Magfor Auto

Battery-powered load lifting magnet

Réf. : T 6142 EN
Révision : 00
Date : 10/2022

APPLICATIONS

- For flat and round material.
- Two magnets working in automatic mode can be used attached to a small-size beam.
- Usable on cranes.
- Usable in mechanical engineering, tool manufacturing, plant engineering, steel construction, ship building, steel mills, cutting operations, carriers or warehouses.
- No battery power consumed during lifting. For magnetizing and demagnetizing, only a current pulse of less than one second is needed.
- A built-in safety mechanism prevents demagnetising and releasing of the load when the load is suspended. (ADPREM safety system) The electro-permanent technology maintains the full holding force even in case of power failure.
- Switching both manually by push-button control or automatically by raising and lowering the lifting magnet.

FEATURES

- Small, robust and handy.
- Choice of manual operation by push buttons or in automatic mode.
- Independent of mains power supply.
- An in-built safety mechanism prevents demagnetizing when the load is suspended.
- The battery (lithium-ion battery) is charged in approx. 3 hours using a mains charger.
- Low power consumption.

TECHNICAL SPECIFICATIONS

Model		Magfor Auto 200	Magfor Auto 500	Magfor Auto 950
Group code		192208	192218	192228
Nominal WLL	kg	200	500	950
Length	mm	150	200	355
Width	mm	85	160	165
Height with hoisted D-shackle	mm	300	355	365
Height without D-shackle	mm	212	255	255
Housing height	m	150	170	170
Test load with flat material	kg	600	1500	2850
Weight	kg	10	26	41

FACTOR AFFECTING HOLDING POWER

Material

The holding force depends on the type of material to be lifted. The variation of holding force with respect to material is shown in the following graph. Mild steel offers the best conductivity for magnetic flux, whereas tool and alloyed steels, cast iron and stainless steel are characterised by lower magnetic conductivity. Generally, the holding force can be summed up as the function of carbon, Ni-Cr-content and hardness of the steel.

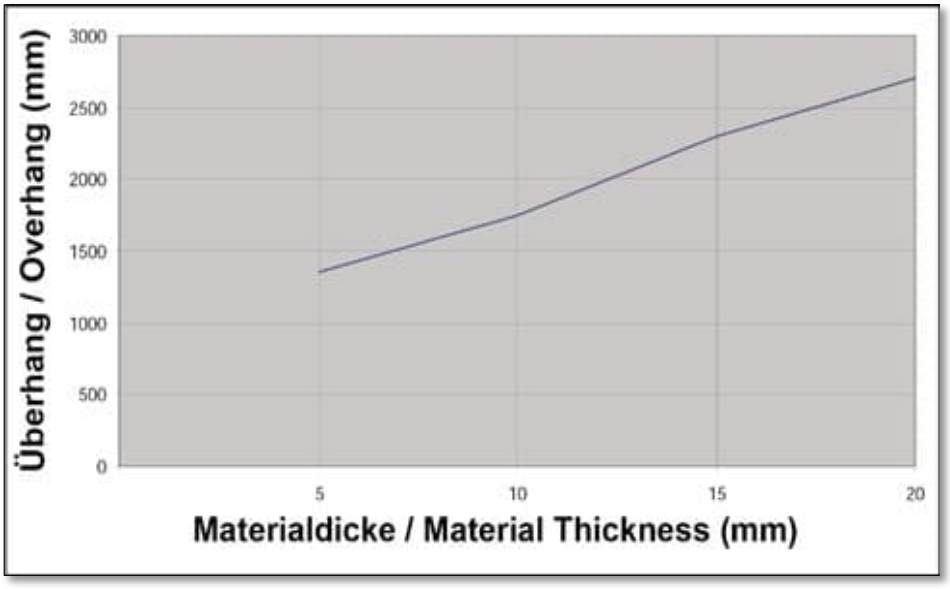
100 %	pure Iron	86 %	C60
95 %	St37	84 %	42CrMo4
95 %	C15	75 %	St50
94 %	34CrNiMo6	72 %	X155CrMo12
93 %	St52-3	65 %	X210CrW12
92 %	90MnV8	50 %	20MnCr5
90 %	C45	30 %	GG
87 %	Ck45	0 %	NE-Metals

Contact area

The magnetic holding force depends on the contact area between load and magnet. The larger the contact area, the higher the lifting capacity of the magnet.

Overhang

The admissible overhang of the load depends on the thickness of the steel plate. In order to grip the load safely, make sure the overhang is within the range shown in the graph (see below). One of the main causes for sudden release of steel sheets is too large a bending due to too long an overhang length. These loads do not have sufficient mechanical strength.



