demagnetisation tunnel
DEMAT
Demagnetisation of product

MTP/ MPTB Gauges
(Ketos - ring / Ketos - bar)
DC magnetisation checking

MTU Gauge
Powder + suspension quality checking

ASTM/ASME
Centrifuge Tube
suspension concentration checking

Gauss/Teslameter
BELL 5180
magnetisation and remanent values

Luxmeter LX 103
White light + ambient light measurement

MT Workstation
Stationary bench UNIMAG
Mobile generators MAGMAN
Yoke REM 230/42 - AC/DC
UV lamp UV 4000

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<th>NDT methods</th>
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<th>UT</th>
<th>MT</th>
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<th>VT</th>
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<td>AD; HP 5/3</td>
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<td>EN 12080</td>
<td>EN 1369</td>
<td>EN 10228-1</td>
<td>EN 1290/91</td>
<td>EN 10246-12 + 18</td>
<td>EN 13445</td>
<td>EN ISO 9934</td>
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</tbody>
</table>
### MINIMAG 500
Light table top test bench:
- Mechanical clamping, max. clamping length 510 mm
- Movable coil Ø 250 mm, cable winding
- Possible to connect MAGMAN 1500 A, or MAGMAN 2000 H/F
- Accessories – circulatory system for suspension SPRINKMAN 15, or SPRINKMAN 40.

### UNIMAG
AC/DC or DC/DC stationary test benches with closed magnetization circuit;
2 fixed coils and / or 1 moving coil;
exchangeable Cu - contacts, covered by Sn,
pneumatic clamping,
suspension circulation system with 40 l stainless steel reservoir and pump,
AC/AC stationary test benches with opened magnetization circuit;

### UNIMAG
Stationary test benches with moving coil;
test benches are prepared for connecting of MAGMAN mobile generators; pneumatic clamping,
suspension circulation system with 40 l stainless steel reservoir and pump,

### UNIMAG AC/AC
Stationary test bench with open magnetic circuit:
- Changeable Cu contact, pneumatic clamping
- Circulatory system for suspension
- Possible to use contact-less magnetization method by current induction
- Demagnetization
- Manual, or automated testing mode
- Warranty of setting testing parameters in toleration 10%

### UNIMAG Aerotester
3Phase FWDC / AC stationary test bench:
- FWDC source 4000 up to 10 000, AC up to 6000 A
- Electro pneumatic switching between longitudinal and circular magnetization
- Moveable coil Ø 305 / 620 mm manual, or motor movement
- Changeable Cu contacts for circular magnetization
- Pneumatic clamping, circulation system
- Control by PLC, touch screen
**UNIMAG 1500 Sinus**
Stationary test bench with opened magnetic circuit, movable coil and sinus generators:
- Movable coil ∅ 305 mm
- Changeable Cu contacts for circular magnetization, pneumatic clamping
- Circulation system for suspension
- Possibility contact less magnetization by current induction
- Demagnetization
- Manual or automated testing mode
- Warranty of setting testing parameters in toleration 10%

**UNIMAG 5600 AC**
Stationary test bench for heavy industry:
- Loading 2000kg, rollers, without supports
- AC, or DC source 4000 / 6000 A
- Electro pneumatic switching for longitudinal and circular magnetization
- Change and moveable coil, for example 305/620 mm, or other combination manual, or motorized coil
- Both side pneumatic clamping
- Circulation system for suspension
- Control by PLC, touch screen

**MAGMAN Multi**
Compaq system of HW generators, 3 x 18 000 A for multidirectional magnetization of forgings and castings in heavy industry
- Sequence switching of current sources with overlapping 0,5 sec
- Set of cables, 120 mm²
- Quick mounted clamps for connection to tested part I
- Quick mounted cables terminals
Option:
- Source for one phase FWDC
- Automated DC demagnetization

**UNIMAG 400 Bearings**
Semi-automated MPI station for inspection of bearing circles
Integrated into large NDT line; automatic loading / unloading of inspected parts, visual test evaluation; fluorescent inspection technique, non-contact combined magnetization by threaded bar and current induction; test result (OK / NOK) can be send in data formate into company IS

**MT Workstation:**
Equipment for testing of railway wheels includes:
- MAGMAN 4000 mobile generator,
- Set of cables 4 x 2,5 m / 95 mm²
- Cu coil MZC 1000 with internal rolling devices
- UV lamp LABINO, darkened inspection cabin
**MAGMAN**
Mobile and transportable AC/DC generators up to 5000 A; stepless adjustment of magnetization current, stabilization of preset value; time switch, one second pulses mode and AC demagnetization as standard, internal protection against current and temperature overloading.

