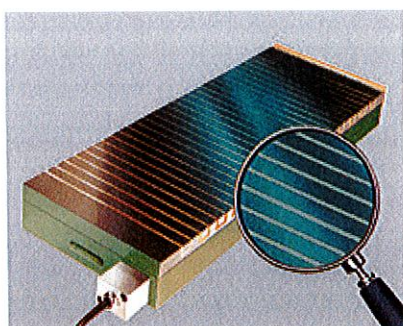


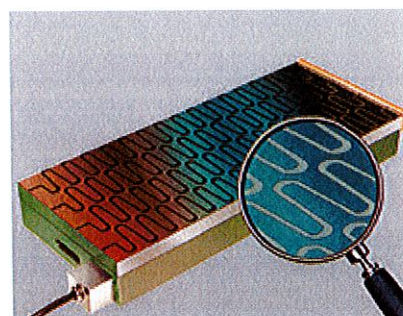
Electro-Magnet-Clamping-Plates



Series 112

with continuous transverse pole spacing
The internal polarity reversal of this magnetic system corresponds precisely to the distribution of the pole on the clamping surface, which means the adhesive force is uniformly distributed over the entire clamping surface. This pole spacing also allows you to clamp workpieces to the longitudinal sides of the pole plates.

Application: universal grinding magnet

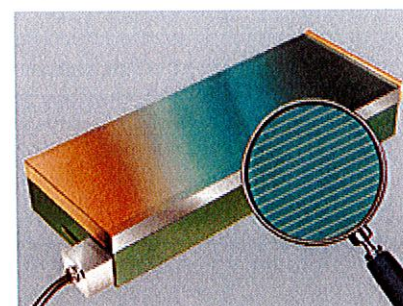


Series 115

with sinusoidal pole spacing

This specific type of pole spacing offers you a symmetrical distribution of north and south poles over the entire clamping surface – in both longitudinal and transverse directions. This arrangement means the clamping plate has a particularly even adhesive force over the entire pole face.

Application: grinding, milling

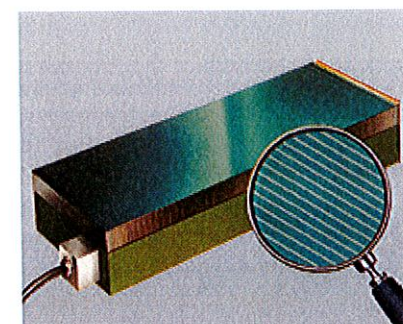


Series 113

with fine longitudinal pole spacing

The special way the magnetic poles are arranged in these units provides you with unbeatable security against transverse displacement forces.

Exceptional adhesive force for thin parts.
Application: grinding, profile grinding of small mass-produced parts, eroding



Series 117

With fine transverse pole spacing

The fine transverse pole spacing is particularly suitable for clamping thin workpieces. The special way the magnetic poles are arranged in these units helps secure the workpieces against shifting in a longitudinal direction. Exceptional adhesive force for thin parts.

Application: grinding, eroding

Structure:

Electro magnet clamping plates primarily consists of three components:

A solid steel lower section, a copper coil and a pole plate. The coil is moulded within the lower section, which means it is securely protected against vibrations and the ingress of moisture. One key quality feature of our clamping plates is the optimal alignment between the electrical power consumption and the magnetic force that can be generated.

While practically applied, the pole plate is subject to wear and tear. Accordingly, it is designed to facilitate multiple reworking before the processing limits are reached. The pole plates can be replaced without any problems, which extends the service life of the overall chuck accordingly. The pole plate can be individually customised to meet your requirements at any time. This may be relevant for example with additional tapped holes, T-grooves, profile, etc.

