

MAGNETIC EQUIPMENT FOR  
MATERIAL HANDLING AND  
RECYCLING TECHNOLOGY

**BEAMS AND PROFILES  
HANDLING**

**MOVIMENTAZIONE  
TRAVI E PROFILI**



**GAUSSMAGNETI**

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**MADE IN  
ITALY**

**GAUSSMAGNETI**

**Lifters  
Sollevatori**



S.G.Q. certificato UNI EN ISO 9001:2015; Certif. N.° 9190.GAUS

[www.gaussmagneti.it](http://www.gaussmagneti.it)

ENGLISH || ITALIANO

# BEAMS AND PROFILES HANDLING

## MOVIMENTAZIONE TRAVI E PROFILI

Gauss Magneti designs and manufactures electromagnetic lifters and electropermanent lifters for all types of beams and profiles single or in bundles, tailored according to the needs of the customer who intends to rationalize internal handling.

Gauss Magneti progetta e costruisce sollevatori elettromagnetici e sollevatori elettropermanenti per tutti i tipi di travi e profili singoli o in fascio, studiati su misura delle esigenze del cliente che intenda razionalizzare la movimentazione interna.



### APPLICATIONS:

- + HANDLING OF PRODUCTION OF BEAMS AND PROFILES SUITABLE FOR MATERIALS EVEN AT HIGH TEMPERATURES (UP TO 650°C FOR ELECTROMAGNETS AND UP TO 600°C FOR ELECTRO PERMANENT MAGNETS)
- + LOADING AND UNLOADING OF TRUCKS, RAILWAY WAGONS OR SHIPS.
- + STORAGE IN WAREHOUSES OR WAREHOUSES.

The system is designed to minimize the weight of the magnets and the beam in order to exploit the maximum capacity of the lifting device.

As a result of their construction they are particularly suitable for heavy work even at high temperatures thanks to:

- + Deep field multipolar or bipolar magnetic circuit designed for beams or profiles.
- + Design studied for single beams and profiles with length from 6 to 24 meters.
- + Windings with very low current density to allow the handling of beams and profile up to 650°C.
- + High degree of thermal and electrical insulation.

### APPLICAZIONI:

- + EVACUAZIONE PRODUZIONE TRAVI E PROFILATI ADATTI PER ANCHE PER MATERIALI AD ALTE TEMPERATURE (FINO A 650°C PER GLI ELETTROMAGNETI E FINO A 600°C PER GLI ELETTROPERMANENTI)
- + CARICO E SCARICO AUTOCARRI, VAGONI FERROVIARI O NAVI.
- + STOCCAGGIO IN MAGAZZINI O DEPOSITI.

Il sistema è studiato per ridurre al minimo il peso dei magneti e della traversa in modo da poter sfruttare al massimo la capacità del mezzo di sollevamento.

In virtù della loro costruzione, sono particolarmente adatti al lavoro gravoso grazie a:

- + Circuito magnetico multipolare o bipolare a campo profondo studiato per fasci di travi o profili.
- + Progettazione studiata per travi e profili singoli con lunghezza da 6 a 24 metri.
- + Avvolgimenti con densità di corrente bassissime per consentire la movimentazione di travi e profili fino a 650°C.
- + Elevato grado di isolamento termico ed elettrico.

### ADVANTAGES // VANTAGGI



- + **Constant performance:** the electro permanent magnets are free from heating due to the Joule effect.
- + **Nessun danneggiamento del materiale** causato dalla movimentazione con sistemi meccanici, ganci "a C" o altri accessori meccanici.



- + The **speed of handling increases** and logistics **costs are reduced.**
- + **Aumenta la velocità** di movimentazione e **si riducono i costi** della logistica.



- + **The safety of handling increases while the cost of labor is significantly reduced** since the personnel assigned to handling the load does not have to sling the load.
- + **La sicurezza della movimentazione aumenta mentre il costo della manodopera è sensibilmente ridotto** poiché il personale addetto alla movimentazione non deve imbragare il carico.



- + Warehouse areas are exploited to the full, generating an **increase in available volumes.**
- + Si sfruttano al meglio le aree di magazzino generando un **incremento dei volumi disponibili.**

### THE ELECTROMAGNETS // GLI ELETTROMAGNETI

The electromagnets can also be made in a **version with a double redundant coil**. This grants that, if one of the two coils or its power cable should fail, the second coil will still be able to hold the load in complete safety.

**The electromagnets can be used individually or under beams in multiple arrangements.**

These beams can be:

- + Fixed.
- + Motorized extendables or passive telescopic, to adapt to the length of the load.
- + Equipped with mechanical safety forks.
- + In special execution with transverse misalignment of the magnets, for picking up one or more bundles or packs.
- + Equipped with motorized rotation of the magnets for picking up one or two bundles or packs.

Considering the fact that handling with a single hook is particularly difficult and still requires the presence on the ground of an additional operator, it is advisable to move the bundles with a 2 hooks crane which allows the magnets to remain parallel to the load and prevent it from oscillating.

The electromagnets are powered by the mains by means of our electronic equipment.

Gli elettromagneti possono essere realizzati anche in **versione con doppia bobina ridondante**. Questo garantisce che, se una delle due bobine o il relativo cavo di alimentazione dovesse guastarsi, la seconda bobina sarà comunque in grado di trattenere il carico in completa sicurezza.

**Gli elettromagneti possono essere usati singolarmente o sotto traverse.**

Queste possono essere:

- + Fisse.
- + Estensibili motorizzate o passive, per adattarsi alle lunghezze del carico.
- + Provviste di forche meccaniche di sicurezza.
- + In esecuzione speciale con disallineamento trasversale dei magneti, per il prelievo di uno o più fasci o pacchi;
- + Provviste di rotazione dei magneti per il prelievo di uno o più fasci o pacchi.

Considerando il fatto che la movimentazione con singolo gancio è particolarmente difficoltosa e richiede comunque la presenza a terra di un operatore supplementare, è consigliabile movimentare i fasci con gru a 2 discese che consentono ai magneti di restare paralleli al carico e ne impediscono l'oscillazione.

Gli elettromagneti sono alimentati dalla rete per mezzo delle nostre apparecchiature elettroniche.

### THE ELECTRO PERMANENT MAGNETS // GLI ELETTROPERMANENTI

**The electro permanent magnets can be used individually or under crosspieces in multiple arrangement.**

Electro permanent magnets combine the features of electromagnets and permanent magnets offering the following advantages:

- + **Guaranteed safety: lack of mains voltage or damage to the power cable does not lead to any accidental release of the load.** The electro permanent magnets do not require buffer batteries or mechanical safety forks.
- + **Constant performance:** the electro permanent magnets are free from heating due to the Joule effect.
- + **Minimal maintenance required.**
- + **Reduced environmental impact.**

**Gli elettropermanenti possono essere usati singolarmente o sotto traverse in disposizione multipla.**

Gli elettropermanenti combinano le caratteristiche degli elettromagneti e dei magneti permanenti offrendo i seguenti vantaggi:

- + **Sicurezza garantita: mancanza di tensione di rete o danni al cavo di alimentazione non portano ad alcun rilascio accidentale del carico.** Gli elettropermanenti non necessitano di batterie tampone o di forche meccaniche di sicurezza.
- + **Prestazioni costanti:** gli elettropermanenti sono esenti da riscaldamento per effetto Joule.
- + **Manutenzione necessaria ridotta al minimo.**
- + **Ridotto impatto ambientale.** Basso consumo energetico.

CONTACT US, OUR EXPERTS WILL FORMULATE THE MOST SUITABLE OPTION FOR YOUR NEEDS



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CONTATTACI, I NOSTRI TECNICI FORMULERANNO L'OPZIONE PIÙ ADATTA AI TUOI BISOGNI

# sollevatori elettromagnetici circolari

*circular  
electromagnetic  
lifters*

SOLLEVATORI ELETTROMAGNETICI CIRCOLARI *CIRCULAR ELECTROMAGNETIC LIFTERS*



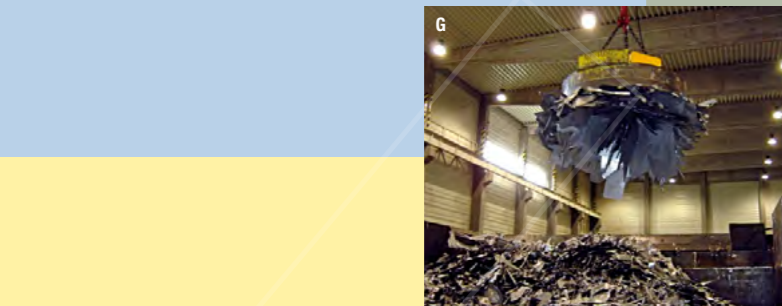
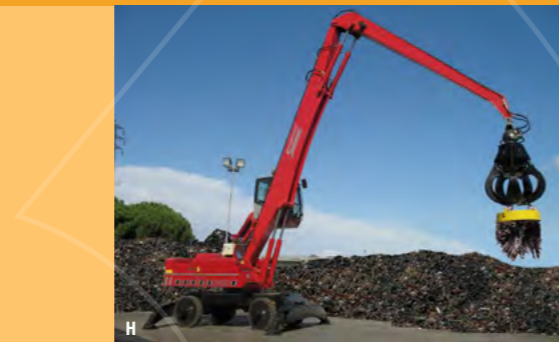
**A** Elettromagnete circolare serie ultra pesante "HMR" Ø 1550 mm carica forno fonderia.  
*Circular electromagnet extra-heavy series "HMR" Ø 1550 mm for foundry furnace loading.*

**B** Gruppo generatore idro-meccanico con valvola prioritaria montato su semovente.  
*Hydro-mechanical generator group with priority valve mounted on mobile crane.*



**C** Elettromagnete circolare serie ultra pesante "HMR" Ø 2100 mm in parco rottame acciaieria.  
*Circular electromagnet extra-heavy series "HMR" Ø 2100 mm for steel works scrap yard.*

**D** Traversa con due elettromagneti serie ultra pesante "HMR" Ø 1650 mm per carica nastro alimentazione forno acciaieria.  
*Beam with 2 electromagnets extra-heavy series "HMR" Ø 1650 mm for steel works furnace loading*



**E** Elettromagnete circolare ad azionamento idraulico, montato su semovente.  
*Circular electromagnet with hydraulic control, mounted on mobile-crane.*

**F** Quadro comando elettromagnete montato su semovente.  
*Electromagnet electronic equipment mounted on mobile crane.*

**G** Elettromagnete circolare serie pesante "MR" Ø 1850 mm in parco sfridi lamiera.  
*Circular electromagnet heavy series "MR" Ø 1850 mm for sheets scrap yard.*

**H** Elettromagnete circolare serie media "MRS" montato su semovente.  
*Circular electromagnet medium series "MRS" mounted on mobile crane.*

**I** Elettromagnete circolare serie media "MRL" montato su semovente.  
*Circular electromagnet medium series "MRL" mounted on mobile crane.*

L'azienda si riserva il diritto di apportare senza avviso modifiche tecniche ai prodotti nonchè a quanto descritto o raffigurato in questo progetto • Technical changes - without any further announcement - reserved



**Gauss magneti** SRL  
MAGNETIC EQUIPMENTS FOR HANDLING AND SEPARATION TECHNOLOGY



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**Gauss magneti** SRL  
MAGNETIC EQUIPMENTS FOR HANDLING AND SEPARATION TECHNOLOGY

Gli elettromagneti circolari GAUSS MAGNETI sono particolarmente adatti, a seconda della serie, ad essere utilizzati nelle seguenti applicazioni:

**Per lavori molto gravosi in:**

- Acciaierie.
- Fonderie.
- Frantumazione rottame con sfera da berta.
- Carico - scarico vagoni ferroviari.
- Porti.
- Parchi rottame.

