MAGNETS AND ...

Magnetic systems ı Magnetic rubber ı Magnetic foil ı Magnets with print ı Holding surfaces

SCHALLENKAMMER®
MAGNETSYSTEME

Ideas which can be solved.

Visit us in Kürnach
next to Würzburg.

Who we are!

CONSTANT DEVELOPMENT BY INNOVATION AND IDEAS

Schallenkammer Magnetsysteme GmbH was founded in 1989. Our comprehensive portfolio includes rigid and flexible permanent magnets for technical and organizational use.

Our product range includes raw magnets, magnetic systems, lifting magnets, separation magnets, magnetic rubber, magnetic foil, magnetic tape, magnetic pockets, magnetic symbols, turnable magnets as well as ferrous surfaces which can be used on non-ferrous surfaces to work with magnets on it.

Our national and international customers especially appreciate our technical competence along with professional consulting and “customized” production, in addition to a balanced price-performance ratio. Thus, one of our main advantages is to deliver customized products within a very short time – low quantities also.

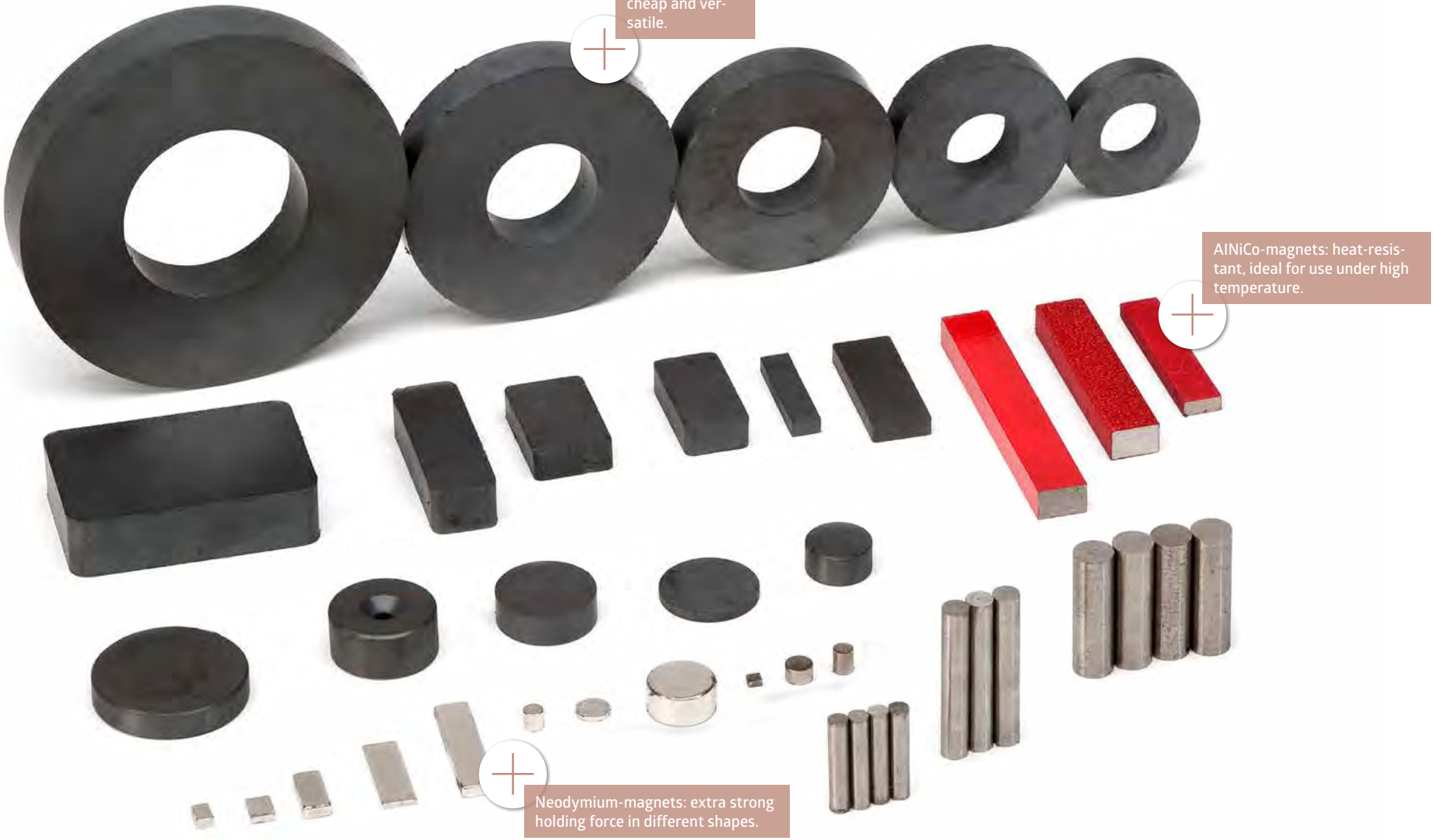
We offer a wide variety of products! The products listed in the catalog are only part of the goods we have in stock or which are tailored to particular needs.

An essential component of our work lies in the development of new ideas to use magnets successfully in different fields of application. In order to continue to meet the desires and requirements of our customers the machines that we use have been partly developed by ourselves, therefore they are designed exactly to our needs.

Please contact us if you do not find a suitable offer for special applications. We will find the right solution concerning your requirements.

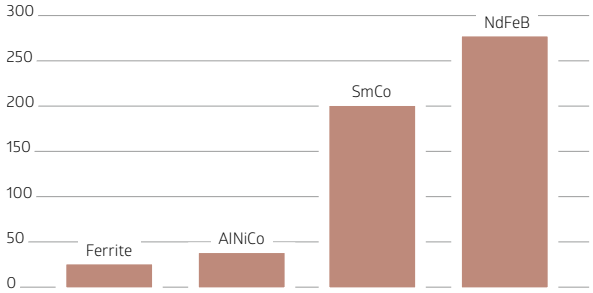
Contents

RAW MAGNETS


Ferrite magnets: cheap and versatile.
AlNiCo-magnets: heat-resistant, ideal for use under high temperature.
Neodymium-magnets: extra strong holding force in different shapes.

Raw magnets as base

DIFFERENT APPLICATIONS – DIFFERENT MAGNETIC MATERIAL



Holding force of the individual materials with the same magnetic value. Energy product $(B \times H)_{max}$

There are materials which retain a high content of magnetism after being subjected to a strong magnetic field. They are called permanent magnetic.

Basically, there are two types of permanent magnets: **Isotropic magnets** have no preferential direction and can be magnetized in any axial direction. **Anisotropic magnets,** however, can only be magnetized in one direction by a predetermined orientation. Both qualities have their own advantages, depending on the field of application.

It is not always possible to prevent cracks and small bursts of the material in the production of the magnets. However, they do not affect the magnetic values. Permanent magnets are hard and brittle. At collision, they may shatter into small, sharp-edged parts or cause skin bruising. So, caution is advised.

Magnetic fields, created with permanent magnets, have no known adverse effects on humans. Things are different with technical object: sensitive electric measuring devices or mechanical watches can be affected or even destroyed by strong magnetic fields. However, a distance of 50 cm to the magnet is already sufficient to protect the devices. Persons with pacemakers should completely avoid magnetic fields.

Depending on the application and requirements, there is a choice of the following permanent magnetic materials with corresponding specific characteristics: hard ferrite magnets, Aluminium-Nickel-Cobalt magnets (AlNiCo), Samarium-Cobalt magnets (SmCo), Neodymium-Iron-Boron magnets (NdFeB).

Magnetic material	Energy product $(B \times H)_{max}$ kJ/m³	Remanence B_r mT	Coercivity H_{cB} kA/m	H_{cJ} kA/m	Temperature-coefficient pro 1 °C	Operating temperature max. °C	Curie-Temperature °C	Density g/cm³
Barium ferrite isotropic	7,2 – 7,6	210 – 220	130 – 135	220	– 0,2 %	250	450	4,9
Barium ferrite anisotropic	28,9 – 29,5	390 – 400	145 – 160	150 – 165	– 0,2 %	250	450	4,9
Strontium ferrite anisotropic	24,5 – 25,5	350 – 370	210 – 245	220 – 255	– 0,2 %	250	450	4,9
AlNiCo 500	35 – 36	1120 – 1160	47 – 49	47 – 49	– 0,02 %	400	890	7,3
Samarium-Cobalt $SmCo_5$	140 – 150	850 – 890	620 – 670	1100 – 1200	– 0,04 %	250	720	8,3
Samarium-Cobalt Sm_2Co_{17}	190 – 205	1000 – 1050	680 – 750	1195 – 1500	– 0,03 %	350	800	8,3
Neodymium-Iron-Boron NdFeB N35*	260 – 285	1180 – 1220	860 – 915	> 955	– 0,13 %	80	310	7,4
Neodymium-Iron-Boron NdFeB N48*	358 – 392	1370 – 1410	859 – 950	> 955	– 0,13 %	80	310	7,4

Values determined at a temperature of 20 °C. * Qualities available with an operating temperature of up to 200 °C.

Ferrite magnets as disc, block or ring, different shapes for individual applications.

Hard ferrite magnets

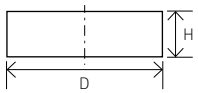
THE SOLUTION FOR MANY APPLICATIONS

Hard ferrite magnets are magnets commonly used and they represent the classic magnet. They consist of approx. 80 percent iron oxide and approx. 20 percent barium or strontium ferrite. The magnets are reasonably priced because the raw materials are available in large quantities. Shaping is made by pressing.

Isotropic magnets have approx. the same magnetic values in all directions. They are magnetizable in all axial directions, the energy density is low.

Anisotropic magnets are pressed in a magnetic field and thus are equipped with a preferential direction. This results in a significant improvement of the remanence. It can only be magnetized in the preferential direction.

Ferrite magnets are hard, brittle and sensitive to impact. Processing is only possible by grinding with diamond tools. They are weather-resistant and do not oxidize. They are resistant to demagnetization and fully retain their magnetism under normal conditions. They are resistant to many chemicals and solvents. However, it is not always possible to avoid minor chips and cracks during production. But they do not affect the magnetic values, function or holding force.

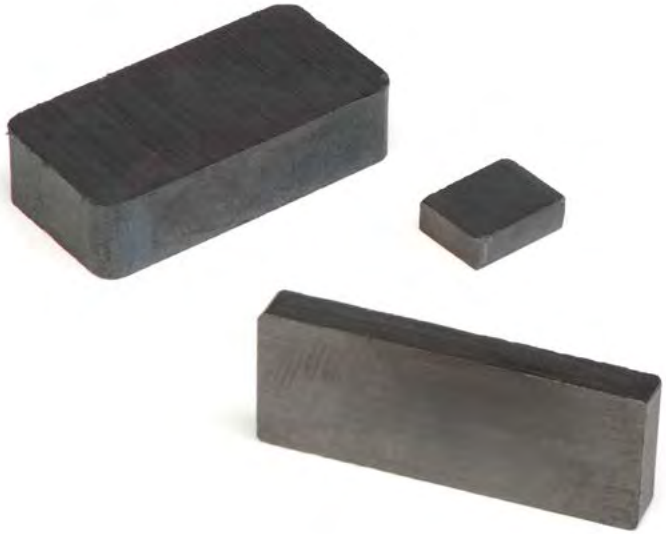


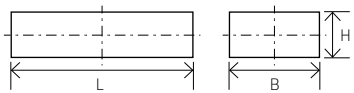
Disc magnet, hard ferrite, anisotropic

Magnetized through dimension H (axially), operating temperature from – 40 °C to + 250 °C

Dimensions in mm		Item No.
D	H	
4	5	32.003
5,5	1,8	32.007
6	2,2	32.011
8	4	32.019
10	2	32.020
10	4	32.021
10	5	32.023
10	7	32.024
10	10	32.025
12	6	32.031
15	6	32.036
20	5	32.051

Dimensions in mm		Item No.
D	H	
20	6	32.055
20	10	32.056
25	6,2	32.073
29,5	10	32.100
30	4	32.081
30	6	32.090
30	8	32.096
30	10	32.102
40	10	32.110
45	9	32.121
70	10	32.122





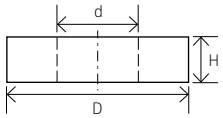
Block magnet, hard ferrite, anisotropic

Magnetized through dimension H (axially), operating temperature from – 40 °C to + 250 °C

Dimensions in mm			Item No.
L	B	H	
7	7	4	32.345
10	3	2	32.351
12,9	10	4,3	32.363
15	15	4	32.388
16,6	9,3	4,9	32.402
20	10	5	32.416
24	19	6,1	32.440
25	10	5	32.444
27,5	11	4	32.446
39	9	4,9	32.477
40	20	10	32.492
40	25	10	32.495
45	20	10	32.500
50	9	6,1	32.509
50	19	4,9	32.510
50	19	6,1	32.511

Dimensions in mm			Item No.
L	B	H	
50	24	20	32.51401
50	40	30	32.52002
58	18	4,5	32.52001
59,5	30	9	32.540*
60	18	15	32.537
60	20	15	32.538
70	50	20	32.560
74	54	20	32.56201
75	50	10	32.557
75	50	20	32.561
100	3	2,3	32.566
100	75	25,4	32.573
131	51	17,5	32.583
152,4	101,6	25,4	32.596

*2-pole axially magnetized.



Ring magnet, hard ferrite, anisotropic

Magnetized through dimension H (axially), operating temperature from – 40 °C to + 250 °C

Dimensions in mm			Item No.
D	d	H	
8	4	3	32.663
8	5,3	2,8	32.662
15	6,2	3	32.682
15	10	3	32.68201
19	6,5	10	32.687
20	5,3	10	32.688
27	17	3	32.697
29	10	5	32.699
30	16	5	32.712
36	18	6	32.730
36	18	8	32.734
45	22	9	32.765
60	24	8	32.791
60	24	9	32.792
60	24	13	32.795
60	32	10	32.804

Dimensions in mm			Item No.
D	d	H	
60	32	12	32.805
72	32	10	32.810
72	32	15	32.814
80	40	15	32.817
90	36	17	32.832
100	57	17	32.840
100	70	20	32.850
104	71	6,5	32.864
115	43	12	32.870
121	57	20	32.882
134	57	20	32.884
220	110	25	32.910

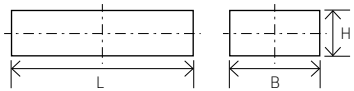
AlNiCo magnets

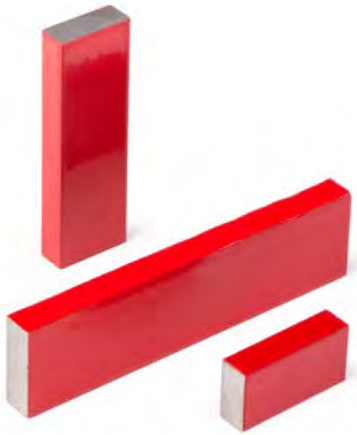
HIGH REMANENCE AND TEMPERATURE RESISTANT

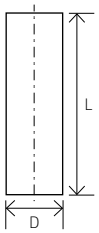
AlNiCo magnets are an alloy of aluminium, nickel, cobalt, iron, copper and titanium. The product is manufactured by casting or sintering. They are axis-oriented and can only be magnetized through this direction.

AlNiCo magnets have a high remanence with a low coercivity. Thus, this magnetic material can accommodate a strong magnetic field, however, this can be slightly weakened by demagnetizing influences. The optimum ratio of diameter to length is 1 : 4 (D : L). AlNiCo will be used for example in guitar pickups, speakers or sensors.

AlNiCo magnets have the lowest temperature coefficient. They have an exceptional mechanical hardness and can only be processed by grinding. Furthermore, they have a great resistance to most acids, alkalis and oxidation.







Bar magnet, AlNiCo 500, rectangular

Magnetized through dimension L (axially), lacquered, operating temperature max. 180 °C

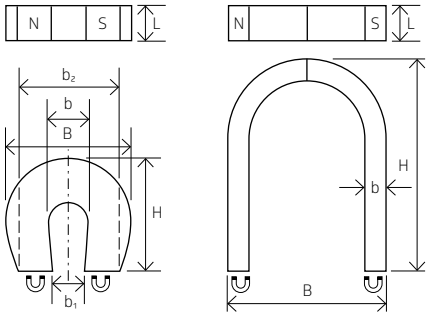
Dimensions in mm			Item No.
L	B	H	
20	10	5	33.200
40	12,5	5	33.206
50	15	10	33.202
60	12,5	5	33.207
60	15	5	33.201
75	15	10	33.203
75	25	10	33.204
101	15	10	33.205

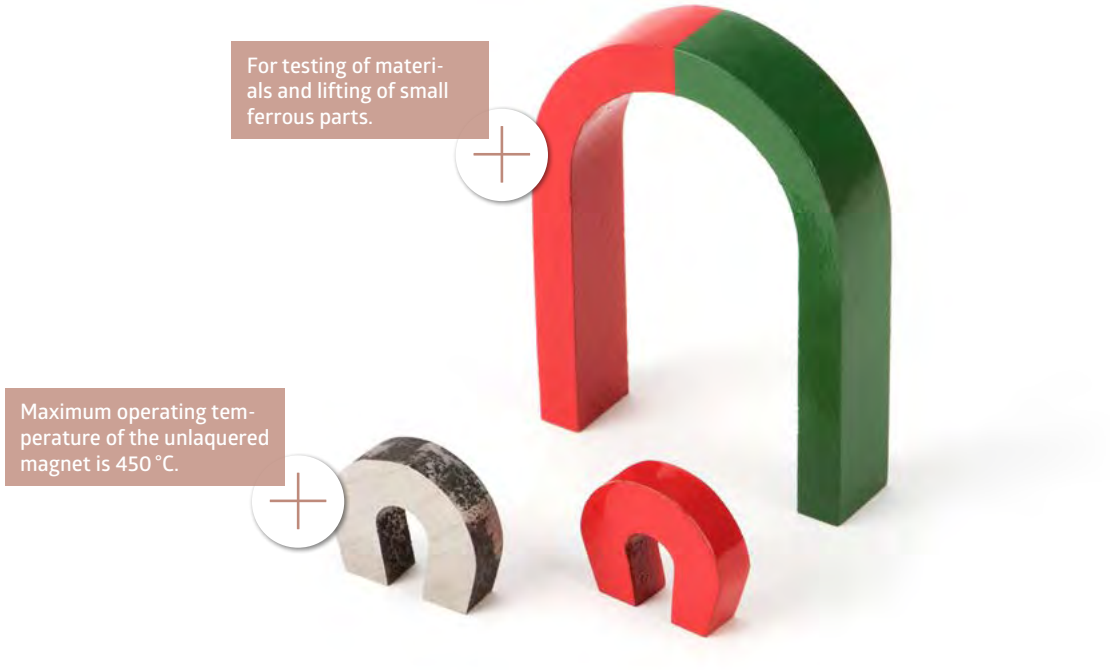
Bar Magnet, AlNiCo 500, round

Magnetization through dimension L (axially), operating temperature –270 °C to +450 °C

Dimensions in mm		Item No.
D	L	
3	10	33.043
3	15	33.000
4	10	33.001
4	20	33.002
5	10	33.003
5	20	33.004
5	25	33.005
6	10	33.006
6	20	33.007
6	24	33.024
6	30	33.008
8	24	33.009
8	40	33.010
10	30	33.011
10	40	33.013
14	42	33.038

Other dimensions are available from D 3 to D 20 mm up to a length of max. 180 mm.
Tolerances: D ±0,2 mm, length ±0,1 mm. Diameter untreated.





For testing of materials and lifting of small ferrous parts.

Maximum operating temperature of the unlaquered magnet is 450 °C.

Horseshoe magnet, AlNiCo 500

Lacquered, operating temperature max. 180 °C

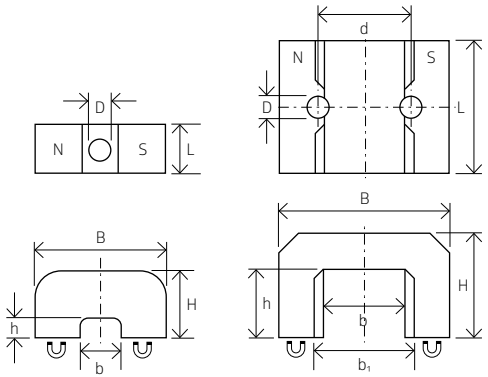
Dimensions in mm						Holding force*	Item No.
L	B	b	b_1	b_2	H	N	
8	28,6	9,5	6,7	22,9	25,4	26	38.800
15	60	8	–	–	80	32	38.801

* Explanatory notes to the holding force see page 25.

Not lacquered, operating temperature – 270 °C to + 450 °C

Dimensions in mm						Holding force*	Item No.
L	B	b	b_1	b_2	H	N	
8	28,6	9,5	6,7	22,9	25,4	26	38.800R

* Explanatory notes to the holding force see page 25.



High holding force and through borehole for fixing; for lifting, holding, sorting of ferrous parts.

Horseshoe magnet, AlNiCo 500, in bridge shape

Lacquered, operating temperature max. 180 °C

Dimensions in mm							Holding force*	Item No.
L	B	b	b_1	H	h	D	N	
20	30	15	–	20	11	5	45	38.821
25	22	8	–	17	9	7	30	38.820
25	39	19	–	25	14	4,7	90	38.822
30	45	22	–	30	17	4,7	120	38.825
44,5	57	27,8	35	35	23	2 × 8	180	38.826
57	70	35	41	41	25	2 × 8	320	38.829
61,5	60	32	–	39,2	26	7	250	38.828
82	79,6	38,5	47,6	54	36	2 × 9,5	470	38.831

* Explanatory notes to the holding force see page 25.

Not lacquered, operating temperature – 270 °C to + 450 °C

Dimensions in mm							Holding force*	Item No.
L	B	b	b_1	H	h	D	N	
20	30	15	–	20	11	5	45	38.821R
25	22	8	–	17	9	7	30	38.820R
25	39	19	–	25	14	4,7	90	38.822R
30	45	22	–	30	17	4,7	120	38.825R
44,5	57	27,8	35	35	23	2 × 8	180	38.826R
57	70	35	41	41	25	2 × 8	320	38.829R
61,5	60	32	–	39,2	26	7	250	38.828R
82	79,6	38,5	47,6	54	36	2 × 9,5	470	38.831R

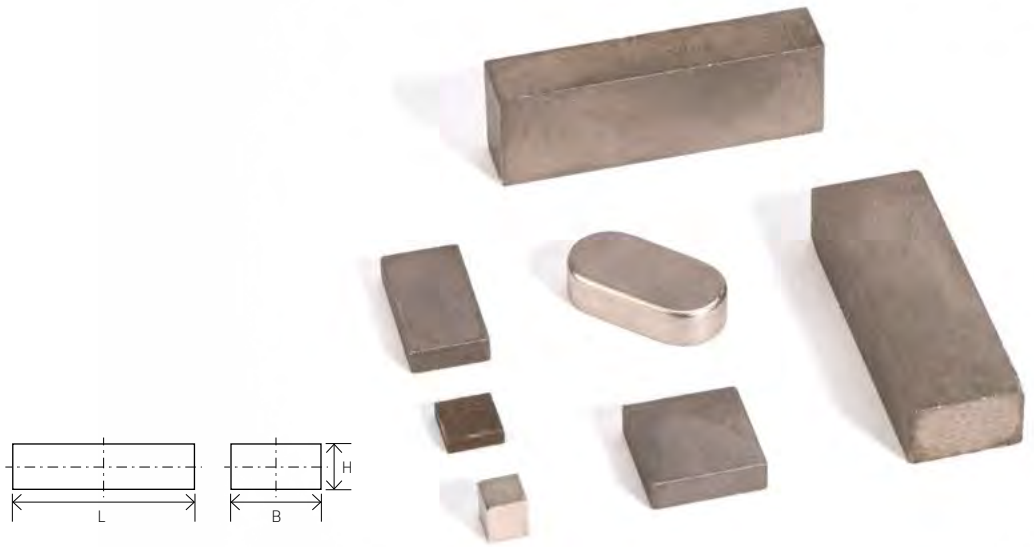
* Explanatory notes to the holding force see page 25.

Samarium-Cobalt magnets (SmCo)

HIGH ENERGY PRODUCT AT SMALL DESIGN

Samarium-Cobalt magnets (SmCo) are among the rare-earth magnets. The product is manufactured by pressing in a magnetic field and subsequent sintering. It is a brittle and hard material with a high energy product. Compared to AlNiCo or ferrite magnets smaller magnetic systems can be used by same holding force. Opposite NdFeB magnets the SmCo magnets are more heat-resistant.

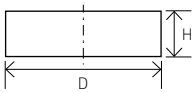
Samarium-Cobalt magnets (SmCo) are only available in anisotropic quality. Magnetization is only possible in preferential direction. Strong opposing fields do not cause weakening of the magnetic fields. They are resistant to corrosion but not to inorganic acids and alkalis.



Block magnet, Samarium-Cobalt (SmCo)

Magnetized through dimension H (axially), operating temperature up to approx. 250 °C / 350 °C

Dimensions in mm			Magnetic material	Item No.
L	B	H		
2	2	1	$SmCo_5$	34.300
3,5	3,5	4	Sm_2Co_{17}	34.330
4	4	2	$SmCo_5$	34.334
5	5	1,5	$SmCo_5$	34.341
10	10	3	$SmCo_5$	34.511
13	7	2,5	$SmCo_5$	34.412
15	3,5	6	Sm_2Co_{17}	34.437
15	7,6	4	Sm_2Co_{17}, oval	34.422
20	3,5 / R 1,75	6	Sm_2Co_{17}	34.431
20	5	10	Sm_2Co_{17}	34.444
22,8	2,7	7	$SmCo_5$	34.427
25	6,4	9,5	Sm_2Co_{17}	34.435
30	10	6	$SmCo_5$	34.430
50	10	4,8	Sm_2Co_{17}	34.57101



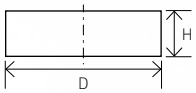
Disc magnet, Samarium-Cobalt (SmCo)

Magnetization through dimension H (axially), operating temperature up to approx. 250 °C / 350 °C

Dimensions in mm		Magnetic material	Item No.
D	H		
2	10	$SmCo_5$	34.003
2,5	2	Sm_2Co_{17}	34.146
3	2	$SmCo_5$	34.00504
3	3	$SmCo_5$	34.005
3	6	$SmCo_5$	34.144
3,5	1	$SmCo_5$	34.006
4	1	$SmCo_5$	34.007
4	1,5	$SmCo_5$	34.008
4	2,5	$SmCo_5$	34.009
4	3	$SmCo_5$	34.012
4	4	$SmCo_5$	34.014
4	5	$SmCo_5$	34.018
5	1	$SmCo_5$	34.022
5	1,5	$SmCo_5$	34.024
5	2	$SmCo_5$	34.025

Dimensions in mm		Magnetic material	Item No.
D	H		
5	2,5	$SmCo_5$	34.026
5	4	$SmCo_5$	34.033
6	3	$SmCo_5$	34.038
6	6	$SmCo_5$	34.039
6	7,5	$SmCo_5$	34.041
6	10	Sm_2Co_{17}	34.043
8	5	$SmCo_5$	34.070
9	3	$SmCo_5$	34.075
10	2	$SmCo_5$	34.085
10	4	$SmCo_5$	34.087
10	5	Sm_2Co_{17}	34.090
14	3	Sm_2Co_{17}	34.106
14	5	Sm_2Co_{17}	34.107
15	8	$SmCo_5$	34.118

Special shapes will be produced according to your requirements.



Neodymium-Iron-Boron magnets (NdFeB)

STRONGEST PERMANENT MAGNETS BY SMALLEST VOLUME

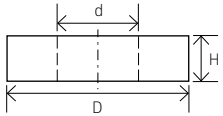
NdFeB magnets are the strongest magnets currently available with outstanding magnetic properties relating to remanence and energy density. The product is manufactured by pressing and subsequent sintering. Depending on the type of alloy the operating temperature is from −40 °C to +200 °C.

Oxidation of the magnets will already be caused by high humidity. Therefore they are usually provided with a galvanic protective coating of zinc or nickel. They are used where a strong magnetic field is required in a compact design.

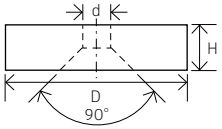
Disc magnet, Neodymium-Iron-Boron (NdFeB)

Magnetization through dimension H (axially), operating temperature up to 80 °C

Dimensions in mm		Specification	Item No.
D	H		
10	0,6	one side self-adhesive with pull-tab	35.05701
10	1	one side self-adhesive with pull-tab	35.05002
10	1,5	one side self-adhesive with pull-tab	35.05103
10	2	one side self-adhesive with pull-tab	35.05204



Neodymium magnets with higher operation temperature are available on request.



