<table>
<thead>
<tr>
<th>PICTOGRAM</th>
<th>CONTENTS</th>
<th>PAGE</th>
</tr>
</thead>
<tbody>
<tr>
<td><img src="image" alt="SAV" /></td>
<td>SAV – The Company</td>
<td>03 - 09</td>
</tr>
<tr>
<td><img src="image" alt="Heavy load lifting" /></td>
<td>Heavy load lifting – working principle Magnet Series</td>
<td>10 - 11</td>
</tr>
<tr>
<td><img src="image" alt="Control systems" /></td>
<td>Control systems</td>
<td>12 - 13</td>
</tr>
<tr>
<td><img src="image" alt="Applications" /></td>
<td>Applications</td>
<td>14 - 15</td>
</tr>
<tr>
<td><img src="image" alt="Electro-permanent" /></td>
<td>Electro-permanent heavy load lifting magnets</td>
<td>16</td>
</tr>
<tr>
<td><img src="image" alt="Electro-permanent" /></td>
<td>Electro-permanent lifting magnets</td>
<td>17</td>
</tr>
<tr>
<td><img src="image" alt="Battery powered" /></td>
<td>Battery powered lifting magnets</td>
<td>18 - 19</td>
</tr>
<tr>
<td><img src="image" alt="Permanent lifting" /></td>
<td>Permanent lifting magnets</td>
<td>20 - 22</td>
</tr>
<tr>
<td><img src="image" alt="Permanent-magnetic" /></td>
<td>Permanent-magnetic plate lifter</td>
<td>22</td>
</tr>
<tr>
<td><img src="image" alt="Permanent-magnetic" /></td>
<td>Permanent-magnetic claws</td>
<td>23</td>
</tr>
<tr>
<td><img src="image" alt="Electro lifting" /></td>
<td>Electro lifting magnets</td>
<td>23 - 24</td>
</tr>
<tr>
<td><img src="image" alt="Special solutions" /></td>
<td>Special solutions</td>
<td>25 - 26</td>
</tr>
</tbody>
</table>

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CATALOGUE VI

MAGNETIC LIFTING

SYSTEM & STANDARD PRODUCTS
SAV Workholding and Automation is a globally organised and respected manufacturer and supplier of high quality workholding, lifting and automation systems with emphasis on quality, precision and cost efficiency.

With well over 30 years of manufacturing experience and 250 employees SAV has developed a unique concept of workholding, lifting and automation solutions, based on standard products and components suitable for many different applications.

Today, SAV is the leading manufacturer and single source supplier of workholding solutions in Europe and even in the World. Among her customers are solid, well-known automotive industries, leading machine tool manufacturers and distributors and also many high profile end-users.

SAV main targets are innovation, new technologies and applications.

With fully owned qualified development and manufacturing facilities in Nuremberg, Mittweida, Göppingen and Bladel, SAV is capable of reacting quickly and in a flexible manner to specific customer requirements.
THE SAV GROUP

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www.group-sav.com
SAV-Lifting systems

stands for over 30 years of experience in the field of magnetic workholding and lifting solutions.

Within the SAV Group SAV Walker Hagou is the technology center for magnetic lifting. The company has a large team of highly qualified professionals in the field of magnetic lifting and handling equipment and thereby strengthens the efficiency of the SAV Group.

Our many years of experience in lifting technologies, from our own in-house developments to manufacturing and construction up to the implementation and commissioning phases, is a distinctive quality of SAV.

This guarantees an innovative, professional and, above all, a practical-oriented approach to problem solving.
Our range of products covers the complete area of magnetic lifting and handling comprehensively. Our main focus involves both standard and individual, customer specific solutions.

**SAV Lifting systems** include:
- Heavy lifting systems, electro and electro-permanent
- Battery-powered lifting systems, electro and electro-permanent
- Pneumatic switchable, permanent lifting systems
- Manually operated, permanent lifting systems
- Magnetic handling devices

Our product overview offers numerous applications to stimulate your mind. These custom solutions should help you find the right concept(s) for your lifting job(s).

We will be pleased to check the details of and assess your requirements. It goes without saying that every aspect will be considered and calculated to make you a detailed quotation.
The production of standard and special solutions

In order to manufacture the products developed on our CAD workstations, our production facilities in Germany are equipped with modern, high-performance machinery. Our manufacturing facilities are located in Nuremberg and Mittweida in Germany as well as other European locations.

Naturally, our standard products are employed in our own production processes. This enables our experienced development team to continually monitor and improve the product specifications which provides a practical benefit to our customers. The decisive factors of precision and quality are continually monitored through our quality control management procedures.

SAV is 2014 again certified to ISO 9001:2008.

Our production facilities

- 55 CNC-machining centres up to 5000 mm machining length and 3000 mm in width
- 12 wire cutting and sinker EDM machines
- 2 CNC Gantry milling machines
  - Gantry range 3 m, table length 5 m
- 4 CNC horizontal lathes
- 1 large horizontal lathe
  - Face plate diameter 3000 mm
- 3 HSC 5 axis milling machines
- 1 injection moulding machine
- 4 coordinate measuring machines
  - Range: x = 600 mm, y = 1000 mm, z=465 mm
- 50 profile / surface / coordinate / circular (internal and outside) grinding machines up to 4000 mm machining length.
- Magnet test bench up to 50,000 kg
The engineering of standard and special solutions

Our precision products for standard and special solutions are designed by our specialists on modern CAD workstations in order to offer you fully developed, mature, state of the art products.