**Per lavori di pulizia in:**

- Depositi di rottame.
- Recupero rottami ferrosi da demolizioni civili/industriali.

Gli elettromagneti circolari possono essere montati sia su carroponte che su mezzi semoventi, inoltre possono su richiesta essere realizzati in versione anticalore (fino a 600°C) o in versione sub-acqua.

**Le caratteristiche principali dei ns. elettromagneti sono:**

- Carcassa in laminato di acciaio ad elevata permeabilità magnetica con saldature profonde.
- Avvolgimento in nastro di alluminio, rame elettrolitico o alluminio anodizzato realizzato con bassissima densità di corrente per una efficace dispersione del calore generato per effetto Joule.
- Isolamenti in classe C superiore (>250°C).
- Diaframma in acciaio al Mn. al 12%.
- Dispositivo di protezione contro le sovratensioni.
- Catena a 3 rami in acciaio Grado 80 o 100.

Per applicazioni particolari come nel caso di scarico di vagoni ferroviari disponiamo di una serie di elettromagneti in forma ovale.

**Gli elettromagneti possono essere alimentati:**

- Dalla rete per mezzo delle ns. apparecchiature elettroniche con convertitore digitale a quattro quadranti che consentono: il forcing (forzatura della tensione per ridurre i tempi di magnetizzazione) e la controeccitazione per un più rapido rilascio del rottame e riduzione dei tempi di lavoro. E' possibile inoltre la regolazione elettronica del flusso magnetico, particolarmente utile nel caso di pesatura di rottami per le cariche di forni o ceste e il controllo della temperatura dell'avvolgimento per mezzo di soglie di corrente utile soprattutto per elettromagneti destinati al trasporto di materiali caldi (da 200°C a 600°C).
- Da generatore azionato da motore idraulico o da motore diesel nel caso di applicazione su mezzi semoventi.
- Per i mezzi semoventi abbiamo progettato e realizzato un elettromagnete che, dotato di generatore idraulico installato a bordo dello stesso, la cui funzione di magnetizza e smagnetizza avviene esclusivamente per mezzo dell'olio idraulico della macchina. L'elettromagnete è completamente indipendente e quindi può essere usato su macchine diverse. L'aggancio dell'elettromagnete alla macchina può essere fatto per mezzo di un aggancio rapido o tramite catena a tre rami con anellone centrale.

Circular electromagnets by GAUSS MAGNETI are particularly suitable, depending on the type, for the following applications:

**Very heavy activities in:**

- Steel works.
- Foundries.
- Scraps crushing by drop balls.
- Railways cars loading - unloading.
- Harbours.
- Scraps yards.

**Cleaning activities in:**

- Scraps stores.
- Ferrous scraps recovery from civil / industrial demolitions.

Circular electromagnets can be installed both on bridge-crane and on mobile cranes, can be carried out on request in high-temperature version (till 600 °C) and in underwater version.

**Main features of GAUSS MAGNETI electromagnets are:**

- Case in high magnetic permeability deep welded rolled steel.
- Coil in aluminium band, electrolytic copper or anodised aluminium with very low current density and subsequent effective Joule heat dispersion.
- Class C higher (>250 °C) insulation.
- Bottom plate in 12% manganese steel.
- Over voltage protection device.
- 3-branches chain in Grade 80 or 100 steel.

For particular applications as railways car unloading a special oval-shaped magnets series is available.

**Electromagnets can be fed by:**

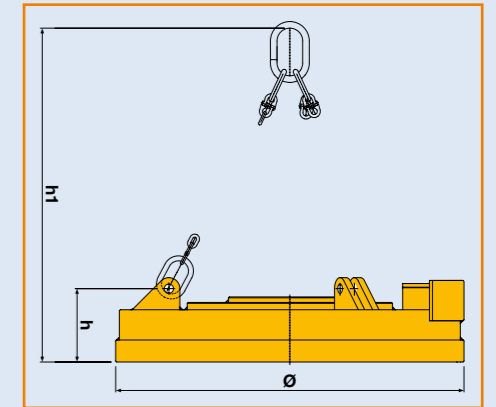
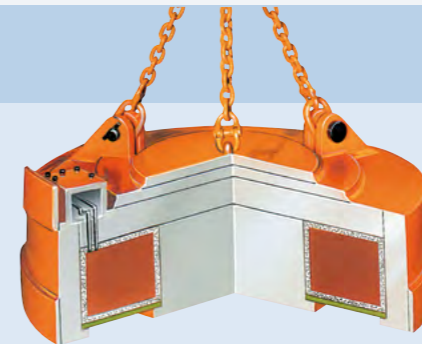
- The electric network through our electronic equipments with 4-quadrants digital converter allowing forcing (i.e. a fast voltage rise in order to shorten magnetization cycle) and counter-excitation for a quick scrap release and working time reduction. Moreover magnetic flux electronic adjusting can be carried out, useful by scraps weighing in furnaces loading. Also coil temperature control is possible by current threshold, mainly in electromagnets devoted to hot materials handling (from 200°C to 600°C).
- A hydraulic motor or diesel motor operated generator in case of use on mobile cranes. For this application we have developed and manufactured an electromagnet provided with an internally installed hydraulic generator in which magnetization and demagnetization occur by means of the machine hydraulic oil. The electromagnet is then completely independent and can be installed on different machines. Hanging occurs by means of quick coupling or by 3-branches chain with central ring.

**Elettromagneti di sollevamento HMR serie ULTRA PESANTE**  
Lifting electromagnets ultra heavy range HMR

Modello Type	Potenza assorb. a 20°C Absorbed power at 20°C	Tensione nominale Vcc Nominal voltage Vdc	Peso Weight	Dimensioni mm. Sizes mm.			Forza di strappo a caldo (1) Tear-off force at hot (1) with air gap Ø/300	Portata a caldo (2) Lift. cap. when hot (2)		Portate medie orientative a caldo (3) Average capacity when hot (3)		
				Ø	h	h1		Bramme blocchi Slabs or bloks Kg	Sfera da berta Drop ball Kg	Pani di ghisa Cast iron pigs Kg	3A 2,2-2,5 T/m² Kg	24 1,9-2,0 T/m² Kg
HMR 100	6	220	1280	1100	375	1250	24000	12000	5500	600	540	250
HMR 125	10	220	1920	1250	400	1430	38000	19000	8000	900	800	370
HMR 140	12	220	2550	1450	420	1590	48000	24000	10000	1250	1050	500
HMR 150	16	220	3830	1540	525	1720	60000	30000	12000	1700	1450	620
HMR 165	20	220	5230	1730	525	1840	76000	38000	16000	2370	2050	900
HMR 165S	25	220	6100	1700	670	2020	86000	43000	17000	2400	2100	1000
HMR 180	25	220	6750	1860	655	1950	92000	46000	21500	3030	2650	1130
HMR 180S	28	220	7300	1860	650	2100	104000	52000	23800	3200	2900	1200
HMR 200	30	220	9000	2000	710	2120	112000	56000	31000	3500	3200	1350
HMR 210	32	220	10500	2100	820	2300	124000	62000	33000	4050	3850	1650
HMR 220	32	220	12300	2200	750	2300	148000	74000	40000	4400	4150	1700

**Elettromagneti di sollevamento e pulizia MRL serie MEDIO PESANTE**  
Lifting and cleaning electromagnets middle heavy range MRL

Modello Type	Potenza assorb. a 20°C Absorbed power at 20°C	Tensione nominale Vcc Nominal voltage Vdc	Peso Weight	Dimensioni mm. Sizes mm.			Forza di strappo a caldo (1) Tear-off force at hot (1) with air gap Ø/300	Portata a caldo (2) Lift. cap. when hot (2)		Portate medie orientative a caldo (3) Average capacity when hot (3)		
				Ø	h	h1		Bramme blocchi Slabs or bloks Kg	Sfera da berta Drop ball Kg	Pani di ghisa Cast iron pigs Kg	3A 2,2-2,5 T/m² Kg	24 1,9-2,0 T/m² Kg
MRL 60	2	220	345	660	305	720	6400	3200	1400	110	100	50
MRL 70	3,2	220	480	770	310	700	8600	4300	1700	190	170	70
MRL 90	4,5	220	780	950	325	1000	14000	7000	3200	300	270	130
MRL 100	5,5	220	870	1070	290	1000	16000	8000	3700	350	320	150
MRL 110	7	220	1190	1150	360	1000	18000	9000	4700	450	420	200
MRL 125	9	220	1700	1250	360	1000	22000	11000	6200	600	550	260
MRL 140	10	220	1900	1400	350	1000	26000	13000	7100	850	780	360
MRL 150	11	220	2270	1500	400	1050	32000	16000	8700	1000	920	430
MRL 160	15	220	3100	1620	390	1320	44000	22000	10200	1330	1220	580
MRL 190	20	220	4150	1900	420	1300	71000	35500	14200	2150	1980	950
MRL 220	34	220	6000	2200	530	1330	90000	45000	20000	3000	2700	1200