Ring magnet, Neodymium-Iron-Boron (NdFeB)

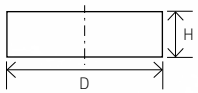
Magnetization through dimension H (axially), operating temperature up to 80 °C

Dimensions in mm			Item No.
D	d	H	
6	1	2	35.654
6	3	2	35.64401
6,9	2,7	10	35.664
8	3	4	35.653
8	4	1	35.66305
10	3	2	35.668
10,5	6,5	5	35.673
11	7,5	3	35.67001
12	8	3	35.67402
13	9	1	35.683
14.5	8,5	5	35.69401
14,5	10,5	5	35.694
20	4,2	5	35.698
20	10	6	35.702
25	12	8	35.708
76	42	6	35.729

Ring magnet with 90° counter bore, Neodymium-Iron-Boron (NdFeB)

Magnetization through dimension H (axially), operating temperature up to 80 °C

Dimensions in mm			Borehole	Specification	Item No.
D	d	H	M		
12	3,5	3	3	Counter bore south pole, Ni coated	35.727
15	3,5	5	3	Counter bore north pole, Ni coated	35.72811N
15	3,5	5	3	Counter bore south pole, Ni coated	35.72811S
15	4,5	3,5	4	Counter bore south pole, Ni coated	35.728
15	4,5	8	4	Counter bore north pole, Ni coated	35.72810N
15	4,5	8	4	Counter bore south pole, Ni coated	35.72810S
18	3,5	4	3	Counter bore north pole, Ni coated	35.73101
18	3,5	4	3	Counter bore south pole, Ni coated	35.73102
18	4,5	4	5	Counter bore south pole, Ni coated	35.731
24	5,5	4	5	Counter bore south pole, Ni coated	35.730



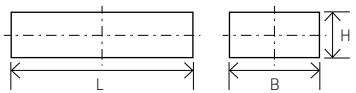
Disc magnet, Neodymium-Iron-Boron (NdFeB)

Magnetization through dimension H (axially), operating temperature up to 80 °C

Dimensions in mm		Item No.
D	H	
1,5	3	35.151
2	1	35.149
2	3	35.162
2	4	35.00105
2	8	35.002
2	10	35.188
2,5	1	35.003
3	1	35.18701
3	2	35.004
3	3	35.152
3	4	35.010
3	5	35.01001
4	1	35.011
4	2	35.006
4	2,5	35.009
4	3	35.012
4	4	35.018
4	5	35.013
4	8	35.017
5	1	35.015
5	1,5	35.020
5	2	35.023

Dimensions in mm		Item No.
D	H	
5	3	35.021
5	4	35.167
5	10	35.200
6	2	35.027
6	3	35.026
6	4	35.028
6	5	35.029
6	6	35.030
6	7,5	35.033
6	8	35.034
6	12	35.03303
7	1,5	35.035
7	3	35.037
8	1,5	35.038
8	3	35.041
8	4	35.042
8	5	35.047
8	6	35.048
8	8	35.049
8	10	35.043
10	1	35.050
10	1,5	35.051

Dimensions in mm		Item No.
D	H	
10	2	35.052
10	3	35.058
10	4	35.064
10	5	35.069
10	10	35.061
12	2	35.068
12	4	35.071
12	5	35.072
14	4	35.083
15	5	35.086
15	8	35.087
18	4	35.088
19,5	10	35.092
20	5	35.093
20	6	35.097
20	8	35.098
20	10	35.096
25	2,7	35.099
25	5	35.101
25	10	35.103

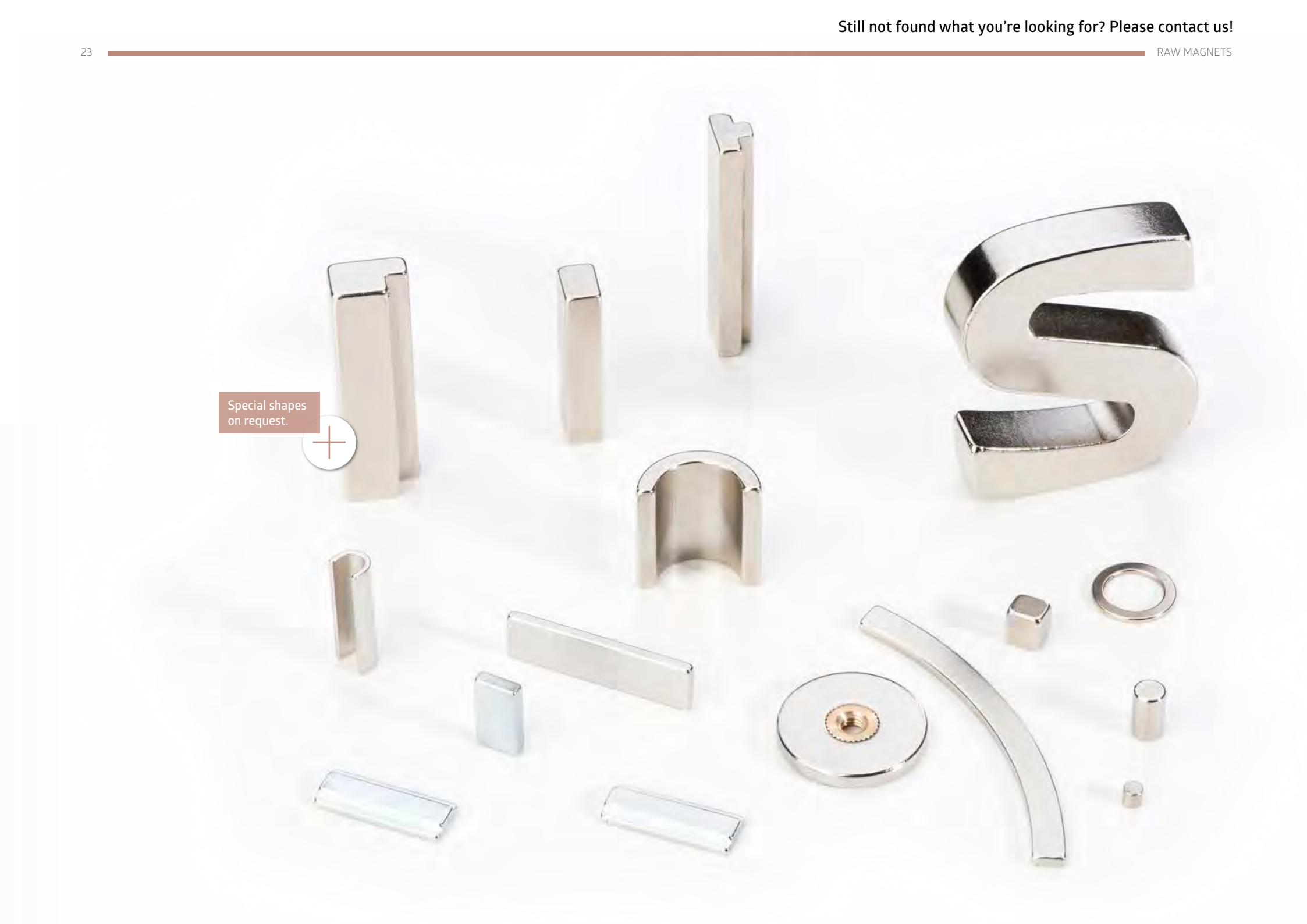


Block magnet, Neodymium-Iron-Boron (NdFeB)

Magnetization through dimension H (axially), operating temperature up to 80 °C

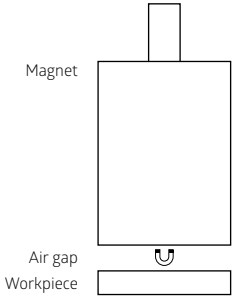
Dimensions in mm			Item No.
L	B	H	
4	4	2	35.336
5	5	1,5	35.347
5	5	3	35.351
5	5	5	35.352
6	2	15	35.358
6	4	1,2	35.368
8	5	3	35.387
10	5	1,5	35.400
10	6	1,5	35.401
10	7	2	35.412
10	10	2	35.41603
10	10	3	35.416
10	10	6	35.418
13	7	2,5	35.437
13	7	5	35.440
16	10	6	35.445

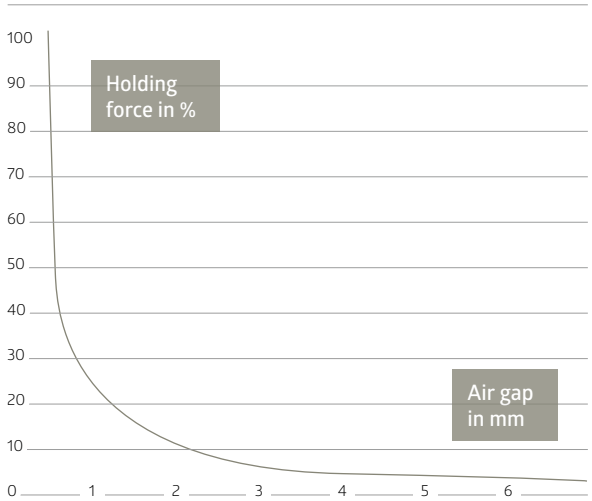
Dimensions in mm			Item No.
L	B	H	
16	13	3	35.461
20	4	2	35.50101
20	10	2	35.479
20	15	5	35.484
20	20	4	35.488
24	12	5	35.493
25	8	2	35.495
25	25	10	35.496
30	7	4,5	35.514
30	8,5	2	35.517
30	10	6	35.520
36	15	10	35.543
40	25	10	35.559
50	20	5	35.621
60	20	15	35.572
75	50	10	35.583


Special shapes
on request.

MAGNETIC SYSTEMS

Magnetic systems – permanent magnets with housing





Decrease of holding force with increasing air gap.

FLAT OR CYLINDRICAL DESIGN

Magnetic systems with steel housing only have one holding surface due to their design and there are no significant magnetic forces on the other surfaces of the body. Thus, there is a limited spatial effect of the magnetic field. Hereby, an undesired magnetization of the entire workpiece connected to the system or surrounding machine elements is prevented. Cylindrical systems with a magnetic core made of SmCo or NdFeB with brass housing are excepted.

Possible applications can be the installation in equipment and devices. They are useful to transport, tighten, mount, lift, weld, separate and hold ferrous workpieces.

The best magnetic holding force values can be achieved by pulling the magnet vertically from the surface of grounded workpieces and a clean holding surface on both sides (air gap 0,0 mm).

Small cracks in the magnet or radial misalignment to the steel housing do not affect the function, holding force and durability.

All cylindrical and flat magnets can also be used at the maximum temperatures stated in each case for long periods (without a structural change of the magnetic material). A loss of the holding force from 15 percent to 40 percent may occur when heated up to these maximum temperatures. However, this process is reversible and there is no continuous reduction of the holding force.

The holding forces stated in the table are minimum values at room temperature, achieved by fully placing the magnetic system on a workpiece with a sufficient thickness (soft iron order low-carbon steel) and pulling the magnetic system vertically.

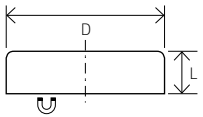
An air gap is formed by unclean pole faces or rough workpieces, which significantly reduces the holding forces. It is recommended to ensure a clean pole face at any time and to clean it very now and then, if necessary.

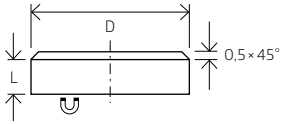
Different workpieces affect the holding force corresponding to their permeability. An increasing surface roughness results in significant losses of the holding force due to a reduction of the support ratio. The holding force of the magnetic systems is reduced with an increasing air gap. Intermediate layers with no magnetic force have the same effect like an air gap.

The magnetic systems described are non-aging, e.g. they retain their holding force for an unlimited period. This force can only be weakened by improperly high operating temperatures or strong magnetic fields.

Magnetic systems flat

HOLDING FORCE IN SMALL HEIGHT





Magnetic system flat, magnetic core hard ferrite

Anisotropic, metal housing, galvanized, operating temperature up to 200 °C

Dimensions in mm D	L	Weight g	Holding force * N	Item No.
10 $^{+0,1}/_{-0,1}$	4,5 $^{+0,2}/_{-0,1}$	2	4	38.000
13 $^{+0,1}/_{-0,1}$	4,5 $^{+0,2}/_{-0,1}$	3	10	38.001
16 $^{+0,1}/_{-0,1}$	4,5 $^{+0,2}/_{-0,1}$	5	18	38.002
20 $^{+0,1}/_{-0,1}$	6 $^{+0,2}/_{-0,1}$	10	30	38.003
25 $^{+0,1}/_{-0,1}$	7 $^{+0,3}/_{-0,2}$	18	40	38.004
32 $^{+0,1}/_{-0,1}$	7 $^{+0,3}/_{-0,2}$	29	80	38.005
36 $^{+0,2}/_{-0,1}$	7,7 $^{+0,3}/_{-0,2}$	39	100	38.006
40 $^{+0,2}/_{-0,1}$	8 $^{+0,4}/_{-0,2}$	55	125	38.007
47 $^{+0,2}/_{-0,1}$	9 $^{+0,5}/_{-0,2}$	84	180	38.008
50 $^{+0,2}/_{-0,1}$	10 $^{+0,5}/_{-0,2}$	102	220	38.009
57 $^{+0,2}/_{-0,1}$	10,5 $^{+0,5}/_{-0,2}$	141	280	38.010
63 $^{+0,3}/_{-0,1}$	14 $^{+0,5}/_{-0,2}$	226	350	38.011
80 $^{+0,3}/_{-0,1}$	18 $^{+0,5}/_{-0,2}$	468	600	38.012
100 $^{+0,5}/_{-0,1}$	22 $^{+0,5}/_{-0,2}$	915	900	38.013
125 $^{+0,5}/_{-0,1}$	26 $^{+0,5}/_{-0,2}$	1680	1300	38.014

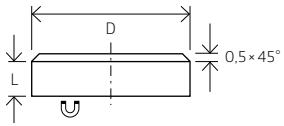
* Explanatory notes to the holding force see page 25.

Magnetic system flat, magnetic core SmCo

Anisotropic, metal housing, galvanized, operating temperature up to 200 °C

Dimensions in mm D	L	Weight g	Holding force * N	Item No.
6 $^{+0,1}/_{-0,1}$	4,5 $^{+0,1}/_{-0,1}$	1	5	38.100
8 $^{+0,1}/_{-0,1}$	4,5 $^{+0,1}/_{-0,1}$	2	11	38.101
10 $^{+0,1}/_{-0,1}$	4,5 $^{+0,1}/_{-0,1}$	3	20	38.102
13 $^{+0,1}/_{-0,1}$	4,5 $^{+0,1}/_{-0,1}$	4	40	38.103
16 $^{+0,1}/_{-0,1}$	4,5 $^{+0,1}/_{-0,1}$	7	60	38.104
20 $^{+0,1}/_{-0,1}$	6 $^{+0,1}/_{-0,1}$	14	90	38.105
25 $^{+0,1}/_{-0,1}$	7 $^{+0,2}/_{-0,2}$	26	150	38.106
32 $^{+0,1}/_{-0,1}$	7 $^{+0,2}/_{-0,2}$	42	220	38.107

* Explanatory notes to the holding force see page 25.



Magnetic system flat, magnetic core NdFeB

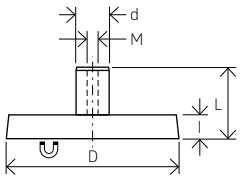
Metal housing, galvanized, operating temperature up to 80 °C

Dimensions in mm D	L	Weight g	Holding force * N	Item No.
6 $^{+0,1}/_{-0,1}$	4,5 $^{+0,1}/_{-0,1}$	1	5	38.200
8 $^{+0,1}/_{-0,1}$	4,5 $^{+0,1}/_{-0,1}$	2	13	38.201
10 $^{+0,1}/_{-0,1}$	4,5 $^{+0,1}/_{-0,1}$	2,5	25	38.202
13 $^{+0,1}/_{-0,1}$	4,5 $^{+0,1}/_{-0,1}$	4	60	38.203
16 $^{+0,1}/_{-0,1}$	4,5 $^{+0,1}/_{-0,1}$	6	95	38.204
20 $^{+0,1}/_{-0,1}$	6 $^{+0,1}/_{-0,1}$	14	140	38.205
25 $^{+0,1}/_{-0,1}$	7 $^{+0,2}/_{-0,2}$	25	200	38.206
32 $^{+0,1}/_{-0,1}$	7 $^{+0,2}/_{-0,2}$	41	350	38.207

* Explanatory notes to the holding force see page 25.

Magnetic systems flat with threaded socket

REMOVABLE CONNECTIONS



The version with stainless steel housing is suitable for rooms with special hygiene provisions; resistant to chemicals, higher heat resistance.

Magnetic system flat, with threaded socket, magnetic core hard ferrite

Anisotropic, metal housing, galvanized, operating temperature up to 200 °C

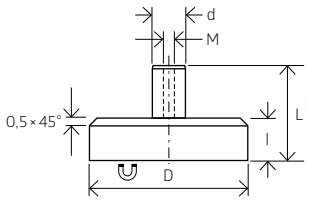
Dimensions in mm D	d	L	I	Thread M	Weight g	Holding force * N	Item No.
10 $^{+0,1}/_{-0,1}$	6 $^{+0,1}/_{-0,1}$	11,5 $^{+0,3}/_{-0,2}$	4,5 $^{+0,2}/_{-0,1}$	3	3	4	38.025
13 $^{+0,1}/_{-0,1}$	6 $^{+0,1}/_{-0,1}$	11,5 $^{+0,3}/_{-0,2}$	4,5 $^{+0,2}/_{-0,1}$	3	4	10	38.026
16 $^{+0,1}/_{-0,1}$	6 $^{+0,1}/_{-0,1}$	11,5 $^{+0,3}/_{-0,2}$	4,5 $^{+0,2}/_{-0,1}$	3	6	18	38.027
20 $^{+0,1}/_{-0,1}$	6 $^{+0,1}/_{-0,1}$	13 $^{+0,3}/_{-0,2}$	6 $^{+0,2}/_{-0,1}$	3	11	30	38.028
25 $^{+0,1}/_{-0,1}$	8 $^{+0,2}/_{-0,2}$	15 $^{+0,5}/_{-0,3}$	7 $^{+0,3}/_{-0,2}$	4	20	40	38.029
32 $^{+0,1}/_{-0,1}$	8 $^{+0,2}/_{-0,2}$	15 $^{+0,5}/_{-0,3}$	7 $^{+0,3}/_{-0,2}$	4	31	80	38.030
36 $^{+0,2}/_{-0,1}$	8 $^{+0,2}/_{-0,2}$	16 $^{+0,5}/_{-0,3}$	7,7 $^{+0,3}/_{-0,2}$	4	42	100	38.031
40 $^{+0,2}/_{-0,1}$	10 $^{+0,2}/_{-0,2}$	18 $^{+0,5}/_{-0,3}$	8 $^{+0,3}/_{-0,2}$	5	59	125	38.032
47 $^{+0,2}/_{-0,1}$	8 $^{+0,2}/_{-0,2}$	17 $^{+0,6}/_{-0,3}$	9 $^{+0,4}/_{-0,2}$	4	86	180	38.033
50 $^{+0,2}/_{-0,1}$	12 $^{+0,2}/_{-0,2}$	22 $^{+0,6}/_{-0,3}$	10 $^{+0,4}/_{-0,2}$	6	111	220	38.034
57 $^{+0,2}/_{-0,1}$	8 $^{+0,2}/_{-0,2}$	18,5 $^{+0,7}/_{-0,3}$	10,5 $^{+0,5}/_{-0,2}$	4	147	280	38.035
57 $^{+0,2}/_{-0,1}$	12 $^{+0,2}/_{-0,2}$	22,5 $^{+0,7}/_{-0,3}$	10,5 $^{+0,5}/_{-0,2}$	6	153	280	38.03506
63 $^{+0,3}/_{-0,1}$	15 $^{+0,2}/_{-0,2}$	30 $^{+0,7}/_{-0,3}$	14 $^{+0,5}/_{-0,2}$	8	245	350	38.036
80 $^{+0,3}/_{-0,1}$	20 $^{+0,2}/_{-0,2}$	34 $^{+0,7}/_{-0,3}$	18 $^{+0,5}/_{-0,2}$	10	499	600	38.037
100 $^{+0,5}/_{-0,1}$	22 $^{+0,2}/_{-0,2}$	43 $^{+0,7}/_{-0,3}$	22 $^{+0,5}/_{-0,2}$	12	956	900	38.038
125 $^{+0,5}/_{-0,1}$	25 $^{+0,2}/_{-0,2}$	50 $^{+0,7}/_{-0,3}$	26 $^{+0,5}/_{-0,2}$	14	1720	1300	38.039

* Explanatory notes to the holding force see page 25.

Anisotropic, stainless steel housing, operating temperature up to 220 °C

Dimensions in mm D	d	L	I	Thread M	Weight g	Holding force * N	Item No.
25 $^{+0,1}/_{-0,1}$	8 $^{+0,2}/_{-0,2}$	16 $^{+0,5}/_{-0,3}$	7 $^{+0,3}/_{-0,2}$	5	20	32	38.029VA
32 $^{+0,1}/_{-0,1}$	8 $^{+0,2}/_{-0,2}$	16 $^{+0,5}/_{-0,3}$	7 $^{+0,3}/_{-0,2}$	5	31	64	38.030VA
40 $^{+0,2}/_{-0,1}$	8 $^{+0,2}/_{-0,2}$	16,5 $^{+0,5}/_{-0,3}$	8 $^{+0,3}/_{-0,2}$	5	56	100	38.032VA
50 $^{+0,2}/_{-0,1}$	8 $^{+0,2}/_{-0,2}$	18,5 $^{+0,6}/_{-0,3}$	10 $^{+0,4}/_{-0,2}$	5	105	175	38.034VA
63 $^{+0,3}/_{-0,1}$	8 $^{+0,2}/_{-0,2}$	22 $^{+0,7}/_{-0,3}$	14 $^{+0,5}/_{-0,2}$	5	228	280	38.036VA

* Explanatory notes to the holding force see page 25.

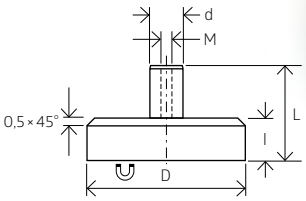


Magnetic system flat, with threaded socket, magnetic core SmCo

Anisotropic, metal housing, galvanized, operating temperature up to 200 °C

Dimensions in mm D	d	L	l	Thread M	Weight g	Holding force * N	Item No.
6 $^{+0,1}/_{-0,1}$	6 $^{+0,1}/_{-0,1}$	11,5 $^{+0,2}/_{-0,2}$	4,5 $^{+0,1}/_{-0,1}$	3	2	5	38.125
8 $^{+0,1}/_{-0,1}$	6 $^{+0,1}/_{-0,1}$	11,5 $^{+0,2}/_{-0,2}$	4,5 $^{+0,1}/_{-0,1}$	3	3	11	38.126
10 $^{+0,1}/_{-0,1}$	6 $^{+0,1}/_{-0,1}$	11,5 $^{+0,2}/_{-0,2}$	4,5 $^{+0,1}/_{-0,1}$	3	4	20	38.127
13 $^{+0,1}/_{-0,1}$	6 $^{+0,1}/_{-0,1}$	11,5 $^{+0,2}/_{-0,2}$	4,5 $^{+0,1}/_{-0,1}$	3	6	40	38.128
16 $^{+0,1}/_{-0,1}$	6 $^{+0,1}/_{-0,1}$	11,5 $^{+0,2}/_{-0,2}$	4,5 $^{+0,1}/_{-0,1}$	4	7	60	38.129
20 $^{+0,1}/_{-0,1}$	8 $^{+0,2}/_{-0,2}$	13 $^{+0,2}/_{-0,2}$	6 $^{+0,1}/_{-0,1}$	4	16	90	38.130
25 $^{+0,1}/_{-0,1}$	8 $^{+0,2}/_{-0,2}$	14 $^{+0,2}/_{-0,2}$	7 $^{+0,2}/_{-0,2}$	4	28	150	38.131
32 $^{+0,1}/_{-0,1}$	10 $^{+0,2}/_{-0,2}$	15,5 $^{+0,2}/_{-0,2}$	7 $^{+0,2}/_{-0,2}$	5	47	220	38.132

* Explanatory notes to the holding force see page 25.



Magnetic system flat, with threaded socket, magnetic core NdFeB

Metal housing, galvanized, operating temperature up to 80 °C

Dimensions in mm D	d	L	l	Thread M	Weight g	Holding force * N	Item No.
6 $^{+0,1}/_{-0,1}$	6 $^{+0,1}/_{-0,1}$	11,5 $^{+0,2}/_{-0,2}$	4,5 $^{+0,1}/_{-0,1}$	3	2	5	38.225
8 $^{+0,1}/_{-0,1}$	6 $^{+0,1}/_{-0,1}$	11,5 $^{+0,2}/_{-0,2}$	4,5 $^{+0,1}/_{-0,1}$	3	3	13	38.226
10 $^{+0,1}/_{-0,1}$	6 $^{+0,1}/_{-0,1}$	11,5 $^{+0,2}/_{-0,2}$	4,5 $^{+0,1}/_{-0,1}$	3	4	25	38.227
13 $^{+0,1}/_{-0,1}$	6 $^{+0,1}/_{-0,1}$	11,5 $^{+0,2}/_{-0,2}$	4,5 $^{+0,1}/_{-0,1}$	3	5	60	38.228
16 $^{+0,1}/_{-0,1}$	6 $^{+0,1}/_{-0,1}$	11,5 $^{+0,2}/_{-0,2}$	4,5 $^{+0,1}/_{-0,1}$	4	7	95	38.229
20 $^{+0,1}/_{-0,1}$	8 $^{+0,2}/_{-0,2}$	13 $^{+0,2}/_{-0,2}$	6 $^{+0,1}/_{-0,1}$	4	16	140	38.230
25 $^{+0,1}/_{-0,1}$	8 $^{+0,2}/_{-0,2}$	14 $^{+0,2}/_{-0,2}$	7 $^{+0,2}/_{-0,2}$	4	27	200	38.231
32 $^{+0,1}/_{-0,1}$	10 $^{+0,2}/_{-0,2}$	15,5 $^{+0,2}/_{-0,2}$	7 $^{+0,2}/_{-0,2}$	5	45	350	38.232

* Explanatory notes to the holding force see page 25.

Magnetic systems flat with through borehole and 90° counter bore

EASY TO SCREW ON

The version with stainless steel housing is suitable for rooms with special hygiene provisions; resistant to chemicals, higher heat resistance.

Magnetic system flat, with through borehole and 90° counter bore, magnetic core hard ferrite

Anisotropic, metal housing, galvanized, operating temperature up to 200 °C

Dimensions in mm D	d_1	d_2	L	Weight g	Holding force* N	Item No.
16 $^{+0,1}/_{-0,1}$	3,5 $^{+0,2}/_{-0,2}$	6,5 $^{+1,5}/_{-0}$	4,5 $^{+0,2}/_{-0,1}$	4	14	38.050
20 $^{+0,1}/_{-0,1}$	4,1 $^{+0,4}/_{-0,4}$	9,4 $^{+1}/_{-0}$	6 $^{+0,2}/_{-0,1}$	9	27	38.051
25 $^{+0,1}/_{-0,1}$	5,5 $^{+0,2}/_{-0,2}$	11,5 $^{+1}/_{-0}$	7 $^{+0,3}/_{-0,2}$	17	36	38.052
32 $^{+0,1}/_{-0,1}$	5,5 $^{+0,25}/_{-0,25}$	11,5 $^{+1}/_{-0}$	7 $^{+0,3}/_{-0,2}$	27	72	38.053
40 $^{+0,2}/_{-0,1}$	5,5 $^{+0,2}/_{-0,2}$	12,5 $^{+1}/_{-0}$	8 $^{+0,4}/_{-0,2}$	52	90	38.055

*Explanatory notes to the holding force see page 25.

Anisotropic, stainless steel housing, operating temperature up to 220 °C

Dimensions in mm D	d_1	d_2	L	Weight g	Holding force* N	Item No.
20 $^{+0,1}/_{-0,1}$	4,1 $^{+0,4}/_{-0,4}$	9,4 $^{+1}/_{-0}$	6 $^{+0,2}/_{-0,1}$	9	22	38.051VA
25 $^{+0,1}/_{-0,1}$	5,5 $^{+0,2}/_{-0,2}$	11,5 $^{+1}/_{-0}$	7 $^{+0,3}/_{-0,2}$	17	29	38.052VA
32 $^{+0,1}/_{-0,1}$	5,5 $^{+0,25}/_{-0,25}$	11,5 $^{+1}/_{-0}$	7 $^{+0,3}/_{-0,2}$	27	58	38.053VA
40 $^{+0,2}/_{-0,1}$	5,5 $^{+0,2}/_{-0,2}$	12,5 $^{+1}/_{-0}$	8 $^{+0,4}/_{-0,2}$	52	72	38.055VA

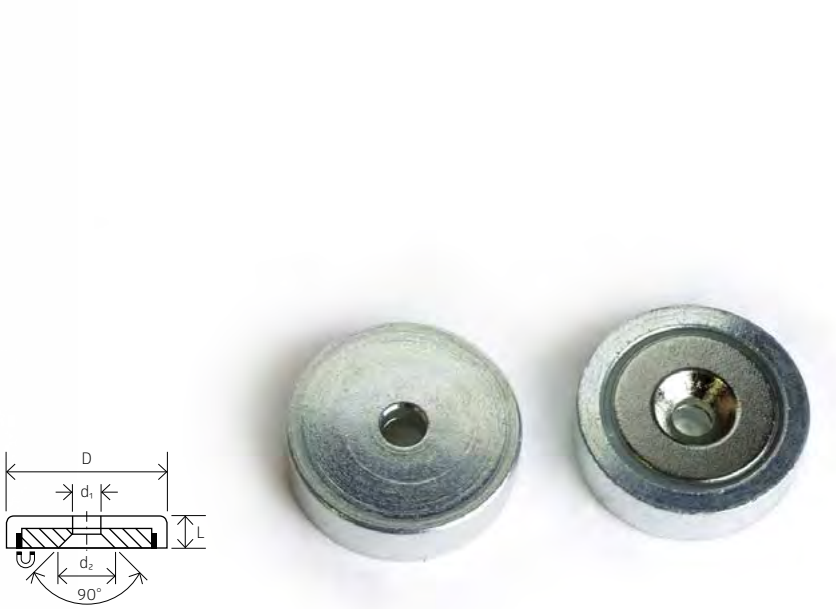
*Explanatory notes to the holding force see page 25.

Magnetic system flat, with through borehole and 90° counter bore, magnetic core SmCo

Anisotropic, metal housing. galvanized, operating temperature up to 280 °C

Dimensions in mm D	d_1	d_2	L	Weight g	Holding force* N	Item No.
16 $^{+0,1}/_{-0,1}$	3,5 $^{+0,1}/_{-0,1}$	6,6 $^{+1}/_{-0}$	4,5 $^{+0,1}/_{-0,1}$	6	57	38.14401
20 $^{+0,1}/_{-0,1}$	4,5 $^{+0,1}/_{-0,1}$	9,3 $^{+1}/_{-0}$	6 $^{+0,1}/_{-0,1}$	13	81	38.14001
25 $^{+0,1}/_{-0,1}$	4,5 $^{+0,1}/_{-0,1}$	9,2 $^{+1}/_{-0}$	7 $^{+0,1}/_{-0,1}$	25	105	38.14101
32 $^{+0,1}/_{-0,1}$	5,5 $^{+0,1}/_{-0,1}$	11,5 $^{+1}/_{-0}$	7 $^{+0,1}/_{-0,1}$	40	235	38.14201
40 $^{+0,1}/_{-0,1}$	5,5 $^{+0,1}/_{-0,1}$	11,5 $^{+1}/_{-0}$	8 $^{+0,1}/_{-0,1}$	75	540	38.14301

* Explanatory notes to the holding force see page 25.



