



MAGNETIC LIFTING

SYSTEMS & STANDARD PRODUCTS

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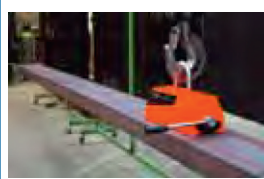
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CATALOGUE VI

MAGNETIC LIFTING

SYSTEM & STANDARD PRODUCTS



30 YEARS OF PRODUCTION

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.



THE PARTNER FOR:

- Workholding, surface machining
Magnetic-hydraulic-mechanical-vacuum
- Workholding, circular machining
All technologies
- Heavy lifting systems
- Automation
- Standard parts
- Special 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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30 YEARS of COMPETENCE IN MAGNETIC



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.



WORKHOLDING AND LIFTING

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

ENGINEERING, R&D



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:

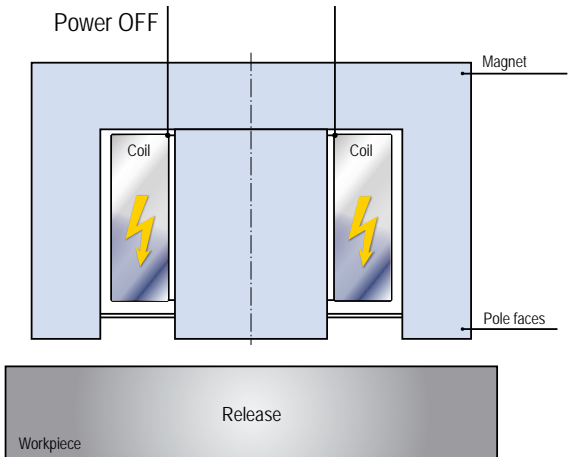
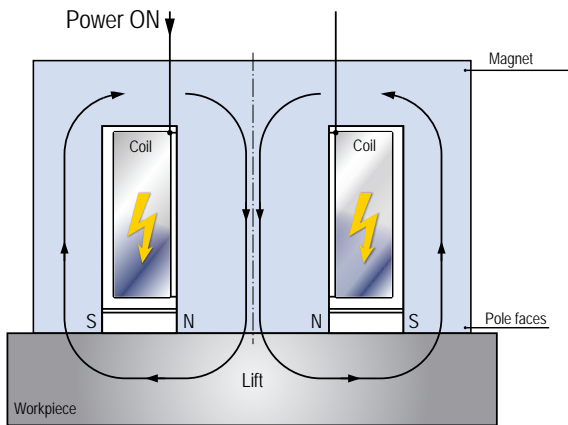
- Magnetics
- Hydraulics
- Mechanics
- Vacuum technologies
- Automation technologies
- Control technologies
- Stationary and rotating workholding technologies

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

HEAVY LOAD LIFTING

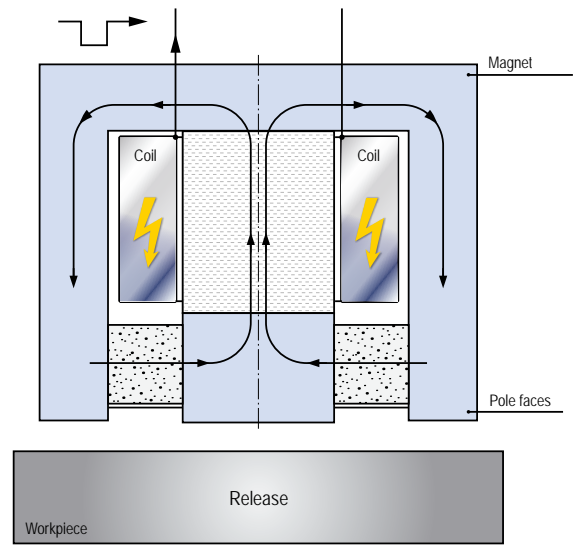
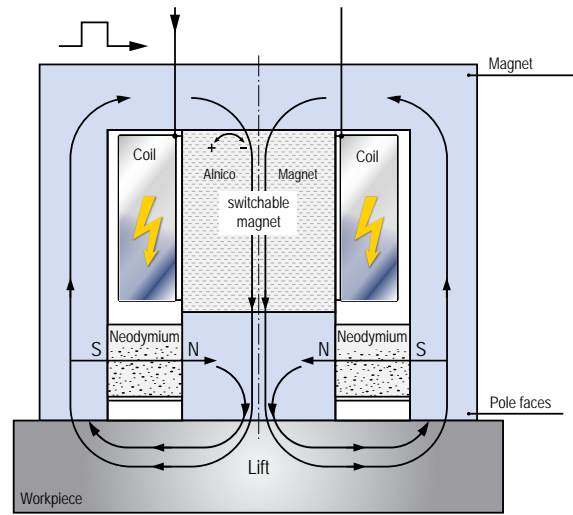
WORKING PRINCIPLE