Our high level of expertise in the construction of magnetic systems benefits customers both in terms of the application and in daily use.
Our many years of experience in the area of special-, workholding- and lifting system solutions are integrated into the development of our standard products to ensure optimal results and the highest possible flexibility in their application.

Leading in technology – Not just a catch phrase for SAV

Research and development is the basis of our success. We develop magnetic, hydraulic, mechanical and vacuum technology solutions for our customers as well as tools and prototypes according to our customer’s specifications. We have a network of approximately 20 CAD workstations at several locations. All of them are equipped with 3D-systems and FEM programmes for magneto-static, thermal, static and dynamic analyses.

Development competences in:
- Magnetics
- Hydraulics
- Mechanics
- Vacuum technologies
- Automation technologies
- Control technologies
- Stationary and rotating workholding technologies

The developments are implemented in the production process using CAD/CAM-applications and PEPS CAD/CAM V4.2.7.
HEAVY LOAD LIFTING

WORKING PRINCIPLE

**ELECTRO LIFTING MAGNETS**

- Strong magnetic field in air gap situations
- Simple construction
- Wide range of applications
- Bundles and stacks
- Highest performance/weight ratio
- >2-fold safety factor

**ELECTRO PERMANENT LIFTING MAGNETS**

- Permanent magnet therefore inherently safe
- No power supply required
- Application-specific magnet system
- Single load handling
- Quick load release
- >3-fold safety factor
## Magnet Series

<table>
<thead>
<tr>
<th>Series designation</th>
<th>Magnet execution</th>
<th>Working principle</th>
<th>Lifting capacity</th>
<th>Magnet length</th>
<th>Magnet width</th>
<th>Applications</th>
</tr>
</thead>
<tbody>
<tr>
<td>RM RMEP</td>
<td>Rectangular magnet</td>
<td>Electro or Electro-Permanent</td>
<td>up to 60 Tons</td>
<td>up to 2000 mm</td>
<td>up to 1000 mm</td>
<td>- Ingots&lt;br&gt;- Blocks&lt;br&gt;- Single sheets or stacks&lt;br&gt;- High temperature applications</td>
</tr>
<tr>
<td>TM TMEP</td>
<td>2-Pole magnet</td>
<td>Electro or Electro-Permanent</td>
<td>up to 8 Tons</td>
<td>400 to 1600 mm</td>
<td>75 to 600 mm</td>
<td>- Profiles&lt;br&gt;- Beams&lt;br&gt;- Round material&lt;br&gt;- Long and narrow parts</td>
</tr>
<tr>
<td>TM-CH TMEP-CH TM-CV TMEP-CV</td>
<td>Coil magnet</td>
<td>Electro or Electro-Permanent</td>
<td>up to 35 Tons</td>
<td>up to 1600 mm</td>
<td>up to 1600 mm</td>
<td>- Coil eye horizontal&lt;br&gt;- Coil eye vertical&lt;br&gt;- Slitted coils</td>
</tr>
<tr>
<td>TMB RMB</td>
<td>Bundle magnet</td>
<td>Electro</td>
<td>up to 10 Tons</td>
<td>up to 1500 mm</td>
<td>up to 1000 mm</td>
<td>- Bundles&lt;br&gt;- Reinforcing steel&lt;br&gt;- Pipes&lt;br&gt;- Profiles</td>
</tr>
<tr>
<td>WS-Ultra Light WL-Light W-Heavy WH-Ultra Heavy</td>
<td>Scrap magnet</td>
<td>Electro</td>
<td>up to 40 Tons</td>
<td>up to 2200 mm diameter</td>
<td></td>
<td>- Single slab&lt;br&gt;- Pig iron&lt;br&gt;- Turnings</td>
</tr>
</tbody>
</table>

**Safety standards according to:**
- EN 13155 cranes - safety - non-fixed load lifting attachments
- EMC and Low Voltage Directives
- Welding certification according to EN standards
- Machinery Directive 2006/42/EC

**Range of services:**
- Construction
- Development
- Production
  - Steel construction
  - Magnet manufacturing
  - Magnet control system assembly
- Quality assurance and certification
- Assembly
- Commissioning and service
- Operator training
Magnet control model MACO B for electromagnets

The control cabinet contains the control unit and has an emergency power supply system with a backup period of 20 minutes as per EN 13155. Siemens PLC technology.

Voltage: (55 VDC) 110 VDC or 220 VDC
Power: 1.5 kW up to 50 kW
The control cabinet dimensions may be subject to change.