**Elettromagneti di sollevamento MR serie PESANTE**  
Lifting electromagnets heavy range MR

Modello Type	Potenza assorb. a 20°C Absorbed power at 20°C	Tensione nominale Vcc Nominal voltage Vdc	Peso Weight	Dimensioni mm. Sizes mm.			Forza di strappo a caldo (1) Tear-off force at hot (1) with air gap Ø/300	Portata a caldo (2) Lift. cap. when hot (2)		Portate medie orientative a caldo (3) Average capacity when hot (3)		
				Ø	h	h1		Bramme blocchi Slabs or bloks Kg	Sfera da berta Drop ball Kg	Pani di ghisa Cast iron pigs Kg	3A 2,2-2,5 T/m² Kg	24 1,9-2,0 T/m² Kg
MR 50	1,2	220	280	550	320	730	8000	4000	850	105	85	40
MR 60	3	220	470	660	385	790	9000	4500	1780	190	170	75
MR 70	3,5	220	530	760	310	720	10500	5250	2240	260	250	115
MR 80	4	220	700	870	335	1070	14000	7000	3150	340	310	140
MR 100	5	220	1100	1040	350	1070	18500	9250	4900	485	400	170
MR 110	7	220	1500	1160	390	1320	24000	12000	7200	650	550	250
MR 125	8,8	220	1860	1280	380	1430	28000	14000	8200	850	800	350
MR 140	10	220	2450	1450	370	1480	34000	17000	9500	1100	1000	480
MR 150	12,5	220	2800	1550	390	1630	42000	21000	10700	1450	1300	600
MR 160	16	220	3960	1670	450	1650	51500	25750	12500	1650	1500	700
MR 180	20	220	4750	1840	450	1880	70000	35000	15400	2150	2000	900

**Elettromagneti di sollevamento e pulizia MRS serie LEGGERA**  
Lifting and cleaning electromagnets light range MRS

Modello Type	Potenza assorb. a 20°C Absorbed power at 20°C	Tensione nominale Vcc Nominal voltage Vdc	Peso Weight	Dimensioni mm. Sizes mm.			Forza di strappo a caldo (1) Tear-off force at hot (1) with air gap Ø/300	Portata a caldo (2) Lift. cap. when hot (2)		Portate medie orientative a caldo (3) Average capacity when hot (3)		
				Ø	h	h1		Bramme blocchi Slabs or bloks Kg	Sfera da berta Drop ball Kg	Pani di ghisa Cast iron pigs Kg	3A 2,2-2,5 T/m² Kg	24 1,9-2,0 T/m² Kg
MRS 80	4,4	220	550	860	280	975	8200	4100	1700	200	170	80
MRS 90	4,9	220	650	960	280	975	10500	5250	2300	230	200	100
MRS 100	5,5	220	780	1060	280	975	11500	5750	2600	280	255	120
MRS 110	7	220	890	1140	280	975	13000	6500	3000	320	290	140
MRS 125	9	220	1100	1250	305	1000	15000	7500	3500	410	370	190
MRS 140	10	220	1400	1450	285	1000	18000	9000	4200	580	530	240
MRS 160	15	220	1850	1660	290	1000	21000	10500	5000	640	580	270

**Elettromagneti circolari di sollevamento EC serie ULTRA LEGGERA**  
Circular electromagnetics lifters ULTRA LIGHT series

Modello Type	Potenza assorb. a 20°C Absorbed power at 20°C	Tensione nominale Vcc Nominal voltage Vdc	Peso Weight	Dimensioni mm. Sizes mm.			Forza di strappo a caldo (1) Tear-off force at hot (1) with air gap Ø/300	Portata a caldo (2) Lift. cap. when hot (2)		Portate medie orientative a caldo (3) Average capacity when hot (3)		
				Ø	h	h1		Bramme blocchi Slabs or bloks Kg	Sfera da berta Drop ball Kg	Pani di ghisa Cast iron pigs Kg	3A 2,2-2,5 T/m² Kg	24 1,9-2,0 T/m² Kg
EC 70R	0,6	24	400	720	225	910	5500	2700	740	85	65	35
EC 70	3	220	265	750	215	910	5500	2700	950	105	80	40
EC 80	3,4	220	400	830	215	910	6200	3100	1100	125	110	45
EC 90	4	220	450	900	225	920	7900	3900	1380	160	150	70
EC 100	5	220	600	1080	215	910	9500	4750	1700	190	170	80
EC 120	7	220	920	1200	280	1000	13000	6500	3100	330	315	150

**CARATTERISTICHE TECNICHE E DIMENSIONALI**  
TECHNICAL AND SIZE FEATURES

1) Secondo norme VDE 0580; 2) Determinate dopo 5 ore di funzionamento intermittente al 50% in ambiente a 20°C secondo norme VDE 0580; 3) Determinate secondo norme VDE 0580  
1) According to VDE 0580; 2) Determined after 5 hours of intermittent working at 50%, at 20°C, according to VDE 0580; 3) According to VDE 0580

# MAGNETIC EQUIPMENT

FOR HANDLING  
long and plane products, packs and bundles

In a time of increasing automation in manufacturing processes, computers, mechanical arms and functional components, electromagnetic or electropermanent devices are replacing workers in manual handling operations: the concepts of work and productivity as we know them are bound to change. Therefore it is no more rational to think of handling ferrous material (in production departments, warehouses, yards, harbours, etc.) by means of traditional manual slinging (ropes, chains and hooks) and with the presence of load slingers, as recent regulations forbid to lift ferrous material using traditional wire rods. Besides the hazardous nature of such manoeuvres due to the proximity to the load, which for instance could still be hot, production cost-effectiveness (that is productivity) plays a pivotal role.

Over the last 35 years Gauss Magneti has carried out a number of studies, gathered extensive experience and considered several applications, with the purpose of achieving the following goals:

- ensure maximum reliability and safety both for the operators and loads;
- find rational technical-ergonomic solutions depending on the type of handling operation and manoeuvres to be controlled from one single control station;
- reduce handling costs to a minimum, in order to withstand the relentless domestic and international competition, considering that handling operations have a remarkable impact on the final price of ferrous materials.

Gauss Magneti srl provides a comprehensive range of magnetic devices for lifting and handling any type of ferrous material.

GAUSS MAGNETI rectangular electromagnets are designed specifically to rationalize the client's in-house handling. During the design phase the greatest care is devoted to the weight of magnets and beam (if any), in order to make the most of the lifting machine capacity. Rectangular electromagnets are mainly used for the following applications:

- product evacuation (materials temperature up to 600°);
- loading and unloading trucks, wagons, ships and cutting lines
- stocking operations in warehouses or depots.

The products to be handled are divided into the following categories:

Handling of long and plane products (billets, slabs, single and packed plates, single pipes, single round bars, single beams and single rails).

and

Handling of bundles and packs (round bars for reinforcing concrete, rolled sections, drawn rods, section bars, pipes and tubular members, round bars, bundles of beams, wire rods coils and coils in general).  
Their construction makes them extremely suitable also for demanding handling operations



Traversa con elettropermanenti per sollevamento tagli di coils ad asse verticale, 6T

Beam with electromagnets to lift silts coils with vertical axis 6T



Traversa estensibile motorizzata con elettromagneti per lamiere singole e multiple da 3÷12 mt, 8T

Motorized extensible beam with magnets for single and multiple plates 3÷12 mt, 8T

## FOR HANDLING long and plane products, packs and bundles

at high-temperature, thanks to their special thermal insulation and the double bottom plate, which prevents the heat generated by the load from reaching the coil and make our electromagnets extremely reliable.

Particular care is devoted to coil construction and the use of very low current density allows to handle billets or slabs at temperatures up to 600°C.

The main features of our electromagnets are:

- high-magnetic permeability rolled steel section framework with deep welding;
- electrolytic copper - aluminium and anodised aluminium band coil, manufactured at very low current density in order to effectively disperse heat by Joule effect.
- class C insulation (220°C)
- double bottom plate (for heatproof version only) made of steel (min. 12%);
- thermal insulation (for heatproof version only);
- 2 or 4-branch chain suspension (Grade 80 or Grade 100 steel)

Electromagnets can be used either individually or in multiple arrays, fitted to fixed or extensible beams.

Our electromagnets are fed as follows:

- from the power mains, by means of our electronic devices with four-quadrant digital converter and magnetic flow adjustment, counter-energizing (which allows for faster load release), coil temperature control by means of current relays (especially useful for heatproof electromagnets), automatic battery activation, buffer battery (Pb or Ni-Cd), automatic recharge and continuous battery charge monitoring system.

Together with electromagnet manufacturing, GAUSS MAGNETI has long developed the electropermanent technology. Electropermanent magnets are particularly suitable for handling long and plane products. Moreover, they retain magnetization even in case of power failure or if the cable breaks, and thus they do not require buffer batteries or mechanical safety forks.

Electropermanent magnets are activated by a current impulse lasting but a few seconds, and preserve their magnetic property until they receive a second deactivation impulse (equal and opposite to the first one).

Besides the undisputable benefit in terms of handling safety, they are also remarkably reliable and hardly ever break, being virtually free from internal heating by Joule effect. Recent availability of high-performance magnetic material on the market allowed to drastically reduce electropermanent magnets weight and size, though leaving their capacity unaltered.

GAUSS MAGNETI also provides a number of product versions for high-temperature handling (up to 600°C).  
As in the case of electromagnets, electropermanent magnets can be used individually or in multiple arrays fitted to either fixed or extensible beams.



Elettropermanente per movimentazione bramme, 15T

Electropermanent magnet for slab handling 15T



Traversa estensibile motorizzata con elettropermanenti per pacchi di lamiera 3÷8 mt, 6T

Motorized extensible beam with electropermanent magnets for plates packs 3÷8 mt, 6T



Elettropermanente per movimentazione bramme, 15T

Electropermanent magnet for slab handling 15T



Traversa con elettromagneti per lamiere multiple 6÷12 mt, 12T

Beam with electromagnets for multiple plates 6÷12 mt, 12T



Traversa con elettromagneti per travi singole HEA-HEM da 100÷1000 mm, 18 mt, 7T

Beam with electromagnets for single beams HEA-HEM -100÷1000 mm, 18 mt, 7T



Traversa con elettropermanenti per carico-scarico taglio laser 6 mt, 3T

Beam with electropermanent magnets for loading - unloading in laser cutting process 6 mt, 3T

# ATTREZZATURE MAGNETICHE

PER PRODOTTI  
piani lunghi, pacchi e fascio

# MAGNETIC EQUIPMENT

FOR HANDLING  
long and plane products,  
packs and bundles



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# ATTREZZATURE MAGNETICHE

PER PRODOTTI  
*piani lunghi, pacchi e fascio*

In epoca di robotizzazione delle fabbriche, computer, bracci ed organi meccanici, dispositivi elettromagnetici o elettropermanenti, si sostituiscono all'uomo nelle operazioni manuali di movimentazione: muta il concetto di lavoro e di produttività. Non si ritiene quindi razionale, in questa epoca, pensare alla movimentazione di materiali ferrosi (in reparti di produzione, magazzini, piazzali, porti, ecc.) in termini di sistemi tradizionali, con imbracaggio manuale (con funi, catene e ganci) e con la presenza immane degli imbracciati visto anche le recenti normative che vietano l'uso del classico bordone per il sollevamento di svariati materiali ferrosi.