Magnetic system flat, with through borehole and 90° counter bore, magnetic core NdFeB

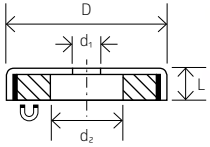
Metal housing, galvanized, operating temperature up to 80 °C

Dimensions in mm D	d_1	d_2	L	Weight g	Holding force* N	Item No.
10 $^{+0,1}/_{-0,1}$	2,6 $^{+0,1}/_{-0,1}$	5,2 $^{+1}/_{-0}$	4,5 $^{+0,1}/_{-0,1}$	2	19	38.148
13 $^{+0,1}/_{-0,1}$	3,5 $^{+0,1}/_{-0,1}$	6,6 $^{+1}/_{-0}$	4,5 $^{+0,1}/_{-0,1}$	4	40	38.149
16 $^{+0,1}/_{-0,1}$	3,5 $^{+0,1}/_{-0,1}$	6,6 $^{+1}/_{-0}$	4,5 $^{+0,1}/_{-0,1}$	6	75	38.150
20 $^{+0,1}/_{-0,1}$	4,5 $^{+0,1}/_{-0,1}$	9,3 $^{+1}/_{-0}$	6 $^{+0,1}/_{-0,1}$	13	105	38.151
25 $^{+0,1}/_{-0,1}$	4,5 $^{+0,1}/_{-0,1}$	9 $^{+1}/_{-0}$	7 $^{+0,2}/_{-0,2}$	24	160	38.152
32 $^{+0,1}/_{-0,1}$	5,5 $^{+0,1}/_{-0,1}$	11 $^{+1}/_{-0}$	7 $^{+0,2}/_{-0,2}$	39	310	38.153
40 $^{+0,1}/_{-0,1}$	5,5 $^{+0,1}/_{-0,1}$	10,3 $^{+1}/_{-0}$	8 $^{+0,2}/_{-0,2}$	73	500	38.191
47 $^{+0,2}/_{-0,1}$	8,5 $^{+0,1}/_{-0,1}$	17,3 $^{+1}/_{-0}$	9,2 $^{+0,2}/_{-0,3}$	97	740	38.155**

* Explanatory notes to the holding force see page 25. ** Housing stamped out of steel strip, back edge with radius 4 mm.

Magnetic systems flat with cylindrical through borehole

HOUSING FOR SPECIAL REQUIREMENTS



The version with stainless steel housing is suitable for rooms with special hygiene provisions; resistant to chemicals, higher heat resistance.

Magnetic system flat, with cylindrical through borehole, magnetic core hard ferrite

Anisotropic, metal housing, galvanized, operating temperature up to 200 °C

Dimensions in mm D	d_1	d_2	L	Weight g	Holding force* N	Item No.
50 $^{+0,2}/_{-0,1}$	8,5 $^{+0,2}/_{-0,2}$	22	10 $^{+0,5}/_{-0,2}$	85	180	38.060
57 $^{+0,2}/_{-0,1}$	6,5 $^{+0,2}/_{-0,2}$	24	11 $^{+0,5}/_{-0,2}$	130	230	38.061
63 $^{+0,3}/_{-0,1}$	6,5 $^{+0,2}/_{-0,2}$	24	14 $^{+0,5}/_{-0,2}$	197	290	38.062
80 $^{+0,3}/_{-0,1}$	6,5 $^{+0,2}/_{-0,2}$	11,5	18 $^{+0,5}/_{-0,2}$	458	540	38.063
83 $^{+0,3}/_{-0,1}$	10,5 $^{+0,2}/_{-0,2}$	32	18 $^{+0,5}/_{-0,2}$	444	600	38.064
100 $^{+0,5}/_{-0,1}$	10,5 $^{+0,2}/_{-0,2}$	34	22 $^{+0,5}/_{-0,2}$	815	680	38.065

* Explanatory notes to the holding force see page 25.

Anisotropic, stainless steel housing, operating temperature up to 220 °C

Dimensions in mm D	d_1	d_2	L	Weight g	Holding force* N	Item No.
50 $^{+0,2}/_{-0,1}$	8,5 $^{+0,2}/_{-0,2}$	22	10 $^{+0,5}/_{-0,2}$	85	145	38.060VA
63 $^{+0,3}/_{-0,1}$	6,5 $^{+0,2}/_{-0,2}$	24	14 $^{+0,5}/_{-0,2}$	195	230	38.062VA

* Explanatory notes to the holding force see page 25.

Magnetic system flat, with cylindrical through borehole, magnetic core SmCo

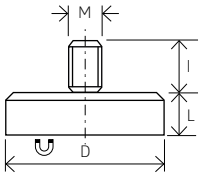
Anisotropic, stainless steel housing, operating temperature up to 350 °C

Dimensions in mm				Weight	Holding force *	Item No.
D	d_1	d_2	L	g	N	
20 $^{+0,1}/_{-0,1}$	4,5 $^{+0,1}/_{-0,1}$	8 $^{+0,1}/_{-0,1}$	6 $^{+0,1}/_{-0,1}$	13	60	38.140VA
25 $^{+0,1}/_{-0,1}$	4,5 $^{+0,1}/_{-0,1}$	8 $^{+0,1}/_{-0,1}$	7 $^{+0,2}/_{-0,2}$	24	80	38.141VA
32 $^{+0,1}/_{-0,1}$	5,5 $^{+0,1}/_{-0,1}$	11 $^{+0,1}/_{-0,1}$	7 $^{+0,2}/_{-0,2}$	39	200	38.142VA
40 $^{+0,1}/_{-0,1}$	5,5 $^{+0,1}/_{-0,1}$	10,5 $^{+0,1}/_{-0,1}$	8 $^{+0,2}/_{-0,2}$	75	420	38.143VA

* Explanatory notes to the holding force see page 25.

Magnetic systems flat with outer thread

MADE SCREW EASILY



Also available with magnetic core SmCo. Just contact us.

Magnetic system flat, with outer thread, magnetic core hard ferrite

Anisotropic, metal housing, galvanized, operating temperature up to 200 °C

Dimensions in mm D	L	I	Thread M	Weight g	Holding force* N	Item No.
10 $^{+0,1}/_{-0,1}$	4,5 $^{+0,2}/_{-0,1}$	7 $^{+0,5}/_{-0,5}$	3	2	4	38.075
13 $^{+0,1}/_{-0,1}$	4,5 $^{+0,2}/_{-0,1}$	7 $^{+0,5}/_{-0,5}$	3	3	10	38.076
16 $^{+0,1}/_{-0,1}$	4,5 $^{+0,2}/_{-0,1}$	7 $^{+0,5}/_{-0,5}$	3	5	18	38.077
20 $^{+0,1}/_{-0,1}$	6 $^{+0,2}/_{-0,1}$	7 $^{+0,5}/_{-0,5}$	3	10	30	38.078
25 $^{+0,1}/_{-0,1}$	7 $^{+0,3}/_{-0,2}$	8 $^{+0,5}/_{-0,5}$	4	19	40	38.079
32 $^{+0,1}/_{-0,1}$	7 $^{+0,3}/_{-0,2}$	8 $^{+0,5}/_{-0,5}$	4	30	80	38.080
47 $^{+0,2}/_{-0,1}$	9 $^{+0,5}/_{-0,2}$	8 $^{+0,5}/_{-0,5}$	6	85	180	38.083
57 $^{+0,2}/_{-0,1}$	10,5 $^{+0,5}/_{-0,2}$	8 $^{+0,5}/_{-0,5}$	6	146	280	38.085
63 $^{+0,3}/_{-0,1}$	14 $^{+0,5}/_{-0,2}$	15 $^{+0,5}/_{-0,5}$	6	233	350	38.086

*Explanatory notes to the holding force see page 25.

Magnetic system flat, with outer thread, magnetic core NdFeB

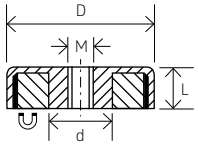
Metal housing, galvanized, operating temperature up to 80 °C

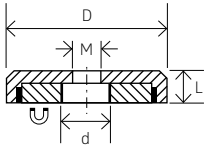
Dimensions in mm D	L	I	Thread M	Weight g	Holding force* N	Item No.
6 $^{+0,1}/_{-0,1}$	4,5 $^{+0,1}/_{-0,1}$	7	3	1,3	5	38.273
8 $^{+0,1}/_{-0,1}$	4,5 $^{+0,1}/_{-0,1}$	8	4	2,3	13	38.274
10 $^{+0,1}/_{-0,1}$	4,5 $^{+0,1}/_{-0,1}$	8	4	3	25	38.275
13 $^{+0,1}/_{-0,1}$	4,5 $^{+0,1}/_{-0,1}$	8	5	5	60	38.276
16 $^{+0,1}/_{-0,1}$	4,5 $^{+0,1}/_{-0,1}$	8	6	8	95	38.277
20 $^{+0,1}/_{-0,1}$	6 $^{+0,1}/_{-0,1}$	10	6	15	140	38.278
25 $^{+0,1}/_{-0,1}$	7 $^{+0,2}/_{-0,2}$	10	6	27	200	38.279
32 $^{+0,1}/_{-0,1}$	7 $^{+0,2}/_{-0,2}$	10	6	42	350	38.280
40 $^{+0,1}/_{-0,1}$	8 $^{+0,2}/_{-0,2}$	12	8	80	670	38.281

*Explanatory notes to the holding force see page 25.

Magnetic systems with inner thread

FOR STRONG CONNECTIONS





Magnetic system flat, with inner thread, magnetic core hard ferrite

Anisotropic, metal housing, galvanized, operating temperature up to 200 °C

Dimensions in mm D	d	L	Thread M	Weight g	Holding force* N	Item No.
25 $^{+0,1}/_{-0,1}$	5,2	7 $^{+0,3}/_{-0,2}$	4	18	36	38.181
32 $^{+0,1}/_{-0,1}$	5,2	7 $^{+0,3}/_{-0,2}$	4	29	75	38.182
40 $^{+0,2}/_{-0,1}$	5,2	8 $^{+0,4}/_{-0,2}$	4	53	90	38.183
50 $^{+0,2}/_{-0,1}$	12	10 $^{+0,5}/_{-0,2}$	6	94	170	38.176
50 $^{+0,2}/_{-0,1}$	12	10 $^{+0,5}/_{-0,2}$	8	94	170	38.184
63 $^{+0,3}/_{-0,1}$	13	14 $^{+0,5}/_{-0,2}$	8	206	290	38.178
80 $^{+0,3}/_{-0,1}$	14,5	18 $^{+0,5}/_{-0,2}$	8	472	550	38.179
80 $^{+0,3}/_{-0,1}$	14,5	18 $^{+0,5}/_{-0,2}$	10	466	550	38.180

* Explanatory notes to the holding force see page 25.

Magnetic system flat, with inner thread, magnetic core NdFeB

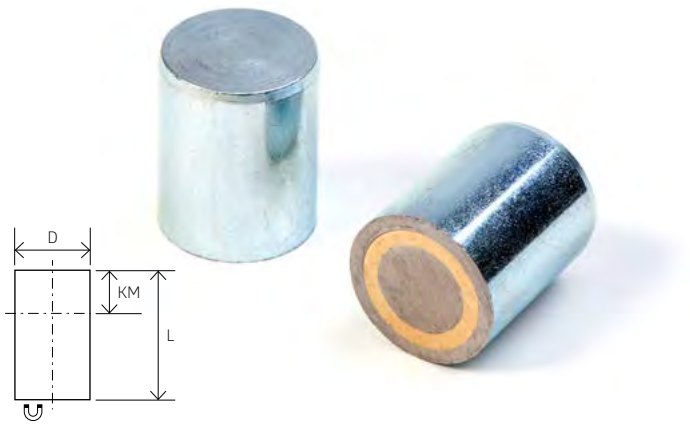
Metal housing, galvanized, operating temperature up to 80 °C

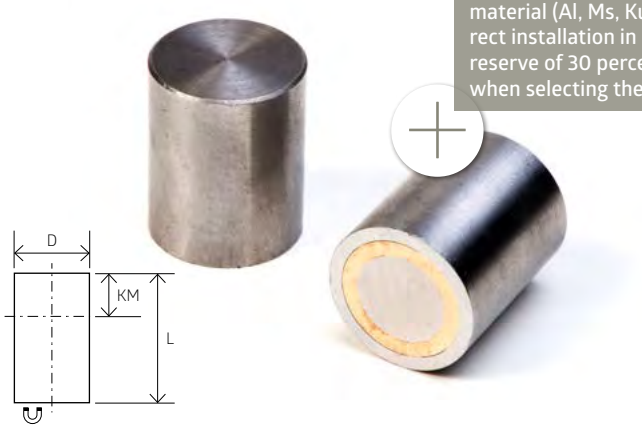
Dimensions in mm D	d	L	Thread M	Weight g	Holding force* N	Item No.
25 $^{+0,1}/_{-0,1}$	4,5	7 $^{+0,2}/_{-0,2}$	4	24	160	38.188
32 $^{+0,1}/_{-0,1}$	5,5	7 $^{+0,2}/_{-0,2}$	5	40	330	38.189
40 $^{+0,1}/_{-0,1}$	10,5	8 $^{+0,2}/_{-0,2}$	5	74	500	38.190
50 $^{+0,1}/_{-0,1}$	10,5	10 $^{+0,2}/_{-0,2}$	8	140	800	38.194
63 $^{+0,1}/_{-0,1}$	11,7	14 $^{+0,2}/_{-0,2}$	10	315	1100	38.192**
74,6 $^{+0,1}/_{-0,1}$	13	15 $^{+0,2}/_{-0,2}$	10	479	1750	38.193**

* Explanatory notes to the holding force see page 25. ** Holding surface protected by plastic coating.

Magnetic systems cylindrical

WITH AND WITHOUT FITTING TOLERANCE





In order to fully take advantage of the holding force specified, allow a protrusion of approx. 1.5 mm above the installation surface when installing the magnetic system or enlarge the mounting borehole around the holding surface of the magnetic system by 3-4 mm. A socket made of a non-magnetizable material (Al, Ms, Ku) is also favorable. If only a direct installation in steel is possible, a holding force reserve of 30 percent should be taken into account when selecting the size of the magnetic system.

Magnetic system cylindrical, magnetic core AlNiCo 500

Metal housing, galvanized, operating temperature up to 450 °C

Dimensions in mm D	L	KM**	Weight g	Holding force* N	Item No.
6 $^{+0,1}/_{-0,1}$	20 $^{+0,2}/_{-0,2}$	12	4,5	2	38.300
8 $^{+0,1}/_{-0,1}$	20 $^{+0,2}/_{-0,2}$	11	7,5	4	38.301
10 $^{+0,1}/_{-0,1}$	20 $^{+0,2}/_{-0,2}$	10	12	8,5	38.302
13 $^{+0,1}/_{-0,1}$	20 $^{+0,2}/_{-0,2}$	8	19	12	38.303
16 $^{+0,1}/_{-0,1}$	20 $^{+0,2}/_{-0,2}$	6	30	20	38.304
20 $^{+0,1}/_{-0,1}$	25 $^{+0,2}/_{-0,2}$	5	58	40	38.305
25 $^{+0,1}/_{-0,1}$	35 $^{+0,2}/_{-0,2}$	13	125	60	38.306
32 $^{+0,1}/_{-0,1}$	40 $^{+0,2}/_{-0,2}$	9	220	160	38.307
40 $^{+0,1}/_{-0,1}$	50 $^{+0,2}/_{-0,2}$	10	440	240	38.308
50 $^{+0,1}/_{-0,1}$	60 $^{+0,2}/_{-0,2}$	10	813	400	38.309
63 $^{+0,1}/_{-0,1}$	65 $^{+0,2}/_{-0,2}$	10	1306	660	38.310

* Explanatory notes to the holding force see page 25.
** You may shorten the system by the dimension KM without reducing the holding force.

Magnetic system cylindrical, with fitting tolerance h6, magnetic core AlNiCo 500

Metal housing, galvanized, operating temperature up to 450 °C

Dimensions in mm D	L	KM**	Weight g	Holding force* N	Item No.
6 $_{h6}$	10 $^{+0,2}/_{-0,2}$	2	2	2	38.325
8 $_{h6}$	12 $^{+0,2}/_{-0,2}$	3	4,5	4	38.326
10 $_{h6}$	16 $^{+0,2}/_{-0,2}$	6	9,5	8,5	38.327
13 $_{h6}$	18 $^{+0,2}/_{-0,2}$	6	18	12	38.328
16 $_{h6}$	20 $^{+0,2}/_{-0,2}$	6	30	20	38.329
20 $_{h6}$	25 $^{+0,2}/_{-0,2}$	5	57	40	38.330
25 $_{h6}$	30 $^{+0,2}/_{-0,2}$	7	106	60	38.331
32 $_{h6}$	35 $^{+0,2}/_{-0,2}$	4	187	160	38.332
40 $_{h6}$	45 $^{+0,2}/_{-0,2}$	5	390	240	38.333
50 $_{h6}$	50 $^{+0,2}/_{-0,2}$	0	639	400	38.334
63 $_{h6}$	60 $^{+0,2}/_{-0,2}$	5	1175	660	38.335

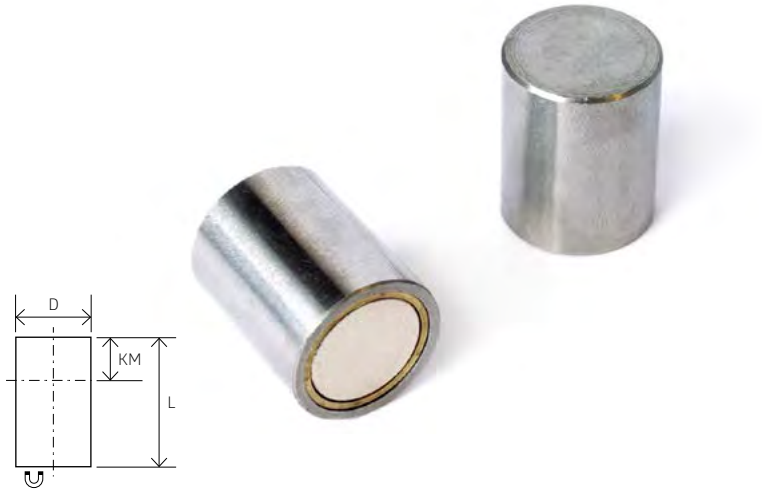
* Explanatory notes to the holding force see page 25.
** You may shorten the system by the dimension KM without reducing the holding force.

Magnetic system cylindrical, magnetic core NdFeB

Metal housing, galvanized, operating temperature up to 80 °C

Dimensions in mm D	L	KM**	Weight g	Holding force* N	Item No.
4 $^{+0,1}/_{-0,1}$	20 $^{+0,2}/_{-0,2}$	15	2	2,5	38.311
5 $^{+0,1}/_{-0,1}$	20 $^{+0,2}/_{-0,2}$	15	3	4,5	38.312
6 $^{+0,1}/_{-0,1}$	20 $^{+0,2}/_{-0,2}$	15	4,5	6	38.313
8 $^{+0,1}/_{-0,1}$	20 $^{+0,2}/_{-0,2}$	15	8	12	38.314
10 $^{+0,1}/_{-0,1}$	20 $^{+0,2}/_{-0,2}$	15	12	24	38.315
13 $^{+0,1}/_{-0,1}$	20 $^{+0,2}/_{-0,2}$	15	21	60	38.316
16 $^{+0,1}/_{-0,1}$	20 $^{+0,2}/_{-0,2}$	15	31	90	38.317
20 $^{+0,1}/_{-0,1}$	25 $^{+0,2}/_{-0,2}$	18	61	135	38.318
25 $^{+0,1}/_{-0,1}$	35 $^{+0,2}/_{-0,2}$	27	133	190	38.319
32 $^{+0,1}/_{-0,1}$	40 $^{+0,2}/_{-0,2}$	32	249	340	38.320

* Explanatory notes to the holding force see page 25.
** You may shorten the system by the dimension KM without reducing the holding force.

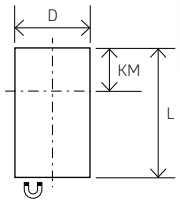


Magnetic system cylindrical, with fitting tolerance h6, magnetic core NdFeB

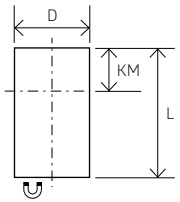
Metal housing, operating temperature up to 80 °C

Dimensions in mm D	L	KM**	Weight g	Holding force* N	Item No.
4 $_{h6}$	10 $^{+0,2}/_{-0,2}$	7	1	2,5	38.336
5 $_{h6}$	10 $^{+0,2}/_{-0,2}$	6	1,5	4,5	38.337
6 $_{h6}$	10 $^{+0,2}/_{-0,2}$	5	2	6	38.338
8 $_{h6}$	12 $^{+0,2}/_{-0,2}$	7	5	12	38.339
10 $_{h6}$	16 $^{+0,2}/_{-0,2}$	11	10	24	38.340
13 $_{h6}$	18 $^{+0,2}/_{-0,2}$	13	18	60	38.341
16 $_{h6}$	20 $^{+0,2}/_{-0,2}$	15	31	90	38.342
20 $_{h6}$	25 $^{+0,2}/_{-0,2}$	18	61	135	38.343
25 $_{h6}$	30 $^{+0,2}/_{-0,2}$	22	114	190	38.344
32 $_{h6}$	35 $^{+0,2}/_{-0,2}$	27	217	340	38.345

* Explanatory notes to the holding force see page 25.
** You may shorten the system by the dimension KM without reducing the holding force.



The holding force will be reduced up to 15 percent due to magnetic short circuits when the magnetic system is directly installed in iron. In order to prevent this, certain distances must be observed from the brass housing of the magnetic system to the iron. The distances to the iron shall also be observed when the magnetic system was shortened by the dimension KM. Please see the recommended distances from the table (distance mm).



Magnetic system cylindrical, with fitting tolerance h6, magnetic core SmCo

Metal housing, operating temperature up to 200 °C

Dimensions in mm D	L	KM **	Weight g	Holding force * N	Item No.
4 h6	20 $^{+0,2}/_{-0,2}$	15	1	2	38.475
5 h6	20 $^{+0,2}/_{-0,2}$	15	3	4	38.476
6 h6	20 $^{+0,2}/_{-0,2}$	15	4,5	6	38.477
8 h6	20 $^{+0,2}/_{-0,2}$	15	8	10	38.478
10 h6	16 $^{+0,2}/_{-0,2}$	11	10	25	38.479

* Explanatory notes to the holding force see page 25.
** You may shorten the system by the dimension KM without reducing the holding force.

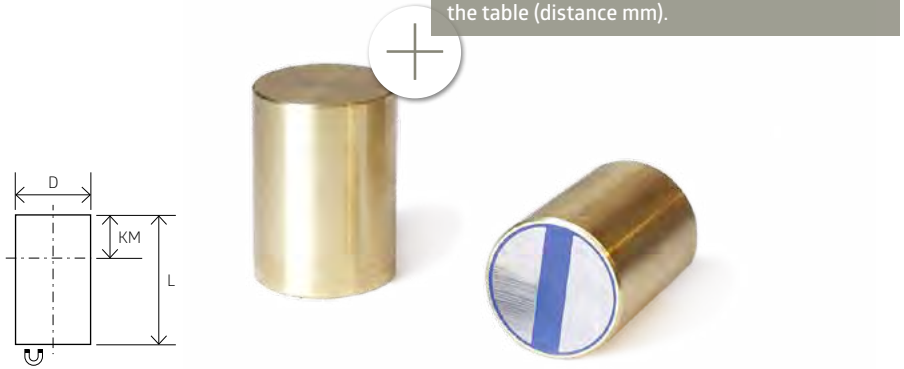
Magnetic system cylindrical, with fitting tolerance h6, magnetic core SmCo

Brass housing, operating temperature up to 200 °C

Dimensions in mm D	L	KM **	Distance mm	Weight g	Holding force * N	Item No.
6 h6	20 $^{+0,2}/_{-0,2}$	10	1,5	4,5	8	38.400
8 h6	20 $^{+0,2}/_{-0,2}$	10	1,5	8	22	38.401
10 h6	20 $^{+0,2}/_{-0,2}$	8	2	12	40	38.402
13 h6	20 $^{+0,2}/_{-0,2}$	6	2,5	20	60	38.403
16 h6	20 $^{+0,2}/_{-0,2}$	2	3	30	125	38.404
20 h6	25 $^{+0,2}/_{-0,2}$	5	4	60	250	38.405
25 h6	35 $^{+0,3}/_{-0,3}$	7	5	134	400	38.406
32 h6	40 $^{+0,3}/_{-0,3}$	4,5	6	251	600	38.407

* Explanatory notes to the holding force see page 25.
** You may shorten the system by the dimension KM without reducing the holding force.

The holding force will be reduced up to 15 percent due to magnetic short circuits when the magnetic system is directly installed in iron. In order to prevent this, certain distances must be observed from the brass housing of the magnetic system to the iron. The distances to the iron shall also be observed when the magnetic system was shortened by the dimension KM. Please see the recommended distances from the table (distance mm).



Magnetic system cylindrical, with fitting tolerance h6, magnetic core NdFeB

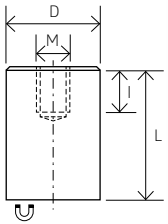
Brass housing, holding surface marked in blue, operating temperature up to 80 °C

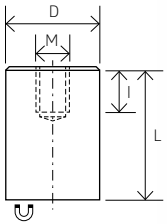
Dimensions in mm D	L	KM**	Distance mm	Weight g	Holding force* N	Item No.
6 h6	20 $^{+0,2}/_{-0,2}$	10	1,5	4,5	10	38.500
8 h6	20 $^{+0,2}/_{-0,2}$	10	1,5	8	25	38.501
10 h6	20 $^{+0,2}/_{-0,2}$	8	2	12	45	38.502
13 h6	20 $^{+0,2}/_{-0,2}$	6	2,5	20	70	38.503
16 h6	20 $^{+0,2}/_{-0,2}$	2	3	30	150	38.504
20 h6	25 $^{+0,2}/_{-0,2}$	5	4	59	280	38.505
25 h6	35 $^{+0,3}/_{-0,3}$	7	5	132	450	38.506
32 h6	40 $^{+0,3}/_{-0,3}$	4,5	6	246	700	38.507

* Explanatory notes to the holding force see page 25.
** You may shorten the system by the dimension KM without reducing the holding force.

Magnetic systems cylindrical with inner thread

SIMPLE ASSEMBLY





Magnetic system cylindrical, with inner thread, magnetic core AlNiCo 500

Metal housing, galvanized, operating temperature up to 450 °C

Dimensions in mm D	L	Thread M × l	Weight g	Holding force * N	Item No.
6 $^{+0,1}/_{-0,1}$	20 $^{+0,2}/_{-0,2}$	3 × 5	4	2	38.450
8 $^{+0,1}/_{-0,1}$	20 $^{+0,2}/_{-0,2}$	3 × 5	7,5	4	38.451
10 $^{+0,1}/_{-0,1}$	20 $^{+0,2}/_{-0,2}$	4 × 7	11	8,5	38.452
13 $^{+0,1}/_{-0,1}$	20 $^{+0,2}/_{-0,2}$	4 × 7	19	12	38.453
16 $^{+0,1}/_{-0,1}$	20 $^{+0,2}/_{-0,2}$	4 × 5	30	20	38.454
20 $^{+0,1}/_{-0,1}$	25 $^{+0,2}/_{-0,2}$	6 × 7	55	40	38.455
25 $^{+0,1}/_{-0,1}$	35 $^{+0,2}/_{-0,2}$	6 × 9	121	60	38.456
32 $^{+0,1}/_{-0,1}$	40 $^{+0,2}/_{-0,2}$	8 × 9	220	160	38.457

* Explanatory notes to the holding force see page 25.

Magnetic system cylindrical, with inner thread, magnetic core NdFeB

Metal housing, galvanized, operating temperature up to 80 °C

Dimensions in mm D	L	Thread M × l	Weight g	Holding force * N	Item No.
6 $^{+0,1}/_{-0,1}$	20 $^{+0,2}/_{-0,2}$	3 × 5	4	6	38.458
8 $^{+0,1}/_{-0,1}$	20 $^{+0,2}/_{-0,2}$	3 × 5	7,5	12	38.459
10 $^{+0,1}/_{-0,1}$	20 $^{+0,2}/_{-0,2}$	4 × 7	11	24	38.460
13 $^{+0,1}/_{-0,1}$	20 $^{+0,2}/_{-0,2}$	4 × 7	20	60	38.461
16 $^{+0,1}/_{-0,1}$	20 $^{+0,2}/_{-0,2}$	4 × 7	30	90	38.462
20 $^{+0,1}/_{-0,1}$	25 $^{+0,2}/_{-0,2}$	6 × 9	58	135	38.463
25 $^{+0,1}/_{-0,1}$	35 $^{+0,2}/_{-0,2}$	6 × 9	131	190	38.464
32 $^{+0,1}/_{-0,1}$	40 $^{+0,2}/_{-0,2}$	8 × 12	243	340	38.465
40 $^{+0,1}/_{-0,1}$	50 $^{+0,2}/_{-0,2}$	8 × 12	480	700	38.466
50 $^{+0,1}/_{-0,1}$	60 $^{+0,2}/_{-0,2}$	10 × 12	900	1000	38.467
63 $^{+0,1}/_{-0,1}$	65 $^{+0,2}/_{-0,2}$	12 × 14	1560	1700	38.468

* Explanatory notes to the holding force see page 25.

Magnetic system cylindrical, with fitting tolerance h6, with inner thread, magnetic core NdFeB

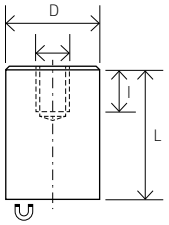
Brass housing, holding surface marked in blue, operating temperature up to 80 °C

Dimensions in mm D	L	Thread M × l	Weight g	Holding force* N	Item No.
6 h6	20 $^{+0,2}/_{-0,2}$	3 × 5	4	10	38.510
8 h6	20 $^{+0,2}/_{-0,2}$	3 × 5	7,5	25	38.511
10 h6	20 $^{+0,2}/_{-0,2}$	4 × 7	11	45	38.512
13 h6	20 $^{+0,2}/_{-0,2}$	4 × 7	19,5	70	38.513
16 h6	25 $^{+0,2}/_{-0,2}$	4 × 8	38	150	38.514
20 h6	25 $^{+0,2}/_{-0,2}$	6 × 6	58	280	38.515
25 h6	35 $^{+0,3}/_{-0,3}$	6 × 8	130	450	38.516
32 h6	40 $^{+0,3}/_{-0,3}$	6 × 6	243	700	38.517

* Explanatory notes to the holding force see page 25.

Pot magnets

RED METAL HOUSING



Pot magnet with through borehole and 90° counter bore, magnetic core AlNiCo 500

Metal housing, lacquered in red, operating temperature up to 180 °C

Dimensions in mm D	d_1	d_2	L	Weight g	Holding force* N	Item No.
19,1 $^{+0,5}/_{-0,5}$	3,7	8,7	7,5 $^{+0,3}/_{-0,3}$	17	30	38.650
28,6 $^{+1}/_{-1}$	4,8	10,5	8,5 $^{+0,5}/_{-0,5}$	43	40	38.651
38,1 $^{+1}/_{-1}$	4,8	10,5	10,4 $^{+0,3}/_{-0,3}$	82	80	38.652

* Explanatory notes to the holding force see page 25.