ELECTRO LIFTING MAGNETS





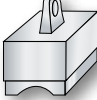
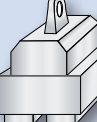
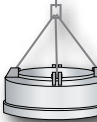
- Strong magnetic field in air gap situations
- Simple construction
- Wide range of applications
- Bundles and stacks
- Highest performance/weight ratio
- >2-fold safety factor

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

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

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



CONTROL SYSTEMS

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.



Maco B Magnet control cabinet

| Power kW | Number of cabinets | | Dimensions mm IP54 | Voltage VDC |
|----------|--------------------|-----|-----------------------|-------------|
| | Control unit | BBU | | |
| 1,5 | 1 | | 1100 x 1200 x 400 | 55 |
| 3 | 1 | 1 | 1400 x 1200 x 400 | 55 |
| 5 | 1 | 1 | 1400 x 1200 x 400 | 110/220 |
| 7,5 | 1 | 1 | 1400 x 1200 x 400 | 110/220 |
| 10 | 1 | 1 | 1600 x 1200 x 400 | 110/220 |
| 15 | 2 | 1 | 1400 x 1200 x 400 | 110/220 |
| 20 | 2 | 1 | 1600 x 1200 x 400 | 110/220 |
| 25 | 2 | 1 | 1600 x 1200 x 400 | 110/220 |
| 30 | 2 | 2 | 1600 x 1200 x 400 | 110/220 |
| 40 | 2 | 2 | 1600 x 1200 x 400 | 110/220 |
| 50 | 2 | 2 | 1600 x 1200 x 400 | 110/220 |



Emergency power system BBU

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



Maco EP Magnet control cabinet

| Power kW | Current A | Dimensions mm IP54 | Voltage VDC |
|----------|-----------|-----------------------|-------------|
| 8,5 | 25 | 1000 x 1080 x 300 | 340 |
| 13,6 | 40 | 1000 x 1080 x 300 | 340 |
| 17,0 | 50 | 1000 x 1080 x 300 | 340 |
| 25,5 | 75 | 1000 x 1080 x 350 | 340 |
| 34,0 | 100 | 1000 x 1080 x 350 | 340 |
| 47,6 | 140 | 1000 x 1080 x 350 | 340 |
| 61,2 | 180 | 1000 x 1000 x 300 | 340 |
| 68,0 | 200 | 1000 x 1280 x 400 | 340 |
| 85,0 | 250 | 1000 x 1280 x 450 | 340 |



The control cabinets can be integrated into the beam on request.

CONTROL SYSTEMS

Magnet operation:

The magnet control switches are usually fully integrated into the crane control and operate via relay contacts. A Profibus 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
- Profibus 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

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.