<table>
<thead>
<tr>
<th>Power kW</th>
<th>Number of cabinets</th>
<th>Dimensions mm IP54</th>
<th>Voltage VDC</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.5</td>
<td>1</td>
<td>1100 x 1200 x 400</td>
<td>55</td>
</tr>
<tr>
<td>3</td>
<td>1</td>
<td>1400 x 1200 x 400</td>
<td>55</td>
</tr>
<tr>
<td>5</td>
<td>1</td>
<td>1400 x 1200 x 400</td>
<td>110/220</td>
</tr>
<tr>
<td>7.5</td>
<td>1</td>
<td>1400 x 1200 x 400</td>
<td>110/220</td>
</tr>
<tr>
<td>10</td>
<td>1</td>
<td>1600 x 1200 x 400</td>
<td>110/220</td>
</tr>
<tr>
<td>15</td>
<td>2</td>
<td>1400 x 1200 x 400</td>
<td>110/220</td>
</tr>
<tr>
<td>20</td>
<td>2</td>
<td>1600 x 1200 x 400</td>
<td>110/220</td>
</tr>
<tr>
<td>25</td>
<td>2</td>
<td>1600 x 1200 x 400</td>
<td>110/220</td>
</tr>
<tr>
<td>30</td>
<td>2</td>
<td>1600 x 1200 x 400</td>
<td>110/220</td>
</tr>
<tr>
<td>40</td>
<td>2</td>
<td>1600 x 1200 x 400</td>
<td>110/220</td>
</tr>
<tr>
<td>50</td>
<td>2</td>
<td>1600 x 1200 x 400</td>
<td>110/220</td>
</tr>
</tbody>
</table>

Magnet control model MACO EP for electro permanent magnets

The magnets are magnetized/demagnetized through a short electrical impulse (1-3 seconds). The power of the magnet can be adjusted as required via a potentiometer. A number of magnet groups are possible. Magnet groups should be pre-selected.

Voltage: 340 VDC
Power: up to 85 kW

<table>
<thead>
<tr>
<th>Power kW</th>
<th>Current A</th>
<th>Dimensions mm IP54</th>
<th>Voltage VDC</th>
</tr>
</thead>
<tbody>
<tr>
<td>8.5</td>
<td>25</td>
<td>1000 x 1080 x 300</td>
<td>340</td>
</tr>
<tr>
<td>13.6</td>
<td>40</td>
<td>1000 x 1080 x 300</td>
<td>340</td>
</tr>
<tr>
<td>17.0</td>
<td>50</td>
<td>1000 x 1080 x 300</td>
<td>340</td>
</tr>
<tr>
<td>25.5</td>
<td>75</td>
<td>1000 x 1080 x 350</td>
<td>340</td>
</tr>
<tr>
<td>34.0</td>
<td>100</td>
<td>1000 x 1080 x 350</td>
<td>340</td>
</tr>
<tr>
<td>47.6</td>
<td>140</td>
<td>1000 x 1080 x 350</td>
<td>340</td>
</tr>
<tr>
<td>61.2</td>
<td>180</td>
<td>1000 x 1000 x 300</td>
<td>340</td>
</tr>
<tr>
<td>68.0</td>
<td>200</td>
<td>1000 x 1280 x 400</td>
<td>340</td>
</tr>
<tr>
<td>85.0</td>
<td>250</td>
<td>1000 x 1280 x 450</td>
<td>340</td>
</tr>
</tbody>
</table>
Magnet operation:
The magnet control switches are usually fully integrated into the crane control and operate via relay contacts. A Proibus connection is also available upon request.

Commands:
- Activate magnet
- Deactivate magnet plus safety button
- Tip-off (fanning) plus safety button
- Group pre-selection of 1, 2, 3 .... groups

Options:
- Variable output voltage (force control) in 5 or 10 steps or even infinitely variable from zero to maximum by a potentiometer, depending on your requirement
- Up to 30 pre-selections of magnets or groups of magnets
- Integrated control module for beam actuation; rotation, telescoping
- Proibus interface with crane controls
- Cabinet heating for temperatures below 0°C
- Cabinet cooling for temperatures above 45°C
- Redundancy – for lifting loads in areas with a high risk of personal injury (e.g. ship freight holds)
- Tip-off (fanning): separating and controlled dropping of excess steel sheets

Magnet control standard safety features:
- Load test, an essential safety function:
  Initial lift with 50% magnetic force and automatic step up step up to 100% force 2-3 seconds after lifting.
- Signal lamps (red/green/white) to indicate the system status (load test, full power, off, etc)
- Monitoring of insulation
- Battery bank monitoring; voltage, charging current and symmetry
- Claxon with continuous sound in case of mains power failure

Crane control interfacing:
This allows a safety optimisation during lifting and handling:
- Enable hoisting command (load lifting, weight measurement)
- Enable crane movement commands after successful magnetisation
- Locking of magnet control switches during crane movements

Further safety options:
- Automatic force control upon setting down the load
- Current monitoring with warning system
- Locking of control switches to prevent unintentional switching off while lifting and moving

Our magnet controls can be supplied complete with cable drum and control pendant on request.
APPLICATIONS

Steel plate handling

- Single sheets
- Plate stacks
- Horizontal / Vertical

Outdoor use

Rotating and telescopic lifting beam

Sheet cutting machine loading and unloading

Ingots / steel bar handling

- Ingots
- High temperature (400 up to >600°C)
- Solid slab

Cylindrical material handling

- Solid material
- Pipes – single
- Pipes – in bundles

OTHER HANDLING SOLUTIONS UPON REQUEST
APPLICATIONS

Bundle handling

Beams
Profiles
Steel bar bundles

Beams and channels

Bundles of beams
Multiple steel profiles
Individual steel profiles

Coils and slitted coils

Eye vertical
Eye horizontal
Eye horizontal

Scrap handling

Castings (pig scrap)
Mobile crane
Recycling
Intended use:
The RMEP lifting magnet range allows to lift and handle ingots, blocks and heavy plates weighing up to 20 tons.
These magnets are provided with an “on board” magnet control together with a hand held radio remote control.
Thus, a maximum of independency and flexibility is ensured.
An RMEP lifting magnet can be simply hooked up to the crane provided an AC power supply is available at the hook.

