Mobile demagnetizer
MM DM-P / -PC
(general brochure)

- Description
- Specification
- Technology
- Application examples

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Description of the modular mobile demagnetizer

MM DM-PC

MM DM-PC

CT-UDM

MM HLE + protective housing

K5/6-15

A8/10-1.4

K10/2.5-15

A5/6-1.6

K8/10-30

cable coils

stationary coils

special variants
## Power module specifications

<table>
<thead>
<tr>
<th>Type</th>
<th>MM DM-P</th>
<th>MM DM-PC</th>
<th>MM DM</th>
</tr>
</thead>
<tbody>
<tr>
<td>Available performance</td>
<td>MM DM 110, DM 140, DM 200, DM 240</td>
<td>MM DM 110, DM 140, DM 200, DM 240</td>
<td>MM DM36...400</td>
</tr>
<tr>
<td>Maximum current</td>
<td>110…240 A</td>
<td>36…400A</td>
<td></td>
</tr>
<tr>
<td>Exterior dimensions W x H x D</td>
<td>550 x 1060 x 1150 mm</td>
<td>Variable (on request)</td>
<td></td>
</tr>
<tr>
<td>Mobility</td>
<td>Power module cabinet movable on 4 rollers</td>
<td></td>
<td>-</td>
</tr>
<tr>
<td>Line power supply</td>
<td>3 x 380…480 VAC 50 / 60 Hz, 63A-CEE fuse</td>
<td>3 x 380…480 VAC 50 / 60 Hz, variable fuse</td>
<td></td>
</tr>
<tr>
<td>Operational interface</td>
<td>Control switches</td>
<td>PC with touch screen</td>
<td>Variable (on request)</td>
</tr>
<tr>
<td>Operation features</td>
<td>Pulse activation</td>
<td>Pulse activation</td>
<td>Variable (on request)</td>
</tr>
<tr>
<td></td>
<td>Manual switches</td>
<td>Enhanced parameters</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Indicator lamps</td>
<td>Indicator lamps</td>
<td></td>
</tr>
<tr>
<td></td>
<td>10 power levels</td>
<td></td>
<td></td>
</tr>
<tr>
<td>No. of demagnetization programs</td>
<td>4</td>
<td>Unlimited</td>
<td>Variable (on request)</td>
</tr>
<tr>
<td>Offset function</td>
<td>no</td>
<td>yes</td>
<td>Variable (on request)</td>
</tr>
</tbody>
</table>
# Coil module specifications

## Flexible cable coils

<table>
<thead>
<tr>
<th>Type</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>K8/10-30</td>
<td>Weight ~40kg, length ~30m, may be interconnected several times</td>
</tr>
<tr>
<td>A8/10-1.6</td>
<td>Adapter cable for cable type K8/10-30 (necessary)</td>
</tr>
<tr>
<td>K5/6-15</td>
<td>Weight ~5kg, length ~15m, may be interconnected several times</td>
</tr>
<tr>
<td>A5/6-1.4</td>
<td>Adapter cable for cable type K5/6-15 (necessary)</td>
</tr>
<tr>
<td>K10/2.5-15</td>
<td>Weight ~3kg, length ~15m, (no adapter needed)</td>
</tr>
</tbody>
</table>

## Stationary high performance coil (on request)

<table>
<thead>
<tr>
<th>Type</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>MM HLE</td>
<td>Stationary high performance coil (on request)</td>
</tr>
</tbody>
</table>

## Stationary universal coils

<table>
<thead>
<tr>
<th>Type</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>CT-UDM</td>
<td>Stationary universal coils</td>
</tr>
<tr>
<td>CT6-UDM</td>
<td>Active opening WxH: 400x400mm, Max. field strength: Up to 100kA/m</td>
</tr>
<tr>
<td>CT7-UDM</td>
<td>Active opening WxH: 550x550mm, Max. field strength: Up to 75kA/m</td>
</tr>
<tr>
<td>CT8-UDM</td>
<td>Active opening WxH: 750x550mm, Max. field strength: Up to 75kA/m</td>
</tr>
</tbody>
</table>
Technology: Demagnetization through decaying alternating magnetic field

Goal: the best possible distribution of the domain magnetization direction in the demagnetized material

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Max. field strength [kA/m]</td>
<td>Reversal of hard magnetic domains, penetration depth</td>
</tr>
<tr>
<td>Frequency [Hz]</td>
<td>Penetration depth</td>
</tr>
<tr>
<td>Effective range [LxWxH, m³]</td>
<td>Full magnetic fluxing of material</td>
</tr>
<tr>
<td>Field homogeneity</td>
<td>Uniform effect in the material</td>
</tr>
<tr>
<td>Decay precision</td>
<td>Low decrement and best field symmetry at the end of the process for the best possible domain distribution</td>
</tr>
</tbody>
</table>