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



APPLICATIONS

Steel plate handling



Single sheets



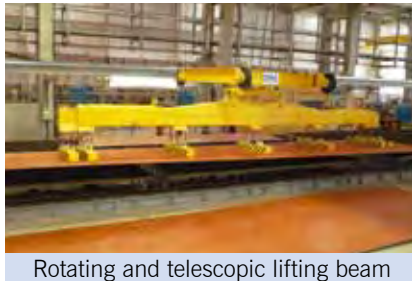
Plate stacks



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)

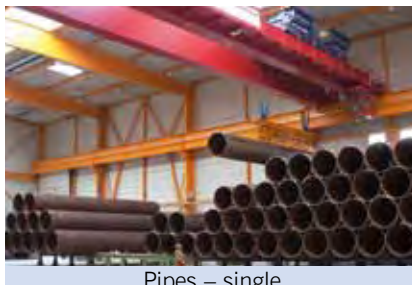


Solid slab

Cylindrical material handling



Solid material



Pipes – single

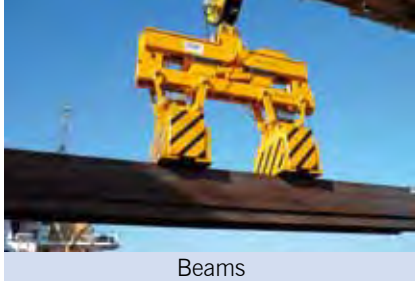


Pipes – in bundles

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

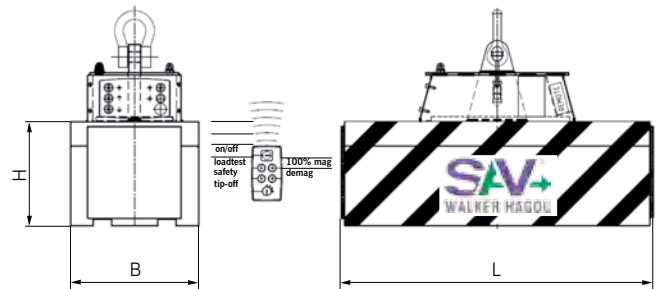
Intended use:

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 ware-house
- Lifting and handling of workpieces in fabrication, manufacturing and assembling stages



| Model | Nominal lifting capacity on machined surface air gaps < 0,1mm | Nominal lifting capacity on thick plates air gaps < B/300 | Application | Break-away force (T) at air gaps acc. to EN 13155 | | | Weight kg | Dimensions | | | Voltage VDC | Power kW |
|----------|--|--|-------------|---|-------|-------|--------------|------------|---------|---------|----------------|-------------|
| | T | T | | 0 | B/300 | B/100 | | L mm | B mm | H mm | | |
| RMEP 3,2 | 5 | 3,2 | Medium | 16,5 | 11 | 5,4 | 325 | 590 | 340 | 275 | 360 | 5 |
| RMEP 5 | 7 | 5 | Medium | 22 | 16 | 7,7 | 430 | 790 | 340 | 275 | 360 | 6,5 |
| RMEP 6,3 | 8 | 6,3 | Heavy | 28 | 19 | 8 | 760 | 800 | 420 | 340 | 360 | 6,5 |
| RMEP 9 | 11 | 9 | Heavy | 36 | 27 | 10 | 1100 | 1020 | 420 | 340 | 360 | 7,5 |
| RMEP 16 | 20 | 16 | Extra Heavy | 64 | 46,5 | 17,5 | 2400 | 1230 | 600 | 480 | 360 | 9,4 |
| RMEP 20 | 25 | 20 | Extra Heavy | 80 | 60 | 21,5 | 3000 | 1530 | 600 | 480 | 360 | 12 |

Ordering example: **Electro-permanent heavy lifting magnet SAV 531.73 - RMEP 3,2**
 Designation SAV - No. - Model

ELECTRO-PERMANENT LIFTING MAGNETS

SAV 531.73

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. _____



| Model | | NEO-EP 125 | NEO-EP 250 | NEO-EP 500 | NEO-EP 1000 |
|----------------------------|----|------------|------------|------------|-------------|
| Nominal lifting capacity* | | | | | |
| - Flat material | kg | 125 | 250 | 500 | 1000 |
| Round material | kg | 60 | 125 | 250 | 500 |
| ø min / max | mm | ø30 / ø120 | ø50 / ø200 | ø50 / ø200 | ø50 / ø200 |
| Length x Width Magnet | mm | 206 x 65 | 250 x 100 | 250 x 125 | 425 x 125 |
| Total length x Total width | mm | 210 x 116 | 270 x 140 | 270 x 150 | 445 x 167 |
| Height to the crane hook | mm | 204 | 380 | 405 | 405 |
| Connection voltage | V | 230 | 230 | 230 | 230 |
| Current pulse | A | 2,5 | 3,5 | 6,7 | 8 |
| Weight | kg | 13 | 35 | 54 | 70 |