Load thickness

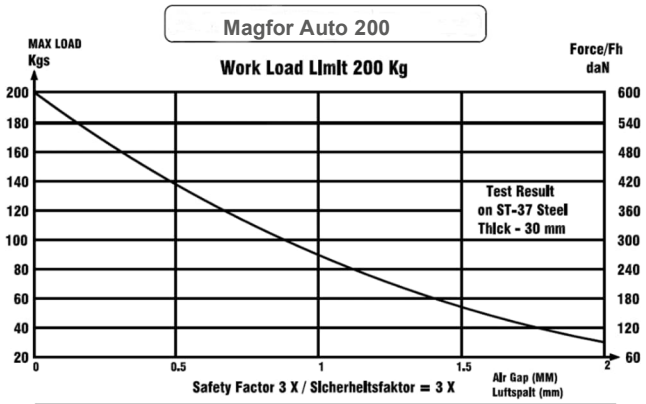
The magnetic flux flows from one pole of the magnet to the other through the load being lifted. If the thickness of the load is smaller than the width of the poles, the magnetic flux is restricted. Thus, the flux density at the contact area between the poles and the load is reduced which results in reduced holding force. Steel thickness of at least 20mm (Magfor Auto 200), 30mm (Magfor Auto 500) or 40mm (Magfor Auto 950) is required to absorb the entire flux and achieve the maximum holding force.

Load temperature

The magnetic holding force also varies with temperature of the load to be lifted. Generally, the holding force decreases as the material temperature rises. With loads, whose temperature exceeds 80°C, the magnetic force steadily diminishes. Therefore, any load whose temperature has exceeded 80°C should not be hoisted with the lifting magnet. (Notice: Contact with hot loads may cause failure of the lifting magnet. With longer contact, the magnets are damaged by the penetrating heat).

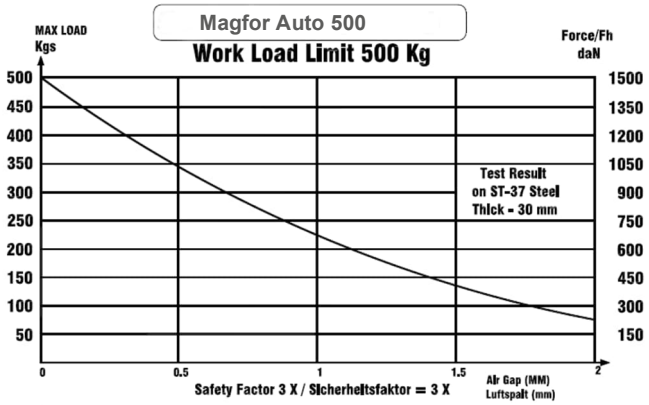
Air gap

The air gap is the average distance between the poles of the lifting magnet and load surface. Air gaps are caused by foreign bodies or improper contact between the magnet poles and the load. The magnetic field cannot pass so easily through non-magnetic materials (air, dust, non-ferrous materials such as stainless steel, brass, aluminium, wood, foreign matter, concavities/convexities etc.) so the holding force is reduced. Thus, the magnets output the full power only when their poles are directly in contact with the surface of the load. The force - air gap curve (see graph below) shows how the holding force (Fh) of the lifting magnet diminishes as the air gap (mm) increases. In order to avoid an air gap, remove the foreign matter from the load surface before positioning the lifting magnet.



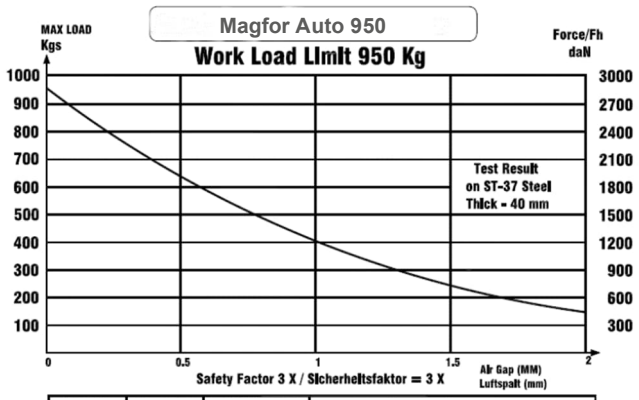
LOAD TYPE	LIFTING (Kg)	THICKNESS DICKE	Job size Maximum(mm.) Length / Länge	Width / Breite	Diameter / Durchm
■	200	≥20	1500	750	—
●	50	—	1250	—	150

CAUTION:-ALWAYS LIFT LOAD HORIZONTALLY BALANCED LAST NUR WAAGRECHT AUSBALANZIERT HEBEN!



LOAD TYPE	LIFTING (Kg)	THICKNESS DICKE	Job size Maximum(mm.) Length / Länge	Width / Breite	Diameter / Durchm
■	500	≥30	2500	1000	—
●	200	—	2000	—	200

CAUTION:-ALWAYS LIFT LOAD HORIZONTALLY BALANCED LAST NUR WAAGRECHT AUSBALANZIERT HEBEN!



LOAD TYPE	LIFTING (Kg)	THICKNESS DICKE	Job size Maximum(mm.) Length / Länge	Width / Breite	Diameter / Durchm
■	950	≥40	2500	2000	—
●	400	—	2500	—	200

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APPLICABLE STANDARDS

Machinery Directive 2066/42/EC
Low voltage directive 2014/35/EC
Electromagnetic compatibility (EMC) DIN EN 61000-6-1