A parte l'argomento essenziale della pericolosità di queste operazioni per l'uomo, data la vicinanza al carico che può essere costituito, ad esempio, da materiale ancora caldo, gioca pure un ruolo di primaria importanza l'economicità della produzione, ovvero la produttività.

In questi ultimi trentacinque anni la Gauss Magneti ha predisposto numerosi studi, esperienze ed applicazioni, realizzate allo scopo di rispondere con una progettualità più calzante alle seguenti esigenze:

- Necessità di massima affidabilità e sicurezza della movimentazione in rapporto all'uomo ed al materiale;
- Necessità di soluzioni tecnico-ergonomiche razionali in rapporto al tipo di movimentazione e di manovre da effettuarsi da un unico punto di comando;
- Necessità di ottenere costi di movimentazione ridotti al minimo per combattere la implacabile concorrenza nazionale ed internazionale, essendo il costo della movimentazione di un certo rilievo in rapporto al costo finale del prodotto ferroso.

La Gauss Magneti srl offre oggi la sua completa gamma di attrezzature magnetiche per il sollevamento e la movimentazione di qualsiasi materiale ferroso.

Gli elettromagneti rettangolari GAUSS MAGNETI, sono studiati su misura per le esigenze di razionalizzazione della movimentazione interna del cliente. Nella fase progettuale vengono tenute in grande considerazione il peso dei magneti e della traversa (ove necessaria) in modo da poter sfruttare al massimo la capacità del mezzo di sollevamento, e vengono principalmente utilizzati nelle seguenti applicazioni:

- Evacuazione della produzione (anche con materiali caldi fino a 600°);
- Carico e scarico autocarri, vagoni ferroviari, navi e linee di taglio;
- Stoccaggio in magazzini o depositi.

I prodotti movimentabili vengono distinti in:

Movimentazione prodotti piani lunghi (Billette, Bramme, Lamiere singole e in pacchi, Tubi singoli, Tondi singoli, Travi singole, Rotaie singole).

e

Movimentazione fasci e pacchi (Tondino cemento armato, Laminati, Trafilati, Profilati, Tubi e Tubolari, Tondi, Travi in fasci, Rotoli di vergella e Coils).

Per la loro costruzione sono particolarmente adatti anche al gravoso lavoro ad elevate temperature grazie al particolare isolamento termico ed al doppio diaframma che impedisce al

calore generato dal carico di raggiungere l'avvolgimento e conferisce agli elettromagneti un notevole grado di affidabilità.

Particolare cura nella costruzione dell'avvolgimento e l'utilizzo di densità bassissime consentono la movimentazione di billette o bramme fino a 600°.

Le caratteristiche principali dei ns. elettromagneti sono:

- Carcassa in laminato di acciaio ad elevata permeabilità magnetica con saldature profonde;
- Avvolgimento in nastro di alluminio e rame elettrolitico e alluminio anodizzato, realizzato con bassissima densità di corrente per una efficace dispersione del calore generato per effetto Joule
- Isolamenti in classe C (220°C)
- Doppio diaframma (solo per versione anticalore) in acciaio al Mn. al 12%;
- Isolamento termico (solo per versione anticalore);
- Sospensione con catena a 2 o 4 rami in acciaio Grado 80 o Grado 100

Possono essere usati singolarmente o sotto traverse fisse o estensibili in disposizione multipla.

Gli elettromagneti sono alimentati:

- dalla rete per mezzo delle ns. apparecchiature elettroniche con convertitore digitale a quattro quadranti con possibilità di regolazione del flusso magnetico, controceccitazione che consente un più rapido rilascio del carico, controllo della temperatura dell'avvolgimento per mezzo di relè di corrente (utile soprattutto per elettromagneti in versione anticalore), sistema di intervento automatico delle batterie, batterie tampone (Pb o Ni-Cd), sistema di ricarica automatica e di costante monitoraggio dello stato di carica delle batterie.

Parallelamente alla produzione degli elettromagneti, La GAUSS MAGNETI ha sviluppato da molti anni la tecnologia elettropermanente. Gli elettropermanenti, che sono particolarmente adatti alla movimentazione di prodotti piani lunghi, hanno la caratteristica di mantenere la magnetizzazione anche in mancanza di tensione di rete o di rottura del cavo di alimentazione e perciò non necessitano di batterie tampone o di forche di ritenuta meccanica.

La loro peculiarità sta nel fatto che vengono attivati da un impulso di corrente della durata di qualche secondo e mantengono la loro magnetizzazione fino all'invio di un secondo impulso di corrente uguale ma opposto al primo che li disattiva.

Oltre all'indubbio vantaggio in termini di sicurezza nella movimentazione, anche dal punto di vista dell'affidabilità sono raramente soggetti a guasti essendo praticamente esenti da riscaldamento interno per effetto Joule.

L'avvento sul mercato di materiali magnetici con elevate prestazioni ha consentito una riduzione considerevole dei pesi e delle dimensioni degli elettropermanenti a parità di portata.

La GAUSS MAGNETI dispone anche di versioni in grado di lavorare con materiale ad elevate temperature (fino a 600°).

Come gli elettromagneti possono essere usati singolarmente o sotto traverse fisse o estensibili in disposizione multipla.



Traversa con 4 elettromagneti a per rotoli vergella Ø 1250x2200 mm, 12T

4-electromagnet beam for wire rod coils Ø 1250x2200 mm, 12T



Traversa con elettromagneti a campo profondo per fasci di travi 6÷12 mt, 6T

Beam with deep field electromagnets for beam bundles 6÷12 mt, 6T



Traversa con forche meccaniche di sicurezza con elettromagneti a campo profondo per fasci di billette e tondi 6 mt, 4T

Beam with mechanic safety forks and deep field electromagnets for billet and round bar bundles 6 mt, 4T



Traversa estensibile motorizzata a comando idraulico con elettromagneti per fasci tondino 12÷16 mt, 5T montata su semovente

Motorized extensible beam with hydraulic control and electromagnets for round bars 12÷16 mt, 5T, on vehicle



Traversa estensibile motorizzata con elettromagneti a campo profondo per fasci tondino 6÷12mt, 8T

Motorized extensible beam with deep field electromagnets for round bar bundles 6÷12mt, 8T



Traversa con elettromagneti a campo profondo per pacchi esagonali di tubi 4÷6 mt, 3T

Beam with deep field electromagnets for hexagonal packs of pipes 4÷6 mt, 3T



Traversa con elettromagneti a campo profondo per fasci di tubolari 6 mt, 2,5T

Beam with deep field electromagnets for tubular bundles 6 mt, 2,5T



Traversa estensibile motorizzata con elettromagneti a campo profondo per fasci 6÷12mt, 7T

Motorized extensible beam with deep field electromagnets for bundles 6÷12mt, 7T



Traversa estensibile motorizzata con elettromagneti a campo profondo per fasci travi 6÷12mt, 8T

Motorized extensible beam with deep field electromagnets for beam bundles 6÷12mt, 8T



Traversa con forche meccaniche di sicurezza con elettromagneti per strati di tubi 6÷12 mt, 15T

Beam with mechanic safety forks and electromagnets for beds of pipes 6÷12 mt, 15T



Traversa estensibile motorizzata con elettropermanenti per lamiere da 6÷12 mt, 15T

Motorized extensible beam with electroperman magnets for 6÷12 mt 15T plates



Traversa estensibile motorizzata con elettromagneti a campo profondo per fasci tondino 6÷12mt, 10T

Motorized extensible beam with deep field electromagnets for round bar bundles 6÷12mt, 10T



Traversa estensibile motorizzata con elettromagneti a campo profondo per fasci profilati 6÷12mt, 10T

Motorized extensible beam with deep field electromagnets for section bar bundles 6÷12mt, 10T



Traversa estensibile motorizzata con elettromagneti a campo profondo per fasci angolari 6÷12mt, 8T

Motorized extensible beam with deep field electromagnets for L bar bundles 6÷12mt, 8T



Traversa con elettromagneti per billette a 400°C 6÷12 mt, 12T

Beam with electromagnets for billets at 400°C 6÷12 mt, 12T

Sollevatori elettromagnetici ed elettropermanenti per billette, bramme e tondi  
*Electromagnets and electro-permanent magnets lifters for billets, slabs and rounds*

Traversa con elettropermanenti per movimentazione bramme 26 t  
*Beam with electro-permanents for slabs maximum weight 26 t*



Traversa con elettromagneti per billette 600°C 6-12 m 15 t  
*Beam with electromagnets for billets at 600°C 6-12 m long and maximum weight 15 t*



Elettropermanente per lingotti poligonali e tondi Ø 600÷850 mm 32 t  
*Electropermanent for ingots and round bars Ø 600÷850 mm and maximum weight 32 t*



Traversa con elettropermanenti per billette 600°C 6-12 m 20 t  
*Beam with electropermanents for billets at 600°C 6-12 m long and maximum weight 20 t*



Traversa con elettromagneti per fasci di travi 6-12 m 4 t  
*Beam with electromagnets for bundles of H beams 6-12 m long and maximum weight 4 t*



Traversa estensibile motorizzata con elettromagneti per movimentazione profili angolari 6-12 m 4 t  
*Motorized extendable beam with electromagnets for angle shapes 6-12 m long and maximum weight 4 t*

Sollevatori elettromagnetici ed elettropermanenti per travi e profili  
*Electromagnets and electro-permanent lifting magnets for beams and shapes*

Traversa con elettromagneti per travi singole HEA-HEM da 100-1000 mm 18 m 7 t  
*Beam with electromagnets for single beams HEA-HEM 100-1000 mm 18 m 7 t*