Design:

- Protection class: IP 65
- Magnet operating time: 100 % (excluding electrical connection)

Magnetic technology:

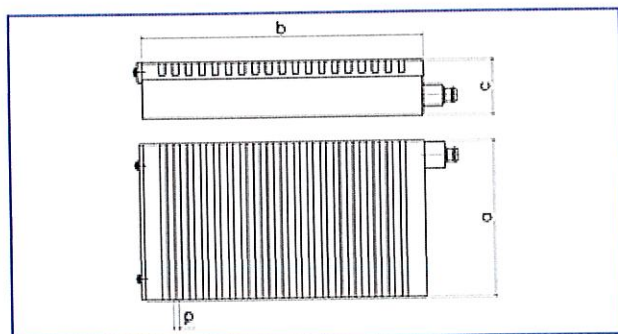
Pole spacing

The arrangement of the magnetic pole on the clamping surface is known as the pole pitch. This arrangement is customised depending on the requirements of the respective use case and depends on the direction of force of the machining process.

Pole distance

The centre-to-centre spacing from two neighbouring unequal magnetic poles is known as the pole distance.

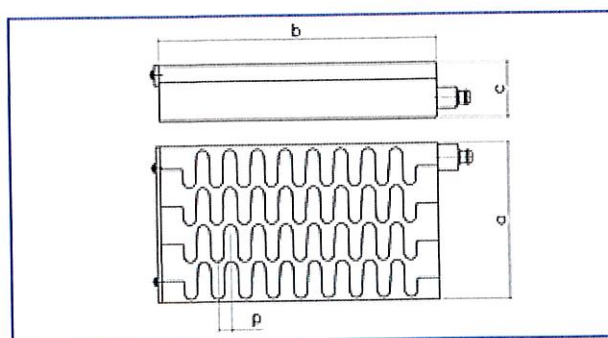
Series 112



Size	Clamping surface a x b [mm]	Construction height c [mm]	Pole space p [mm]	Output [Watt]	Weight [kg]
10/20	102x202	80	13	19	11
10/25	102x252	80	13	24	14
10/30	102x302	80	13	31	17
15/30	152x302	80	13	42	25
15/40	152x402	80	13	52	34
15/45	152x452	80	13	59	38
15/60	152x602	80	13	75	50
17,5/45	177x452	80	18	64	44
20/40	202x402	80	18	66	45
20/50	202x502	80	18	83	56
20/60	202x602	80	18	89	67
20/80	202x802	80	18	120	90
20/100	202x1002	80	18	154	112
25/50	252x502	80	18	94	70
25/60	252x602	80	18	109	84
25/80	252x802	80	18	127	112
25/100	252x1002	80	18	175	140
30/50	302x502	80	25	110	84
30/60	302x602	80	25	128	101
30/80	302x802	80	25	171	134
30/100	302x1002	80	25	209	168
30/120	302x1202	80	25	237	202
30/150	302x1502	80	25	315	252
35/60	352x602	80	25	148	118
35/80	352x802	80	25	191	157
35/100	352x1002	80	25	239	196
35/120	352x1202	80	25	262	235
35/150	352x1502	80	25	323	294
40/60	402x602	80	25	166	134
40/80	402x802	80	25	208	179
40/100	402x1002	80	25	255	224
40/120	402x1202	80	25	329	269
40/150	402x1502	80	25	396	336
40/200	402x2002	80	25	461	448

Other sizes and pole spacings (9, 13, 18, 25) available on request.