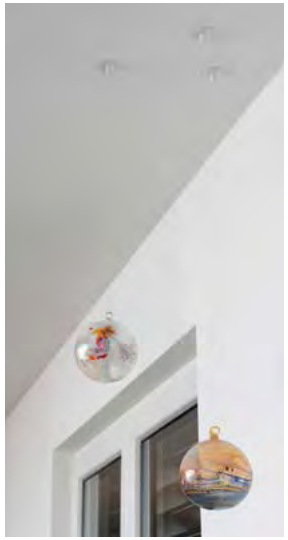
Pot magnet with inner thread, magnetic core AlNiCo 500

Metal housing, lacquered in red, operating temperature up to 180 °C

Dimensions in mm D	L	Thread M × l	Weight g	Holding force* N	Item No.
12,5 $^{+0,2}/_{-0,2}$	16 $^{+0,2}/_{-0,2}$	4 × 6	15	20	38.606
17 $^{+0,2}/_{-0,2}$	16 $^{+0,2}/_{-0,2}$	6 × 5	29	26	38.600
21 $^{+0,2}/_{-0,2}$	19 $^{+0,2}/_{-0,2}$	6 × 7	50	40	38.601
27 $^{+0,2}/_{-0,2}$	25 $^{+0,2}/_{-0,2}$	6 × 8	98	65	38.602
35 $^{+0,2}/_{-0,2}$	30 $^{+0,2}/_{-0,2}$	6 × 9	205	150	38.603
65 $^{+1}/_{-1}$	43 $^{+1}/_{-1}$	12 × 10	950	400	38.605

* Explanatory notes to the holding force see page 25.

Magnetic systems
in special shapes!
Just contact us.



Further metal discs and holding surfaces see page 112.

Decoration magnets

ATTACHING – WITHOUT PERMANENT MARKS

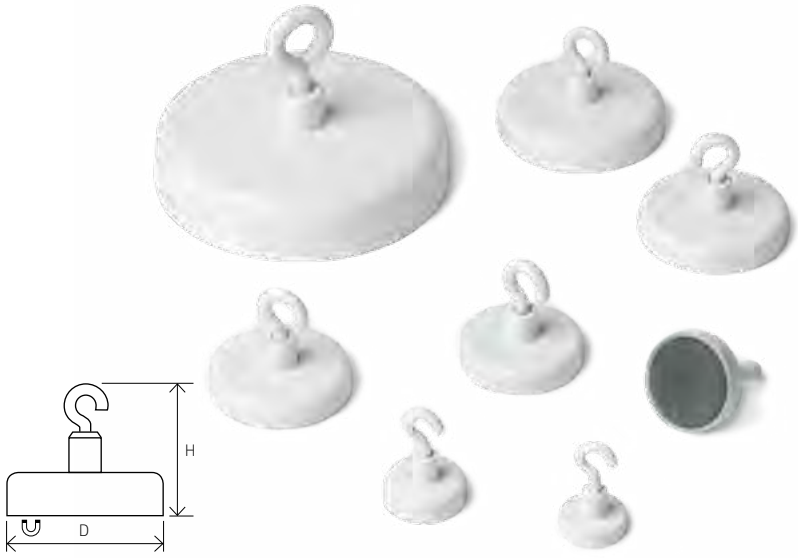
You can use this powerful magnets to decorate and attach objects to all metal surfaces. Many application possibilities: e.g. window displays, suspension of high ceilings with fabrics, mounting cables, attaching signs above machines or shelves. If there is no suitable surface available, this can be provided by the self-adhesive metal discs, and already your decoration ideas will have no limits.

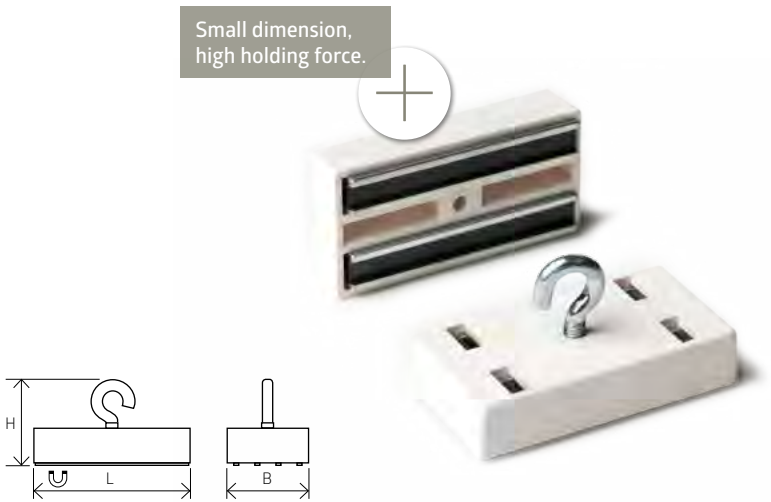
Ceiling magnet incl. metal disc with self-adhesive back

Holding force adhesive on disc 30 N, diameter metal disc 40 mm

Dimensions in mm D	L	Specification	Holding force* N	Packaging unit	Item No.
12	12	Magnet	55	5 pieces	30.060
12/40	12/2	Magnet and disc	55/30	5 pieces	30.061

*Explanatory notes to the holding force see page 25.





Decoration magnet with metal housing and hook

Metal housing lacquered in white, magnetic core hard ferrite

Dimensions in mm		Hook	Holding force*	Item No.
D	H	M	N	
16	25	3	18	39.100
20	26	3	30	39.101
25	31	4	40	39.102
32	31	4	80	39.103
36	31	4	100	39.104
40	31	4	125	39.105
47	31	4	180	39.106
50	33	4	220	39.107
57	33	4	320	39.108
63	36	4	350	39.109
80	54	6 (loop, white)	600	39.110
80	54	6 (hook, Zn coated)	600	39.111

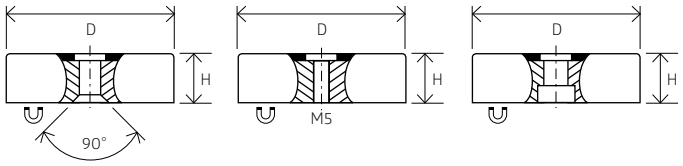
* Explanatory notes to the holding force see page 25.

Decoration magnet with plastic housing and hook

White plastic housing, magnetic core hard ferrite or neodymium

Dimensions in mm			Hook	Magnetic core	Holding force*	Item No.
L	B	H	M		N	
53	27,5	28	4	Hard ferrite	180	39.114
53	27,5	28	4	Neodymium	400	39.116
53	31	35	4	Hard ferrite	270	39.113

* Explanatory notes to the holding force see page 25.



Decoration magnet with plastic housing

White plastic housing, magnetic core hard ferrite

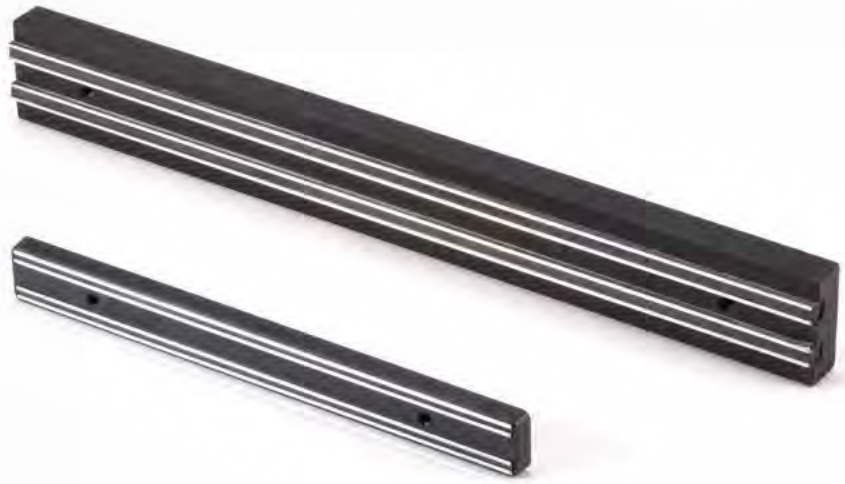
Dimensions in mm D	H	Specification	Holding force* N	Item No.
43	12,5	Through borehole 5,5 mm, 90° counter bore	120	39.001
43	31	with loop	120	39.002
43	37	with hook	120	39.003
43	12,5	with through thread M 5	120	39.004
43	12,5	Through borehole 6,2 mm, cylindrical counter bore	120	39.005

* Explanatory notes to the holding force see page 25.

Magnetic tool holder

STRONG HOLD FOR TOOLS

Magnets with pole shoes provide this tool holder with an extra strong holding power. Take advantage of these powerful magnets to keep your order. Tools are clearly stored away and at hand at any time.



Magnetic tool holder

Plastic or wooden housing

Dimensions in mm		Housing	Item No.
L	H		
300	33	Plastic	45.001
500	60	Wooden	45.004

GraviFlex® magnetic systems with rubber coating

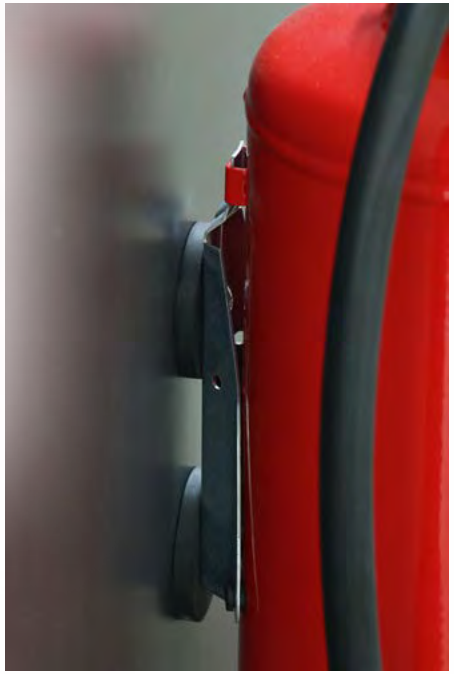
GENTLE TO SURFACES

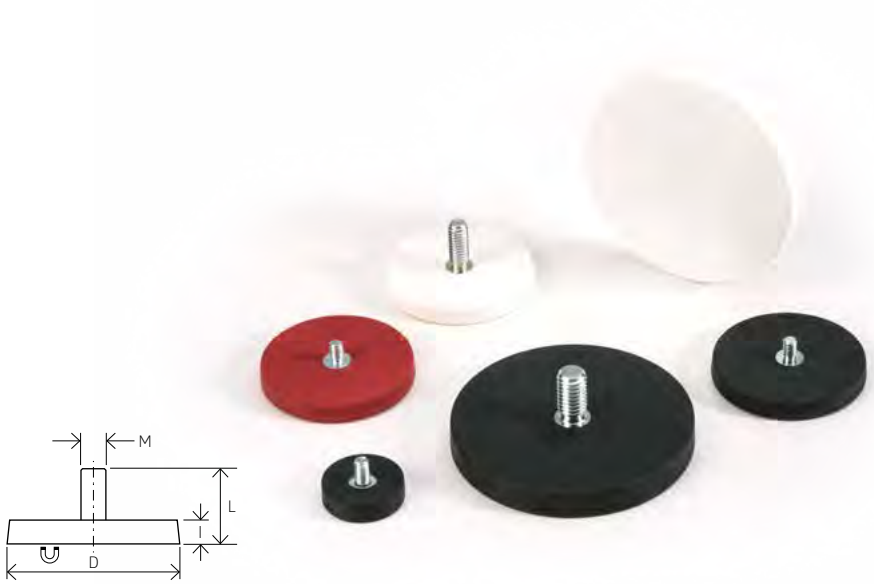
The production line GraviFlex® magnetic systems with rubber coating is extra strong and also offers a secure grip on vertical surfaces. The rubber coating on the round magnetic discs prevents scratching of delicate surfaces and simultaneously increases the lateral friction forces preventing a slip off.

Magnetic systems for high standards.

In red, black and white. Other colors on request.

Other rubber compounds for higher operating temperatures or higher demands on request.





GraviFlex® magnetic system, with outer thread, magnetic core NdFeB

Magnetic system with rubber coating, operating temperature up to 60 °C

Dimensions in mm D	L	l	Color	Thread M	Weight g	Holding force* N	Item No.
12	15,5	7,5	Black	4 × 8	4,5	13	39.149
12	15,5	7,5	White	4 × 8	4,5	13	39.149WS
22	12,5	6	Black	4 × 6,5	11	58	39.145
43	12	6	Black	4 × 6	30	100	39.14201
43	12	6	Red	4 × 6	30	100	39.142RT
43	12	6	White	4 × 6	30	100	39.14201WS
43	21	6	Black	6 × 15	32	100	39.142**
43	21	6	White	6 × 15	32	100	39.142WS**
66	23,5	8,5	Black	8 × 15	107	250	39.143**
66	23,5	8,5	White	8 × 15	107	250	39.143WS**
88	23,5	8,5	Black	8 × 15	193	550	39.144**
88	23,5	8,5	White	8 × 15	193	550	39.144WS**

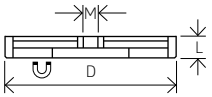
*Explanatory notes to the holding force see page 25. **For operating temperature up to 80 °C.

GraviFlex® magnetic system, with threaded socket, magnetic core NdFeB

Magnetic system with rubber coating, operating temperature up to 60 °C

Dimensions in mm D	d	L	l	Color	Thread M	Weight g	Holding force* N	Item No.
12	8	14,8	7	Black	4	6	13	39.128
12	8	14,8	7	White	4	6	13	39.128WS
22	8	11,5	6	Black	4	13	58	39.127
22	8	11,5	6	White	4	13	58	39.127WS
31	8	11,5	6	Black	4	22	89	39.129
31	8	11,5	6	White	4	22	89	39.129WS
43	8	10,5	6	Black	4	30	100	39.132
43	8	10,5	6	Red	4	30	100	39.132RT
43	8	10,5	6	White	4	30	100	39.132WS
43	8	10,5	6	Black	5	31	100	39.13201
66	10	15	8,5	Black	5	105	250	39.133**
66	10	15	8,5	White	5	105	250	39.133WS**
88	12	17	8,5	Black	8	192	550	39.134**
88	12	17	8,5	White	8	192	550	39.134WS**

*Explanatory notes to the holding force see page 25. **For operating temperature up to 80 °C.



GraviFlex® magnetic system, with inner thread, magnetic core NdFeB

Magnetic system with rubber coating, operating temperature up to 60 °C

Dimensions in mm D	L	Color	Thread M	Weight g	Holding force* N	Item No.
22	6	Black	4	9	38	39.135
22	6	White	4	9	38	39.135WS
31	6	Black	5	21	89	39.136
31	6	White	5	21	89	39.136WS
43	6	Black	4	29	100	39.137
43	6	Red	4	29	100	39.137RT
43	6	White	4	29	100	39.137WS
66	8,5	Black	6	100	250	39.138**
66	8,5	White	6	100	250	39.138WS**
88	8,5	Black	6	186	550	39.139**
88	8,5	White	6	186	550	39.139WS**

*Explanatory notes to the holding force see page 25. **For operating temperature up to 80 °C.

GraviFlex® magnetic system, with borehole, magnetic core NdFeB

Magnetic system with rubber coating, operating temperature up to 60 °C

Dimensions in mm D	d1	d2	L	l	Color	Weight g	Holding force* N	Item No.
22	4	8,2	6	3,5	Black	8	38	39.185
22	4	8,2	6	3,5	White	8	38	39.185WS
31	6	9	8,5	3,5	Black	20	89	39.186
31	6	9	8,5	3,5	White	20	89	39.186WS
66	5,5	22	8,5	3,2	Black	100	250	39.188**
66	5,5	22	8,5	3,2	White	100	250	39.188WS**

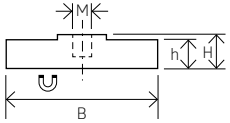
*Explanatory notes to the holding force see page 25. **For operating temperature up to 80 °C.

GraviFlex® magnetic system, with borehole and 90° counter bore, magnetic core NdFeB

Magnetic system with rubber coating, operating temperature up to 60 °C

Dimensions in mm D	d1	d2	L	Color	Weight g	Holding force* N	Item No.
43	7,5	12,8	6	Black	27	100	39.172
43	7,5	12,8	6	White	27	100	39.172WS
88	6,6	22	8,5	Black	182	550	39.179**
88	6,6	22	8,5	White	182	550	39.179WS**

*Explanatory notes to the holding force see page 25. **For operating temperature up to 80 °C.



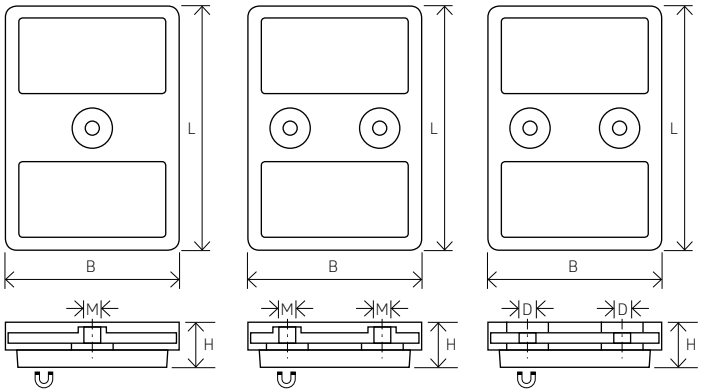
With one or two inner threads.

GraviFlex® magnetic system, with inner thread, rectangular, magnetic core NdFeB

Magnetic system with rubber coating, operating temperature up to 60 °C

Dimensions in mm L	B	H	h	Color	Thread M	Weight g	Holding force* N	Item No.
43	31	6,9	6	Black	4	27	105	39.160
43	31	6,9	6	White	4	27	105	39.160WS
43	31	6,9	6	Black	2 × M 4	28	146	39.161
43	31	6,9	6	White	2 × M 4	28	146	39.161WS

* Explanatory notes to the holding force see page 25.



Strong holding force on round surfaces because of the big pole distance. The rubber coating protects delicate surfaces.

GraviFlex® magnetic system, with inner thread or borehole, rectangular, black

Magnetic system with rubber coating, magnetic core hard ferrite, operating temperature up to 120 °C

Dimensions in mm L	B	H	Specification	Weight g	Holding force * N	Holding force ** N	Item No.
70	50	13	Inner thread M 5	125	45	16	39.162F1
70	50	13	2 × inner thread M 5	125	45	11	39.162F2
70	50	13	2 × borehole D 5,5	125	45	14	39.162F3

* Explanatory notes to the holding force see page 25. ** Holding force with air gap 6 mm.

Magnetic system with rubber coating, magnetic core NdFeB, operating temperature up to 80 °C

Dimensions in mm L	B	H	Specification	Weight g	Holding force * N	Holding force ** N	Item No.
70	50	13	Inner thread M 5	149	290	70	39.162N1
70	50	13	2 × inner thread M 5	149	290	68	39.162N2
70	50	13	2 × borehole D 5,5	149	290	72	39.162N3

* Explanatory notes to the holding force see page 25. ** Holding force with air gap 6 mm.

Operating temperature up to 300 °C and special length up to 1.000 mm.

Special design with one-sided inner thread or outer thread is possible.

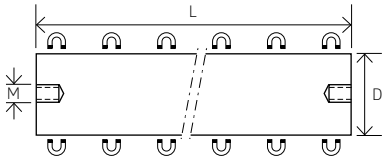
Magnetic filter bars

ATTRACT FERROUS EXTRANEOUS MATTERS

Magnetic filter bars can filter out ferrous foreign objects from solids and liquids. They are installed for this purpose in the material flow. For example, they filter out iron and steel abrasions or grinding residues of oil or coolant systems. Residues are simply wiped off by hand for cleaning.

The magnetic material is enclosed in a corrosion-resistant stainless steel housing. Due to a waterproof design, no liquids can penetrate the interior of the system.

The operating temperature of filter bars with ferrite magnets is up to 150 °C, with neodymium magnets it is up to 80 °C. But the magnetic force of the model with neodymium magnets is up to five times stronger compared to the model with ferrite magnets.



Magnetic filter bars

Magnetic core hard ferrite, operating temperature up to 150 °C

Dimensions in mm		Thread	Item No.
L	D	M	
100	22	6 × 10	48.000
150	22	6 × 10	48.001
200	22	6 × 10	48.002
250	22	6 × 10	48.003
300	22	6 × 10	48.004
350	22	6 × 10	48.005
400	22	6 × 10	48.006
450	22	6 × 10	48.007
500	22	6 × 10	48.008
550	22	6 × 10	48.009
600	22	6 × 10	48.010
100	32	8 × 10	48.050
150	32	8 × 10	48.051
200	32	8 × 10	48.052
250	32	8 × 10	48.053
300	32	8 × 10	48.054
350	32	8 × 10	48.055
400	32	8 × 10	48.056
450	32	8 × 10	48.057
500	32	8 × 10	48.058
550	32	8 × 10	48.059
600	32	8 × 10	48.060

Magnetic core NdFeB, operating temperature up to 80 °C

Dimensions in mm		Thread	Item No.
L	D	M	
100	22	6 × 10	48.100
150	22	6 × 10	48.101
200	22	6 × 10	48.102
250	22	6 × 10	48.103
300	22	6 × 10	48.104
350	22	6 × 10	48.105
400	22	6 × 10	48.106
450	22	6 × 10	48.107
500	22	6 × 10	48.108
550	22	6 × 10	48.109
600	22	6 × 10	48.110
100	32	8 × 10	48.1500
150	32	8 × 10	48.1501
200	32	8 × 10	48.152
250	32	8 × 10	48.153
300	32	8 × 10	48.154
350	32	8 × 10	48.155
400	32	8 × 10	48.156
450	32	8 × 10	48.157
500	32	8 × 10	48.158
550	32	8 × 10	48.159
600	32	8 × 10	48.160

Grate magnets

NEODYMIUM MODELS

The grate magnets separate iron particles from granulates and other bulk material. They are installed in pipe systems, funnels, chutes etc. in different shapes. Grate magnets are used in plastics and wood industries, for recovery of metals from household electronics, cars, computers etc., in all areas where minerals are milled, in the glass and ceramics industry as well as in the food industry. The grate magnets attract the ferrous material without disturbing the production flow. It ensures a final product without magnetic iron steel. All parts in contact with the medium are made of stainless steel and are corrosion-resistant (Material 1.4301).

Our standard grate magnets are equipped with neodymium magnets which generates a very strong magnetic field. The grate magnets don't need energy or maintenance and they are easy to clean.

An unlimited lifetime is guaranteed under normal operating conditions. By effective arrangement of the filter bars and additional mounting of deflectors a low flow resistance and a minimal possibility of "bridging" is ensured.

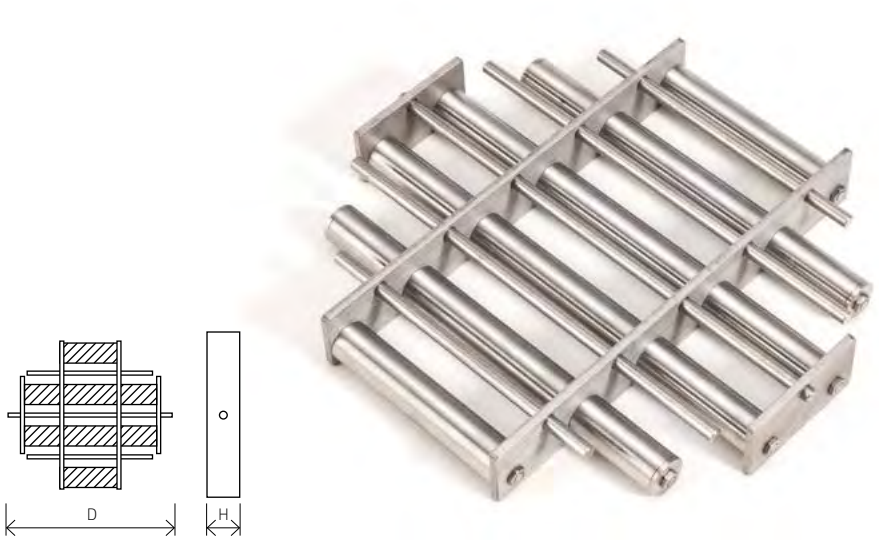
The operating temperature is up to 80 °C. For operating temperatures of 150 °C you can use a ferrite magnet model.

The grate magnets can be produced individually according to your application. The indicated articles are an overview of our standard program. On request we also deliver special models like e.g. our "Easy Clean system".

Grate magnet, rectangular

Magnetic core NdFeB, operating temperature up to 80 °C

Dimensions in mm L	B	H	Total flow cm²	Weight kg	Item No.
150	150	40	88	2	48.120
200	200	40	156	3	48.121
250	250	40	255	5	48.122
300	300	40	348	6	48.124
400	400	40	617	9	48.125
500	500	40	965	15	48.126



Grate magnet, cross shaped, for installation in pipes

Magnetic core NdFeB, operating temperature up to 80 °C

Dimensions in mm D	H	Total flow cm²	Weight kg	Item No.
100	40	39	0,5	48.649
150	40	92	1,5	48.650
200	40	126	3	48.651
250	40	210	4	48.652
300	40	236	5	48.653
350	40	409	7	48.654
400	40	512	8	48.655

Plate magnets

FOR SEPARATING AND COLLECTING OF FERROUS PARTS

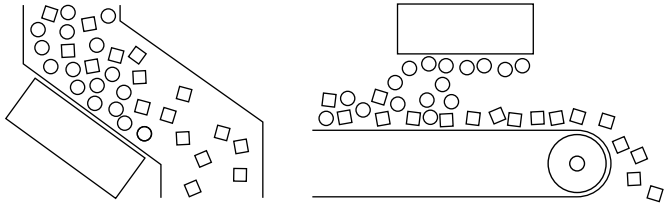


Plate magnets separate ferrous parts.

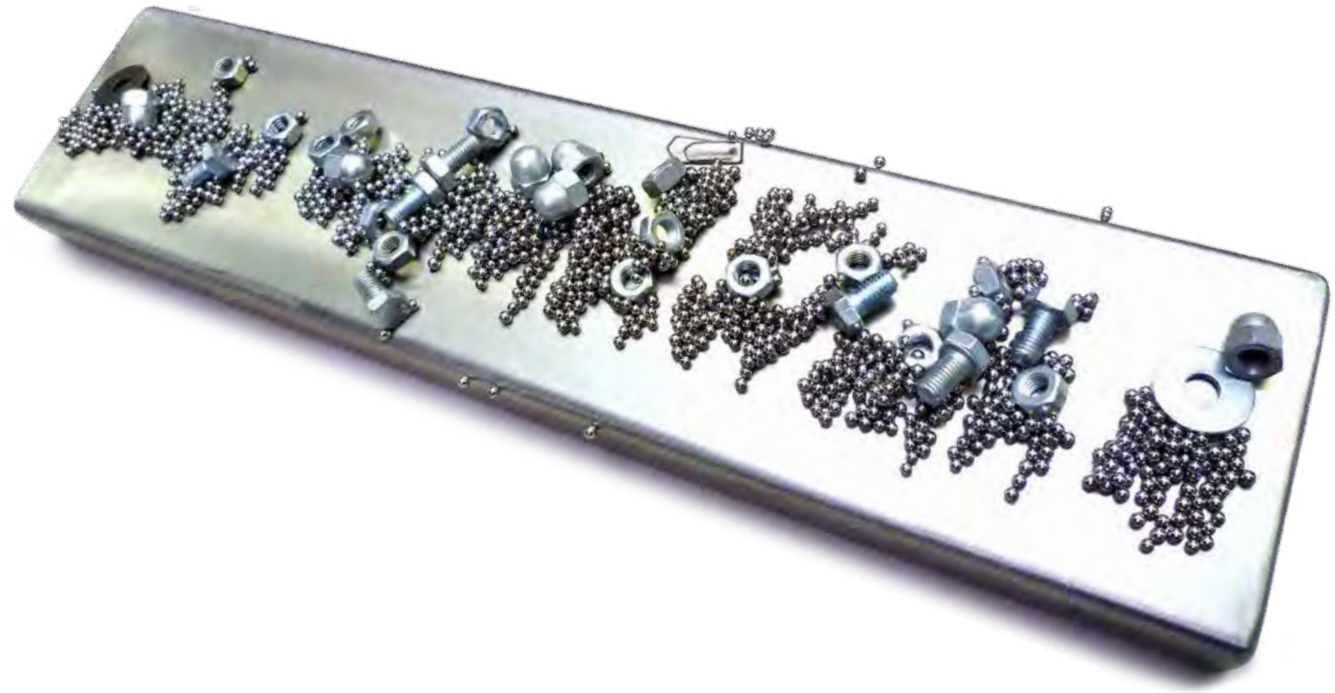
The plate magnet is installed above conveyers, at slides, chutes and pipes etc. It separates ferrous parts from material flows, e.g. as used in the food industry. It is equipped with strong ferrite magnets, which are arranged in order to create a spatial magnetic field. The magnetic force is permanently maintained under normal conditions. The surfaces in contact with the medium are made of stainless steel. The back of the base plate is equipped with threaded boreholes for mounting process. The attracted iron particles can be removed manually.

Customized special models are available, in addition to the dimensions stated below. We also deliver plate magnets with a construction made of neodymium magnets (NdFeB), in addition to the ferrite magnets. Thus, a magnetic field is achieved which is up to five times stronger.

Item No.	Iron bar Ø 5 × 25	Iron bar Ø 5 × 75	Iron nut M 16
	Holding field depth examples in mm		
48.500 – 48.504	70	90	55
48.525 – 48.529	75	100	60
48.710 – 48.714	110	125	85

The holding field depth indicates the distance from which, for example, a bar with a diameter of 5 mm and a length of 25 mm will be attracted by a plate magnet. For item no. 48.500 it will be 70 mm. That means the ferrous bar still will be attracted if you take the plate magnet in 70 mm above the ground.

Special models for special applications.