* 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



BM 2500-MkII



BMP 1800-MkII

| Model | | BM 1350 | BM 2500 | BM 3600 | BM 5000 | BMP 1800 | BMP 3600 |
|---------------------------|-----|------------------|------------------|-------------------|-------------------|-----------------------|-----------------------|
| Execution | | Flat 1 Magnet | Flat 1 Magnet | flach 1 Magnet | Flat 2 Magnets | Prismatic 1 Magnet | Prismatic 1 Magnet |
| Nominal lifting capacity* | | | | | | | |
| - Flat material | kg | 1350 | 2500 | 3600 | 5000 | 1800 | 3600 |
| - Round material | kg | - | - | - | - | 1100 | 1800 |
| ø min / max | mm | - | - | - | - | 25 - 300 | 25 - 300 |
| Length x Width | mm | 272 x 242 | 400 x 242 | 1050 x 240 | 1200 x 300 | 470 x 242 | 760 x 262 |
| Height to the crane hook | mm | 480 | 485 | 480 | 500 | 615 | 670 |
| Battery power | Ah | 31 | 79 | 79 | 79 | 79 | 79 |
| Action time 50% ED | h | 8 | 8 | 8 | 8 | 8 | 8 |
| Charging voltage | VAC | 230 | 230 | 230 | 230 | 230 | 230 |
| Weight | kg | 72 | 98 | 184 | 224 | 185 | 420 |

* 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

BATTERY POWERED LIFTING MAGNETS

SAV 531.42 - BM - TM

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

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

* 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

Handling of a cut-off beam at a sawing machine



PERMANENT LIFTING MAGNETS

SAV 531.01-SAV

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



| Model | | NEO 150 | NEO 300 | NEO 600 | NEO 1000 | NEO 2000 |
|----------------------------------|----|----------|-----------|-----------|-----------|-----------|
| Nominal lifting capacity | | | | | | |
| - Flat material | kg | 150 | 300 | 600 | 1000 | 2000 |
| - Round material | kg | 65 | 150 | 300 | 500 | 1000 |
| Minimum thickness | mm | 2 | 4 | 6 | 10 | 15 |
| Round material | | | | | | |
| Diameter \varnothing min / max | mm | 40 - 100 | 60 - 200 | 65 - 270 | 100 - 300 | 150 - 350 |
| Length x width | mm | 93 x 60 | 152 x 100 | 246 x 120 | 306 x 146 | 480 x 165 |
| Height to the crane hook | mm | 110 | 164 | 164 | 216 | 253 |
| Weight | kg | 2,6 | 10,0 | 20,0 | 40,0 | 90,0 |



Loading/unloading of a milling machine



Cast part in a machining centre



Solid cylindrical material



Heavy construction part

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

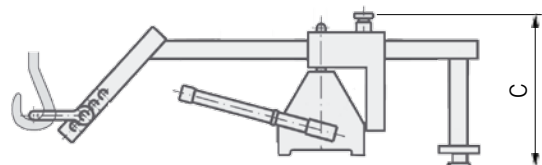
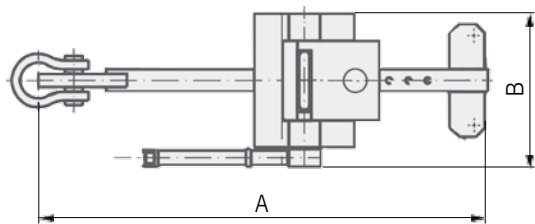
Applications:

- 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.