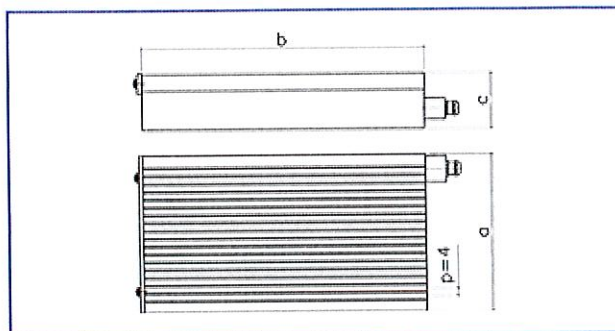
Series 115



Size	Clamping surface a x b [mm]	Construction height c [mm]	Pole space p [mm]	Output [Watt]	Weight [kg]
10/20	102x202	83	14	19	12
10/25	102x252	83	14	24	15
10/30	102x302	83	14	31	18
15/30	152x302	83	14	42	26
15/40	152x402	83	14	52	35
15/45	152x452	83	14	59	39
15/60	152x602	83	14	75	52
17,5/45	177x452	83	14	64	46
20/40	202x402	83	14	66	46
20/50	202x502	83	14	83	58
20/60	202x602	83	14	89	70
20/80	202x802	83	14	120	93
20/100	202x1002	83	14	154	116
25/50	252x502	83	18	94	73
25/60	252x602	83	18	109	87
25/80	252x802	83	18	127	116
25/100	252x1002	83	18	175	145
30/50	302x502	83	18	110	87
30/60	302x602	83	18	128	105
30/80	302x802	83	18	171	139
30/100	302x1002	83	18	209	174
30/120	302x1202	83	18	237	209
30/150	302x1502	83	18	315	261
35/60	352x602	83	25	148	122
35/80	352x802	83	25	191	163
35/100	352x1002	83	25	239	203
35/120	352x1202	83	25	262	244
35/150	352x1502	83	25	323	305
40/60	402x602	83	25	166	139
40/80	402x802	83	25	208	186
40/100	402x1002	83	25	255	232
40/120	402x1202	83	25	329	279
40/150	402x1502	83	25	396	349
40/200	402x2002	83	25	461	465

Other sizes and pole spacings (11, 14, 18, 25, 36) available on request.

Series 113



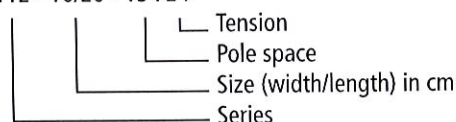
Size	Clamping surface a x b [mm]	Construction height c [mm]	Pole space p [mm]	Output [Watt]	Weight [kg]
10/20	102x202	92	4	26	13
10/25	102x252	92	4	30	16
15/30	152x302	92	4	51	29
15/40	152x402	92	4	60	39
15/50	152x502	92	4	70	48
17,5/45	177x452	92	4	75	51
20/40	202x402	92	4	72	52
20/50	202x502	92	4	84	64
20/60	202x602	92	4	110	77
20/80	202x802	92	4	145	103
20/100	202x1002	92	4	180	129
25/60	252x602	92	4	132	97
25/80	252x802	92	4	175	129
25/100	252x1002	92	4	210	161
30/50	302x502	92	4	125	97
30/60	302x602	92	4	145	116

Other sizes available on request.

Example order:

Please determine our exact type designation in accordance with the following scheme:

112 - 10/20 - 13 : 24



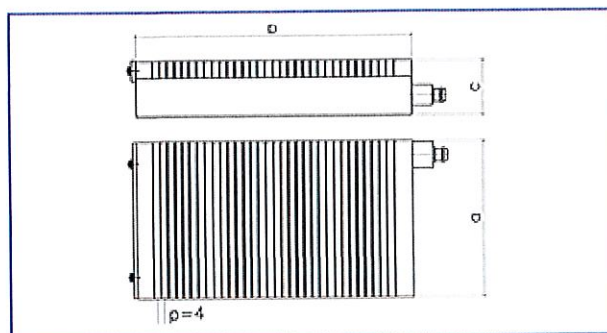
Default values:

Tension 24 V DC or 110 V DC
Relative duty cycle 100 %
(other values on request)

Delivery scope for clamping plates:

- Front stop rail
- Connecting cable
- Longitudinal stop rails (optional)
- Clamping claws (optional)
- Anchor points (optional)

Series 117



Size	Clamping surface a x b [mm]	Construction height c [mm]	Pole space p [mm]	Output [Watt]	Weight [kg]
15/30	152x302	92	4	65	29
15/40	152x402	92	4	90	39
15/50	152x502	92	4	105	48
17,5/45	177x452	92	4	106	51
17,5/50	177x502	92	4	115	56
20/40	202x402	92	4	105	52
20/50	202x502	92	4	130	64
20/60	202x602	92	4	150	77
20/80	202x802	92	4	206	103
20/100	202x1002	92	4	250	129
25/60	252x602	92	4	180	97
25/80	252x802	92	4	233	129
25/100	252x1002	92	4	286	161
30/50	302x502	92	4	175	97
30/60	302x602	92	4	206	116
30/80	302x802	92	4	268	155

Other sizes available on request.