Applications:
- Loading and unloading of machine tools
- Lifting and handling of materials in the warehouse
- Lifting and handling of workpieces in fabrication, manufacturing and assembling stages

### Ordering example:
Electro-permanent heavy lifting magnet SAV 531.73 - RMEP 3,2
Designation SAV - No. - Model
ELECTRO-PERMANENT LIFTING Magnets

Intended use:
Effortless lifting and transportation of loads of up to 1000 kg. Electrically actuated magnets for individual applications.

Features:
- Permanent magnet system, electrically controlled
- No loss of lifting force if the power supply fails
- High safety level thanks to the Neodymium magnet system with a 3-fold break-away force
- High level of lifting capacity in case of air gap situations
- V-shaped pole shoes for flat and round materials
- Rapid activation and deactivation of the lifting magnet
- Integrated control unit with illuminated push buttons
- Comprehensive operating instructions and an individual test certificate

Applications:
- Loading and unloading of machine tools
- Transfer of round and flat materials in the warehouse
- Handling of parts in the assembly and production stages
- Frequent handling on robots

Optional:
- With infra-red remote control on request.

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Nominal lifting capacity*</td>
<td>kg</td>
<td>125</td>
<td>250</td>
<td>500</td>
</tr>
<tr>
<td>Round material</td>
<td>kg</td>
<td>60</td>
<td>125</td>
<td>250</td>
</tr>
<tr>
<td>Ø min / max</td>
<td>mm</td>
<td>Ø30 / Ø120</td>
<td>Ø50 / Ø200</td>
<td>Ø50 / Ø200</td>
</tr>
<tr>
<td>Length x Width Magnet</td>
<td>mm</td>
<td>206 x 65</td>
<td>250 x 100</td>
<td>250 x 125</td>
</tr>
<tr>
<td>Total length x Total width</td>
<td>mm</td>
<td>210 x 116</td>
<td>270 x 140</td>
<td>270 x 150</td>
</tr>
<tr>
<td>Height to the crane hook</td>
<td>mm</td>
<td>204</td>
<td>380</td>
<td>405</td>
</tr>
<tr>
<td>Connection voltage</td>
<td>V</td>
<td>230</td>
<td>230</td>
<td>230</td>
</tr>
<tr>
<td>Current pulse</td>
<td>A</td>
<td>2,5</td>
<td>3,5</td>
<td>6,7</td>
</tr>
<tr>
<td>Weight</td>
<td>kg</td>
<td>13</td>
<td>35</td>
<td>54</td>
</tr>
</tbody>
</table>

* Nominal lifting capacity
Maximum weight for steel parts S235JR with smooth contact surfaces and of sufficient size and thickness. The lifting capacity varies according to the type of material, the thickness, the size and the quality of the surface.

Ordering example: Electro-permanent lifting magnet  SAV 531.73  NEO-EP 250
Designation  SAV - No.  - Model
BATTERY POWERED LIFTING MAGNETS

SAV 531.42 - BM / BMP

Intended use:
Lifting and moving of loads up to 5000 kg independent from a power supply line. Self-sufficient electromagnets for individual use with infra-red remote control.

Features:
- Robust steel casing with control and charging unit and maintenance-free 12 V battery
- Bail switch on the lifting eye prevents switching-off during lifting movements,
- Charging level indicator, optic/acoustic alarm signal at low current and battery capacity
- The magnet cannot be switched off when the battery voltage is too low
- Operation through infra-red remote control with 10 m range or directly on the magnet
- Modern electronics with quick reaction times
- Delivery including battery, infra-red transmitter, operation manual and test certificate
- According European guidelines and standards such as UNI EN 13155:2003

Model BM in flat execution with one or two magnets for lifting of flat material.
Standard with tip-off function over the infra-red transmitter. Model BM 3600 optimized for thin sheets up to 6000 x 3000 mm.

Model BMP with prism and deep magnetic field for lifting of profiles, tubes and round material and additionally flat material with rough contact surface.

Radio remote control on request.

Applications:
- In steel construction and in shipyards to handle steel sheets and profiles:
  - Loading and clearing of flame- or laser cutting machines
  - Loading/unloading of large machine tools
- In steel warehouses for material handling
- Transport of heavy dies, castings and forgings