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

* 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 of 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



| Model | | NEO-AIR 250 | NEO-AIR 500 |
|--------------------------|-----|-------------|-------------|
| Lifting capacity* | | | |
| - Flat material | kg | 250 | 500 |
| - Round material | kg | 125 | 250 |
| Tested break-away force | daN | 750 | 1500 |
| Diameter min./max. | mm | ø60 / ø200 | ø60 / ø200 |
| Length x Width | mm | 152 x 120 | 296 x 120 |
| Height Magnet | mm | 185 | 185 |
| Height incl. cylinder | mm | 285 | 285 |
| Height to the crane hook | mm | 365 | 365 |
| Minimum air pressure | bar | 4 | 4 |
| Connecting thread | G | 1/8" | 1/8" |
| Weight | kg | 25 | 47 |



* 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
Designation SAV - No. - Model

PERMANENT-MAGNETIC PLATE LIFTER

SAV 531.92

Intended use:

This magnet is used to lift, transport and move sheet metal plates.

Applications:

Very high lifting force, approx. 85 times own weight.
Stable housing. Safety according GS standard.

| Nominal lifting force* daN | | 60** | 120* | 170* | 300* |
|----------------------------|-----|------|------|------|------|
| Break-away force | daN | 60* | 240* | 340* | 600* |
| Drag force | daN | 20 | 70 | 100 | 180 |
| Length | mm | 160 | 140 | 140 | 160 |
| Width | mm | 150 | 84 | 116 | 180 |
| Weight | kg | 1,4 | 1,4 | 1,8 | 3,5 |

* measured for drawn material St 37 K, thickness 25mm

** Plastic housing



Ordering example: Permanent-Magnetic-Plate Lifter SAV 531.92 - 300
Designation SAV - No. - Nominal lifting force

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.

| | | | |
|------------------------|-----|-----|------|
| Nominal holding force | daN | 250 | 300 |
| Nominal dragging force | daN | 100 | 125 |
| Break-away force | daN | 750 | 900 |
| Length | mm | 290 | 290 |
| Width | mm | 125 | 180 |
| Weight | kg | 7,5 | 10,5 |

Ordering example: Permanent magnetic claw SAV 531.20 - 250
Designation SAV - No. - Nominal holding force



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.



SAV 531.40



SAV 531.41

| | | SAV 531.40 | | | | SAV 531.41 | |
|-----------------------|-----|------------|------|------|------|------------|-----|
| Nominal holding force | daN | 300 | 460 | 760 | 1160 | 330 | 830 |
| Diameter / Length | mm | 150 | 180 | 250 | 300 | 400 | 600 |
| Width | mm | - | - | - | - | 200 | 300 |
| Height | mm | 65 | 80 | 100 | 110 | 207 | 242 |
| Power consumption | W | 44 | 66 | 165 | 220 | 280 | 560 |
| Weight | kg | 7,6 | 14,5 | 34,0 | 55,0 | 60 | 135 |

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

Ordering example: Electro lifting magnet SAV 531.41 - 330
Designation SAV - No. - Nominal holding force

ELECTRO LIFTING MAGNETS

SAV 531.44

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
- Spiralsised 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.



| Model | | MS 300 | MS 400 |
|-------------------------------|-----|-----------|-----------|
| Approx. maximum bulk capacity | kg | 50 | 100 |
| Length x Width | mm | 300 x 300 | 400 x 400 |
| Height to the crane hook | mm | 214 | 214 |
| Power consumption | W | 264 | 463 |
| Input voltage | VAC | 230 | 230 |
| Weight | kg | 57 | 90 |



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 fork lift 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.



Raised poles for lifting between flanges of beams



Lifting eye at end of magnet for vertical lifting



NEO-EP 250 with an integrated crane control unit for handling disc brakes.

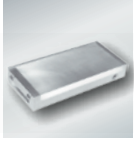


Off-shore magnetic lifting systems for drill pipes



Extended poles for lifting large rings

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



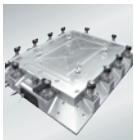
CATALOGUE V: SAV-STANDARD PARTS

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



CONSULTATION
DEVELOPMENT
MANUFACTURING
SALES
SERVICE



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