Traversa con elettropermanenti per movimentazione longheroni 6-12m 2 t  
*Beam with electro-permanent magnets for C shapes 6-12 m long and maximum weight 2 t*

Sollevatori elettromagnetici ed elettropermanenti per coils  
*Electro and electro-permanent lifting magnets for coils*



Elettropermanenti per sollevamento tagli coils asse verticale 6 t  
*Electro-permanent magnets for vertical axis coils maximum weight 6 t*



Elettromagnete per coils ad asse orizzontale Ø 2000 mm - 30 t  
*Electromagnet for horizontal axis coil Ø 2000 mm and maximum weight 30 t*



ATTREZZATURE MAGNETICHE ED A DEPRESSIONE



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programma di produzione  
**SOLLEVAMENTO**  
 production programme  
**LIFTING and HANDLING**



ATTREZZATURE MAGNETICHE ED A DEPRESSIONE

**Sollevatori elettromagnetici circolari**  
*Circular electromagnetic lifters*

Coppia elettromagneti circolari HMR per carico nastro forno  
*Couple of HMR circular electromagnetic lifters for furnace conveyor loading*



Elettromagnete circolare HMR in parco rottame  
*HMR circular electromagnetic lifter in a scrap yard*



Elettromagnete con generatore idraulico integrato montato su semovente  
*Hydraulic electromagnet mounted on mobile crane*



Elettromagnete circolare MR montato su gru portuale  
*MR circular electromagnetic lifter mounted on harbor crane*



Elettromagnete circolare MRL montato su semovente  
*MRL circular electromagnetic lifter mounted on mobile crane*

**Sollevatori a depressione** *Vacuum lifters*

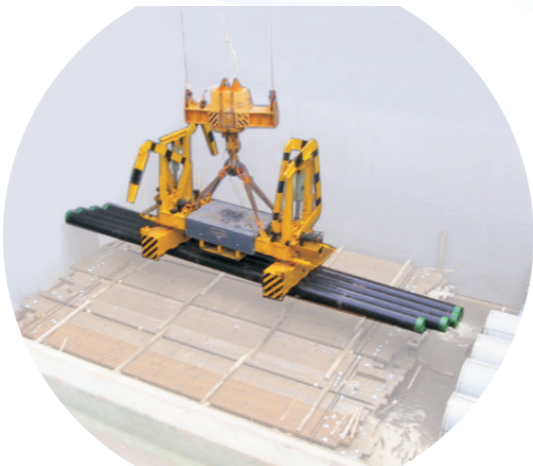


Traversa con ventose VR per tubi  $\phi$  14"-60" 15 t su carrello elevatore  
*Beam with VR suckers for tubes  $\phi$  14"-60" and maximum weight 15 t mounted on forklift truck*



Traversa VAPO per lamiere 6-10 m 5 t  
*VAPO vacuum beam for plates 6-10 m and maximum weight 5 t*

Traversa con elettromagneti per tubi fino a 15 t con forche meccaniche di sicurezza  
*Beam with electro magnets for tubes maximum weight 15 t and mechanical safety forks*



**Sollevatori elettromagnetici per fasci e pacchi**  
*Electromagnetic lifters for packs and bundles*

Traversa estensibile motorizzata con elettromagneti a campo profondo per fasci 6-12 m 7 t  
*Extendable motorized beam with deep field electro magnets for bundles 6-12 m long and maximum weight 7 t*



Traversa con elettromagneti a campo profondo con poli mobili  
*Beam with deep field electro magnets with mobile poles*



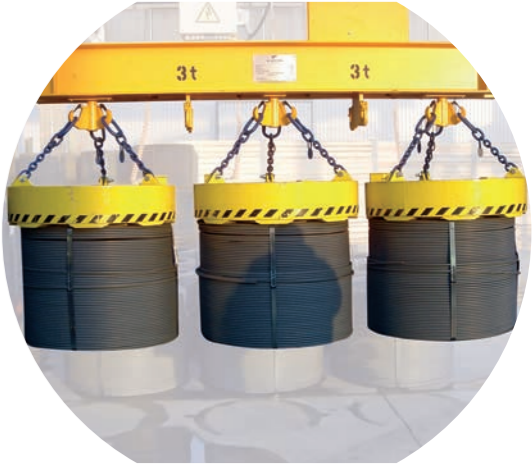
Traversa con elettromagneti a campo profondo per pacchi tubi esagonali 4-6 m 3 t  
*Beam with deep field electro magnets for hexagonal tube bundles 4-6 m long and maximum weight 3 t*



Traversa estensibile idraulicamente con elettromagneti per fasci tondino 12-16 m 5 t montata su semovente  
*Hydraulically extendable beam with electro magnets for reinforcing rod bundles 12-16 m long and maximum weight 5 t mounted on a mobile crane*

**Sollevatori elettromagnetici per rotoli di vergella**  
*Electromagnetic lifters for wire rod coils*

Traversa con 4 elettromagneti per rotoli vergella  $\phi$ 1250 x 2200 mm 12 t  
*Beam with four electro magnets for wire rod coils  $\phi$ 1250 x 2200 mm and maximum weight 12 t*



Traversa con elettromagneti per rotoli vergella ad asse verticale  $\phi$  1250 mm - 6 t  
*Beam with electromagnets for wire rod coil vertical eye  $\phi$  1250 mm and maximum weight 6 t*

**Sollevatori elettromagnetici ed elettropermanenti per lamiere e pacchi**  
*Electromagnetic and electro-permanent lifting magnets for plates and packs*



Traversa estensibile con elettropermanenti per lamiere da 6-12 m 15 t  
*Extendable motorized beam with electro-permanent magnets for plates 6-12 m long and maximum weight 15 t*



Traversa estensibile con elettromagneti per lamiere singole e multiple 3-12 m 8 t  
*Extendable beam with electromagnets for single and multiple plates 3-12 m long and maximum weight 8 t*

**Sollevatori elettromagnetici con forche di sicurezza**  
*Electromagnetic lifters with safety forks*



Traversa con elettromagneti a campo profondo per fasci fino a 3 t con forche meccaniche di sicurezza  
*Beam with deep field electro magnets and mechanical safety forks for bundles maximum weight 3 t*

Traversa estensibile con elettromagneti per lamiere 6-12 m 15 t  
*Extendable beam with electromagnets for plates 6-12 m long and maximum weight 15 t*



Traversa con elettropermanenti per scarico taglio laser 6 m 3 t  
*Beam with electro-permanent magnets for unloading from laser cut plates 6 m long and maximum weight 3 t*

# Handling of billets

*GAUSS MAGNETI designs and manufactures since 1972 special rectangular electromagnets for billets are designed according to the customer's requirements for in-plant handling.*

*They are mainly used for the following applications:*

- *Billets unloading from cooling bed end (for hot material up to 650°C);*
- *Loading and unloading of lorries, rail containers, ships;*
- *Storage in warehouse or depots.*

*Due to their design these magnets are suitable to operate at high temperature. In fact the special thermal insulation and the double bottom plate hamper that the heat from the load reaches the coil assuring then the highest electromagnets reliability.*

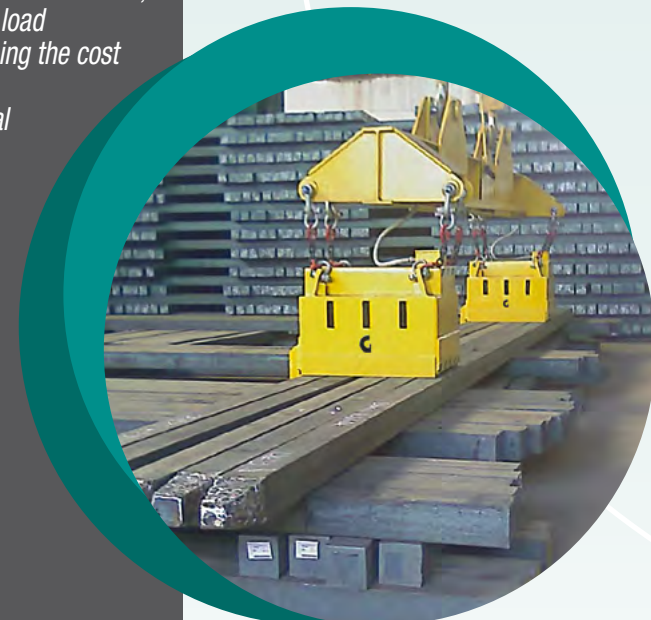
*The particular coil design and the very low current density allow handling of billets and slabs at temperature up to 650°C.*

*In presence of billets layers with high displanarity, electromagnets with mobile poles are used in order to suit the load shape.*

*The main advantages are:*

- *Operators can stay away from the hot material avoiding risk of accidents;*
- *Operators don't have to climb over the piles to slinging the load dramatically increasing the handling safety level and reducing the cost of the personnel;*
- *No damage to the material due to handling with mechanical lifting systems;*
- *Faster handling speed with handling cost reduction;*
- *Better use of the storage areas with the increasing the available space.*

*The magnets can be used individually or combined under a beam.*





The electromagnets are fed:

- From the mains through our electronic equipment with 4-quadrants digital converter allowing magnetic flux setting, counter-excitation for fast load release, coil temperature control by means of thermal probes or amperometric relays (important in high-temperature magnets),
- In case of power failure, from lead or Ni-Cd batteries with automatic switching and charging system and continuous control of the battery charge condition.

Gauss Magneti has also successfully developed the electropermanent magnets technology. Electropermanent magnets hold their magnetization also in case of mains failure or cable break, so they do not need buffer batteries or mechanical safety forks.



Their peculiarity lies in that they are activated by a current pulse lasting few seconds and that they hold their magnetization till a second current pulse – opposite the first one – deactivate them. Beside the obvious advantage of handling safety, they also assure the highest reliability being actually exempt from internal Joule heating.

Coming on the market of high performance magnetic materials has also allowed in electropermanent magnets a weight and dimensions reduction preserving the same capacity.

Also for electropermanent magnets Gauss Magneti offers special versions able to handle high temperature materials (up to 600°C).

They can be used individually or combined under a beam.

Electro permanent combine the benefits of both electro and permanent magnet technology with the following advantage:

- Safety: No accidental release of the load due to power failure or electric cable damage. They do not need buffer batteries or mechanical safety forks.
- Performance: They also assure constant performances being actually exempt from internal Joule heating.
- Reduced wear: Very low maintenance.
- Environmentally friendly: No emergency batteries needed.