<table>
<thead>
<tr>
<th>Model</th>
<th>BM 1350</th>
<th>BM 2500</th>
<th>BM 3600</th>
<th>BM 5000</th>
<th>BMP 1800</th>
<th>BMP 3600</th>
</tr>
</thead>
<tbody>
<tr>
<td>Execution</td>
<td>Flat</td>
<td>1 Magnet</td>
<td>Flat</td>
<td>1 Magnet</td>
<td>flach</td>
<td>1 Magnet</td>
</tr>
<tr>
<td>Nominal lifting capacity*</td>
<td>- Flat material</td>
<td>kg</td>
<td>1350</td>
<td>2500</td>
<td>3600</td>
<td>5000</td>
</tr>
<tr>
<td>- Round material</td>
<td>kg</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>ø min / max</td>
<td>mm</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Length x Width</td>
<td>mm</td>
<td>272 x 242</td>
<td>400 x 242</td>
<td>1050 x 240</td>
<td>1200 x 300</td>
<td>470 x 242</td>
</tr>
<tr>
<td>Height to the crane hook</td>
<td>mm</td>
<td>480</td>
<td>485</td>
<td>480</td>
<td>500</td>
<td>615</td>
</tr>
<tr>
<td>Battery power</td>
<td>Ah</td>
<td>31</td>
<td>79</td>
<td>79</td>
<td>79</td>
<td>79</td>
</tr>
<tr>
<td>Action time 50% ED</td>
<td>h</td>
<td>8</td>
<td>8</td>
<td>8</td>
<td>8</td>
<td>8</td>
</tr>
<tr>
<td>Charging voltage</td>
<td>VAC</td>
<td>230</td>
<td>230</td>
<td>230</td>
<td>230</td>
<td>230</td>
</tr>
<tr>
<td>Weight</td>
<td>kg</td>
<td>72</td>
<td>98</td>
<td>184</td>
<td>224</td>
<td>185</td>
</tr>
</tbody>
</table>

* Nominal lifting capacity
Maximum weight for steel parts S235JR with smooth contact surfaces and of sufficient size and thickness.
The lifting capacity varies according to the type of material, the thickness, the size and the quality of the surface.

Ordering example: Battery powered lifting magnet SAV 531.42 - BM 1350 - 230
Designation SAV - No. Model charging voltage
**Intended use:**
Lifting and moving of longer and larger loads independent from a power supply line. Especially developed for loading and unloading of sawing machines. Self-contained electromagnetic system for indoor use.

**Features:**
- Narrow magnet base, especially suitable for handling of profiles (H, I and U beams)
- Robust steel casing with control and charging unit and maintenance-free 12 V battery
- Bail switch on the lifting eye prevents switching-off during lifting movements.
- Charging level indicator, optic/acoustic alarm signal at low current and battery capacity
- The magnet cannot be switched off when the battery voltage is too low
- Operation through infra-red remote control with 10 m range or directly on the magnet
- Modern electronics with quick reaction times
- Delivery including battery, infra-red transmitter, operation manual and test certificate
- According European guidelines and standards such as UNI EN 13155:2003

**Applications:**
- For loading and unloading of sawing machines
- In warehouses and steel works
- Handling of long bars, tubes and profiles

---

**BATTERY POWERED LIFTING MAGNETS**

<table>
<thead>
<tr>
<th>Model</th>
<th>BM-TM 1000</th>
<th>BM-TM 1500</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nominal lifting capacity* on flat material</td>
<td></td>
<td></td>
</tr>
<tr>
<td>At air gap</td>
<td></td>
<td></td>
</tr>
<tr>
<td>0 mm</td>
<td>2500 kg</td>
<td>3750 kg</td>
</tr>
<tr>
<td>Width/300</td>
<td>1870 kg</td>
<td>2750 kg</td>
</tr>
<tr>
<td>Width/100</td>
<td>1400 kg</td>
<td>1650 kg</td>
</tr>
<tr>
<td>Nominal lifting capacity* on round material</td>
<td></td>
<td></td>
</tr>
<tr>
<td>At air gap</td>
<td></td>
<td></td>
</tr>
<tr>
<td>0 mm</td>
<td>1250 kg</td>
<td>1875 kg</td>
</tr>
<tr>
<td>Magnet length x width</td>
<td>1000 x 100 mm</td>
<td>1500 x 100 mm</td>
</tr>
<tr>
<td>Overall width</td>
<td>242 mm</td>
<td>242 mm</td>
</tr>
<tr>
<td>Height to the crane hook</td>
<td>670 mm</td>
<td>670 mm</td>
</tr>
<tr>
<td>Battery power</td>
<td>79 Ah</td>
<td>79 Ah</td>
</tr>
<tr>
<td>Action time at 50% ED</td>
<td>8 h</td>
<td>8 h</td>
</tr>
<tr>
<td>Charging voltage</td>
<td>VAC 230</td>
<td>230</td>
</tr>
<tr>
<td>Weight</td>
<td>200 kg</td>
<td>350 kg</td>
</tr>
</tbody>
</table>

* Nominal lifting capacity

Maximum weight for steel parts S235JR with smooth contact surfaces and of sufficient size and minimum thickness 50 mm. The lifting capacity varies according to the type of material, the thickness, the size and the quality of the surface.

**Ordering example:** Battery powered lifting magnet SAV 531.42 - BM-TM 1000 - 230

Designation | SAV - Nr. | Model | - Charging voltage
Intended use:
For lifting and transportation of loads up to 2000 kg. Manually actuated magnets for individual use.