**MAGMAN 1500**
Lightweight transportable AC generator
Supply: 230 V/16A
Current: 1100 A_{eff} / 1500 A_{peak}
stepless magnetizing current regulation, quick-mounting connectors, Al - case, cooling fan

Accessories for MAGMAN generators:
Cables with hydraulically mounted contact eyes;
Available cross sections 70 mm², 95 mm², 120 mm² and 150 mm²;
Exchangeable Al or Zn contact electrodes, hand-held pistol holders, coils

Foot switch
Robust industrial version for UNIMAG and MAGMAN units

**DEMAT**
Demagnetisation tunnels with variable frequency 0.5 - 50 Hz or single working frequency 50 Hz
Belt conveyors or segmented conveyors, with smooth regulation transport speed, integrated part positioning strips on conveyor belt
<table>
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<tr>
<th><strong>REM 230</strong></th>
<th><img src="image1" alt="Image" /></th>
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<tbody>
<tr>
<td>Two coil hand-held AC electromagnetic yoke suitable even for heavy duty industrial applications</td>
<td></td>
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<thead>
<tr>
<th><strong>REM 230 SC</strong></th>
<th><img src="image2" alt="Image" /></th>
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</thead>
<tbody>
<tr>
<td>Single coil hand-held AC electromagnetic yoke suitable for general industrial applications and NDT service companies</td>
<td>Not produced. It will be replaced by El Niño type</td>
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<thead>
<tr>
<th><strong>REM 230 AC/DC</strong></th>
<th><img src="image3" alt="Image" /></th>
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</thead>
<tbody>
<tr>
<td>Two coil hand-held electromagnetic yoke with AC/DC operation modes, stepless power adjustment, external control unit</td>
<td></td>
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<thead>
<tr>
<th><strong>REM 42</strong></th>
<th><img src="image4" alt="Image" /></th>
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<tbody>
<tr>
<td>AC safety version of two coil hand-held electromagnetic yoke with separate transformer, yoke power supply 42 V</td>
<td></td>
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<thead>
<tr>
<th><strong>REM 230 AC/DC</strong></th>
<th><img src="image5" alt="Image" /></th>
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<tbody>
<tr>
<td>Electromagnet, switching between AC/DC, continuous current control</td>
<td></td>
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<tr>
<th><strong>Pole contacts:</strong></th>
<th><img src="image6" alt="Image" /></th>
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<tr>
<td>Protective; adjustable contact legs, quick mounting types</td>
<td></td>
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<tr>
<th><strong>Dead Weight Standard 10lb</strong></th>
<th><img src="image7" alt="Image" /></th>
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<tbody>
<tr>
<td>For yoke power verification Including protocol from Metrological Institute</td>
<td></td>
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<thead>
<tr>
<th><strong>YTP Standard (Yoke Test Plate)</strong></th>
<th><img src="image8" alt="Image" /></th>
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</thead>
<tbody>
<tr>
<td>300 x 100 x thickness. 6.35 mm For DC - yoke verification</td>
<td></td>
</tr>
<tr>
<td><strong>LABINO</strong></td>
<td>Hand-held UV - lamps,</td>
</tr>
<tr>
<td></td>
<td>Spot, Midlight and Flood versions available</td>
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<tr>
<td></td>
<td>230 V with built in electronics or battery operated</td>
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| **UF 400**                | Stationary UV - lamp 400 W, cooling fan, for three-shift inspection operation |

| **J 221 UV meter**        | Measures type A ultraviolet irradiation (wave length 365 nm), reliable and simple operation equipment |