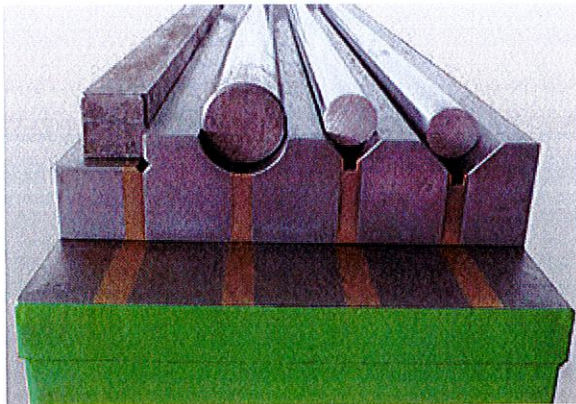
Electrical connection via:

Electronic type 754, 755 and 756 pole-reversal control units.

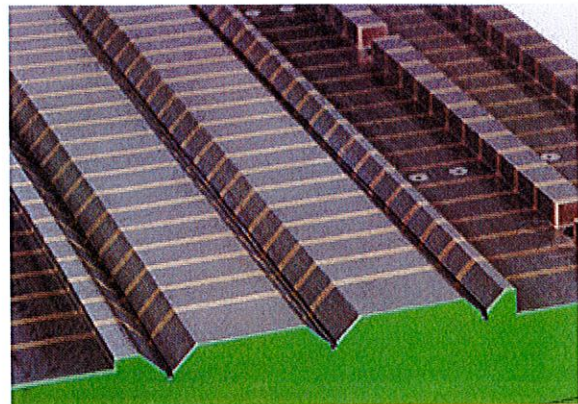
These devices, designed especially for controlling clamping magnets, function to facilitate the power supply and simultaneously as demagnetisation devices. A microprocessor controls and monitors all functions and offers optimal switching comfort with numerous control and monitoring functions. The adhesive force is adjustable in up to 16 stages. In addition, these pole-reversal control units also allow additional configuration of parameters and optimised settings. All device types offer particularly impressive shifting dynamics.

For individual details, please see brochures 754, 755 and 756.

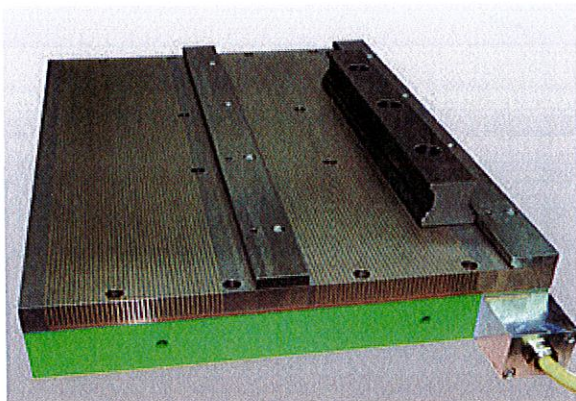
The Wagner Magnets company specialises in customised solutions.
Let's agree something today!