Features:
- Powerful Neodymium magnets ensure a maximum lifting capacity on uneven and rough contact surfaces
- SAV-lifting magnets are individually tested and delivered with a test certificate.
- Break-away force is at least 3 times the nominal lifting capacity.
- The lifting capacity for round materials is at least 50% of the lifting capacity for flat materials
- Smoothly turning lever with safety lock
- Compact, robust and reliable

Applications:
- Loading and unloading of machine tools
- Handling of bars and profiles in the warehouse
- Handling of plates, blocks, bars, pipes and profiles in the workshop

<table>
<thead>
<tr>
<th>Model</th>
<th>NEO 150</th>
<th>NEO 300</th>
<th>NEO 600</th>
<th>NEO 1000</th>
<th>NEO 2000</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nominal lifting capacity</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>- Flat material</td>
<td>kg</td>
<td>150</td>
<td>300</td>
<td>600</td>
<td>1000</td>
</tr>
<tr>
<td>- Round material</td>
<td>kg</td>
<td>65</td>
<td>150</td>
<td>300</td>
<td>500</td>
</tr>
<tr>
<td>Minimum thickness</td>
<td>mm</td>
<td>2</td>
<td>4</td>
<td>6</td>
<td>10</td>
</tr>
<tr>
<td>Round material</td>
<td>mm</td>
<td>40 - 100</td>
<td>60 - 200</td>
<td>65 - 270</td>
<td>100 - 300</td>
</tr>
<tr>
<td>Diameter ø min / max</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>- Length x width</td>
<td>mm</td>
<td>93 x 60</td>
<td>152 x 100</td>
<td>246 x 120</td>
<td>306 x 146</td>
</tr>
<tr>
<td>Height to the crane hook</td>
<td>mm</td>
<td>110</td>
<td>164</td>
<td>164</td>
<td>216</td>
</tr>
<tr>
<td>Weight</td>
<td>kg</td>
<td>2,6</td>
<td>10,0</td>
<td>20,0</td>
<td>40,0</td>
</tr>
</tbody>
</table>

Ordering example: Permanent lifting magnet SAV 531.01-SAV - 150
Designation          SAV - No.     - Model
**PERMANENT LIFTING MAGNETS**

**SAV 531.02**

**Intended use:**
Lifting and turning loads up to 1000 kg from horizontal to vertical position and vice versa. Permanent magnetic device for individual, close proximity use.

**Features:**
- NEO Magnet fitted with a lifting arm to lift and turn plates and blocks through 90 degrees
- The arm allows to use the full lifting capacity of the magnet in vertical position
- Magnet’s position is adjustable to find the approximate center of gravity of the component
- The lifting arm can be ordered separately for retrofitting an existing NEO magnet
- Only for flat components like plates, blocks and discs
- Special execution for cylindrical components available upon request

**Applications:**
- Loading and unloading of machine tools
- Turning steel sheets in the warehouse
- Turning of plates and blocks in the workshop

**Details:**
The arm has a stopper with 2 pins and a slider to adjust the magnet’s position. In the vertical position, the component must securely sit against the stopper. Adjustable lifting eye to adjust the vertical angle of the device with the component. Once in contact with the component, the lifting magnet can be easily switched on by hand.

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### NOMINAL LIFTING MAGNETS

<table>
<thead>
<tr>
<th>Model</th>
<th>250</th>
<th>500</th>
<th>1000**</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nominal lifting capacity* kg</td>
<td>250</td>
<td>500</td>
<td>1000</td>
</tr>
<tr>
<td>Min./max. workpiece width or diameter mm</td>
<td>250 / 800</td>
<td>250 / 1000</td>
<td>300 / 1000</td>
</tr>
<tr>
<td>Max. workpiece length mm</td>
<td>200 - 1500</td>
<td>250 - 2000</td>
<td>300 - 2000</td>
</tr>
<tr>
<td>Minimum thickness mm</td>
<td>4</td>
<td>6</td>
<td>10</td>
</tr>
<tr>
<td>Overall length A x width B mm</td>
<td>960 x 210</td>
<td>1160 x 275</td>
<td>1160 x 350</td>
</tr>
<tr>
<td>Overall height C mm</td>
<td>255</td>
<td>255</td>
<td>295</td>
</tr>
<tr>
<td>Weight kg</td>
<td>27</td>
<td>38</td>
<td>60</td>
</tr>
</tbody>
</table>

* Nominal lifting capacity: Maximum weight for steel parts S235JR with smooth contact surfaces and of sufficient size and thickness.
** Application-related safety aspects should be clarified before ordering.

Ordering example: Permanent lifting magnet SAV 531.02 - 250
Designation SAV - No. - Model
PERMANENT LIFTING MAGNETS

**SAV 531.03**

**Intended use:**
Lifting and handling loads up to 500 kg
Pneumatically actuated permanent magnets for individual use.

**Features:**
- Powerful permanent lifting magnet with a pneumatic cylinder
- Compressed air only needed for switching the magnet ON or OFF
- V-shaped pole shoes for handling both flat and round components
- Removable lifting eye
- Supplied without hoses and pneumatic control unit
- Switches to detect the ON and OFF position available on request

**Applications:**
- Handling of flat and round material in the warehouse
- Loading and unloading of machine tools
- In handling devices and on robot arms