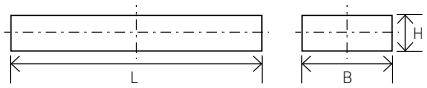


Plate magnets

Magnetic core hard ferrite, operating temperature up to 150 °C

Dimensions in mm L	B	H	Thread M	Hole distance mm	Item No.
155 $^{+2}/_{-2}$	112 $^{+2}/_{-2}$	35 $^{+2}/_{-2}$	2 × M 8 × 10	100	48.500
240 $^{+2}/_{-2}$	112 $^{+2}/_{-2}$	35 $^{+2}/_{-2}$	2 × M 8 × 10	100	48.501
315 $^{+2}/_{-2}$	112 $^{+2}/_{-2}$	35 $^{+2}/_{-2}$	2 × M 8 × 10	150	48.502
395 $^{+2}/_{-2}$	112 $^{+2}/_{-2}$	35 $^{+2}/_{-2}$	3 × M 8 × 10	100	48.503
455 $^{+2}/_{-2}$	112 $^{+2}/_{-2}$	35 $^{+2}/_{-2}$	3 × M 8 × 10	150	48.504
155 $^{+2}/_{-2}$	112 $^{+2}/_{-2}$	55 $^{+2}/_{-2}$	2 × M 8 × 10	100	48.525
240 $^{+2}/_{-2}$	112 $^{+2}/_{-2}$	55 $^{+2}/_{-2}$	2 × M 8 × 10	100	48.526
315 $^{+2}/_{-2}$	112 $^{+2}/_{-2}$	55 $^{+2}/_{-2}$	2 × M 8 × 10	150	48.527
395 $^{+2}/_{-2}$	112 $^{+2}/_{-2}$	55 $^{+2}/_{-2}$	3 × M 8 × 10	100	48.528
455 $^{+2}/_{-2}$	112 $^{+2}/_{-2}$	55 $^{+2}/_{-2}$	3 × M 8 × 10	150	48.529

Magnetic core NdFeB, operating temperature up to 80 °C

Dimensions in mm L	B	H	Thread M	Hole distance mm	Item No.
155 $^{+2}/_{-2}$	112 $^{+2}/_{-2}$	41,5 $^{+2}/_{-2}$	2 × M 8 × 15	100	48.710
240 $^{+2}/_{-2}$	112 $^{+2}/_{-2}$	41,5 $^{+2}/_{-2}$	2 × M 8 × 15	100	48.711
315 $^{+2}/_{-2}$	112 $^{+2}/_{-2}$	41,5 $^{+2}/_{-2}$	2 × M 8 × 15	150	48.712
395 $^{+2}/_{-2}$	112 $^{+2}/_{-2}$	41,5 $^{+2}/_{-2}$	3 × M 8 × 15	100	48.713
455 $^{+2}/_{-2}$	112 $^{+2}/_{-2}$	41,5 $^{+2}/_{-2}$	3 × M 8 × 15	150	48.714

Lifting magnets

LIFTING AND TRANSPORTATION OF ROUND AND FLAT MATERIAL – POWERFUL, EASY HANDLING – LOW WEIGHT, HIGH SAFETY FACTOR

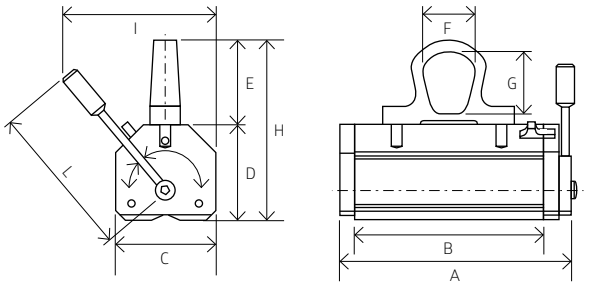
MaxX-Lifting magnets have minimum outer dimensions and are suited to the carry recommended loads of 20 to 50 times their own weight. The progressive design resulted in changes of both the inner and outer structure. This produced an unprecedented sturdiness and reliability. The "neutral crown" prevents the magnetic flux from scattering and thus makes an optimum performance possible, even in case of large air gaps. The new and patented magnetic circuit – together with the use of magnets with high specific energy – causes an unprecedented concentration of force. Thus, safety factor 3 is achieved for recommended loads.

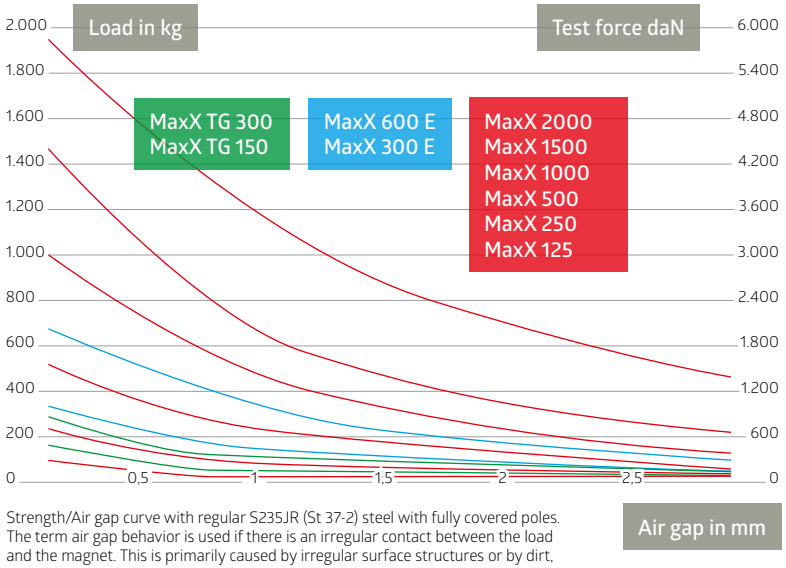
Magnetic lifting is comfortable, easy, cost-efficient and safe. The load is treated gently and never damaged. It enables perfect working ergonomics and available storage areas are used optimally. A great variety of models is available with performance capacities between 125 kg and 2.000 kg and different versions for handling loads with normal or reduced thicknesses.

MaxX 125, the smallest and most practical one is delivered with a rotating hook for better operational flexibility. The lifting magnet is activated or deactivated by simply moving the handle. A safety device locks the handle during the magnetization phase to prevent an accidental deactivation. MaxX offers the operator a stress-free transport of different ferrous loads with the highest level of security. The switching state is displayed in a simple and clearly visible manner. Therefore, the operator can control the transport at any time.

The production of a more powerful version of the models MaxX 250 and MaxX 500 is possible due to a high-quality selection process of high performance permanent magnets and a further optimization of the relative manufacturing tolerances of the stator and rotor. This results in a performance improvement of 20 percent with the same size and weight. These performance-optimized "ENERGY" versions are now available as MaxX 300 E and MaxX 600 E.

The MaxX TG series was developed in order to meet the demand for the transport of thin plates and thin-walled pipes in a safe and efficient manner. MaxX TG with a traverse makes it possible to hold plates with greater dimensions and higher weights. More information in request.





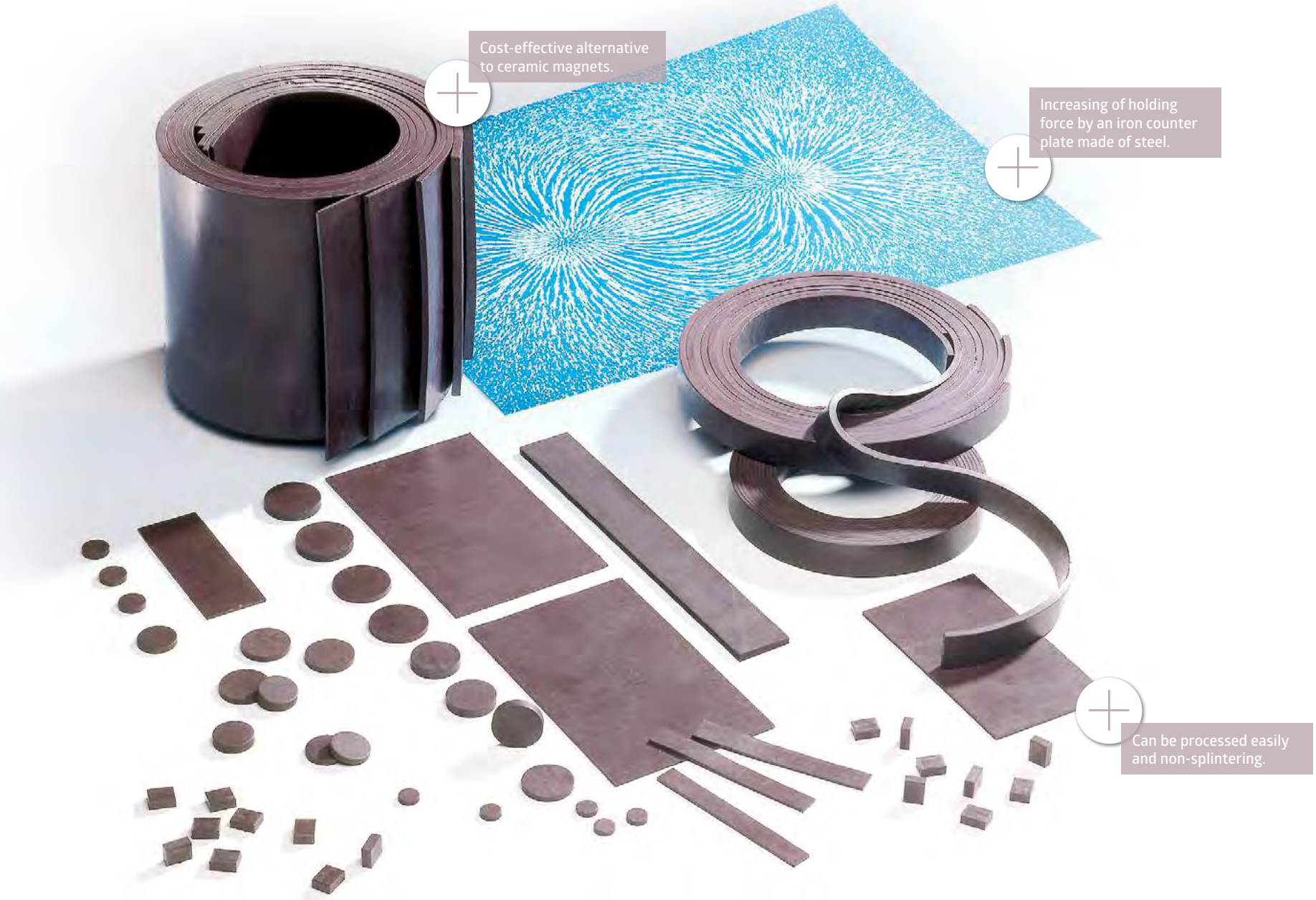
Strength/Air gap curve with regular S235JR (St 37-2) steel with fully covered poles. The term air gap behavior is used if there is an irregular contact between the load and the magnet. This is primarily caused by irregular surface structures or by dirt, color or iron residues on the load's contact surface.

MaxX Permanent Lifting Magnets

Easy transportation of ferrous loads, for flat and round material

Dimensions in mm										Model	Weight	Load max.	Thickness min.	Length max.	Load max.	Thickness min.	Length max.	Ø max.	Item No.
A	B	C	D	E	F	G	H	I	L		kg	kg	mm	mm	kg	mm	mm	mm	
121	76	79	79	66	30	44	145	132	137	MaxX 125	3,7	125	20	1.000	50	10	1.000	300	41.209
189	143	79	79	63	35	43	142	130	137	MaxX 250	6	250	20	1.500	100	10	1.500	300	41.210
250	199	106	101	88	52	60	189	165	170	MaxX 500	15	500	25	2.000	200	15	2.000	400	41.211
342	284	133	131	88	52	60	219	225	240	MaxX 1000	36	1.000	40	3.000	400	25	3.000	450	41.212
383	316	166	171	122	64	87	293	330	377	MaxX 1500	66	1.500	45	3.000	600	30	3.000	500	41.213
457	390	166	171	122	64	87	293	330	377	MaxX 2000	80	2.000	55	3.000	800	35	3.000	600	41.214
189	143	79	79	63	35	43	142	130	137	MaxX 300 E	6	300	20	1.500	150	10	1.500	300	41.220
250	199	106	101	88	52	60	189	165	170	MaxX 600 E	15	600	25	2.000	250	15	2.000	400	41.221
189	170	79	87	63	35	43	150	130	137	MaxX TG 150	6	150	8	1.500	60	8	1.500	240	41.315
250	230	106	101	88	52	60	189	165	170	MaxX TG 300	16	300	10	2.000	120	10	2.000	290	41.330
												Flat material			Round material				

MAGNETIC RUBBER



Magnetic rubber 150/180

FLEXIBLE MAGNETIC MATERIAL FOR SPECIAL APPLICATION

Magnetic rubber is an anisotropic magnetic material made of rubber-like, flexible plastic containing Strontium-Ferrite powder. In spite of a comparatively high binder content of approx. 40 percent of volume, the magnetic characteristics of the magnetic rubber are somewhere between isotropic and anisotropic magnets. It can be processed easily and non-splintering and thus is a cost-effective alternative to ceramic magnets. A multi-stage rolling process is used to turn the flat crystals and thus to achieve a magnetic preferential direction (anisotropy).

Sheets are available with a material thickness between 1.5 mm and 8 mm and a tolerance of +/-0.15 mm. The panel dimension is 440 x 1.040 mm (B × L), special dimensions on request.

The magnetic rubber can be cut in strips or stamped in any shape for forming. It is resistant to air, ozone, steam, diluted acids and alkalis. The material is non-toxic and complies with the standard EN 71/3 regarding migration of heavy metals.

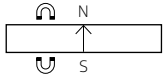
Magnetic rubber is suitable for applications, e.g. touch-free connector (pneumatic cylinder, lift switches), for DC motors, filter and separation systems, sandwich-type systems, plate magnets, pole shoe systems, conveyor belts, varnishing covers, knife blocks, games, clutches, etc.

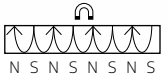
Product	Energy product $(B \times H)_{max}$	Remanence B_r +2 %	Coercivity H_{cB}	H_{cJ}	Temperature coefficient pro 1 °C	Operating temperature normal / short time	Specific weight g/cm³
Magnetic rubber 150	11 kJ/m³	240 mT	150 kA/m	200 kA/m	– 0,2 %	100 °C / max. 150 °C	3,7
Magnetic rubber 180	13 kJ/m³	265 mT	165 kA/m	212 kA/m	– 0,2 %	100 °C / max. 150 °C	3,7

The magnetic rubber is available with two types of magnetization: magnetization type A with an axial magnetization through the height, magnetization type C with a one-sided, multi-pole magnetization on the surface.

Flexo 150 and Flexo 180 have different magnetic characteristics. For example, Flexo 180 has higher remanence, coercivity and energy product values.

The sheet size for magnetic rubber type A with axial magnetization is 140 × 1.040 mm, for magnetic rubber type C with one-sided, multi-pole magnetization the sheet size is 440× 1.040 mm. We manufacture cuttings, machined parts and stampings with color foil lamination or self-adhesive and also printed on customers request.





Machined part out of magnetic rubber.

Magnetic rubber 150/180 type A

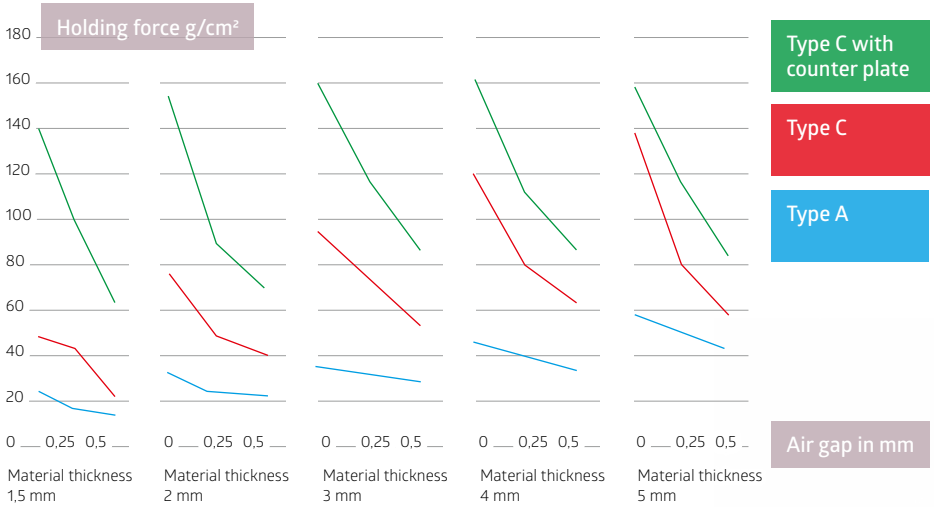
Axially magnetized through height H
Operating temperature up to 100 °C and up to 150 °C for a short time

Characteristics
Maximum cut width/polarization: 140 mm
Thicknesses: 1,5 mm, 2 mm, 3 mm, 4 mm, 5 mm, 6 mm, 7 mm, 8 mm

Magnetic rubber 150/180 type C

One-sided, multi-pole magnetization in the surface
Operating temperature up to 100 °C and up to 150 °C for a short time

Characteristics
Maximum cut width/polarization: 440 mm
Thicknesses: 1,5 mm, 2 mm, 3 mm, 4 mm, 5 mm, 6 mm, 7 mm, 8 mm



Holding force comparison for magnetic rubber 150.

Thickness in mm	Holding force g/cm² with an air gap of 0 mm*		
	Type A	Type C without counter plate	Type C with counter plate
1,5	22	45	140
2	30	75	155
3	35	95	160
4	42	120	160
5	55	138	160

*The holding forces have been determined on a polished plate of steel S235 JR (St 37-2) with a thickness of 10 mm by pulling the magnetic rubber vertically from the surface.

The holding force of the magnetization type C is significantly increased by an iron counter plate made of steel with a thickness of 1 mm. An optimum holding force with a counter plate is achieved with the material thickness 1.5 mm and 2.0 mm. The higher the material thickness, the lower the effect of an increase of the holding force. Please see exemplary values for the magnetic rubber 150 from the following table and drawing.

Individual manufactured magnetic profiles by meter or on reels.

MAGNETIC TAPE

Magnetic holding force on a roll

FOR EACH APPLICATION THE RIGHT MAGNETIC PROFILE

The magnetic tape on a roll can be used in many ways, e.g. mounting of different materials without drilling or screwing. Fabrics, posters, displays, supplementary windows, etc. are attached simple and reversible. Magnetic tapes are ideal where objects have to be attached in a flexible and quick way. As item by the meter or on reels, you can exactly cut to the required length. You can choose from a portfolio with different magnetizations, raw or self-adhesive as well as different lengths and widths.

GraviFlex® magnetic tape 160

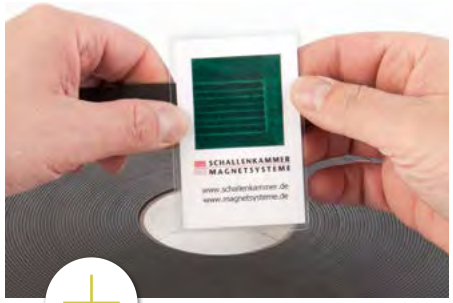
FOR FAST AND REVERSIBLE FIXING

Magnetic tape 160 raw 1

One-sided, multi-pole magnetization, isotropic, roll length 50 m

Dimensions in mm Thickness	Width	Specification	Holding force* g/cm²	Item No.
1,2	10	raw	54	12.000
1,2	15	raw	54	12.001
1,2	20	raw	54	12.002
1,2	25	raw	54	12.003
1,2	30	raw	54	12.004
1,2	40	raw	54	12.005
1,2	50	raw	54	12.006
2	10	raw	65	12.050
2	15	raw	65	12.051
2	20	raw	65	12.052
2	25	raw	65	12.053
2	30	raw	65	12.054
2	40	raw	65	12.055
2	50	raw	65	12.056

*The holding force is measured on a surface-ground metal surface with a thickness of 10 mm.



Sensor foil (page 115) visualizes the magnetic field between the magnetic poles.

Magnetic tape 160 self-adhesive, stick together congruently 2

A time-saving, cost-effective and flexible mounting option. The 25 mm wide magnetic tape (no. 12.506) will be mounted as background (e.g. on folding displays). Thereafter the two magnetic tapes (no. 12.505) are accurately placed on the wide magnetic tape. The protective foils are removed, and the objects to be fixed are placed on the adhesive side. Later the objects fix by the polarization back to the same position.

The magnetic tapes 12.505 and 12.505/B stick together congruently.

One-sided, multi-pole magnetization, isotropic, roll length 30 m.

Dimensions in mm Thickness	Width	Specification	Holding force* g/cm²	Magnetization	Item No.
1,5	12,5	self-adhesive	60	5-pole	12.505
1,5	12,5	self-adhesive	60	5-pole	12.505/B
1,5	19	self-adhesive	60	7-pole	12.301
1,5	25	self-adhesive	60	9-pole	12.506

* The holding force is measured on a surface-ground metal surface with a thickness of 10 mm.

Magnetic tape 160 self-adhesive, with foam adhesive tape 3

The one-sided equipped with foam adhesive tape is suited for indoor and outdoor use. A good way to attach wire cloth or plastic cloth window screens as insect protection. Also suited for attaching locking devices on advertising displays and display frames.

The 2- or 4-pole magnetization enables the use of only one specification. By turning the counter tape by 180°, the two magnetic tapes attract and fit on each other accurately.

One-sided, multi-pole magnetization, isotropic, roll length 30 m, Thickness: magnetic tape (1.5 mm) + foam adhesive tape (1 mm) = total 2.5 mm.

Dimensions in mm Thickness	Width	Specification	Holding force* g/cm²	Magnetization	Item No.
1,5	9	self-adhesive	60	2-pole	12.410
1,5	12,7	self-adhesive	60	4-pole	12.504

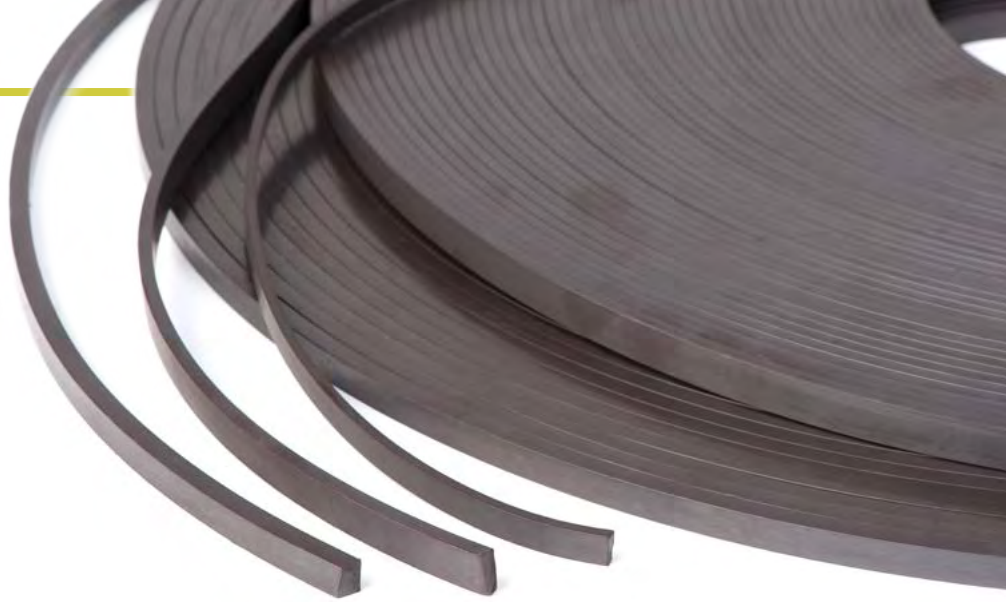
* The holding force is measured on a surface-ground metal surface with a thickness of 10 mm.

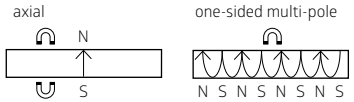
GraviFlex® magnetic tape 170

TO BE PROCESSED MECHANICALLY

1

Axial or one-sided multi-pole magnetization.





Magnetic tape 170 1

This type of magnetic tape is used where sintered magnets are too expensive or unsuitable. The magnetic tape is a cost-effective solution to manufacture magnetic holding systems for industrial applications, e.g. tool holders, spirit levels and metal rulers. The magnetic tape can be processed mechanically by drilling, cutting, milling, etc.

Anisotropic, very high holding force

Roll length 50 m (12.310, 12.313, 12.314, axial magnetization)
Roll length 30.5 m (12.320, 12.321, 12.322, one-sided, multi-pole magnetization)

Dimensions in mm Thickness	Width	Specification	Holding force* g/cm²	Magnetization	Item No.
3	8,5	raw	77	axial (N/S)	12.310
4	12	raw	86	axial (N/S)	12.313
6	9	raw	76	axial (N/S)	12.314
1,5	12,5	self-adhesive**	80	4-pole	12.320
1,5	19	self-adhesive**	80	6-pole	12.321
1,5	25	self-adhesive**	80	8-pole	12.322

* The holding force is measured on a surface-ground metal surface with a thickness of 10 mm.
** Self-adhesive with 3M 9448, can be attached on all smooth surfaces and holds objects and tools made of ferrous materials.

MAGNETIC FOIL

Flexible and versatile: raw, colored, self-adhesive or printed; available in strips, on rolls or as moldings.

You will find samples concerning printing, form and color from page 74.

GraviFlex® magnetic foil 165/170

IDEAL FOR ALL MAGNETIC ORGANIZATIONAL SOLUTIONS

The magnetic foil is made of a mixture of Strontium-Ferrite powder with an elastic, thermoplastic binder. Complies with the standard EN 71/3. It is produced by calendering. The magnetic foil has permanent magnetic characteristics, is flexible and holds on all ferrous surfaces, e.g. iron, steel plate or iron paper. Provided that it is stored correctly, it retains its permanent magnetic characteristics even if not used for longer periods.

Material thickness in mm	Holding force g/cm² with an air gap of 0.0 mm*	
	Magnetic foil 165	Magnetic foil 170
0,4	19	–
0,5	25	31
0,8	45	55
1	55	71
1,5	65	85
2	78	100

*The holding force is measured on a surface-ground metal surface with a thickness of 10 mm..

Can be cut to any size by knife or scissors.

Magnetic foil 165

Semi-anisotropic, one-side multi-polarly magnetized, operating temperature – 20 °C up to + 70 °C

Product characteristics
Material thickness: 0,4 mm, 0,5 mm, 0,8 mm, 1 mm, 1,5 mm, 2 mm
Roll width: 610 mm, 1.000 mm
Roll length: 10 – 61 m, depending on the material thickness
Remanence B_r: 205 mT
Coercivity H_{cB}: 119 kA/m
Coercivity H_{cJ}: 155 kA/m
Energy product $(B \times H)_{max.}$: 7,31 kJ/m³
Specific weight: 3,7 g/cm³
Specification: raw (uncoated, both sides brown), laminated with PVC-foil on the non-magnetic side, self-adhesive on the non-magnetic side (with a protective foil)
Areas of application: magnetic signs for car advertising, warehouse signs, magnetic pockets, magnetic planning symbols as well as products for advertising

Magnetic foil 170

Anisotropic, one-side multi-polarly magnetized, operating temperature – 20 °C up to + 70 °C

Product characteristics
Material thickness: 0,5 mm, 0,8 mm, 1 mm, 1,5 mm, 2 mm, 3 mm (510 × 610 mm)
Roll width: 610 mm, 1.000 mm
Roll length: 2 – 30 m, depending on the material thickness
Remanence B_r: 260 mT
Coercivity H_{cB}: 183 kA/m
Coercivity H_{cJ}: 286 kA/m
Energy product $(B \times H)_{max.}$: 13,29 kJ/m³
Specific weight: 3,7 g/cm³
Specification: raw (uncoated, both sides brown), laminated with PVC-foil on the non-magnetic side, self-adhesive on the non-magnetic side (with a protective foil)
Areas of application: wherever high demands are made to the material and holding force

GraviFlex® magnetic foil 190

HIGHEST MAGNETIC VALUES AND AN EXTRAORDINARY HOLDING FORCE

Compared to other flexible materials magnetic foil 190 has the highest magnetic values and an extraordinary holding force. Holding force with a material thickness of 1 mm is approx. 285 g /cm², measured on a surface-ground metal surface with a thickness of 10 mm.

The indicated holding forces refer to stock items. Other holding forces on request.

Magnetic foil 190

Anisotropic, one-side multi-polarly magnetized,
operating temperature – 40 °C up to + 100 °C

Product characteristics

Material thickness: 0,8 – 6 mm
Maximum width: 300 mm
Maximum length: 1.000 mm
Remanence B_r: 550 – 650 mT
Coercivity H_{cB}: 200 – 280 kA/m
Coercivity H_{cJ}: 350 – 440 kA/m
Energy product $(B \times H)_{max.}$: 36 – 44 kJ/m³
Holding force with material thickness: 1 mm = 285 g/cm²*, 2 mm = 630 g/cm²*, 3 mm = 850 g/cm²*
Specification: raw, laminated with color foil or self-adhesive
Manufacturing option: plates, strips, stamped parts

* The holding force is measured on a surface-ground metal surface with a thickness of 10 mm.

GraviFlex® magnetic foil 200

HOLDS IN BOTH SIDES

Heat resistant and an excellent holding force on both sides.

Manufacturing options: rolls, plates, strips, stamped parts.

Magnetic foil 200

Anisotropic, multi-polarly magnetized,
operating temperature 120 °C, up to 200 °C temporary

Product characteristics

Material thickness: 1 mm (other thicknesses on request)
Roll width: 610 mm
Maximum roll length: 15 m
Remanence B_r: 243 – 263 mT
Coercivity H_{cB}: 179 – 203 kA/m
Coercivity H_{cJ}: 211 – 257 kA/m
Energy product $(B \times H)_{max.}$: 11,1 – 13,5 kJ/m³
Holding force: approx. 130 g/cm² *
Specification: raw, laminated with color foil (also both sides) order self-adhesive
Areas of application: Sensors, micro motors, packaging, varnishing covers, symbols, etc.

* The holding force is measured on a surface-ground metal surface with a thickness of 10 mm.

MAGNETS FOR ORGANIZATION

Visual management with magnets

EASY TO HANDLE, FLEXIBLE IN ATTACHMENT

Using symbols, shapes and colors can mark so many things that one glance is enough to recognize status, progress, dangers etc. This type of communication and information makes work easier. Companies using Lean Management have recognized the advantages of visual management long ago and made goals, achievements and deviations transparent for all employees. The essential is visible by using markers, indicators, information or comments on responsibilities. Ideally, all participants can see at a glance whether everything is in the “green zone”. This includes administrative and service areas as well as production. With magnetic products information and advices can be attached and changed again quickly, flexible and clearly.


SCHALLENKAMMER MAGNETSYSTEME
Kontinuierlicher Verbesserungsprozess
Wem
ist wann
eine mögliche Verbesserung aufgefallen?
Wer
setzt sie wie um?
Wann?
Was ist aufgefallen ?
Wem ?
Wann ?
Welchen Lösungsansatz gibt es ?
Begonnen am
Erledigt bis
Wird bearbeitet von
Status
KVP-Dokumentation
SCHALLENKAMMER MAGNETSYSTEME
Nr.
Was ist aufgefallen?
Lösungsansatz:
Bearbeiter:
Fertig bis:
Status:
1
2
3
4
5
6
7
Wohlfühlbarometer
SCHALLENKAMMER MAGNETSYSTEME
STAEDTLER
Lumocolor

GraviFlex® magnetic foil

AS PLATES, ROLLS OR STRIPS

Self-adhesive or colored; available in individual colors and dimensions.