Max. field strength

Decrement

Frequency

Field symmetry
## Demagnetization Technologies

<table>
<thead>
<tr>
<th>Technology</th>
<th>Coil module</th>
<th>Field strength</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Effective range</td>
</tr>
<tr>
<td>Field reduction through increasing distance (continuous process)</td>
<td>Coil</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Plate / Yoke</td>
<td></td>
</tr>
<tr>
<td>Pulse without energy feeding (capacitor discharge)</td>
<td>Coil</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Plate / Yoke</td>
<td></td>
</tr>
<tr>
<td>Pulse with energy feeding (MaurerDegaussing)</td>
<td>Coil</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Plate / Yoke</td>
<td></td>
</tr>
</tbody>
</table>

*Note: The table and diagram illustrate the impact of different demagnetization technologies on various magnetic properties.*
Key arguments

**True demagnetization**
- Demagnetization by high power AC sine field pulse with energy feeding
- No re-magnetization of the steel
- Demagnetization of subcomponents prior to assembly and/or welding

**Quick demagnetization**
- Short demagnetization pulse duration of ~10 seconds
- Application of the “lay on method” for the cable coils (no winding is needed)
- Allows demagnetization of large steel amounts within a short time

**Easy to use**
- Triggering of the pulse by “push the button”
- Standard procedure leads to consistent results
- A degaussing specialist is not needed
Application example: demagnetization of large surface objects before welding

- Reasons:
  - impaired welding process (magnetic arc blow)
  - Elimination or reduction of magnetocorrosion

- Solution:
  - MM DM200-P or PC
  - 2x K8/10-30 + 1x A8/10-1.4

- Procedure according to:
  - White Paper: "Demagnetization of large surface objects before welding"
Application example: Demagnetization of large shafts, rotors etc.

coil type:
2x K5/16-15

(consistent winding is not needed)

- Reason: impaired welding processes, disturbing particle adhesion, disturbed eddy current processes (e.g. Bently Nevada)

- Solution:
  - MM DM200-P or -PC
  - 2x K5/6-15 + 1x A5/6-1.6
  - optional 2x K8/10-30 + 1x A8/10-1.4
Application example: Demagnetization of components prior to electron beam welding

- Reason: impaired welding process (beam deflection)

- Solution:
  - MM DM200-P or -PC
  - 2x K8/10-30 + 1x A8/10-1.4
  - optional 2x K5/6-15 + 1x A5/6-1.6
Application example: Demagnetization of automatic lathes (watch industry)

- Reason: produced parts do not release and become jammed in the workspace

- Solution:
  - MM DM200-P or -PC
  - 2x K5/6-15 + 1x A5/6-1.6
  - optional 1x K10/2.5-15
  
  coil type:
  2x K5/16-15
Solution for the demagnetization of machine parts and components

MM DM200 + flex. cable coil for demagnetization of:
- entire machines
- components
- steel parts of any kind
- large tungsten carbide punches and dies
- field strength up to 250kA/m (K10/2.5-15)

MM DM200+ MM HLE with protective housing for demagnetization of:
- tungsten carbide parts
- tungsten carbide (punches and matrices)
- Interior areas of thick walled steel parts
- field strength up to 400kA/m
Application example: Demagnetization of components (powder press)

- Reason: sintered powder adheres to the matrice and punch and disrupts the compacting process

- Solution:
  - MM DM200-P or -PC
  - 2x K8/10-30 + 1x A8/10-1.4
  - optional 2x K5/6-15 + 1x A5/6-1.6
Application example: Demagnetization of tungsten carbide punches and matrices of powder- or fine blanking presses

Demagnetization of materials with high coercivity (tungsten carbide, high-strength tool steels etc.) with power module DM200 and cable coil K10/2.5-15:

- Solution: small, compact winding (D ~ 200mm) for achieving the highest possible field strength: ~150...250kA/m, pulse peak power ~80kW
  ⇒ Heating of the cable coil to over 70°C after about 10 pulses
- Solution:
  - MM DM200-P or -PC
  - 1x K10/2.5-15
Application example: Demagnetization of press frames and adapters (powder- or fine blanking presses)

- Reason: disturbing sinter powder or fine blanking residues adhesion to die and punch

- Solution:
  - MM DM200-P or -PC
  - 2x K8/10-30 + 1x A8/10-1.4
  - optional 2x K5/6-15 + 1x A5/6-1.6
Application example: Demagnetization of machine components (machine tool)

- Reason: disturbing metal chips or residues adhesion

- Solution:
  - MM DM200-P or -PC
  - 2x K8/10-30 + 1x A8/10-1.4
  - optional 2x K5/6-15 + 1x A5/6-1.6

coil type: 2x K8/10-30