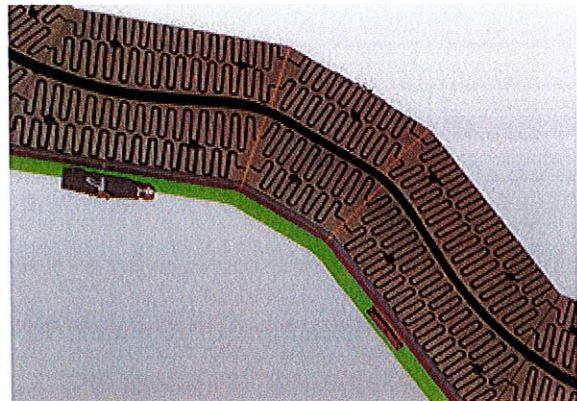
Workpiece-optimised support pole plates



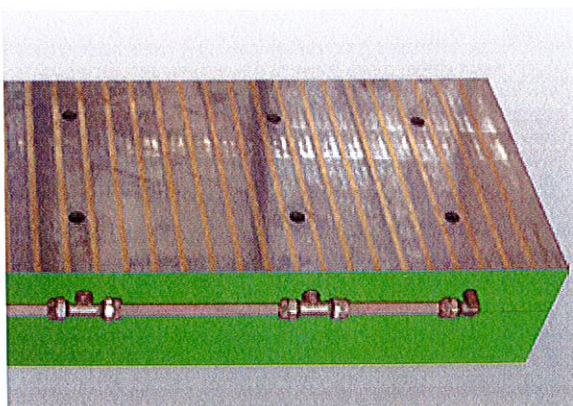
Contoured clamping surfaceclamping areas



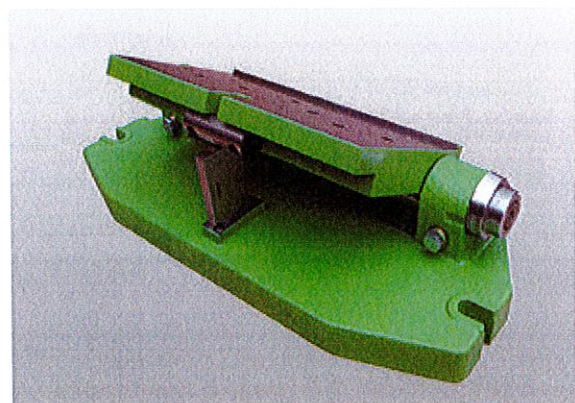
Separately switchable clamping areas



Special designs for laser welding machines



Built-in blow-out holes



Sine table for magnetic systems



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Electronic Pole Reversal Control Unit



The pole-reversal control unit, type 756, is a controllable power and voltage source to magnetize:

- Electromagnets (EL)
- Electro-permanent magnets (EP)
- Electro-permanent magnets with neodymium system (Nd)

The unit is controlled using 24 V DC control inputs. The system statuses are displayed via three-line display, LED displays and photo-MOS relay.

The unit is supplied via 3-phase mains connection 50 / 60 Hz. The unit is suitable for nominal magnetic currents of at least 6 A.

The pole-reversal control unit is characterized by the following features:

- Optional current or voltage controlled operation
- Pre-selection of up to 4 freely programmable parameter sets for the magnet by optional control inputs
- very short switching times
- When switching off the magnet quickly, the energy released is fed back to the mains
- Very fine resolution of the holding force levels
- Exclusive use of PhotoMOS relays for the feedback signals (no bouncing, relays can connect smallest currents without showing high resistance)
- Configuration via USB and monitor program (optional)
- Ground leakage protection

The pole-reversal control unit 756 provides a nominal input of 22,17 kVA (3 x 400 V, 32 A). Depending on the application (type of magnet, nominal voltage and power consumption of the magnet connected), the unit can also be supplied with reduced voltage and / or reduced fusing.

To switch off electro-permanent magnets, or to reduce the residual magnetism for electromagnets, reversing of poles is necessary. Here a magnetic field with changing polarities and decreasing intensity is generated.

This process reduces the residual magnetism to a minimum. The pole-reversal control unit 756 controls the necessary currents / voltages using the magnet. The basic setting of the pole-reversal control unit is made at our works prior to dispatch. If required, the pole-reversal process can be changed by selecting another pole-reversal program. In addition, it is possible to change the pole-reversal programs using the optional monitor program.

Technical data:

- Mains supply voltage: 3x400 V AC (+/- 10 %), PE
- Mains frequency: 50 / 60 Hz
- Protection class: IP 20
- Operating mode: Continuous operation
- perm. temperature range: 0 °C bis 40 °C
- acc. to EMC and Low Voltage Directive
- Holding force levels: up to 256 levels (16 freely programmable, interpolated)
- Installation height 1000 m MSL
In case the machine is operated at higher altitudes, the possible output will be reduced.