*Several tenths of magnetic systems for billets handling has been sold all over the world.*



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# Electromagnets and electropermanent magnets for coils handling

*GAUSS MAGNETI designs and manufactures since 1972 special electromagnets devoted to handling coils with horizontal as well as vertical axis and weight up to 50 tons. Every electromagnet can handle a wide coils range thanks to the particular polar shoes which fit the coil profile.*

*They are mainly used for the following applications:*

- *Unloading the production of coils (also hot materials);*
- *Loading and unloading of lorries, rail containers, ships;*
- *Stocking in store or warehouse.*

*Handling of coils by electromagnets brings to a remarkable spare in store space reducing also the damage on the coil due to the traditional "C" hook. Moreover handling is carried out by one operator with consequent reduction of cost and risk for personnel. The electromagnets can be designed for handling both vertical and horizontal axis coil.*

*The electromagnets can be made also with double redundant coils so that in case one of the coil burns the remaining can hold the load safely.*

*The main advantages are:*

- *No damage to the material due to handling with mechanical lifting systems;*
- *Faster handling speed with handling cost reduction;*
- *Reduction of risks for personnel;*
- *Better use of the storage areas with the increasing the available space;*

*The electromagnets are fed:*

- *from the mains through our electronic equipment with 4-quadrants digital converter allowing magnetic flux setting, counter-excitation bringing to fast load release, coil temperature control by means of thresholds (important in high-temperature magnets), automatic switching to batteries, buffer batteries (Pb or Ni-Cd), automatic battery charging system and continuous control of the batteries charge condition.*





*Gauss Magneti has also successfully developed the electropermanent magnets technology. Electropermanent magnets hold their magnetization also in case of net failure or cable break, so they do not need buffer batteries or mechanical safety forks.*

*Their peculiarity lies in that they are activated by a current pulse lasting few seconds and that they hold their magnetization till a second current pulse – opposite the first one – deactivates them. Beside the obvious advantage of handling safety, they also assure the highest reliability being actually exempt from internal Joule heating.*

*Coming on the market of high performance magnetic materials has also allowed in electropermanent magnets a weight and dimensions reduction preserving the same capacity.*

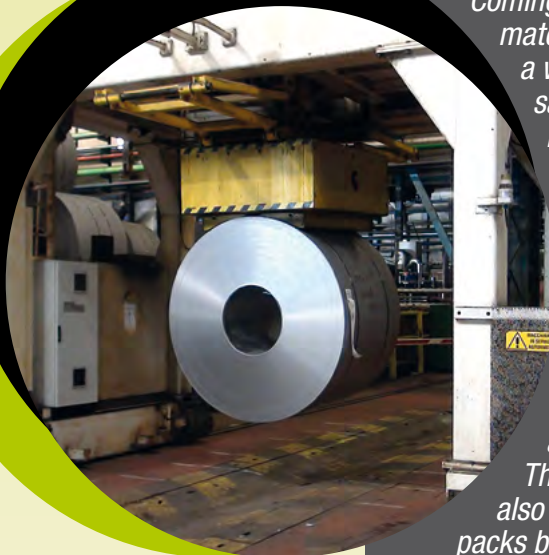
***Handling of coils by means of electropermanent magnets is possible for limited air gaps and binding conditions. Electropermanent magnets cannot be used by large air gaps and not good coil binding.***

*Electropermanent magnets have replaced electromagnets in applications such as coil cutting lines (slitter) because of their higher safety degree and of the highest automation level which can be achieved.*

*Thanks to Gauss Magneti technology, it is now possible also with electropermanent magnets lifting thin coils from packs both manually by the operator and automatically by means of PLC.*

*Electro permanent combine the benefits of both electro and permanent magnet technology with the following advantages:*

- *Safety: No accidental release of the load due to power failure or electric cable damage. They do not need buffer batteries or mechanical safety forks.*
- *Performance: They also assure constant performances being actually exempt from internal Joule heating.*
- *Reduced wear: Very low maintenance.*
- *Environmentally friendly: No emergency batteries needed.*



MAGNETIC EQUIPMENTS FOR HANDLING AND SEPARATION TECHNOLOGY



CISQ/IMQ/CSQ 9190.GAUS - UNI EN ISO 9001:2008

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# Handling of materials for forges



*GAUSS MAGNETI designs and manufactures since 1972 special electromagnets for slabs, ingots and round bars according to the customer's requirements for in- and out -plant handling.*

*They are mainly used for the following applications:*

- *Internal handling and feeding of cutting machines (also for hot material up to 650°C);*
- *Loading and unloading of lorries, rail containers, ships;*
- *Storage in warehouse or depots.*

*Due to their design these magnets are suitable to operate at high temperature. In fact the special thermal insulation and the double bottom plate hamper that the heat from the load reaches the coil assuring then the highest electromagnets reliability.*

*The particular coil design and the very low current density allow handling of materials at temperature up to 650°C.*

*The electromagnets can be made also with double redundant coils so that in case one of the coils or the feeding cable breaks the remaining coil can hold the load safely.*

*The main advantages are:*

- *The operators can stay away from the hot material avoiding risk of accidents;*
- *The operators do not have to climb over the piles to sling the load dramatically increasing the handling safety level and reducing the cost of the personnel;*
- *No damage to the material due to handling with mechanical lifting systems;*
- *Faster handling speed with handling cost reduction;*
- *Better use of the storage areas with the increasing the available space.*





The electromagnets are fed:

- From the mains through our electronic equipment with 4-quadrants digital converter allowing magnetic flux setting, counter-excitation for fast load release, coil temperature control by means of thermal probes or amperometric relays (important in high-temperature magnets),
- In case of power failure, from lead or Ni-Cd batteries with automatic switching and charging system and continuous control of the battery charge condition.

Gauss Magneti has also successfully developed the electropermanent magnets technology. Electropermanent magnets hold their magnetization also in case of mains failure or cable break, so they do not need buffer batteries or mechanical safety forks. Their peculiarity lies in that they are activated by a current pulse lasting few seconds and that they hold their magnetization till a second current pulse - opposite the first one - deactivates them.

Beside the obvious advantage of handling safety, they also assure the highest reliability being actually exempt from internal Joule heating.

Coming on the market of high performance magnetic materials has also allowed in electropermanent magnets a weight and dimensions reduction preserving the same capacity.

Also for electropermanent magnets Gauss Magneti offers special versions able to handle high temperature materials (up to 600°C).

Electro permanents combine the benefits of both electro and permanent magnet technology with the following advantage:

- Safety: No accidental release of the load due to power failure or electric cable damage. They do not need buffer batteries or mechanical safety forks.
- Performance: They also assure constant performances being actually exempt from internal Joule heating.
- Reduced wear: Very low maintenance.
- Environmentally friendly: No emergency batteries needed.

*Several tenths of magnetic systems for forges has been sold all over the world.*



MAGNETIC EQUIPMENTS FOR HANDLING  
AND SEPARATION TECHNOLOGY



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# Electromagnets and electropermanent magnets for plates and packs handling



*GAUSS MAGNETI designs and manufactures since 1972 special rectangular electromagnets for plates and packs, keeping into account the customer strong requirements for optimal managing of the available space in plant, for high movements speed and for possibility to handle one or more plates at the same time*

*They are mainly used for the following applications:*

- Unloading of plates from production line (also hot materials up to 600°C);
- Loading and unloading of lorries, rail containers, ships;
- Stocking in stores or warehouses;
- Loading and unloading of cut plates.

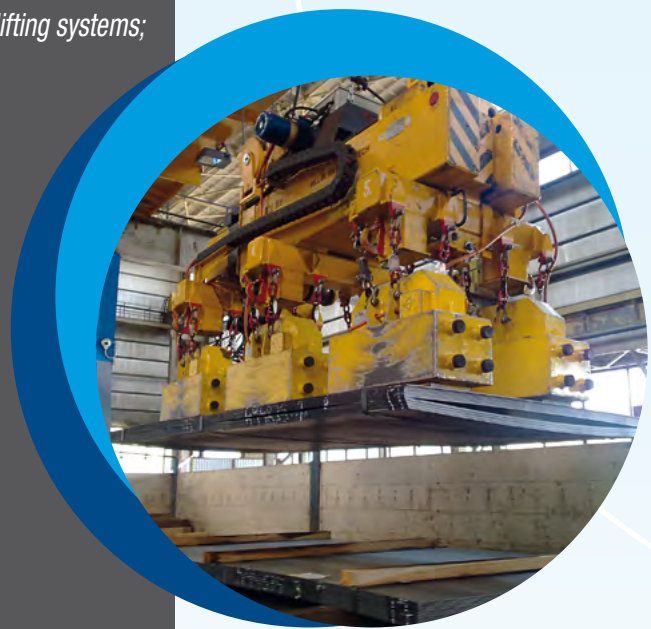
*The careful study of the magnetic field lines allows handling single and multiple plates, depending on the operator's need, granting also the highest efficiency and safety during transport.*

*Safety is achieved not only by using a high magnetic force, but also by a correct load arrangement under a sufficient magnets number, depending on the bending of the load itself.*

*Special versions for high temperature materials (up to 600°C) are also available.*

*Main technical features of our electromagnets are:*

- No needs of wood spacers between the bundles;
- No damage to the material due to handling with mechanical lifting systems;
- No aisles required between plate stacks;
- No need to limit the stack height to that of a man;
- Faster handling speed with handling cost reduction;
- Reduction of risks for personnel due to remote handling controls;
- Better use of the storage areas by increasing available space.
- Possibility of vertical sheet metal thanks to special execution.