| **LX 103 Luxmeter**       | White light measurement in wide range (from ambient light up to high intensity measurement) |

| **DSE 2000/L Set**        | Radiometer / Photometer Set (in lux units) - for both UV and white light measurement meets MIL I 6868, ASTM E 1444 standard requirements |

| **Bell 5170 / 5180**      | Gaussmeter / Teslameter for measurement of AC and DC magnetic fields and active and remanent (residual) magnetisation, complete set includes also zero calibration chamber and transport case, measures in G (Gauss), T (Tesla) or A/m (Amper / meter) units, meets ASTM E 1444 standard requirements |

<p>| <strong>MP 100</strong>                | Measures AC and DC magnetic fields in Oe (Oersted) and A/m units |
|                           | Measures both active and remanent magnetisation levels, |
|                           | RS-232 output as standard, integrated probe, small and lightweight unit |</p>
<table>
<thead>
<tr>
<th><strong>KETOS - ring</strong></th>
<th><img src="image1.png" alt="Image" /></th>
</tr>
</thead>
</table>
| Calibration Test Standard according to:  
ASME Code V.  
ASTM E 709  
ASTM E 1444  
For inspection verification during circular magnetization. |

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<thead>
<tr>
<th><strong>KETOS - bar</strong></th>
<th><img src="image2.png" alt="Image" /></th>
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</table>
| Calibration Test Standard according to  
MIL STD 271  
For inspection verification during longitudinal magnetization, conforms to MIL STD 271. |

<table>
<thead>
<tr>
<th><strong>ASME Magnetic Field Indicator</strong></th>
<th><img src="image3.png" alt="Image" /></th>
</tr>
</thead>
</table>
| Meets requirements of following standards:  
ASME Code V.  
ASTM E 709  
ASTM E 1444. |

<table>
<thead>
<tr>
<th><strong>Berthold’s Standard</strong></th>
<th><img src="image4.png" alt="Image" /></th>
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<tr>
<td>For field orientation and magnetisation level verification.</td>
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<thead>
<tr>
<th><strong>MTU 3 Standard</strong></th>
<th><img src="image5.png" alt="Image" /></th>
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</table>
| For suspension / powder sensitivity and quality checking  
ASTM E 1444  
EN ISO 9934 - 2. |

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<thead>
<tr>
<th><strong>ASTM D 96 Centrifuge Tube</strong></th>
<th><img src="image6.png" alt="Image" /></th>
</tr>
</thead>
</table>
| For checking of powder concentration in inspection suspension  
meets requirements of following standards:  
ASME Code V.  
ASTM E 709  
ASTM E 1444. |

<table>
<thead>
<tr>
<th><strong>STRIPS (TYPE I and TYPE II)</strong></th>
<th><img src="image7.png" alt="Image" /></th>
</tr>
</thead>
</table>
| For inspection sensitivity verification  
meets requirements of following standards:  
ASTM E 1444  
BS 4124  
BS 6072. |
**Test Block No. 2**  
Gauge No. 2 according to EN ISO 9934 - 2. For evaluation, comparison of capability of magnetic powders.  
Equivalent to FLUXA

**MAG TEST KIT**  
Set for check of MT testing process: Sedimentation bulb, light meter, UV-meter, Berthold gauge, gauge MTU.  
Like option, ASTM filed indicator, gauge FLUXA, or No. 2 acc. EN ISO 9934 - 2 and digital magnetic field meter MP 100

**SPRINKMAN 15**  
**SPRINKMAN 40**  
Stationary/mobile and losing/circulation systems for suspension, dedicated to industrial and to install to test benches UNIMAG a MINMAG  
Tanks 15, or 40 l suspension; pump from 90 VA to 800 VA

**PRESMAN**  
Hand-held pressurized air pump spray with adjustable metal nozzle; works in all positions

**TAM 135273**  
Flaw size comparison standard, plastic with yellow-green fluorescent scale

**UVEX - Skyper**  
UV - protective glasses with exchangeable PC front area (OPTIDUR 2002)  
Adjustable length and inclination (angle)  
Of side holders, attractive design