Input signals:

- Clamp
- Pole-reversal
- Switch off without pole-reversal
- Acknowledge fault message
- 4 inputs for selecting the holding force levels
- 4 extra inputs can be assigned optionally
- USB interface for configuration
- 24 V DC, 2,5 mA

Program selection:

Use switch S1 on the front plate to select up to 16 pole-reversal programs..

Output signals:

- Magnet clamped
- Reverse magnet polarity
- Fault
- PhotoMOS relay with common earth, MINUS or PLUS switching
- max. 24 V, max. 0,5 A
- 6 optional outputs

Short-circuit behavior:

The pole-reversal control unit is protected against destruction of the power semiconductors by internal fuses.

Connection values for various output voltages:

Type	Use for	Magnet voltage [V DC]	max. nominal current magnet [A DC]	Dimensions WxHxD [mm]	Weight [kg]
756-EL110/16	Electromagnets (continuous current)	110	16	125x375x245	7,2
756-EL220/16	Electromagnets (continuous current)	220	16	125x375x245	7,2
756-EL110/30	Electromagnets (continuous current)	110	30	125x375x245	7,2
756-EL220/30	Electromagnets (continuous current))	220	30	125x375x245	7,2
756-EP210/30	Electro-permanent magnets (pulsed operation)	210	30	125x375x245	7,2
756-EP360/30	Electro-permanent magnets (pulsed operation)	360	30	125x375x245	7,2
756-EP210/60	Electro-permanent magnets (pulsed operation)	210	60	125x375x245	7,2
756-EP360/60	Electro-permanent magnets (pulsed operation)	360	60	125x375x245	7,2

756-.../... freely configurable version for up to 4 different magnet systems;
other magnet voltages available as special configuration

Accessories:

Control unit

For manual control of the pole-reversal control unit, different control units of type 744 are available. They are equipped with a coding switch to adjust the holding force and illuminated keys to clamp and unclamp the magnet. Keys and coding switch are also available as installation components.

Monitor program

With the additional "USG Monitor" software, the configuration options for the pole-reversal control unit are extended considerable. The following options are available, for example:

- selecting the 6-step, 8-step, and 16-step holding force curve and changing the freely-programmable holding force curve
- changing the pole reversal programs
- activating special options



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Control unit



The control unit, type 744, is used to control all Wagner electric magnets and electropermanent magnets in connection with the pole-reversal control units. They are available both with and without 6, 8 or 16-step holding force switch. Depending on the version, the control units are used with clamping magnets, holding magnets and lifting magnets.

Standard version:

- Illuminated pushbutton in stainless steel mounting
- Aluminum housing with slip-resistant rear side
- Housing dimensions (LxWxH): 180x103x37 mm
- Protection class IP 65
- 5 m connecting cable

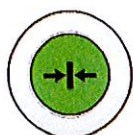
Options:

- Additional illuminated pushbutton and selector switch for special functions
- Connecting cable length: 10 / 15 / 20 m
- Mounting base
- Wall fastening
- Swivelable mounting

Operating elements:

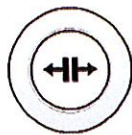
Clamp

When actuating the button, the workpiece is clamped and can be machined. As long as the magnet is switched on, the button glows green. The holding force of the magnet corresponds to the holding force level selected with the selector switch.



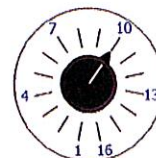
Pole reversal

When actuating the button, pole reversal is started to demagnetize the workpiece. As long as the polarity reversal process is ongoing, the button glows green. As soon as the display has gone off, the workpiece can be removed from the magnet.