<table>
<thead>
<tr>
<th>Model</th>
<th>Lifting capacity*</th>
<th>Tested break-away force</th>
<th>Diameter min./max.</th>
<th>Length x Width</th>
<th>Height Magnet</th>
<th>Height incl. cylinder</th>
<th>Height to the crane hook</th>
<th>Minimum air pressure</th>
<th>Connecting thread</th>
<th>Weight</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>NEO-AIR 250</td>
<td></td>
<td>NEO-AIR 500</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Flat material</td>
<td>kg</td>
<td></td>
<td>daN</td>
<td>mm</td>
<td>mm</td>
<td>mm</td>
<td>mm</td>
<td>bar</td>
<td>G</td>
<td>kg</td>
</tr>
<tr>
<td>kg</td>
<td>250</td>
<td></td>
<td>750</td>
<td>150</td>
<td>185</td>
<td>285</td>
<td>365</td>
<td>4</td>
<td>1/8&quot;</td>
<td>25</td>
</tr>
<tr>
<td>Round material</td>
<td>kg</td>
<td></td>
<td>250</td>
<td>125</td>
<td>185</td>
<td>285</td>
<td>365</td>
<td>4</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

* Nominal lifting capacity: Maximum weight for steel parts S235JR with smooth contact surfaces and of sufficient size and thickness.

**Ordering example:** Permanent lifting magnet SAV 531.03 - NEO-AIR 250

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**SAV 531.92**

**Intended use:**
Lifting and handling loads up to 500 kg
Pneumatically actuated permanent magnets for individual use.

**Applications:**
- Handling of flat and round material in the warehouse
- Loading and unloading of machine tools
- In handling devices and on robot arms

<table>
<thead>
<tr>
<th>Model</th>
<th>Nominal lifting force*</th>
<th>Drag force</th>
<th>Length</th>
<th>Width</th>
<th>Weight</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>daN</td>
<td>daN</td>
<td>mm</td>
<td>mm</td>
<td>kg</td>
</tr>
<tr>
<td>Flat material</td>
<td></td>
<td>20</td>
<td>160</td>
<td>150</td>
<td>1,4</td>
</tr>
<tr>
<td>Round material</td>
<td></td>
<td>70</td>
<td>140</td>
<td>84</td>
<td>1,4</td>
</tr>
</tbody>
</table>

* Nominal lifting force: Maximum weight for steel parts S235JR with smooth contact surfaces and of sufficient size and thickness.

**Ordering example:** Permanent-Magnetic-Plate Lifter SAV 531.92 - NEO-AIR 250

---

**SAV 531.92**

**Intended use:**
Lifting and handling loads up to 500 kg
Pneumatically actuated permanent magnets for individual use.

**Applications:**
- Handling of flat and round material in the warehouse
- Loading and unloading of machine tools
- In handling devices and on robot arms

<table>
<thead>
<tr>
<th>Model</th>
<th>Nominal lifting force*</th>
<th>Drag force</th>
<th>Length</th>
<th>Weight</th>
</tr>
</thead>
<tbody>
<tr>
<td>Flat material</td>
<td></td>
<td>20</td>
<td>160</td>
<td>150</td>
</tr>
<tr>
<td>Round material</td>
<td></td>
<td>70</td>
<td>140</td>
<td>84</td>
</tr>
</tbody>
</table>

* Nominal lifting force: Maximum weight for steel parts S235JR with smooth contact surfaces and of sufficient size and thickness.

**Ordering example:** Permanent-Magnetic-Plate Lifter SAV 531.92 - NEO-AIR 250

---
PERMANENT MAGNETIC CLAWS

### SAV 531.20

**Intended use:**
Close proximity lifting and handling of flat components up to 300 kg by crane. Magnet to be used individually.

**Applications:**
Solid construction with lever for easy release of workpieces (sheets etc.) Both models can be used for vertical handling as well well, taking into account the reduced lifting capacity. Particularly suited for steel sheets of 4 mm thickness and up.

<table>
<thead>
<tr>
<th>Nominal holding force</th>
<th>daN</th>
<th>250</th>
<th>300</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nominal dragging force</td>
<td>daN</td>
<td>100</td>
<td>125</td>
</tr>
<tr>
<td>Break-away force</td>
<td>daN</td>
<td>750</td>
<td>900</td>
</tr>
<tr>
<td>Length</td>
<td>mm</td>
<td>290</td>
<td>290</td>
</tr>
<tr>
<td>Width</td>
<td>mm</td>
<td>125</td>
<td>180</td>
</tr>
<tr>
<td>Weight</td>
<td>kg</td>
<td>7,5</td>
<td>10,5</td>
</tr>
</tbody>
</table>

**Ordering example:** Permanent magnetic claw SAV 531.20 - 250

SAV - No. - Nominal holding force

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ELECTRO-LIFTING MAGNETS

### SAV 531.40 / 41

**Features:**
- 230 VAC input voltage
- Break-away force according to EN 13155 (VDE 0580)
- Magnet’s suspension according to your requirement

**Applications:**
**SAV 531.40** – special purpose lift magnet for a variety of components, individual solid parts or bulk handling of smaller, lighter parts in charging and discharging equipment.

**SAV 531.41** – special purpose magnet for a variety of duties and components. Lifting, handling, clamping of plates, blocks, profiles, fabrications etc.