Magnetic foil, on a roll 1

17 different colors for organization and visualization solutions in production, logistics and administration. The magnetic foil can be cut in any manner with scissors. Objects, boards, signs, etc. hold strongly to all ferrous surfaces by using the self-adhesive foil on the back.

Dimensions in mm Width	Length	Thickness	Specification	Holding force g/cm²	Item No.
10	10.000	0,9	colored	45	12.110XX*
15	10.000	0,9	colored	45	12.111XX*
20	10.000	0,9	colored	45	12.112XX*
25	10.000	0,9	colored	45	12.113XX*
30	10.000	0,9	colored	45	12.114XX*
40	10.000	0,9	colored	45	12.115XX*
50	10.000	0,9	colored	45	12.116XX*
10	10.000	0,9	self-adhesive	45	12.120
15	10.000	0,9	self-adhesive	45	12.121
20	10.000	0,9	self-adhesive	45	12.122
25	10.000	0,9	self-adhesive	45	12.123
30	10.000	0,9	self-adhesive	45	12.124
40	10.000	0,9	self-adhesive	45	12.125
50	10.000	0,9	self-adhesive	45	12.126

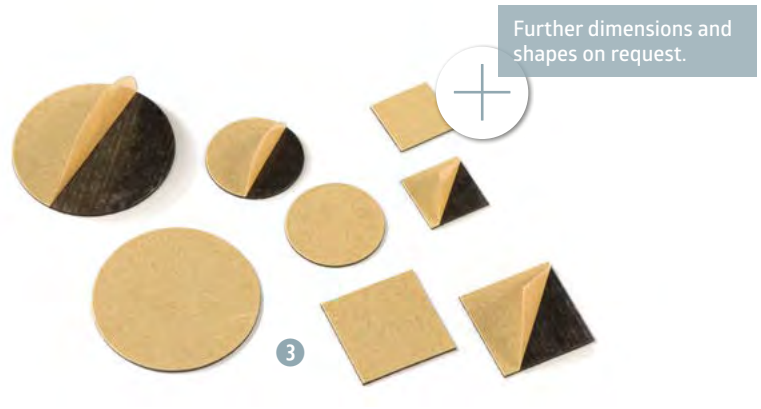
* Please state the 2-digit color code when ordering. 01/white (RAL 9003), 02/yellow (RAL 1023), 03/red (RAL 3020), 04/green (RAL 6029), 05/blue (RAL 5017), 06/black (RAL 9005), 07/orange (RAL 2008), 10/light grey (RAL 7035), 11/lilac, 12/golden yellow (RAL 1033), 13/pink, 14/dark green (RAL 6005), 15/light blue, 16/hazel (RAL 8023), 17/mint, 18/silver (RAL 9006), 19/gold. Color code on page 119.

Magnetic foil, in strips 2

The magnetic foil in strips of 1 m is versatile – whether self-adhesive for attaching objects or colored for marking, e.g. on metal shelves. The magnetic foil is also available in different thicknesses as described on page 70.

Dimensions in mm Width	Length	Thickness	Specification	Holding force g/cm²	Item No.
10	1.000	0,9	colored	45	12.811XX*
15	1.000	0,9	colored	45	12.812XX*
20	1.000	0,9	colored	45	12.813XX*
25	1.000	0,9	colored	45	12.814XX*
30	1.000	0,9	colored	45	12.815XX*
40	1.000	0,9	colored	45	12.816XX*
50	1.000	0,9	colored	45	12.817XX*
10	1.000	0,9	self-adhesive	45	12.821
15	1.000	0,9	self-adhesive	45	12.822
20	1.000	0,9	self-adhesive	45	12.823
25	1.000	0,9	self-adhesive	45	12.824
30	1.000	0,9	self-adhesive	45	12.825
40	1.000	0,9	self-adhesive	45	12.826
50	1.000	0,9	self-adhesive	45	12.827

* Please state the 2-digit color code when ordering. 01/white (RAL 9003), 02/yellow (RAL 1023), 03/red (RAL 3020), 04/green (RAL 6029), 05/blue (RAL 5017), 06/black (RAL 9005), 07/orange (RAL 2008), 10/light grey (RAL 7035), 11/lilac, 12/golden yellow (RAL 1033), 13/pink, 14/dark green (RAL 6005), 15/light blue, 16/hazel (RAL 8023), 17/mint, 18/silver (RAL 9006), 19/gold. Color code on page 119.



Magnetic foil, self-adhesive magnetic dots 3

Signs, laminated documents, operating manuals, etc. can be attached to ferrous surfaces quick and easy with the self-adhesive magnetic dots and squares. Remove protective foil, attach to the back – voilà, it's magnetic.

Dimensions in mm Width	Height	Diameter	Thickness	Holding force g/cm²	Packaging unit	Item No.
20	20	–	0,9	45	100 pieces	12.880
25	25	–	0,9	45	100 pieces	12.881
30	30	–	0,9	45	100 pieces	12.882
40	40	–	0,9	45	100 pieces	12.883
–	–	20	0,9	45	100 pieces	12.890
–	–	30	0,9	45	100 pieces	12.891
–	–	40	0,9	45	100 pieces	12.892
–	–	50	0,9	45	100 pieces	12.893

Magnetic foil, as sheets 4

The magnetic sheets can be cut individually. You can choose the right dimension for your application. Other dimensions can be manufactured on request. As standard we supply the magnetic sheets in 17 colors or self-adhesive. We are happy to talk to you about other colors or a special glue.

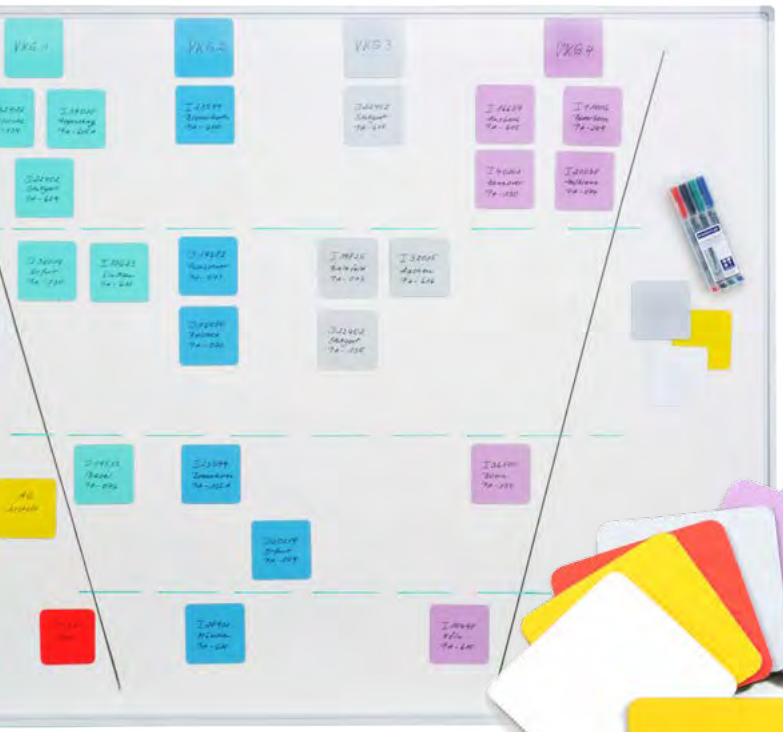
Dimensions in mm Width	Height	Thickness	Specification	Holding force g/cm²	Item No.
210	297 (A4)	0,9	colored	45	11.073XX*
297	420 (A3)	0,9	colored	45	11.076XX*
620	1000	0,9	colored	45	17.744XX*
1000	1000	0,9	colored	45	17.748XX*
210	297 (A4)	0,9	self-adhesive	45	11.074
297	420 (A3)	0,9	self-adhesive	45	11.077
620	1000	0,9	self-adhesive	45	17.844
1000	1000	0,9	self-adhesive	45	17.848

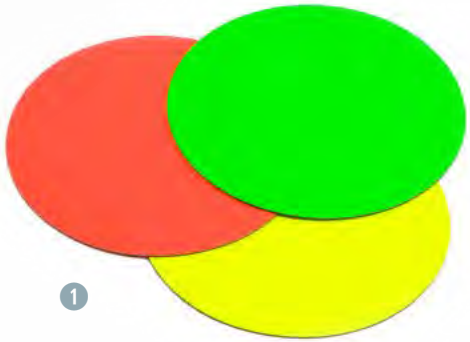
* Please state the 2-digit color code when ordering. 01/white (RAL 9003), 02/yellow (RAL 1023), 03/red (RAL 3020), 04/green (RAL 6029), 05/blue (RAL 5017), 06/black (RAL 9005), 07/orange (RAL 2008), 10/light grey (RAL 7035), 11/lilac, 12/golden yellow (RAL 1033), 13/pink, 14/dark green (RAL 6005), 15/light blue, 16/hazel (RAL 8023), 17/mint, 18/silver (RAL 9006), 19/gold. Color code on page 119.

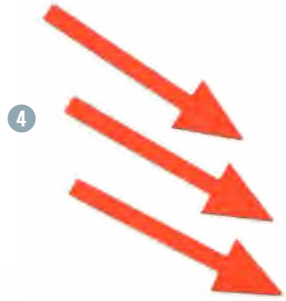
GraviFlex® magnetic symbols

MAKE USE OF SHAPES AND COLORS

Clouds, circles, arrows, etc. out of magnetic foil which can be labelled in different colors or printed according to your needs. There is no limit for creative labelling and communication. Use the explanatory power of magnetic symbols which are also useful for Lean Processes. Even small editions of magnetic symbols with individual design are possible.







Circle big 1

Make a statement with these magnetic luminous circles.

Dimensions in mm		Color	Packaging unit	Item No.
Diameter	Thickness			
95	0,9	luminous red	5 pieces	11.540
95	0,9	luminous yellow	5 pieces	11.541
95	0,9	luminous green	5 pieces	11.542

Star 2

The star is a universal symbol that focuses attention on important things, whether as an award or notice.

Dimensions in mm			Color	Packaging unit	Item No.
Width	Height	Thickness			
100	100	0,9	yellow	5 pieces	12.95701

Flash 3

The flash marks sticking points, interfaces, dangers or sources of error.
In short: Pay attention!

Dimensions in mm			Color	Packaging unit	Item No.
Width	Height	Thickness			
55	125	0,9	luminous red	5 pieces	12.86606

Arrow 4

The arrow points out important things in luminous red.

Dimensions in mm			Color	Packaging unit	Item No.
Width	Height	Thickness			
60	15/5	0,9	luminous red	5 pieces	12.86601

Cloud 5

Thoughts are like clouds. In order to not let them pass by and be forgotten: use the magnetic symbol cloud. It can be labeled with a non-permanent pen (wipe off with a wet or dry cloth) and can express different thoughts, ideas and information in different colors.

Dimensions in mm			Color	Packaging unit	Item No.
Width	Height	Thickness			
135	95	0,9	white	5 pieces	11.52001
135	95	0,9	luminous yellow	5 pieces	11.52008
135	95	0,9	luminous red	5 pieces	11.52009
135	95	0,9	luminous green	5 pieces	11.52010
135	95	0,9	light blue	5 pieces	11.52011
135	95	0,9	5 colors sorted	5 pieces	11.52088

Magnetic memo 6

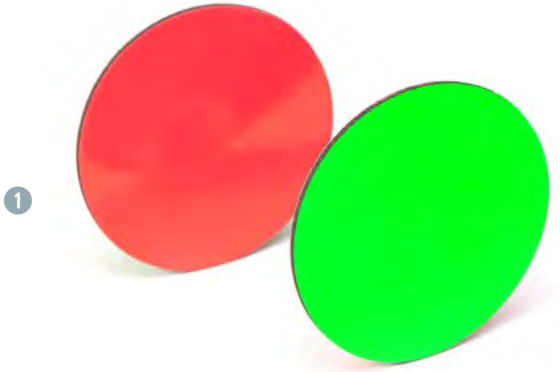
Sticky paper notes have proven themselves in everyday office life. Now they are also available made of writable magnetic foil, that sticks on ferrous surfaces, e.g. Whiteboards, machines or on control cabinets. Therefore important information are directly on the spot and can be replaced easily. They can be labeled with a non-permanent pen (wipe off with a wet or dry cloth).

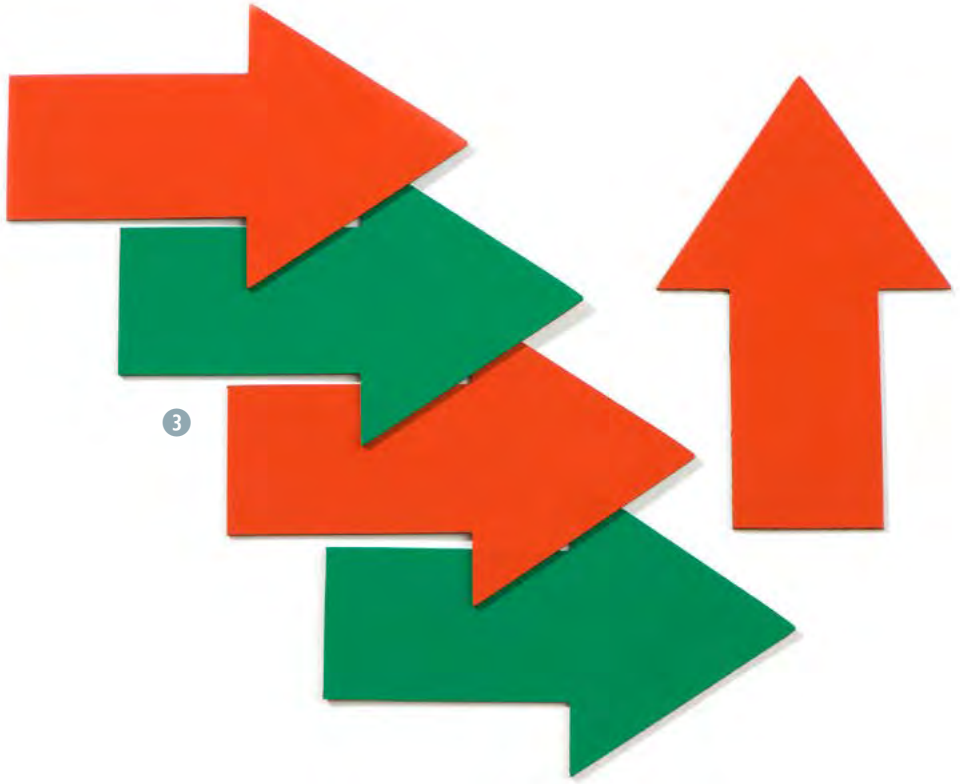
Dimensions in mm			Color	Packaging unit	Item No.
Width	Height	Thickness			
75	75	0,9	white	5 pieces	11.08501WB
75	75	0,9	yellow	5 pieces	11.08502WB
75	75	0,9	luminous red	5 pieces	11.08509WB
75	75	0,9	light grey	5 pieces	11.08510WB
75	75	0,9	lilac	5 pieces	11.08511WB
75	75	0,9	light blue	5 pieces	11.08515WB
75	75	0,9	mint	5 pieces	11.08517WB
75	75	0,9	luminous green	5 pieces	11.08521WB

GraviFlex® turnable magnets

GREEN / RED OR IN YOUR FAVORITE COLOR

Colors speak for themselves. Red or green, black or white ... turning magnets signalizes immediately “Stop or Go”, good or bad, free or occupied ...





Circle 1

The turnable circles show if everything's all right or not. They mark progress, skills or competence and can be used on boards, doors, machines etc.

Dimensions in mm		Color	Packaging unit	Item No.
Diameter	Thickness			
50	1,2	luminous green/luminous red	5 pieces	11.545
50	1,2	green/red (mat)	5 pieces	11.54501

MagneToni 2

MagneToni is a popular assistant who signals corrections or acceptances without words. The pleasant assistant holds on both sides and switches from green to red and vice versa, as required.

Dimensions in mm			Color	Packaging unit	Item No.
Width	Height	Thickness			
98	105	1,2	green/red (mat)	5 pieces	11.510

Arrow 3

The arrow sets the direction, the color sets the condition. Also suitable to inform about new messages or important changes on team and info boards.

Dimensions in mm			Color	Packaging unit	Item No.
Width	Height	Thickness			
125	80/40	1,2	green/red (mat)	5 pieces	11.530

Turnable-Smiley 4

Cheerfully laughing or sad. The Smiley shows the mood.

Dimensions in mm		Color	Packaging unit	Item No.
Diameter	Thickness			
50	1,2	green/red (mat)	5 pieces	11.54504
100	1,2	green/red (mat)	1 piece	11.54701

GraviFlex® magnetic foil for process improvement

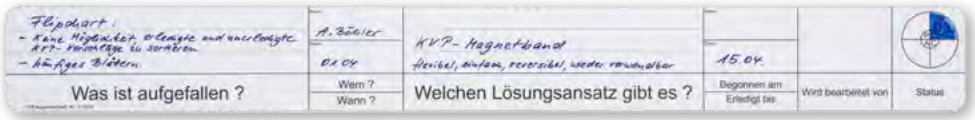
FLEXIBLE VISUALIZATION NOT ONLY IN LEAN PROCESSES

All labels can be delivered in other languages!

8

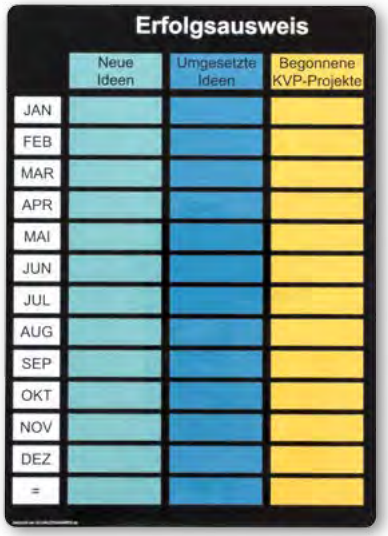
7

5



1

2



3

4

CIP magnetic tape 1

Continuous improvement is a living process. The current status can be shown clearly with the CIP magnetic tape – without browsing and searching. Each proposal will be written with a non-permanent pen on the magnetic tape. Processed issues easily can be moved and unprocessed issues can be arranged clearly.

Dimensions in mm		Packaging unit	Item No.
Width	Height		
508	55	5 pieces	11.07810

CIP documentation 2

The CIP documentation holds on ferrous surfaces and can be labeled with a non-permanent pen (wipe off with a wet or dry cloth). If you provide us a printable template your logo will be printed at no extra costs.

Dimensions in mm		Specification	Item No.
Width	Height		
420	297	DIN A3 landscape, with customers logo	11.07601001

CIP proof of success 3

Record successes of annual CIP activities in numbers. With the magnetic CIP proof of success you can enter and communicate the numbers on the spot.

Dimensions in mm		Specification	Item No.
Width	Height		
210	297	DIN A4 portrait	11.07307001

Tip pen set, magnetic packaging 4

These wet erase pens can be fixed where they are needed because of the magnetic foil on the back of the packaging.

Dimensions of the packaging in mm		Specification	Item No.
Width	Height		
50	150	wet erase; black, blue, green and red	14.570

Sentiment barometer 5

What about the event? How are individual actions evaluated? This and much more can by indicated with our sentiment barometer. With his magnetic backside it sticks on ferrous surfaces. The front out of FerroPad® is writable and also suitable for magnets. If you send us a printable template your logo can be printed on it without any additional costs.

Dimensions in mm		Specification	Item No.
Width	Height		
420	297	DIN A3 landscape, with customers logo	11.700002

Magnetic dot for sentiment barometer 6

The dots indicate the moods and rates.

Dimensions in mm	Specification	Packaging unit	Item No.
Diameter			
15	anthracite	100 pieces	12.88903

Traffic light 7

Red, yellow or green – you can control operations with the proven principle of traffic lights. The traffic lights are printed on magnetic foil and you can use them single or on top of each other.

Dimensions in mm		Specification	Item No.
Width	Height		
19	55	set consists of traffic light in red, yellow and green	11.07901
54	149	set consists of traffic light in red, yellow and green	11.079
74	210	set consists of traffic light in red, yellow and green	11.078

Traffic light set with colored symbols 8

The traffic light consists of a black base which it magnetic on both sides and three colored symbols. By turning you can signalize status or priorities. The colored symbols can be used in any combination.

Dimensions in mm		Specification	Item No.
Width	Height		
120	300	traffic light with dots in red, yellow and green	11.080

Magnetic foil, on roll, with Whiteboard surface 9

Magnetic on the back, front can be labelled by a non-permanent pen.

Dimensions in mm Width	Length	Thickness	Specification	Holding force g/cm²	Item No.
10	10.000	1	white	45	12.110WB
15	10.000	1	white	45	12.111WB
20	10.000	1	white	45	12.112WB
25	10.000	1	white	45	12.113WB
30	10.000	1	white	45	12.114WB
40	10.000	1	white	45	12.115WB
50	10.000	1	white	45	12.116WB

MagnetWrite M 10

Magnetic foil with Whiteboard surface sticks on ferrous surfaces, e.g. steel doors or switchboards that it can be used as a writing surface – it can be labelled by a non-permanent pen (wipe off with a wet or dry cloth).

Dimensions in mm Width	Height	Specification	Item No.
600	1.000	white, raster 50 × 50	11.450
600	1.000	white, without raster	11.470

MagLabel 11

White marking strips out of magnetic foil for ferrous surfaces. In combination with our FerroPad® strips they are also suitable for non-magnetic surfaces (see page 108).

Dimensions in mm Width	Height	Specification	Packaging unit	Item No.
99	19	white, Logo Schallenkammer	25 pieces	14.15901
99	19	white, with individual print	25 pieces	14.15901DD*

* Additional setting costs will arise (Item no. 30.205).

9

11

Flipchart function for steels doors, switch-boards or tool cabinets.

10

1

Magnetic paper

LABELING IS FUN

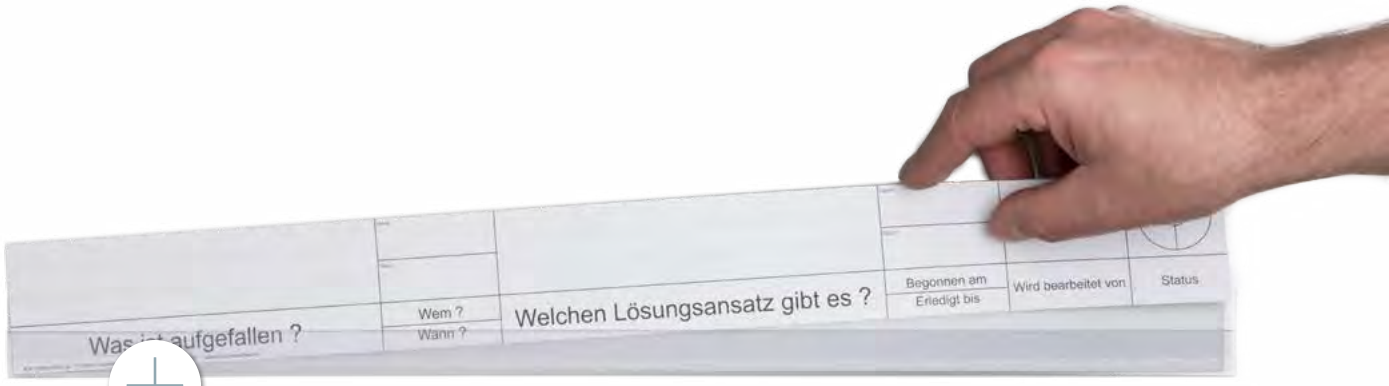
Magnetic paper for ink jet printers 1

The magnetic paper for ink jet printers holds on all ferrous surfaces. The coating of the non-magnetic side is printable by all ink jet printers. You design the shape by cutting the magnetic paper by scissors or other cutting tools. Create your own magnetic business cards, symbols, information signs or labels. Attention: For laser printers it is only suitable to a limited extend.

Dimensions in mm		Specification	Packaging unit	Item No.
Width	Height			
210	297	white, DIN A4	10 sheets	11.00010
297	420	white, DIN A3	5 sheets	11.00020

VisuFlex® U-clamp

FAST ATTACHED CARDS, INFORMATION AND FORMS



VisuFlex® U-clamp: flexible usage with magnetic back.

U-Clamp 1

The VisuFlex® U-clamp finds its place where quickly replaceable inscriptions and markings should optimize the information and material flow. The magnetic tape on the back holds on all ferrous surfaces and the transparent U-clamp made of flexible plastic takes up all types of forms and information papers – no matter whether standing or hanging. If there is no ferrous surface you can combine the U-clamp with holding surfaces like holding rails, metal tape, FerroPad® or magnetic islands (from page 108).

Dimensions in mm Width	Height	Packaging unit	Item No.
74	35	5 pieces	14.555075
85	35	5 pieces	14.555085
105	35	5 pieces	14.555105
148	35	5 pieces	14.555148
210	35	5 pieces	14.555210
297	35	5 pieces	14.555297
420	35	5 pieces	14.555420
510	35	5 pieces	14.555510
625	35	5 pieces	14.555625

U-clamp for CIP-strips 2

The U-clamp with the printed CIP-strip is customized for the CIP process. Focus on process improvement – we supply the tools for collection and visualization of your ideas.

Dimensions in mm Width	Height	Packaging unit	Item No.
510	35	5 pieces	14.555510

CIP-strips for U-clamp 3

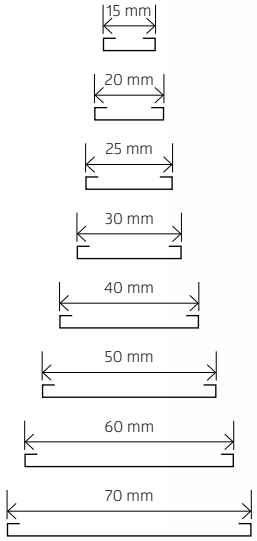
White strips with black print. We can deliver the strips individually printed according to your ideas.

Dimensions in mm Width	Height	Packaging unit	Item No.
508	55	20 pieces	13.255

Magnetic warehouse labeling

LABELING AND INFORMING

Labeling ensures order and clarity in storage areas. Searching times and under- or over-stocks can be prevented by clear markings. With magnetic strips which can be labeled directly at the shelves, the labeling will move on in case of changes or rearrangements. It will be removed with one grip and installed at a new storage location. By magnetic adhesion the laborious removal of glued-labels will be avoided for relabeling.



Rolls of 50 meters of our c-channel are also available.

Magnetic label strips (C-channel) 1

Permanent-magnetic and flexible C-channel with transparent protective foil. The transparent protective strips prevent the labels from getting dirty. C-channels are used on magnet boards, for labeling shelves, warehouse organization or labeling metal cabinets. Perforated label sheets in A4 portrait format are available for the C-channel, which can be labeled by printer or by hand. Protective strips can be reordered to 10 pieces per package.

Dimensions in mm Height	Length	Packaging unit	Item No. incl. protective strips	Item No. Only protective strips
15	210	10 pieces	13.415	13.615
20	210	10 pieces	13.420	13.620
25	210	10 pieces	13.425	13.625
30	210	10 pieces	13.430	13.630
40	210	10 pieces	13.440	13.640
50	210	10 pieces	13.450	13.650
60	210	10 pieces	13.460	13.660
70	210	10 pieces	13.470	13.670

Label sheet, white for magnetic label strips 2

The perforated label sheets can be used in standard printers. Choose the right height for your application.

Dimensions in mm Height	Length	Strips per sheet	Packaging unit	Item No.
15	210	22	3 sheets	13.515
20	210	16	3 sheets	13.520
25	210	12	3 sheets	13.525
30	210	10	3 sheets	13.530
40	210	7	3 sheets	13.540
50	210	6	3 sheets	13.550
60	210	5	3 sheets	13.560
70	210	4	3 sheets	13.570

GraviFlex® magnetic pockets

FULLY MAGNETIC

If time is short: open on two sides with a triangle pocket in the open corner.

GraviFlex® magnetic pocket, fully magnetic 1

Never search for documents! With the fully magnetic pockets important documents are always on the spot. The flexible magnetic back with a thickness of 0,9 mm ensures an optimum hold on even or curved ferrous surfaces. The welded pocket made of solid, transparent foul has an optional opening on the long or small side. The documents ensure a secure hold.

Outer dimensions in mm		Inner dimensions in mm		Specification	Item No.
Width	Height	Width	Height		
333	440	305	425	DIN A3, open small side	15.009
235	330	218	315	DIN A4, open small side	15.003
226	316	216	305	DIN A4, two sides open	15.00303
330	235	310	215	DIN A4, open long side	15.015
167	230	155	215	DIN A5, open small side	15.002
230	167	213	155	DIN A5, open long side	15.005
125	167	110	153	DIN A6, open small side	15.001
167	125	155	110	DIN A6, open long side	15.006
90	125	79	110	DIN A7, open small side	15.00704
125	90	110	77	DIN A7, open long side	15.007
210	100	200	87	open long side	15.004
50	60	40	48	For pass photo, open small side	15.032
230	115	215	104	1/3 DIN A4, open long side	15.040

For paper dimensions from A3 to DIN A7, as pass photo pocket or as customized pocket.

GraviFlex® magnetic pocket, fully magnetic 2

This pocket can be attached easily on pallet racks – either vertically on the upright or horizontally on the racking. The inner dimension of 310 × 68 mm allows a comprehensive labeling which can be created manually or by printer with the label sheets. Special dimensions of the pocket are possible.

Outer dimensions in mm		Inner dimensions in mm		Specification	Item No.
Width	Height	Width	Height		
318	74	310	68	Open long side	15.00404

Label sheet, white 3

The label sheet in DIN A4 format with a perforation – fitting to our magnetic pocket, item no. 15.00404 – which divides it in 3 strips which can be printed individually with any printer. The paper density is 120 g/m².

Dimensions in mm		Strips per sheet	Packaging unit	Item No.
Width	Height			
297	67	3	3 sheets	13.575

VisuFlex® magnetic pockets

IMPORTANT DOCUMENTS ON THE RIGHT PLACE

VisuFlex® magnetic pocket with loops, transparent 1

These magnetic pockets were especially developed for attaching accompanying documents on pipe systems. You will often find this flexible lightweight construction with pipes on assembly workstations, workpiece carrier, rack systems, transport trolleys and other stationary and mobile handling and material flow devices. The transparent magnetic pockets with loops are perfectly suited to it. They hold accompanying documents, drawings, order forms and product information. Due to their self-closing flaps their application is easy and time-saving: Just put the two flaps over the pipe and – click! – the neodymium magnets will find each other immediately. With the resulting loops the magnetic pocket will hang securely on the pipe system, but it can be removed quickly if needed – without wrangling (Velcro) or bending (wire bracket).

The transparent loop pockets with magnetic closure are suitable for all pipe systems with a diameter up to 40 mm. The magnetic pockets are made of weather-resistant, tear-resistant and washable PVC foil.