*The magnets can be used individually, multiple under a fixed or an extensible beam allowing the magnets distance to be adjusted according to the plates dimensions. These electromagnets can also be used for handling packs with iron hoops able to stand the load.*

*The electromagnets are fed:*

- *from the mains through our electronic equipment with 4-quadrants digital converter allowing magnetic flux setting, counter-excitation for fast load release, coil temperature control by means of thresholds (important in high-temperature magnets), automatic switching to batteries, buffer batteries (Pb or Ni-Cd), automatic battery charging system and continuous control of the batteries charge condition.*



*Gauss Magneti has also successfully developed the electropermanent magnets technology.*

*Electropermanent magnets hold their magnetization also in case of mains failure or cable break, so they do not need buffer batteries or mechanical safety forks.*

*Their peculiarity lies in that they are activated by a current pulse lasting few seconds and that they hold their magnetization till a second current pulse – opposite the first one – deactivates them.*

*Besides the obvious advantage of handling safety, they also assure the highest reliability being actually exempt from internal Joule heating.*

*Coming on the market of high performance magnetic materials has also allowed for electropermanent magnets a weight and dimensions reduction preserving the same capacity.*

*Thanks to Gauss Magneti technology, plates thinning is possible also with electropermanent magnets both manually by the operator and automatically by means of PLC.*

*Special versions for high temperature materials (up to 600°C) are also available.*

*At last they can be used individually or combined under a beam.*



**MAGNETIC EQUIPMENTS FOR HANDLING AND SEPARATION TECHNOLOGY**



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# Electromagnets and electropermanent magnets for slabs handling

GAUSS MAGNETI designs and manufactures since 1972 special electromagnets for slabs, according to the customer's requirements for in-plant handling. They are mainly used for the following applications:

- Billets unloading from cooling bed end (for hot material up to 600°C);
- Slab unloading from cooling bed end of continuous casting machine (for hot material up to 600°C);
- Loading and unloading of lorries, rail containers, ships;
- Storage in warehouse or depots.

Due to their design these magnets are suitable to operate at high temperature. In fact the special thermal insulation and the double bottom plate hamper that the heat from the load reaches the coil assuring then the highest electromagnets reliability.

The particular coil design and the very low current density allow handling of billets and slabs at temperature up to 600°C.

The main advantages are:

- The operators can stay away from the hot material avoiding risk of accidents;
- The operators have not to climb over the piles to slinging the load dramatically increasing the handling safety level and reducing the cost of the personnel;
- No damage to the material due to handling with mechanical lifting systems;
- Faster handling speed with handling cost reduction;
- Better use of the storage areas with the increasing the available space.
- Possibility of tilting by special execution.

Magnets can be used individually or combined under a beam.

The electromagnets are fed:

- from the mains through our electronic equipment with 4-quadrants digital converter allowing magnetic flux setting, counter-excitation for fast load release, coil temperature control by means of thresholds (important in high-temperature magnets), automatic switching to batteries, buffer batteries (Pb or Ni-Cd), automatic battery charging system and continuous control of the batteries charge condition.





*Gauss Magneti has also successfully developed the electropermanent magnets technology. Electropermanent magnets hold their magnetization also in case of mains failure or cable break, so they do not need buffer batteries or mechanical safety forks.*

*Their peculiarity lies in that they are activated by a current pulse lasting few seconds and that they hold their magnetization till a second current pulse – opposite the first one – deactivates them. Beside the obvious advantage of handling safety, they also assure the highest reliability being actually exempt from internal Joule heating.*

*Coming on the market of high performance magnetic materials has also allowed in electropermanent magnets a weight and dimensions reduction preserving the same capacity.*

*Also for electropermanent magnets Gauss Magneti offers special versions able to handle high temperature materials (up to 600°C).*

*They can be used individually or combined under a beam.*

*Electro permanent combine the benefits of both electro and permanent magnet technology with the following advantage:*

- *Safety: No accidental release of the load due to power failure or electric cable damage. They do not need buffer batteries or mechanical safety forks.*
- *Performance: They also assure constant performances being actually exempt from internal Joule heating.*
- *Reduced wear: Very low maintenance.*
- *Environmentally friendly: No emergency batteries needed.*



*Several tenths of magnetic systems for slabs handling has been sold all over the world.*



MAGNETIC EQUIPMENTS FOR HANDLING AND SEPARATION TECHNOLOGY



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# Handling of bundles

*GAUSS MAGNETI designs and manufactures since 1972 special deep field electromagnets for bundles designed according to the customer's requirements for in-plant handling.*

*They are mainly used for the following applications:*

- *Bundles unloading from production (also for hot material up to 600°C);*
- *Loading and unloading of lorries, rail containers, ships;*
- *Storage in warehouse or depots.*

*These electromagnets are different from those for flat products because of their deeper magnetic field, able to better support non compact and irregular shaped loads.*

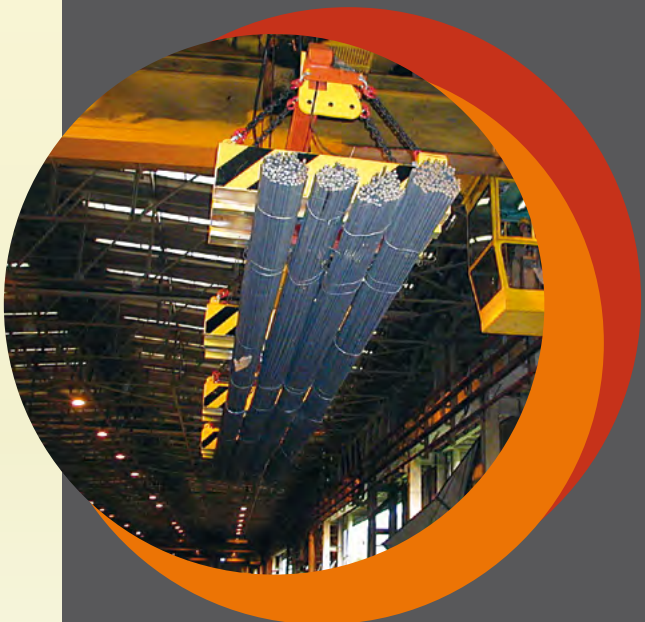
*Due to their design these magnets are suitable to operate at high temperature. In fact the special thermal insulation and the double bottom plate hamper that the heat from the load reaches the coil assuring then the highest electromagnets reliability.*

*Magnets can be supplied with lockable and retractable mobile poles for the picking of single pieces or small quantities.*

*Magnets can be executed for the simultaneous handling of one or more bundles or packs.*

*The main advantages are:*

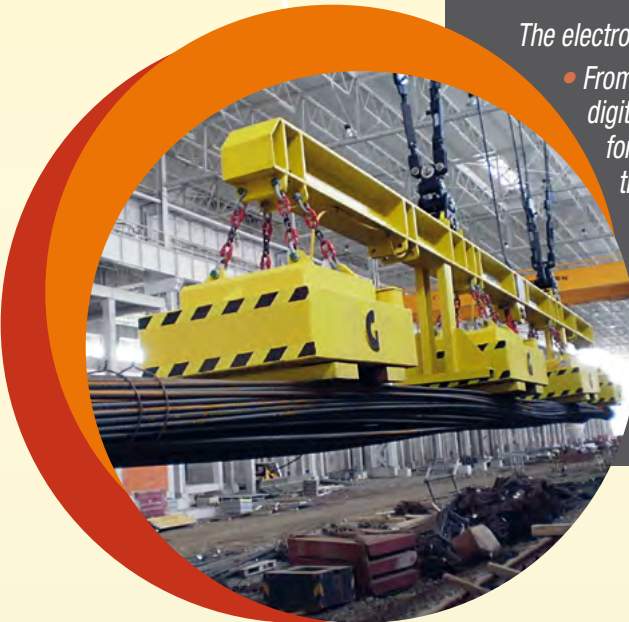
- *Operators can stay away from the hot material avoiding risk of accidents;*
- *Operators don't have to climb over the piles to slinging the load dramatically increasing the handling safety level and reducing the cost of the personnel;*
- *No damage to the material due to handling with mechanical lifting systems;*
- *Faster handling speed with handling cost reduction;*
- *Better use of the storage areas with the increasing the available space.*





The magnets can be used individually or combined under a beam. These can be:

- Fixed or extendable to adapt to the different load length;
- Provided with safety mechanical forks;
- Special execution with cross movement of magnets for the picking of one or more packs or bundles;
- Provided with magnets motorized rotation for the picking of one or two packs or bundles.



The electromagnets are fed:

- From the mains through our electronic equipment with 4-quadrants digital converter allowing magnetic flux setting, counter-excitation for fast load release, coil temperature control by means of thermal probes or amperometric relays (important in high-temperature magnets);
- In case of power failure, from lead or Ni-Cd batteries with automatic switching and charging system and continuous control of the battery charge condition.

Electronic equipments are provided with excitation time monitoring to avoid coil overheating.

*Hundreds of magnetic systems for bundles handling has been sold all over the world.*



MAGNETIC EQUIPMENTS FOR HANDLING AND SEPARATION TECHNOLOGY



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# Handling of wire rod coils

*GAUSS MAGNETI designs and manufactures since 1972 special deep field electromagnets for wire rod coils designed according to the customer's requirements for in-plant handling.*

*They are mainly used for the following applications:*

- *Single or multiple wire rod coils unloading from production (also for hot material up to 600°C);*
- *Loading and unloading of lorries, rail containers, ships;*
- *Storage in warehouse or depots.*

*These electromagnets are different from those for flat products because of their deeper magnetic field, able to better support non compact and irregular shaped loads.*

*Due to their design these magnets are suitable to operate at high temperature. In fact the special thermal insulation and the double bottom plate hamper that the heat from the load reaches the coil assuring then the highest electromagnets reliability.*

*Magnets can be executed for the simultaneous handling of one or more wire rod coils.*

*Magnets for wire rod coils could be handled in horizontal or vertical eye.*





The main advantages are:

- Operators can stay away from the hot material avoiding risk of accidents;
- Operators don't have to climb over the piles to slinging the load dramatically increasing the handling safety level and reducing the cost of the personnel;
- No damage to the material due to handling with mechanical lifting systems;
- Faster handling speed with handling cost reduction;
- Better use of the storage areas with the increasing the available space.



The electromagnets are fed:

- From the mains through our electronic equipment with 4-quadrants digital converter allowing magnetic flux setting, counter-excitation for fast load release, coil temperature control by means of thermal probes or amperometric relays (important in high-temperature magnets),
- In case of power failure, from lead or Ni-Cd batteries with automatic switching and charging system and continuous control of the battery charge condition.

Electronic equipments are provided with excitation time monitoring to avoid coil overheating.