**Attention:** Not allowed for use in areas accessible to people. The rules of EN 13155 are to be observed.

<table>
<thead>
<tr>
<th>Nominal holding force</th>
<th>daN</th>
<th>300</th>
<th>460</th>
<th>760</th>
<th>1160</th>
<th>330</th>
<th>830</th>
</tr>
</thead>
<tbody>
<tr>
<td>Diameter / Length</td>
<td>mm</td>
<td>150</td>
<td>180</td>
<td>250</td>
<td>300</td>
<td>400</td>
<td>600</td>
</tr>
<tr>
<td>Width</td>
<td>mm</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>200</td>
<td>300</td>
</tr>
<tr>
<td>Height</td>
<td>mm</td>
<td>65</td>
<td>80</td>
<td>100</td>
<td>110</td>
<td>207</td>
<td>242</td>
</tr>
<tr>
<td>Power consumption</td>
<td>W</td>
<td>44</td>
<td>66</td>
<td>165</td>
<td>220</td>
<td>280</td>
<td>560</td>
</tr>
<tr>
<td>Weight</td>
<td>kg</td>
<td>7,6</td>
<td>14,5</td>
<td>34,0</td>
<td>55,0</td>
<td>60</td>
<td>135</td>
</tr>
</tbody>
</table>

Other sizes available upon request.

**Ordering example:** Electro lifting magnet SAV 531.41 - 330

SAV - No. - Nominal holding force
Intended use:
Electromagnets for bulk handling of loose, light materials in charging and discharging operations with a bulk weight of up to 100 kg.

Features:
- Twin electromagnet with a very deep field
- Bulk capacity up to 100 kg
- Integrated control with rectifier for 230 VAC input voltage
- ON/OFF toggle switch on magnet with signal lamp
- Spiralised power cord with plug
Other sizes and lifting capacities available upon request

Applications:
The MS series is designed for the bulk handling of nuts, bolts, nails, small machined parts, castings, swarf etc. and used to charge or discharge containers, vibratory equipment, conveyor belts in the manufacturing and packaging industry.
A demagnetising coil mounted before the sorting and conveying unit is recommended.

Lifting capacity:
Unlike other lifting magnets the lifting capacity cannot be rated. The magnet will pick up as much as he can because the materials are loose. The lifting capacity depends largely on the type and nature of the material to be lifted. To determine the true bulk lifting capacity for certain components, tests have to be carried out.

<table>
<thead>
<tr>
<th>Model</th>
<th>MS 300</th>
<th>MS 400</th>
</tr>
</thead>
<tbody>
<tr>
<td>Approx. maximum bulk capacity kg</td>
<td>50</td>
<td>100</td>
</tr>
<tr>
<td>Length x Width mm</td>
<td>300 x 300</td>
<td>400 x 400</td>
</tr>
<tr>
<td>Height to the crane hook mm</td>
<td>214</td>
<td>214</td>
</tr>
<tr>
<td>Power consumption W</td>
<td>264</td>
<td>463</td>
</tr>
<tr>
<td>Input voltage VAC</td>
<td>230</td>
<td>230</td>
</tr>
<tr>
<td>Weight kg</td>
<td>57</td>
<td>90</td>
</tr>
</tbody>
</table>

Ordering example: Electro lifting magnet SAV 531.44 - MS 300
Designation SAV - No. - Model
SPECIAL SOLUTIONS

Pneumatically operated permanent palletizer magnet for the palletizing of batteries. The entire contact surface is magnetic.

Beam with magnets on a mobile gantry crane.

Magnetic system with 2 magnets is suitable for small sheets. Maximum flexibility through rotation of magnets, also suitable for beams.

Magnet system with 2 magnets on a beam.

Telescopic beam with magnets on a forklift truck. The power to the magnets is provided by a generator mounted on the truck.

Special electromagnetic solenoids in the harbour. In case of emergency these solenoids actuate quick release mooring hooks.
SPECIAL SOLUTIONS

Special purpose built magnets for the alignment of steel sheet in the rolling mill before the guillotine.

Lifting eye at end of magnet for vertical lifting

Raised poles for lifting between flanges of beams

Off-shore magnetic lifting systems for drill pipes

Extended poles for lifting large rings

 NEO-EP 250 with an integrated crane control unit for handling disc brakes.
THE SAV PRODUCT RANGE

CATALOGUE I: SAV–MAGNETIC WORKHOLDING
Permanent, electro and ep-magnetic, mechanical, hydraulic, vacuum, multi-technique. Demagnetisers, sine tables, magnetic tools

CATALOGUE II: SAV–STATIONARY WORKHOLDING
Vices and clamping equipment, vacuum clamping, Angle plates and tombstone fixtures, stationary chucks and attachments

CATALOGUE III: SAV–ROTARY WORKHOLDING
Manually and power operated chucks, lever compensating, finger, console and column chucks

CATALOGUE IV: SAV–PRODUCTION AUTOMATION
Pallet changers, transfer lines, deburring cells, tool changers, loading/unloading robots

CATALOGUE V: SAV–STANDARD PARTS
Semi-finished parts, spanners, positioning elements, actuating, guiding and driving components

CATALOGUE VI: SAV–MAGNETIC LIFTING
Heavy duty magnetic lifting equipment, Permanent lifting magnets, battery lifting magnets, handling tools

CATALOGUE VII: SAV–CUSTOM SOLUTIONS
Customized magnetic, mechanical, hydraulic, vacuum, stationary and rotary workholding

CATALOGUE VIII: SAV–SMALL MAGNETS
Flat and holding magnets, pot magnets, magnet cores and office magnets

CATALOGUE IX: SAV–DRESSING AND CIRCULAR GRINDING
Dressing, circular grinding, indexing tables

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