Outer dimensions in mm		Inner dimensions in mm		Specification	Item No.
Width	Height	Width	Height		
237	358	232	308	DIN A4 portrait, open small side	15.352
324	271	319	221	DIN A4 landscape, open long side	15.353
237	208	232	158	DIN A5 landscape, open long side	15.355
237	157	232	107	1/3 DIN A4, open long side	15.356

Small pockets for curved and plane surfaces.

VisuFlex® magnetic pocket, extra strong, transparent ②

A space-saving and reusable solution for the flexible attachment of accompanying documents, KANBAN cards, data sheets etc. on all ferrous surfaces. The robust and extra strong magnetic pockets are the perfect resource for industry, trade and commerce. The magnetic pockets are made of weather-resistant, tear-resistant and washable PVC foil with two or four welded high energy magnets. So they offer stability and flexibility in the daily work.

Outer dimensions in mm		Inner dimensions in mm		Specification	Item No.
Width	Height	Width	Height		
237	373	232	308	DIN A4 portrait, open small side	15.362
225	187	218	147	DIN A5 landscape, open long side	15.206
160	144	154	104	DIN A6 landscape, open long side	15.369
237	150	232	107	1/3 DIN A4, open long side	15.366

② Point adhesion and double view.

③

VisuFlex® mini magnetic pocket, transparent ③

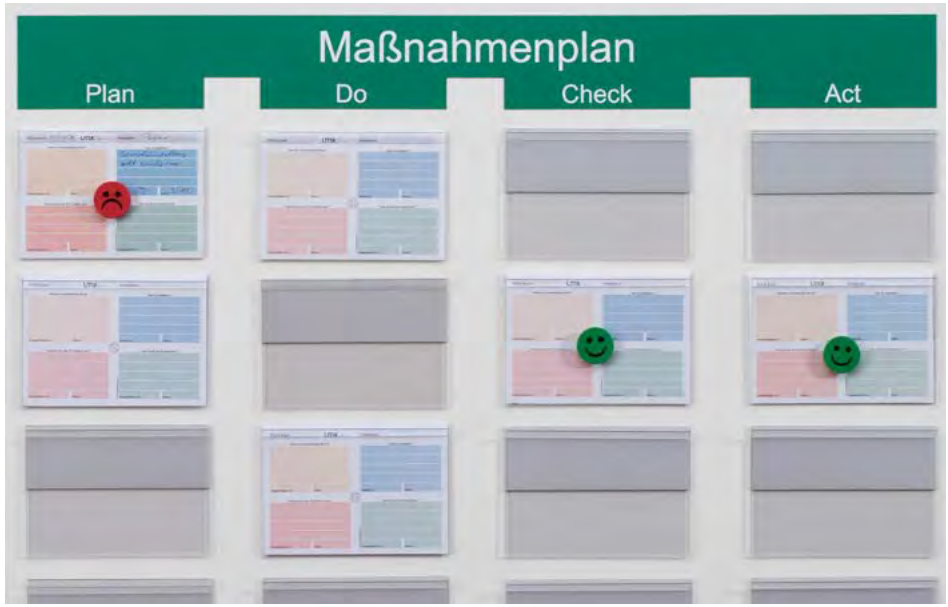
The mini magnetic pocket offers a space-saving and reusable solution for the flexible attachment of labelling and markings on rounded (e.g. iron pipes) and plane surfaces (e.g. metal shelfs). They are made out of an extra soft PVC foil and holds on all ferrous surfaces at high liability by four welded rectangular magnets.

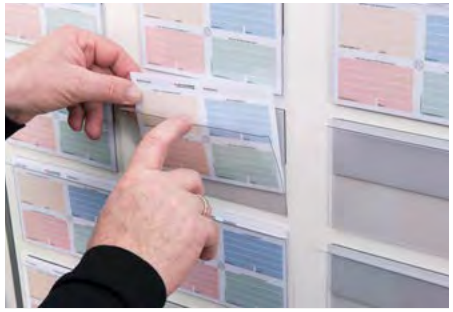
Outer dimensions in mm		Inner dimensions in mm		Specification	Item No.
Width	Height	Width	Height		
110	58	108	30	for 105 × 27 mm, open small side	15.230

Label sheet, white, for mini magnetic pocket

These label sheets with perforation especially for the mini magnetic pockets can be created individually by laser or ink jet printer.

Dimensions in mm		Specification	Packaging unit	Item No.
Width	Height			
210	297	10 strips (210 × 27 mm) per sheet	3 sheets	13.530





VisuFlex® magnetic pocket out of hard-PVC, crystal clear 4

Cards with a format DIN A6 will often be used as PDCA-, KANBAN-, CIP- or deficiency cards. They won't go lost and can be arranged clearly with the magnetic pocket out of hard-PVC. With its easy handling it offers several application possibilities; e.g. photos of make overs, explaining pictures, people who are responsible, quick guide for machines ...

Inner dimensions in mm		Specification	Item No.
Width	Height		
110	57	DIN A6 landscape, U-shape, top of the front slightly chamfered	15.263

VisuFlex® brochure boxes

PRESTIGIOUS AND EASY INSTALLED

VisuFlex® brochure box 1

Made out of polystyrol our brochure boxes have a fully magnetic back. Because of their transparent neutral design they fit to every atmosphere. They can be attached easily to all ferrous surfaces and you can present flyers, brochures etc. to everybody. They are available for all standard formats. Your logo or any information about the content can be printed on the box.

Dimensions in mm			Specification	Item No.
Width	Depth	Height		
218	32	245	for DIN A4 portrait	14.590
156	34	162	for DIN A5 portrait	14.592
217	40	159	for DIN A5 landscape	14.593
105	35	159	for DIN A6 portrait / DIN long	14.594
218	33	75	for DIN long	14.595

GraviFlex® magnetic systems can be found from page 48.

GraviFlex® flexible systems

MAGNETS FOR HIGHEST DEMANDS – INDIVIDUALLY COMBINABLE

GraviFlex® is a modular system for creating your individual mounting solutions. Three coupling possibilities with outer thread, inner thread and threaded socket enable many equipment and usage options. For example, solid hooks and handles – separately or as a bar – can be attached with GraviFlex® on all ferrous surfaces fully reversible, without any holes or other surface treatments. If you combine two GraviFlex® magnets with inner and outer thread, you receive a magnet which holds on both sides. With this magnet you can attach tools, sample parts, signs and other ferrous objects. The strong holding force ensures a durable hold, the rubber coating prevents a slip of. On the following pages you will find different types of these magnets, accessories and application examples.

The rubber coating prevents scratches on the surfaces and provides increased friction forces. You can combine two magnets with a screw thread or upgrade a magnet to a functional magnet with screw hook and other mounting tools.

For attaching tools, sample parts, signs or other ferrous objects.

Magnetic power double pack 1

You will receive a magnet which holds on both sides by combining two magnets with a screw thread. Hereby, ferrous objects can be attached to ferrous surfaces.

Dimensions in mm		Color magnetic system	Item No.
Diameter	Height		
43	19	red	39.14701
43	15	red	39.14702

Practical magnet with hook 2

A hook with thread transforms the magnet to a hanger for small objects.

Dimensions in mm		Color magnetic system	Item No.
Diameter	Height		
43	27	red	39.14606
43	27	black	39.14606SW
43	27	white	39.14606WS

Mounting magnet with handle out of stainless steel 3

A strong magnet with handle also allows the mounting of heavy objects. Furthermore the handle can be used as a hanger.

Dimensions in mm		Color magnetic system	Item No.
Diameter	Height		
43	31	red	39.14601
43	31	black	39.14601SW
43	31	white	39.14601WS

Double arch with magnetic adhesion 4

Power magnets with double arch which can be used as wardrobe hook on metal doors or lockers.

Dimensions in mm			Color magnetic system	Item No.
Width	Depth	Diameter arch		
120	75	50	red	39.14607
120	75	50	black	39.14607SW
120	75	50	white	39.14607WS

Power magnets with double handle 5

The magnetic double handle is useful and flexible to mount several objects.

Dimensions in mm		Color magnetic system	Item No.
Width	Depth		
165	35	red	39.14602
165	35	black	39.14602SW
165	35	white	39.14602WS

Power magnets with double hook 6

This organization assistant is always ready to use on ferrous surfaces, e.g. on metal doors, lockers or shelves.

Dimensions in mm		Color magnetic system	Item No.
Width	Depth		
160	40	red	39.14604
160	40	black	39.14604SW
160	40	white	39.14604WS

Four handle ensures organization 7

Everything in its place – the bar with four handles provides the possibility to hang utensils organized.

Dimensions in mm		Color magnetic system	Item No.
Width	Depth		
320	40	red	39.14603
320	40	black	39.14603SW
320	40	white	39.14603WS

Four hook with magnetic power 8

Creating hanging possibilities without drilling, screwing or sticking. So metal doorshelves can be quickly used as a wardrobe.

Dimensions in mm		Color magnetic system	Item No.
Width	Depth		
335	40	red	39.14605
335	40	black	39.14605SW
335	40	white	39.14605WS

Power magnets with 4 ring binder mechanism, R8 9

Directly access to documents.

Dimensions in mm			Color magnetic system	Item No.
Width	Height	Filling height		
295	25	8	black	39.14617SW

Magnetic clamp 10

Notes and plans can be installed directly on the spot by our magnetic clamp.

Dimensions in mm		Color magnetic system	Item No.
Width	Height		
130	43	red	39.14620
130	43	black	39.14620SW
130	43	white	39.14620WS

Power magnets with 2 ring binder mechanism, D25 11

Directly access to documents.

Dimensions in mm			Color magnetic system	Item No.
Width	Height	Filling height		
160	48	25	red	39.14613
160	48	25	black	39.14613SW
160	48	25	white	39.14613WS

12

13

Power magnets with 4 ring binder mechanism, D25 12

Large holding capacity for documents.

Dimensions in mm			Color magnetic system	Item No.
Width	Height	Filling height		
320	48	25	red	39.14610
320	48	25	black	39.14610SW
320	48	25	white	39.14610WS

Protective cover, for format DIN A3, with 4-hole punching 13

These covers protect your documents and can be labelled with a non-permanent pen (filling capacity approx. 1 mm).

Outer dimensions in mm		Inner Dimensions in mm		Specification	Item No.
Width	Height	Width	Height		
433	335	425	305	white with welded pocket on each side	15.300

Colorful organization magnets

IN SMALL BATCHES INDIVIDUALLY PRINTABLE

Organization magnets do not only fix photos, statistics, notes etc. – they also provide messages by shape and color or individual print. They are a useful accessory for whiteboards, metal tapes or metal rails. Suited to attach information on all ferrous surfaces. Magnetic core is made of hard ferrite (Fe) or Neodymium (NdFeB).

Organization magnets are available on the colors: white, yellow, red, green, blue, black, grey or orange. Other colors on request. Packaging unit: 10 pieces per size and color.

By individual print your magnets will provide an advertising message. Round, square or rectangular, colored or printed – your advertising message will hold guaranteed.

The neodymium magnet has extra strong holding force.

Organization magnets, round 1

The classic round magnet. You can choose the magnet by size, color and holding force especially for your purpose.

Dimensions in mm Diameter	Height	Magnetic core	Holding force* N	Packaging unit	Item No.
10,5	6,5	Ferrite	1,5	10 pieces	30.000XX**
16	7	Ferrite	3	10 pieces	30.001XX**
20	7,5	Ferrite	4	10 pieces	30.002XX**
25	8	Ferrite	6,5	10 pieces	30.003XX**
30	7,8	Ferrite	10	10 pieces	30.004XX**
35	14	Ferrite	20	10 pieces	30.006XX**
36	8,5	Ferrite	12	10 pieces	30.005XX**
40	7,8	Ferrite	12	10 pieces	30.008XX**
10	9	Neodymium	4	10 pieces	30.011XX**
18	8	Neodymium	10	10 pieces	30.012XX**
25	8	Neodymium	14	10 pieces	30.017XX**
30	7,5	Neodymium	27	10 pieces	30.014XX**
36	8,5	Neodymium	35	10 pieces	30.016XX**

*Explanatory notes to the holding force see page 25. **Please state the two-digit color code when ordering. WS/white, GE/yellow, RT/red, GN/green, BL/blue, SW/black, GR/grey, OR/orange. Color code see page 119.

Organization magnets, square 2

Square shapes can be labelled with notes. You can choose size and color especially for your purpose.

Dimensions in mm Length	Width	Height	Magnetic core	Holding force* N	Packaging unit	Item No.
11	11	6,5	Ferrite	1,5	10 pieces	30.100XX**
21	12,5	6,5	Ferrite	1,5	10 pieces	30.101XX**
35	35	9	Ferrite	10	10 pieces	30.104XX**
37	22	7,5	Ferrite	11	10 pieces	30.102XX**
55	22,5	8,5	Ferrit	15	10 pieces	30.103XX**
35	35	9	Neodymium	27	10 pieces	30.105XX**
55	22,5	8,5	Neodymium	48	10 pieces	30.107XX**

*Explanatory notes to the holding force see page 25. **Please state the two-digit color code when ordering. WS/white, GE/yellow, RT/red, GN/green, BL/blue, SW/black, GR/grey, OR/orange. Color code see page 119.

Smiley, extra strong 3

Just say it with magnets: praise or criticism. Stop or "Green light".
The smiley magnet is a charming ambassador. Magnetic core neodymium.

Dimensions in mm Diameter	Height	Specification	Holding force* N	Packaging unit	Item No.
30	7,5	green	27	10 pieces	30.014SGN
30	7,5	red	27	10 pieces	30.014SRT

*Explanatory notes to the holding force see page 25.

Magnet with tapered handle 4

This magnet with tapered handle is a small, strong and stylish assistant. It enables neat and visually appealing notices. Easy to use by the convenient tapered handle. The model with rubber coating is gentle to delicate surfaces. Magnetic core neodymium.

Dimensions in mm Diameter	Height	Specification	Holding force* N	Packaging unit	Item No.
12	16	Without rubber coating	55	4 pieces	30.009
12	16	With rubber coating	16	4 pieces	30.009GM

*Explanatory notes to the holding force see page 25.

Colored magnet with tapered handle 5

Strong, colored and easy to handle. You will have all your documents under control. Magnetic core neodymium.

Dimensions in mm Diameter	Height	Specification	Holding force* N	Packaging unit	Item No.
17	22,5	white	35	5 pieces	30.0091WS
17	22,5	yellow	35	5 pieces	30.0091GE
17	22,5	red	35	5 pieces	30.0091RT
17	22,5	green	35	5 pieces	30.0091GN
17	22,5	blue	35	5 pieces	30.0091BL
17	22,5	black	35	5 pieces	30.0091SW
17	22,5	orange	35	5 pieces	30.0091OR

*Explanatory notes to the holding force see page 25.

Colored magnet with tapered handle and loop 6

The loop offers even more possibilities. You can attach objects like pens with a string.
Magnetic core neodymium.

Dimensions in mm Diameter	Height	Specification	Holding force* N	Packaging unit	Item No.
17	22,5	white	35	5 pieces	30.0092WS
17	22,5	yellow	35	5 pieces	30.0092GE
17	22,5	red	35	5 pieces	30.0092RT
17	22,5	green	35	5 pieces	30.0092GN
17	22,5	blue	35	5 pieces	30.0092BL
17	22,5	black	35	5 pieces	30.0092SW
17	22,5	orange	35	5 pieces	30.0092OR

*Explanatory notes to the holding force see page 25.

Round magnet with steel housing 7

These round magnets with nickel-plated steel housing have a stylish look and an extremely strong holding force.

Dimensions in mm Diameter	Height	Magnetic core	Holding force* N	Item No.
19	7	Neodymium	85	30.020
23	7,5	Neodymium	100	30.021
29	8	Neodymium	160	30.022

*Explanatory notes to the holding force see page 25.

Round magnet white with tapered handle and steel housing 8

These robust magnets are white with an ergonomically shaped handle.
Things attached in this way can be removed or moved easily.

Dimensions in mm Diameter	Height	Magnetic core	Holding force* N	Item No.
25	29,5	Ferrite	40	30.040
32	29,5	Ferrite	80	30.041
36	29,5	Ferrite	100	30.042
40	30	Ferrite	125	30.043

*Explanatory notes to the holding force see page 25.

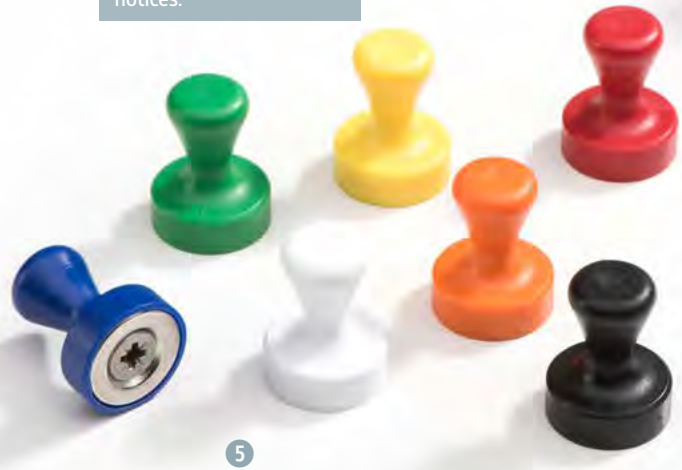
3

7

4

Small, strong and stylish: This magnetic helper ensures visually attractive notices.

6



5

8

Magnetic assistant with pep

EASY STORAGE WITH MAGNETIC FORCE

Angle of deposit 1

The angle of deposit appears to float because of the magnetic rubber which is responsible that the angle of deposit holds on ferrous surfaces without screwing and drilling. The angle of deposit is useful for tools or pens etc. which should be always on hand or which should be presented. It also includes an anti-slip mat.

Dimensions in mm			Specification	Item No.
Width	Depth	Height		
250	100	145	grey	22.001

Glass-fiber reinforced magnetic box 2

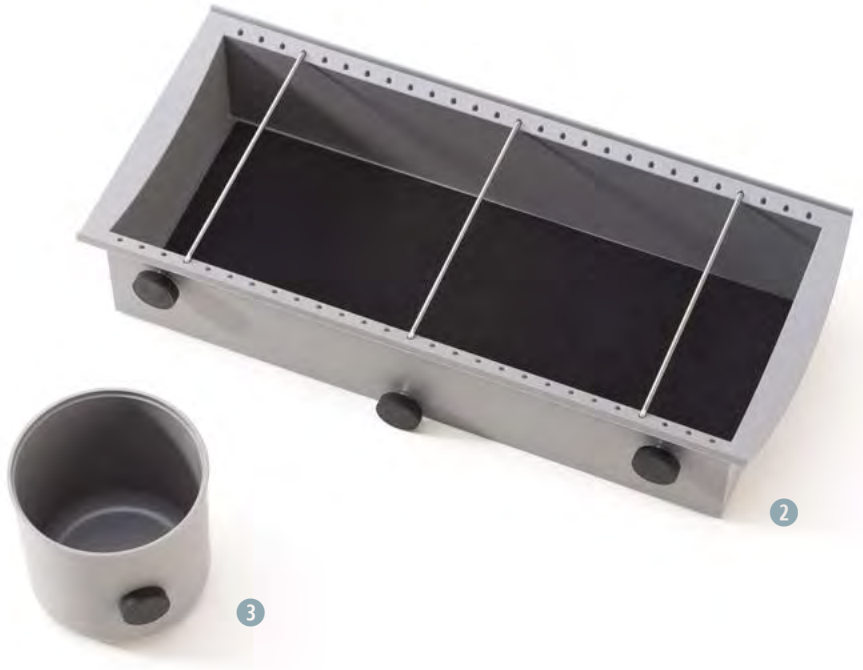
Three GraviFlex® magnets ensure the application of this useful box on ferrous surfaces.

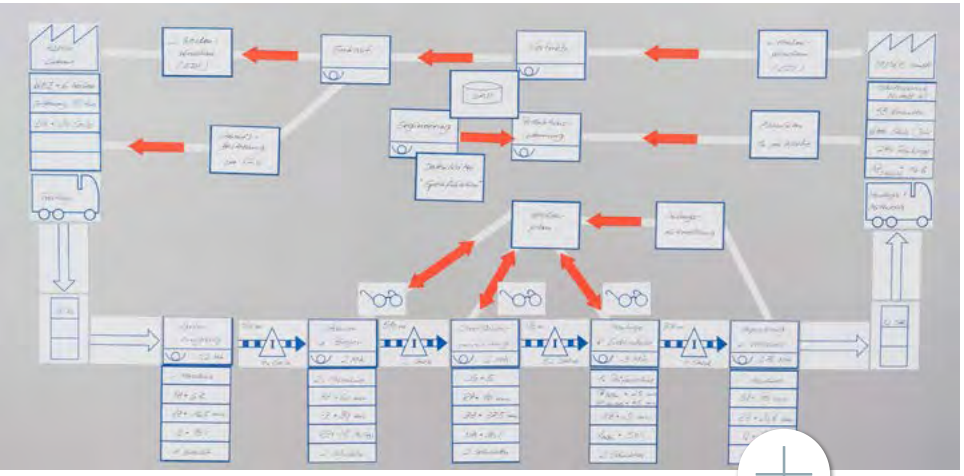
Dimensions in mm			Specification	Item No.
Width	Depth	Height		
345	160	70	grey	21.151

Glass-fiber reinforced magnetic cup 3

One GraviFlex® magnet fixes the cup on ferrous surfaces. It is a practical storage for pens, small tools or other small items.

Dimensions in mm		Specification	Item No.
Diameter	Height		
90	85	grey	21.150





White with blue print.

GraviFlex®
Value-stream magnets

PROCESS OPTIMIZATION WITH MAGNETIC ASSISTANCE

Value-stream management is one of the most important elements for process optimization within the lean management. Here, the actual state can be visually displayed to make long lead times, bottlenecks, loops or multiple machining visible. For this purpose various symbols will be used. With value-stream magnets it is very easy with no need of a drawing talent.

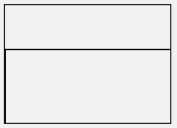
If the actual process is detected, the team creates a target process together. Here again the value-stream magnets are useful. They simplify the work and the team can concentrate on the content.

Value-stream magnets can be labeled using a non-permanent pen (wipe off with a wet or dry cloth).

Time line, top

to display the lead time.

Format	Packaging unit	Item No.
DIN A7 landscape	10 pieces	18.501



Time line, bottom

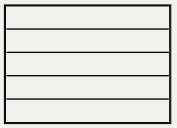
to display the handling time.

Format	Packaging unit	Item No.
DIN A7 landscape	10 pieces	18.502

Data box

to register gathered data.

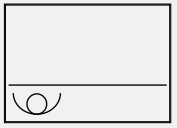
Format	Packaging unit	Item No.
DIN A6 portrait	10 pieces	18.503



Process box

for description of the activity.

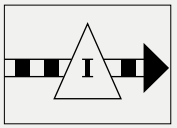
Format	Packaging unit	Item No.
DIN A7 landscape	10 pieces	18.504



Push arrow

to display material feeding.

Format	Packaging unit	Item No.
DIN A7 landscape	10 pieces	18.505



Info box

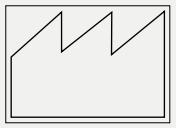
Information field for individual labeling.

Format	Packaging unit	Item No.
DIN A7 landscape	10 pieces	18.506

Customers / Suppliers

Customers and suppliers of a process.

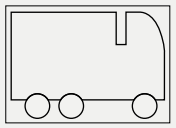
Format	Packaging unit	Item No.
DIN A7 landscape	5 pieces	18.507



Transport by truck

Supply or delivery of products by truck.

Format	Packaging unit	Item No.
DIN A7 landscape	5 pieces	18.508



FiFo-flow sequence

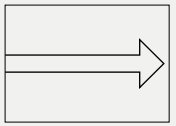
Line with a limited intake capacity.

Format	Packaging unit	Item No.
DIN A7 landscape	5 pieces	18.509

Transfer

Transfer of products e.g. to the customer.

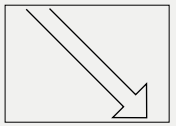
Format	Packaging unit	Item No.
DIN A7 landscape	5 pieces	18.510



Input

Material inflow in the process.

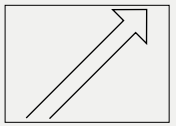
Format	Packaging unit	Item No.
DIN A7 landscape	5 pieces	18.511



Output

Material outflow from a process.

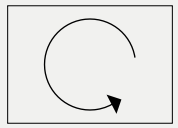
Format	Packaging unit	Item No.
DIN A7 landscape	5 pieces	18.512



Pull / Removal

Removal from the Kanban warehouse.

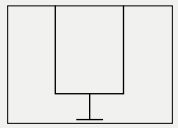
Format	Packaging unit	Item No.
DIN A8 landscape	5 pieces	18.513



Kanban unit

Information container.

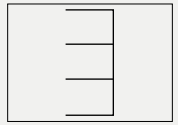
Format	Packaging unit	Item No.
DIN A7 portrait	5 pieces	18.514



Kanban warehouse / supermarket

Small components storage with self-service.

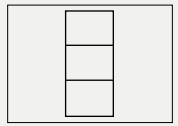
Format	Packaging unit	Item No.
DIN A7 portrait	5 pieces	18.515



Buffer storage

Temporary storage.

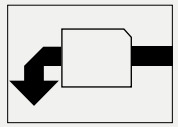
Format	Packaging unit	Item No.
DIN A7 portrait	5 pieces	18.516



Production Kanban

“One per container” Kanban.

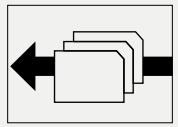
Format	Packaging unit	Item No.
DIN A7 landscape	5 pieces	18.517



Kanban lot

Kanban, arriving in lot quantities.

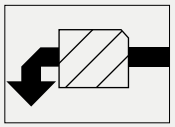
Format	Packaging unit	Item No.
DIN A7 landscape	5 pieces	18.518



Removal Kanban

Card for instruction to remove parts.

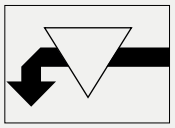
Format	Packaging unit	Item No.
DIN A7 landscape	5 pieces	18.519



Signal Kanban

Signals reorder point.

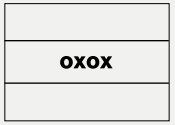
Format	Packaging unit	Item No.
DIN A7 landscape	5 pieces	18.520



Balance

For mixed types.

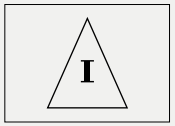
Format	Packaging unit	Item No.
DIN A7 landscape	5 pieces	18.521



Warehouse / stock

Warehouse for intermediate and end products.

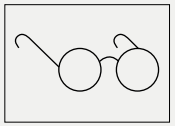
Format	Packaging unit	Item No.
DIN A8 portrait	5 pieces	18.522



Go See

Visual examination of process steps.

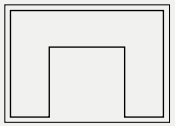
Format	Packaging unit	Item No.
DIN A8 landscape	5 pieces	18.523



Workstation

Summary of different processes.

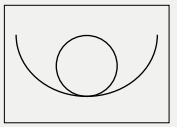
Format	Packaging unit	Item No.
DIN A7 landscape	5 pieces	18.524



Worker

Required for this process step.

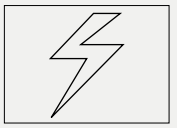
Format	Packaging unit	Item No.
DIN A8 landscape	5 pieces	18.525



Flash

Kaizen workshop.

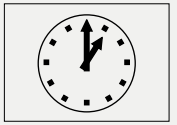
Format	Packaging unit	Item No.
DIN A7 portrait	5 pieces	18.526



Clock

For time information.

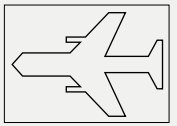
Format	Packaging unit	Item No.
74 × 74 mm	5 pieces	18.527



Extern Transport (AIR)

Transport by plane.

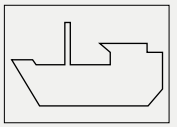
Format	Packaging unit	Item No.
DIN A7 landscape	5 pieces	18.528



Externer Transport (sea)

Transport by ship.

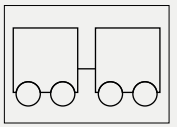
Format	Packaging unit	Item No.
DIN A7 landscape	5 pieces	18.529



Interner Transport

Transport by milk run.

Format	Packaging unit	Item No.
DIN A7 landscape	5 pieces	18.530



HOLDING SURFACES

Magnetic Islands

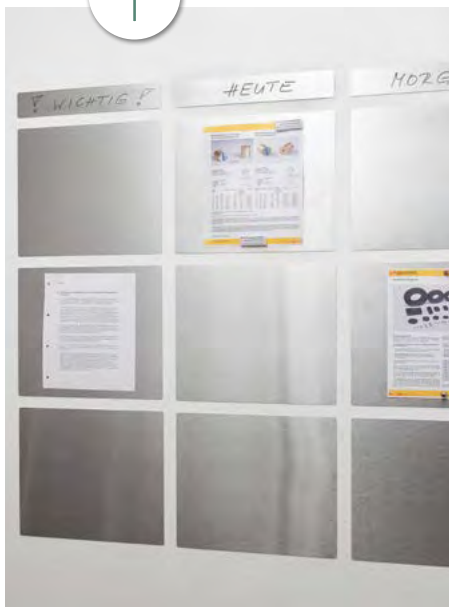
MAGNETS NEED FERROUS ADHESION

This simple stainless steel design with a ground surface offers stylish and modern optics, which is extremely decorative and fits in every interior.

The plates can be placed separately or combined in groups of any size and arrangement. Thus, empty surfaces like doors, walls, stairs, office cabinets, etc. can be newly designed and used to attach information. The magnetic island is available in two versions with different adhesive coatings, optionally for smooth or rough surfaces. Other versions: magnetic island with holes for a freely suspended use, e.g. as room divider.

In combination of versatile magnets and magnetic islands information and exhibition areas, organization assistants or photo walls will be received. Let your creativity run free.

Magnetic islands in use.



Magnetic Island, self-adhesive 1

Square or rectangular – the magnetic island offers many possibilities for individually designing information or decoration areas. The grounded stainless steel surface fits in almost any interior. Objects like keys or small tools can be attached easily and exchanged without difficulties by hook magnets of the GraviFlex® series. Easy attachment of the magnetic islands: Remove the protective foil, place on the desired areas, press on firmly – finished!

Dimensions in mm		Specification	Item No.
Length	Width		
333	333	self-adhesive with foam	11.802
333	66	self-adhesive with foam	11.805

Magnetic Island with holes 2

Magnetic islands are also available with four holes. They can be mounted to walls or suspended from ceilings. The supplied S-hooks allow to suspend the islands freely. In this version with holes the surface of magnetic islands is grounded on both sides. Thus, in combination with decorative pictures or interesting notices they create a room divider which quickly becomes an eye-catcher. Information can easily be fixed by magnets and an area of spontaneity an high flexibility arises.