*Tenths of magnetic systems for wire rod coils handling has been sold all over the world.*



MAGNETIC EQUIPMENTS FOR HANDLING AND SEPARATION TECHNOLOGY

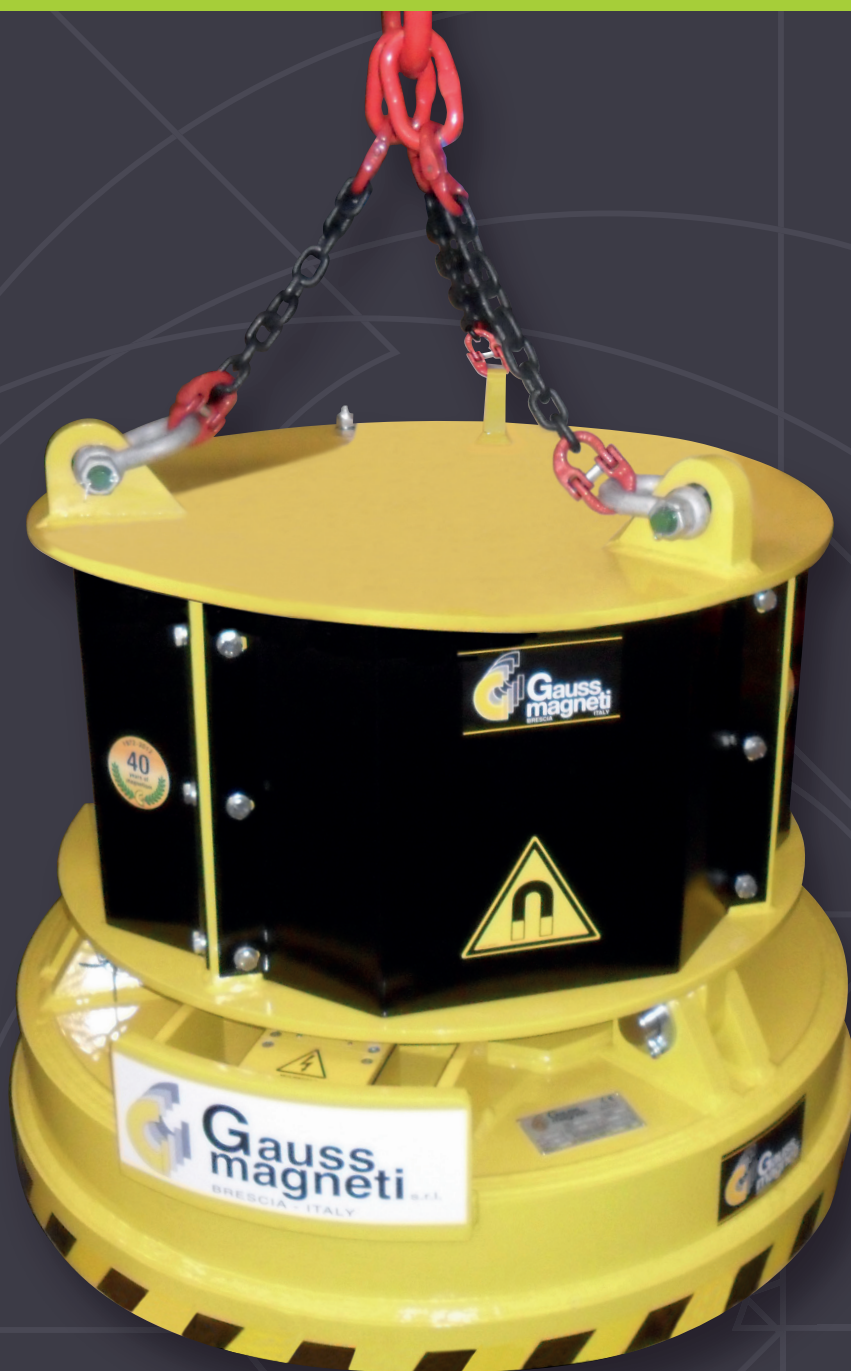


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*sollevatori elettromagnetici idraulici*  
*hydraulic-circular electromagnetic lifters*



# sollevatori elettromagnetici idraulici

## hydraulic-circular electromagnetic lifters

### Caratteristiche/Features

Il ns. elettromagnete idraulico è un sistema integrato, elettromagnete-generatore, adatto alla movimentazione di materiali ferrosi.

Montato a bordo dell' elettromagnete ci sono un generatore idraulico e un quadro elettrico di comando, protezione e contro-eccitazione che rende il sistema molto compatto e facile da installare e disinstallare.

L'elettromagnete è completamente indipendente e quindi può essere usato su macchine diverse.

L'elettromagnete può essere connesso alla macchina sia per mezzo di un aggancio rapido (escluso dalla fornitura) oppure in alternativa tramite una catena a tre rami con anellone centrale (inclusa nella fornitura).

La funzione di magnetizza e smagnetizza avviene esclusivamente per mezzo dell'olio idraulico della macchina: **non servono connessioni elettriche**. È necessario connettere solo i tubi dell'olio del **martellone**, della **benna** o della **cesoia** all'ingresso ed allo scarico del generatore.

Quando l'olio è in circolo il magnete si magnetizza, quando si interrompe il flusso dell'olio il magnete si smagnetizza.

La contro eccitazione automatica garantisce un sgancio rapido del materiale.

La pressione nel tubo di scarico non deve superare i 5 bar. Lo scarico deve essere obbligatoriamente collegato direttamente al serbatoio senza passare tramite valvole o filtri (I tubi di alimentazione non sono inclusi nella fornitura).

*Our Hydraulic Magnet is a compact all-in-one unit for heavy duty steel and iron handling.*

*The electromagnet includes an hydraulic generator and the controller, making the unit very easy and quick to install and uninstall.*

*This magnet can be mounted on different mobile cranes so you can have just one magnet for several machines.*

*The Hydraulic Magnet is easy to fix and can be hooked either on the excavator boom or attachment by means of chains, or, alternatively, mounted to the boom with a quick connect adaptor.*

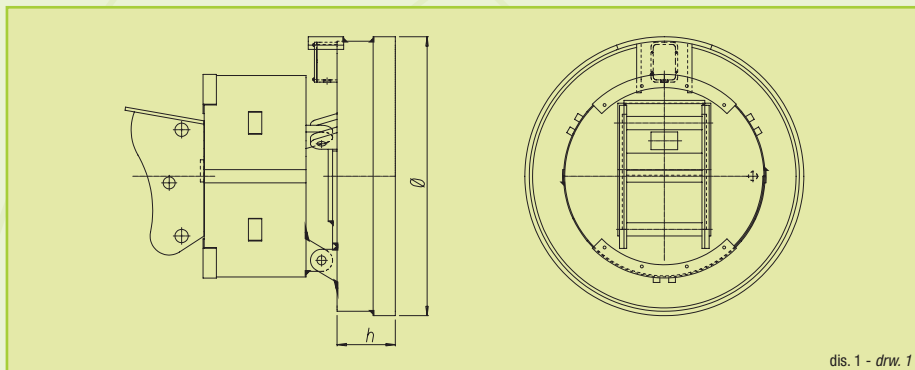
*The system is controlled hydraulically just switching ON and OFF the machines oil flow.*

**There are no electrical connections.**

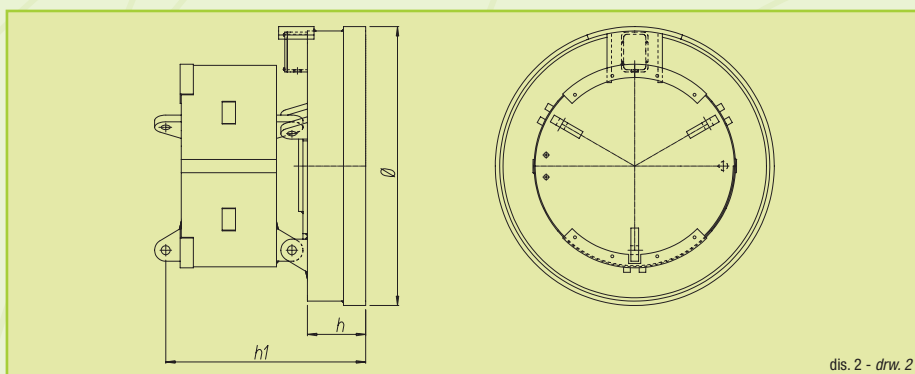
*The needed hydraulic flow is taken from the attachment's supply line or any other service line for example breaker or tilt bucket line. The magnet is magnetized when the hydraulic oil flows in the generator and demagnetized when the hydraulic oil flow is cut off.*

*The controller provides an automatic counter-excitation that ensure a very fast releasing of the material.*

*The return pressure line should not exceed 5 bars. It's compulsory to make a direct line to the machine tank avoiding to pass through valves or filters.*



dis. 1 - drw. 1



dis. 2 - drw. 2

Modello Type	Potenza assorb. a 20°C Absorbed power at 20°C	Tensione nominale Vcc Nominal voltage Vdc	Peso Weight Kg	Peso totale Total weight Kg	Dimensioni mm. Sizes mm.			Forza di strappo a caldo (1) con trafilero Ø/300 Tear-off force at hot (1) with air gap Ø/300	Portata a caldo (2) Lift. cap. when hot (2)		Portate medie orientative a caldo Average capacity when hot			
					Ø	h	h1		Bramme blocchi Slabs or blooks Kg	Sfera da berta Drop ball Kg	Pani di ghisa Cast iron pigs Kg	Rottame - Scrap		
EC70HD	3	220	265	430	720	215	740	5500	2700	950	105	80	70	40
EC90HD	4	220	450	750	900	225	865	7900	3900	1380	160	160	130	70
MRS90HD	4,9	220	680	955	960	215	855	10500	5250	2300	230	200	190	100
MRS100HD	5,5	220	780	1085	1060	215	855	11500	5750	2600	280	255	240	120
MRS110HD	7	220	890	1200	1140	215	855	13000	6500	3000	320	290	280	140
MRS125HD	9	220	1100	1420	1250	235	875	15000	7500	3500	490	440	410	210

Modello Type	Alimentazione idraulica Alimentation hydraulique	Portata olio Oil delivery l/min	Pressione olio Oil pressure bar
EC70HD		18	200
EC90HD		32	200
MRS90HD		32	200
MRS100HD		32	200
MRS110HD		48	200
MRS125HD		48	200

Le quote della tabella sono riferite solamente al disegno 2.  
Le quote del disegno 1 dipendono dall'aggancio rapido, differente per ogni produttore di escavatori.

Dimensions in the table only refer to drawing 2. Drawing 1's dimensions depend by quick connect system, which is different for each excavator manufacturer.

- 1) Secondo norme VDE 0580
- 2) Determinate dopo 5 ore di funzionamento intermittente al 50%, a temperatura ambiente di 20°C, secondo norme VDE 0580

- 1) According to VDE 0580
- 2) Determined after 5 hours of intermittent working at 50%, at 20°C, according VDE 0580



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