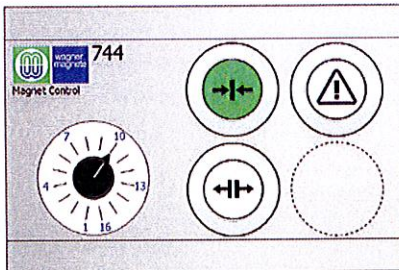


Selector switch clamping force

Pre-selection of the holding force via coding switch. The switch can be supplied in 6, 8 or 16 levels (largest number for holding force level = 100% holding force).

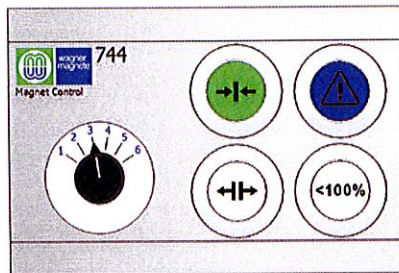


Design examples:



To control clamping and holding magnets

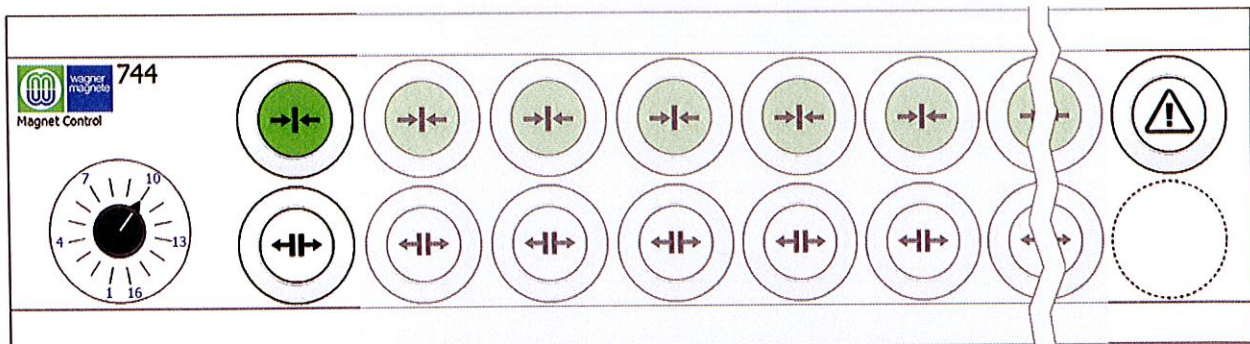
- 1 illuminated pushbutton for "Clamping the magnet"
- 1 illuminated pushbutton for "Magnet reversal"
- 1 coding switch with 16 steps for regulating the holding force
- Indicator lamp for indicating error and warning messages
- Housing dimensions (LxWxH in mm): 180x103x37
- For electronic pole-reversal control unit
- Aluminum housing with protection class IP 65



To control loading lifting magnets

- 1 illuminated pushbutton for "Clamping the magnet"
- 1 illuminated pushbutton for "Clamping with reduced holding force" (< 100 %)
- 1 illuminated pushbutton for "Magnet reversal" (double actuation EN13155)
- 1 coding switch with 6 steps for regulating the holding force
- Indicator lamp for indicating error and warning messages
- Housing dimensions (LxWxH in mm): 180x103x37
- For electronic pole-reversal control unit
- Aluminum housing with protection class IP65

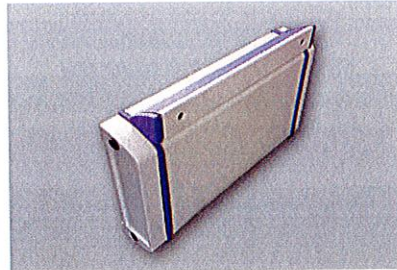
Our control unit 744 can be expanded in a modular manner



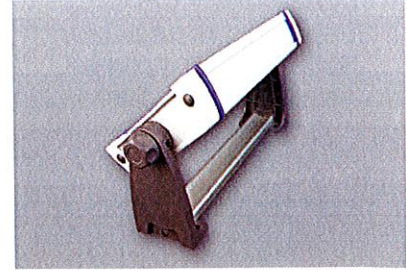
Fastening



Mounting base



Wall fastening



Swivelable mounting



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