Dimensions in mm		Specification	Item No.
Length	Width		
333	333	with 4 holes and 2 S-hooks	11.803

FerroPad®
Holding surface for magnets

MAGNETS NEED FERROUS HOLDING SURFACES

Magnets are often used for quick attaching and removing information. But often a suitable ferrous surface is missing to attach messages, memos, markings, information, photos and more by magnets. Especially companies that continuously improve their processes and who appreciate transparency, estimate the practical magnetic assistants. In modern office and factory buildings with many glass surfaces often the suitable surface for attaching magnets is missing.

Therefore, our FerroPad® program is the perfect solution. FerroPad® includes several products which can be individually used, tailored to the requirements of the local conditions.

Due to a special adhesive glass or plastic surfaces turn into the ideal holding surface for magnets. Self-adhesive foam tape will be used for rough surfaces (balances bumps of the wall surface), e.g. woodchip wallpaper. We can deliver FerroPad® printed and in almost any size or shape. Laminated with a special foil an individual Whiteboard will be created which can be labeled with a non-permanent per (wipe off with a wet or dry cloth) or combined with magnets, e.g. value-stream magnets.

1

Self-adhesive foam on the back for rough surfaces or magnetic foil for ferrous surfaces.

FerroPad® Whiteboard surface 1

Turn smooth surfaces into multifunctional information boards. FerroPad® is a thin ferrous plastic sheet with a self-adhesive foul on the back which can be removed easily. By attaching the sheeting, e.g. glass or plastic surfaces become suitable for magnets. This special sheeting can also be labeled with a non-permanent pen (wipe off with a wet or dry cloth). Thus, you can create information areas wherever required. Notes directly on the sheeting can be combined with magnetic symbols, magnetic strips and organization magnets. We produce this sheeting according to your requirements, laminated with colored PVC-foil or individually printed. We look forward to your request!

Dimensions in mm		Specification	Item No.
Width	Height		
600	1.000	self-adhesive, removable	11.400
570	570	with loops	11.600
570	570	self-adhesive, foam	11.601
570	190	self-adhesive, foam	11.60101
570	570	magnetic on the back	11.602
570	190	magnetic on the back	11.60201
420	297	self-adhesive, foam	11.603
210	297	self-adhesive, foam	11.604
420	297	self-adhesive, removable	11.613
210	297	self-adhesive, removable	11.614
420	297	magnetic on the back	11.623
210	297	magnetic on the back	11.624

Ferro strips 2

The FerroPad® strips are perfect for little space. We can deliver them raw or white with individual print. They are self-adhesive and removable for plain surfaces.

Dimensions in mm Width	Height	Specification	Packaging unit	Item No.
96	17	raw	25 pieces	11.15901
96	17	white with individual print	25 pieces	11.15902DD*

* Additional setting costs will arise (Item no. 30.205).

Ferro-Smileys for plain surfaces 3

Self-adhesive and removable for plain surfaces. The friendly face of our Smiley is the ferrous base for your magnets.

Dimensions in mm Diameter	Specification	Packaging unit	Item No.
66	self-adhesive, removable	25 pieces	11.551

Ferro-Smileys for rough surfaces 4

With self-adhesive foam tape for rough surfaces..

Dimensions in mm Diameter	Specification	Packaging unit	Item No.
66	self-adhesive with foam	25 pieces	11.553

FerroPad® – colored holding surface for magnets 5

Magnets are often used for quick attaching and removing information. But often a suitable ferrous surface is missing to attach messages, memos, markings, information, photos and more by magnets. Due to a special adhesive glass or plastic surfaces turn into the ideal holding surface for magnets. Self-adhesive foam tape will be used for rough surfaces (balances bumps of the wall surface), e.g. woodchip wallpaper. You can choose between our 17 standard colors or we print your favorite motive.

Dimensions in mm		Specification	Item No.
Width	Height		
420	297	colored / self-adhesive, removable (DIN A3)	11.653XX*
210	297	colored / self-adhesive, removable (DIN A4)	11.654XX*
420	297	colored / self-adhesive with foam (DIN A3)	11.663XX*
210	297	colored / self-adhesive with foam (DIN A4)	11.664XX*

* Please state the 2-digit color code when ordering. 01/white (RAL 9003), 02/yellow (RAL 1023), 03/red (RAL 3020), 04/green (RAL 6029), 05/blue (RAL 5017), 06/black (RAL 9005), 07/orange (RAL 2008), 10/light grey (RAL 7035), 11/lilac, 12/golden yellow (RAL 1033), 13/pink, 14/dark green (RAL 6005), 15/light blue, 16/hazel (RAL 8023), 17/mint, 18/silver (RAL 9006), 19/gold. Color code on page 119.

Iron paper – colorful and versatile 6

The thin, 0,22 mm metal sheet is suitable as holding surface for organization magnets or for closing of packaging in connection with magnetic foil or neodymium magnets. The different specifications of iron paper (white / white, white / self-adhesive, colored / self-adhesive) provide you many possibilities. Creativity is almost endless with the 17 colors. Iron paper is suitable for digital, offset or screen printing and can be delivered additionally in individual dimensions as you can see below.

Dimensions in mm		Specification	Item No.
Width	Height		
420	297	white/ white (DIN A3)	11.930
210	297	white / white (DIN A4)	11.931
1.100	800	white / white	11.932
420	297	white / self-adhesive (DIN A3)	11.940
210	297	white / self-adhesive (DIN A4)	11.941
1.100	800	white / self-adhesive	11.942
420	297	colored / self-adhesive (DIN A3)	11.945XX*
210	297	colored / self-adhesive (DIN A4)	11.946XX*

* Please state the 2-digit color code when ordering. 01/white (RAL 9003), 02/yellow (RAL 1023), 03/red (RAL 3020), 04/green (RAL 6029), 05/blue (RAL 5017), 06/black (RAL 9005), 07/orange (RAL 2008), 10/light grey (RAL 7035), 11/lilac, 12/golden yellow (RAL 1033), 13/pink, 14/dark green (RAL 6005), 15/light blue, 16/hazel (RAL 8023), 17/mint, 18/silver (RAL 9006), 19/gold. Color code on page 119.

Further holding surfaces

METAL DISCS AND MORE

Metal discs 1

Holding surface for magnets: steel plate, galvanized or lacquered in white, with double-sided adhesive tape.

Dimensions in mm		Specification	Packaging unit	Item No.
Diameter	Height			
20	2	galvanized, self-adhesive	10 pieces	30.116
20	2	lacquered in white, self-adhesive	10 pieces	30.117
30	2	galvanized, self-adhesive	10 pieces	30.118
30	2	lacquered in white, self-adhesive	10 pieces	30.119
40	2	galvanized, self-adhesive	10 pieces	30.120
40	2	lacquered in white, self-adhesive	10 pieces	30.121
60	2,5	galvanized, self-adhesive	10 pieces	30.122
60	2,5	lacquered in white, self-adhesive	10 pieces	30.123

Metal discs with borehole and counterbore 2

Holding surface for magnets.

Dimensions in mm				Specification	Packaging unit	Item No.
D	H	d_1	d_2			
$23{,}7\ ^{+0,2}/_{-0,2}$	1,5	5	7	Nickel-plated	10 pieces	30.124
$27\ ^{+0,2}/_{-0,2}$	3	6	11	galvanized	10 pieces	30.128
$45{,}3\ ^{+0,2}/_{-0,2}$	3	5,5	11	galvanized	10 pieces	30.129
$64\ ^{+0,3}/_{-0,3}$	3	6	11	galvanized	10 pieces	30.130

Metal discs with borehole, counterbore and stop edge 3

The stop edge prevents a possible slipping of the magnet at high loads.

Dimensions in mm					Specification	Packaging unit	Item No.
D	H	d_1	d_2	W			
27	3	5,5	11,5	21	galvanized	10 pieces	30.128AK
34,5	3	5,5	11,5	29,2	galvanized	10 pieces	30.127AK
45	3	5,5	11,5	39	galvanized	10 pieces	30.129AK
64	3	5,5	11,5	58	galvanized	10 pieces	30.130AK

Holding rail 4

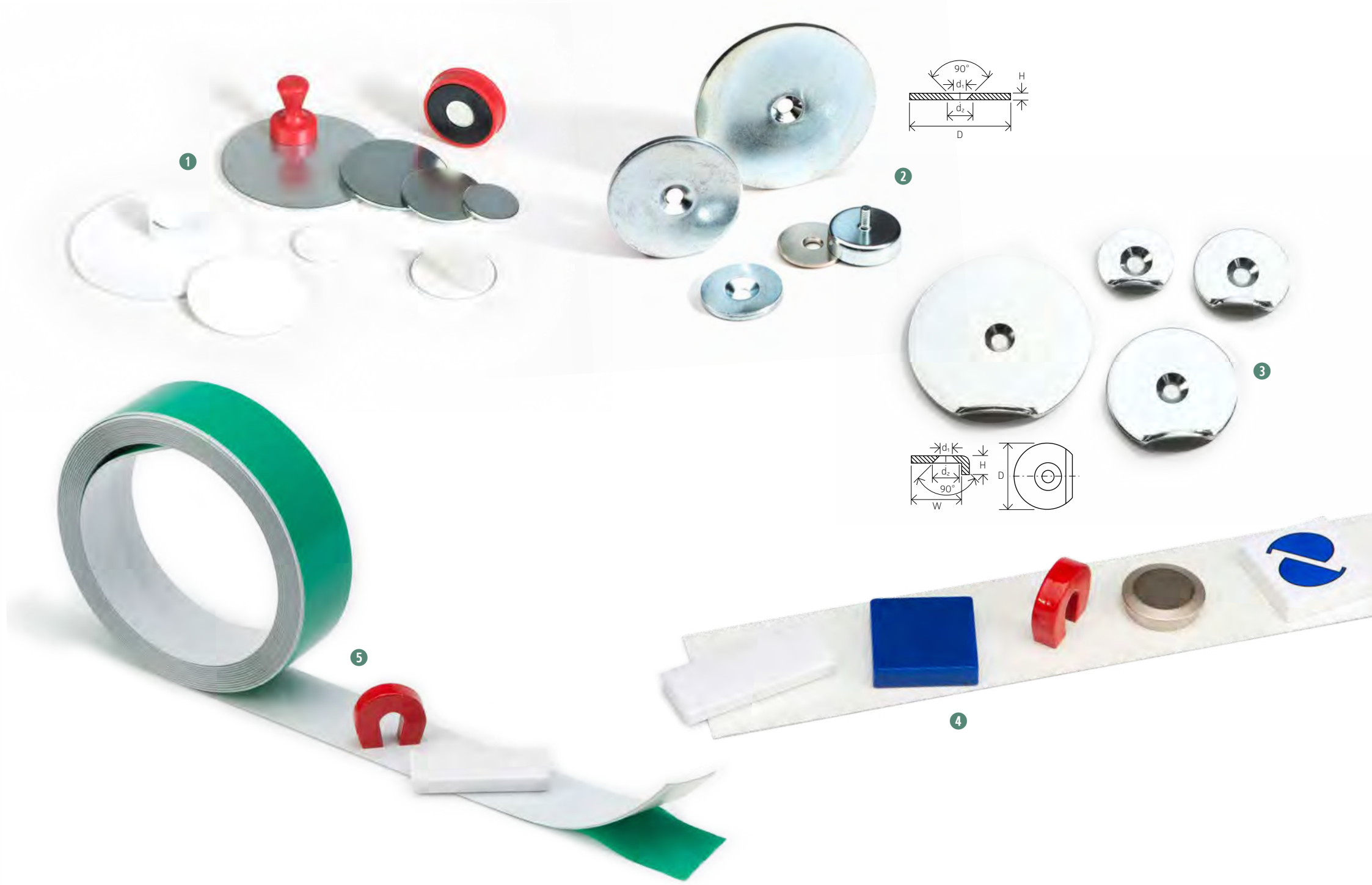
Holding rail made of a special steel plate with 0,5 mm, surface white, self-adhesive foam tape on the back (balances bumps of the wall surface).

Dimensions in mm		Specification	Packaging unit	Item No.
Length	Width			
500	50	white / self-adhesive	1 piece	21.510
1.000	50	white / self-adhesive	1 piece	21.511

Metal tape 5

Flexible, thin metal tape, surface light grey, self-adhesive on the back (foam).

Dimensions in mm		Specification	Packaging unit	Item No.
Length	Width			
5.000	35	light grey / self-adhesive	1 piece	21.60002
30.000	13	light grey / self-adhesive	1 piece	12.40102


1
2
90°
d1
H
d2
D
3
d1
H
d2
90°
W
D
4
5

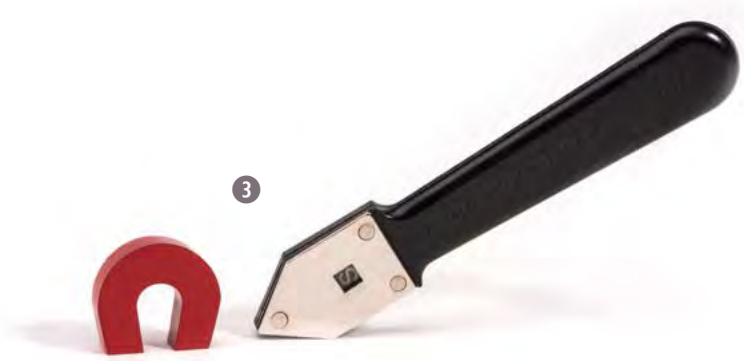
ACCESSORIES

Accessories for magnets

FURTHER TOOLS

Magnets are not just for Whiteboards and refrigerators. In industry, there is a wide range of uses. Our accessories support special applications. For example, if the poles are relevant for your application, you can easily see them with our pole viewer. Furthermore magnetic collectors are practical for collecting small items.

2



3

Sensor foil 1

A foil including ferrous particles visualizes the magnetic field between the magnetic poles. The magnetic poles turn dark when the sensor foil is placed on a magnet or magnetic system. Dividing lines between the “n” and “s” pole appear bright.

Dimensions in mm		Specification	Item No.
Width	Height		
90	60	Sensor field 40 × 40 mm	50.001

Magnetic polarity viewer, cardanic 2

To measure magnetic fields of permanent magnets and electro-magnets. A sensor magnet in a fine-bearing cardanic mounting follows the line of force of a magnetic field three dimensional with its longitudinal axis.

Specification	Item No.
blue = north pole, red = south pole	50.012

Magnet polarity viewer, N–S 3

To determine the polarity, point the tip of the magnetic polarity viewer to the magnet. N = north pole or S = south pole is displayed on the display of the device immediately.

Specification	Item No.
N and S respectively corresponds to the polarity	50.013

Magnetic collectors 4

For sorting out and picking up small ferrous parts and chippings, to lift and move bulk material and small parts like screws, nails, nuts, stamped parts. By pulling the handle upwards, the ferrous parts holding magnetically to the bottom are released.

Dimensions in mm			Weight	Item No.
Length	Width	Height	kg	
80	80	200	1,7	49.000
110	110	200	2,7	49.001
160	110	200	3,7	49.003
215	110	200	5	49.002

Electronic pole tester 5

To determine the polarity, point the tip of the pole tester on the magnetic pole. Polarity is displayed by light.

Specification	Item No.
red = north pole, green = south pole	50.014

Rubber end caps for magnetic systems 8

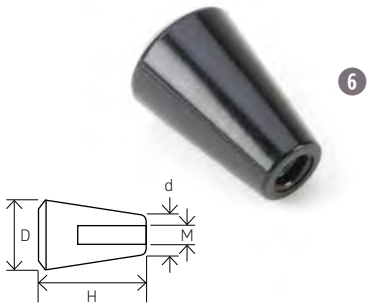
Surface protection for magnetic systems.

Dimensions in mm			Item No.
D	H	h	
50	6	0,5	38.020
63	8	0,5	38.022
80	11	0,5	38.023

Metal clip 9

A perfect combination for magnetic and therefore flexible hold of pipes, cables etc.

Dimensions in mm					Item No.
D	d	H	B	t	
19	4	26,5	9,8	9,5	38.160
25	4	30,5	11,5	9,5	38.161
28	4	33,5	13	11,2	38.162
32	4	39,5	14	11,2	38.163
38	4	48	15,2	12,7	38.164
51	5,5	61	21,8	12,7	38.165



6

7

Handles improve the leverage, therefore strongly adherent magnets can be removed again.

Handle with inner thread 6

Galvanized steel thread. Other specifications on request.

Dimensions in mm D	d	H	Thread M	Specification	Item No.
20	12	30	6 × 18	Plastic, black	38.92003

Handle with threaded pin 7

Other specifications on request.

Dimensions in mm D	d	H	Thread M	Specification	Item No.
15	11	50	5 × 7	Plastic, black	38.92002
26	10	100	8 × 11	Bar burnished	38.920

Glossary

MAGNETIC TERMS

Curie temperature

If the Curie temperature is reached, the magnetic material loses its magnetism.

Operating temperature

The operating temperature is the highest temperature to which a magnet can be exposed without suffering a permanent loss of its magnetic power. It is an approximate value because there is dependence to the dimensioning. There are factors, e.g. mechanical or chemical stress, which may further limit the maximum operating temperature.

Energy product $(B \times H)_{max}$

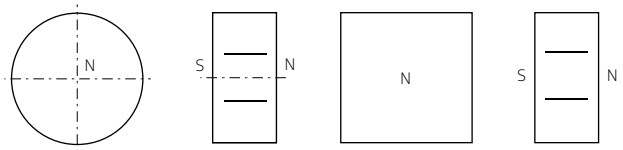
The maximum energy product of the flux density B and field strength H is the most important quality of a magnetic material. The higher the energy product, the greater the magnetic energy. The higher the $(B \times H)_{max}$ value of a magnetic material, the lower the magnetic volume required for a certain task with otherwise identical ratios.

Coercivity H_c

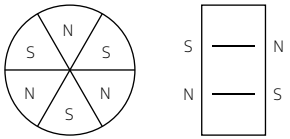
Coercivity is the field force necessary to eliminate magnetization. The higher the value, the more resistant the magnetization. A distinction is made between H_{cB} and H_{cJ}.

Types of magnetization

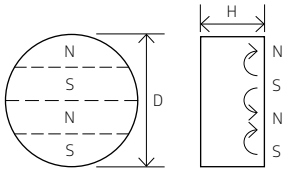
Depending on the required application, model and material of the magnets, different types of magnetization are used. For example, with different magnetizations on the same model, differences can be achieved in the relationship between holding power and air gap. The raw magnet used is also an important factor. If this concerns anisotropic material, basically the first two types of magnetization shown above are relevant. The latter type of magnetization is generally used for isotropic magnets.



Axial magnetization through height.



Sector shaped magnetization axially magnetized through height.



Strip magnetization lateral on one side.

Remanence (B_r)

Remanence is the residual magnetization of a magnetic material magnetized up to saturation in a closed circle. Remanence is stated in Gauss (G), Tesla (T) or Millitesla (mT).

Color code and basic information

FOR MAGNETS AND ...

Color code for magnetic foil

Color	Color code *	Color
white (RAL 9003)	01	
yellow (RAL 1023)	02	
red (RAL 3020)	03	
green (RAL 6029)	04	
blue (RAL 5017)	05	
black (RAL 9005)	06	
orange (RAL 2008)	07	
luminous yellow	08	
luminous red	09	
light grey (RAL 7035)	10	
lilac	11	
golden yellow (RAL 1033)	12	
pink	13	
dark green (RAL 6005)	14	
light blue	15	
hazel (RAL 8023)	16	
mint	17	
silver (RAL 9006)	18	
gold	19	
royal blue (RAL 5002)	20	
luminous green (RAL 6038)	21	

* Please attach to the indicated item numbers. The colors indicated correspond approximately to the RAL-numbers in brackets.

Color code in general

Color	Color code *	Color
white	WS	
yellow	GE	
red	RT	
green	GN	
blue	BL	
black	SW	
grey	GR	
orange	OR	

* Please attach to the indicated item numbers.

Basic information

With regard to any technical specifications in our catalog and web presence, we make every effort to ensure accurate information. However, the contents and values stated shall not be legally binding. Illustrations can deviate. Changes are possible.

We recommend our customers, depending on the application, to examine whether the selected product is actually suitable for the planned application, e.g. according to its material behavior. We cannot control under which conditions our products are treated, processed and used. Therefore, we must deny any right of recourse for any consequential damages arising. Please contact us for further detailed questions regarding our products and its characteristics. All diameters, lengths, widths and heights of our products are stated in millimeter. Exceptions are indicated. We reserve the right to improve our products by changes. Thus, there may be deviations to the details in the catalog and the web presence. Extracts from this presentation shall require our approval.

Information on the use of magnetic foil

TREATMENT AND PROCESSING

General facts

Magnetic foil is flexible, resistant to weather and temperature from approx. –20 °C to +70 °C (magnetic foil 200 to 120 °C and short-termed to 200 °C) and mostly resistant to diluted acids and alkalis. Magnetic foil can be cut, stamped and printed. Magnetic foil is available raw (uncoated), with white-welded compound foil on the non-magnetic side, PVC-laminated or self-adhesive..

Storage

Store magnetic foil dust-free and dry and protected against damages and dirt. Only pile up or roll raw materials with a paper or cardboard intermediate layer. Lay out cuts plain and pile up with intermediate layer. Lay out magnetic foil plain at room temperature 24 hours before printing. Electrostatic dust is attracted by the magnetic fields. Therefore cleaning is required before printing. Drying should take place at room temperature. Do not dry in drying channel. In case of possible wave information – this may occur on special conditions – let magnetic foil hold on a metal sheet at approx. +30 °C to +40 °C for 1-2 days. Clean magnetic foil with water (detergent, if necessary) or antistatic PVC-cleaner.

Usage as car magnetic sign

If the magnetic foil is used as car magnetic sign, please pay attention to the following additional information and inform your customers, in order to ensure a long durability and prevent paint damages:

- Supporting surface of the car must be clean and dry.
- Remove and clean the front and back of the car magnetic signs thoroughly at least once a week.
- Do not place car magnetic signs on trim strips or lowering, because the airstream may reach behind the magnetic signs and they may be lifted off at higher speeds. (This may potentially endanger other road users.)
- Remove, clean and reattach the car magnetic signs at high outside temperatures daily.
- Strong varnish layers or spatulated areas may affect the holding force of the car magnetic signs.
- If the car magnetic signs do not hold on the car, please lay them out flat for storage.
- Remove the car magnetic signs of new or newly painted cars once a day.
- No recommended speed is issued due to different car types.

We have no influence on the conditions of processing and use and thus do not accept any compensation claims for consequential damages. Therefore, please examine the material behavior and application possibilities for your application in advance.
Our experience will be useful and of help. We will be pleased to advise you in case of particular application problems!

Information on the use of raw magnets and magnetic systems

PROCESSING AND SAFETY

Safety information

Please provide the information described below in any event to all employees and persons moving or processing magnetic materials and products in any form.

- Please pay attention to the high attraction forces of the magnets. Even at higher distances magnets may attract. Thus, there is a risk of injury with regard to bigger magnets and magnetic systems.
- Sintered magnets are hard and brittle. The magnets splinter in many sharp-edged parts when colliding. Only work with protective goggles and work gloves and take other appropriate safety measures.
- Strong magnetic fields may distroy of affect sensitive electronic and mechanical devices (measurement devices, computers, magnetic data carriers, etc.). This also applies to pacemakers. Particularly sensitive devices may even be destroyed in extreme cases. Mind a sufficient distance to such equipment.
- Do not process any magnets in a potentially explosive environment. Sparking may occur when sintered magnets are attracted.
- Please pay attention for any finishing of rare-earth magnetic material that grinding dust and chipping are self-igniting and may burn at high temperatures. Processing in a cutting manner should only be performed wet. Never process dry!
- Avoid that permanent magnets are subjected to radioactive beams for a longer period. Otherwise, they may lose its magnetization.
- Please observe the maximum permitted temperature for the corresponding material. Basically, the magnetic characteristics change with increasing or decreasing temperatures.
- Rare-earth magnets should be stored dry in order to avoid an oxidation during a long storage period.
- We refer to the packaging instructions for dangerous goods, no. 953, IATA, for air cargo shipments.
- There are no known negative effects caused by touching magnetic materials. There are also no known adverse effects of magnetic fields on the human body. On the contrary, many people believe that magnetic fields have healing effects. It may be presumed that persons with allergic reactions after contact with ceramic or metallic materials have the same behavior after physical contact with magnetic materials.

Please contact us for further safety questions.

General terms and conditions

SCHALLENKAMMER MAGNETSYSTEME GMBH

1. Introduction
We want all agreements to be clear so that no disputes arise in any matter afterwards. These clear circumstances are stated below in our "General terms and conditions". We accept and execute all orders on the basis of the following conditions. With placing an order, the customer agrees to the following conditions applying to the entire business relation. Any deviating conditions of the customer are expressly excluded. The present conditions have priority and are part of the contract. Verbal commitments by the contractor or its representatives are only valid after written confirmation.

2. Offer and delivery time
Our offers are subject to change without notice. The extent of the order is determined by the contractor´s confirmation of order acceptance. Subsequent changes and collateral agreements are only valid after written confirmation. It obligates the customer to refund costs already arisen and to acknowledge any additional costs. The contractor reserves the copyright on the offer and all related documents. Costs arising by draft processing shall be remunerated. Delivery options and limitations on the quantity to be delivered are expressly reserved. This particularly applies to an own nondelivery limited stock or exceptional events. Agreed delivery dates are not binding and will be maintained, if possible. An appropriate grace period is to be set if a delivery time is exceeded. Compensation claims of any kind are excluded in case of a delay in delivery. Operational disruptions and force majeure entitle the contractor either to re-deliver or withdraw from the contract completely or partially.

3. Pricing and terms of payment
Unless otherwise agreed in writing, our prices are quoted as pure material prices ex-works, excluding packing, shipping and insurance. Delivery is at our discretion in the most cost-effective way. With dispatch of the goods, transport risk passes to the customer in all cases. Packing is charged at the lowest of costs. No returns. All prices are quoted excluding applicable VAT. Pricing and invoice dating is made on the shipping day. Invoices – except wages and assembly work – are payable within 30 days net from the invoice date. Default interest of 2.25 percent per month is charged from the first reminder, however, 14 days after the due date at the latest. A discount is not granted if there is an overdue balance to be paid to us. Objections to invoices must be communicated immediately. Objections to account statements must be made in writing within a preclusive period of 14 days from receipt. Bills of exchange are not accepted. Cheques are only accepted on account of payment. Payment is only valid for accepted cheques after credit confirmation. In default of the customer other liabilities become immediately due and payable. The customer is not entitled to offsetting or enforce any retention right. This also applies to compensation claims of any legal ground. Cost of each reminder is € 5.

4. Warranty
The contractor provides a warranty for proven manufacturing and material defects. A notice of defect must be enforced in writing within 8 days after receipt of the goods at the latest. Otherwise, a notice of defect is excluded. The contractor does not waive an objection to a default by negotiating the defect. The contractor reserves the right to examine the defect on site. Any acceptance of a defect must be expressly made in writing. Defects for which the contractor is liable may be removed by replacements or repairs, at the discretion of the contractor. Reparation of any other damages due to infringement of contractual collateral obligations is excluded. Furthermore, the contractor shall not apply to indirect or consequential damages. If a removal of defects is not possible, the rights of the customer are governed by section § 634 BGB – Civil Code, whereas any right to rescission is expressly excluded. Warranty for third-party products is limited to the assignment of claims due to the contractor against the supplier of the third-party products. A warranty application is not applicable if the goods or services delivered were changed, handled incorrectly or processed. The contractor is not liable for third-party products. However, he assigns hereby his warranty claims against third-party suppliers. A notice of defects is no entitlement to retain agreed payments or offsetting them. The customer's order takes only effect after approval of the sampled product. Information on use and processing as well as assurance of certain characteristics do not release the customer from own aptitude tests for the corresponding application. The customer is obligated to instruct his customers on the proper use of the goods and the risks of a non-observance.

5. Retention of title
Deliveries remain our property (goods subject to retention of title) until all receivables of any legal ground, including those arising in the future, are paid. In particular also payments from balances due to us. This also applies to payments on specially designated receivables. The customer must keep the item of delivery for us and insure it at his expense in our favour until the passing of ownership. Processing is done for us – without an obligation for us – with exclusion of acquisition of ownership according to section § 950 BGB – Civil Code. The processed product serves as security for us in the amount of the invoice value of the goods subject to retention of title. If the goods are combined/processed with other third-party goods by the customer, we are entitled to joint ownership in relation of the invoice value of the goods subject to retention of title to the other third-party products at the time of processing. Incidentally, the same matters of goods

subject to retention of title apply to the new matter created by the combination/processing. It shall be considered as goods subject to retention of title within the meaning of our conditions. The customer may only sell the goods delivered subject to our retention of title in the ordinary course of business, without being in default and by disclosing our retention of title. He is not entitled to other dispositions regarding the goods subject to retention of title. The customers receivable from reselling the product subject to retention of title is now assigned to us – whether the goods subject to retention of title are sold with or without processing. The assigned receivable serves as security for our claims in the amount of the value of the resold goods subject to retention of title in each case and, if applicable, a corresponding balance claim.
The customer is entitled to collect the receivable. Our authorization to collect shall remain unaffected by the customer´s collection entitlement. At our request, the customer has to inform us on the debtors of the receivables assigned. He has to notify the debtors of the assignment and furnish any information and documents required for collection. The customer shall notify us immediately if the goods subject to retention of title are attached or otherwise impaired by a third party. A claim to surrender the goods subject to retention of title is not considered as rescission of a contract. The customers right to possess the goods subject to retention of title expires if he fails to fulfill his payment obligations.

6. Place of performance and jurisdiction
Wuerzburg is the place of performance for mutual obligations. To the legally admissible extent, Wuerzburg is the exclusive jurisdiction for disputes – also bill of exchange or cheque matters – arising from the contractual relationship. The contractual relationship is governed by the laws of the Federal Republic of Germany.

7. Minimum order value
A minimum order value does not exist. In case of order less than 30,– € netto a flat charge of 5,– € will be billed.

8. Additional export conditions
Foreign shipment happens by payment in advance. Deviating agreements have to be written. For all export business the regulations of Germany and European Union are valid.

9. Partial invalidity
Provided that these provisions do not stipulate anything to the contrary, claims to damages of any kind arising from the contract or preliminary negotiations are excluded. Section § 276 subsection 2 BGB – Civil Code shall remain unaffected. If individual provisions of these general terms and conditions are or become invalid, this shall not affect the validity of the remaining provisions. In this event, the invalid provision shall be changed or supplemented to the extent that the intended economic purpose of the invalid provision is attained.

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