



MAGNETIC SOLUTIONS

LIFTING • CLAMPING • TOOLS





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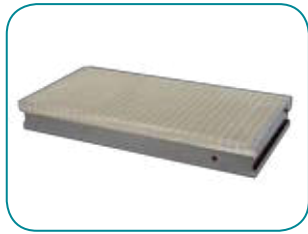
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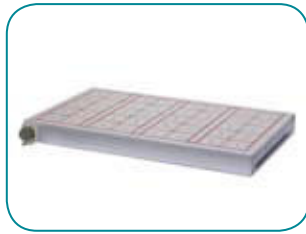
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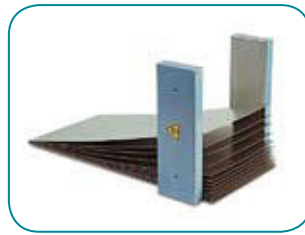
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FLAT- AND ROD GRIPPER

On the following pages you will find permanent magnetic flat and rod gripper. It is in these embodiments the magnet systems have only one adhesive surface due to their construction. Of all the other surfaces of the gripper magnet body assumes no magnetic force. This construction shape makes it possible, to limit the spatial effect of the magnetic field, so that it does not come to a surrounding magnetization of the entire, which is in contact with the gripper magnet, workpiece or the gripper magnet machine elements.



The holding forces given in the tables are nominal at room temperature which can be reached at normal demolition and full surface contact of the gripper bar on workpieces of sufficient thickness of mild iron or mild steel. For unclean pole faces or uneven workpieces to form air gaps, through which the adhesive forces are greatly reduced. It is advisable to always ensure a clean pole face and if necessary to clean from time to time.

The pot magnets described are not aging. They keep their adhesive force for an unlimited period. They can be weakened only by excessively high operating temperatures and mechanical destruction.

Different workpieces influence the adhesive force according to their permeability. With increasing admixtures and alloying components the permeability and thus the adhesive force decreases. Larger surface roughness on the workpiece leader due to the decrease of the support portion in substantial holding power losses. With increasing air gap, the adhesive force of pot magnets decreases. Magnetically non-conducting intermediate layers act in the same sense as an air gap. Should be concerned with long-term temperature or thermal shock stresses malfunctions, please send us your inquiry. The same applies in the event of chemical stresses.

Note:

The holding forces have been determined on a ground plate (material St37) with a thickness of 10mm by the vertical withdrawal of the magnet (1 kg about 10 N). Any differences up to -10 % of the specified values are possible.

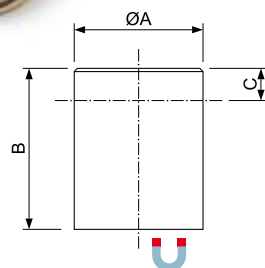
SMCO Rod gripper in brass housing

Rod gripper in SmCo, brass body with fitting tolerance h6, high bond strength and small size under medium temperature influence.



With fit tolerance, shortened to measure C

Item-Nr.	Dimension (mm)				Holding power (N)	Weight (g)	Temperature (°C)
	ØA h6	B	C	D			
4011 06	6	20	10	1,5	8	4,5	200
4011 08	8	20	10	1,5	22	8	200
4011 10	10	20	8	2	40	12,5	200
4011 13	13	20	6	2,5	60	20	200
4011 16	16	20	2	3	125	32	200
4011 20	20	25	5	4	250	60	200
4011 25	25	35	7	5	400	135	200
4011 32	32	40	4	6	600	250	200



NDFEB Rod gripper in brass housing

Rod gripper in NdFeB, brass body with fitting tolerance h6. Highest holding power and small size. NdFeB rod gripper are colored blue on the adhesive surface.

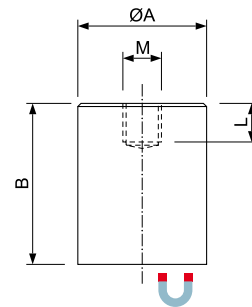
With fit tolerance, shortened to measure C

Item-Nr.	Dimension (mm)				Holding power (N)	Weight (g)	Temperature (°C)
	ØA h6	B	C	D			
4010 06	6	20	10	1,5	10	4,5	80
4010 08	8	20	10	1,5	25	8	80
4010 10	10	20	8	2	45	12	80
4010 13	13	20	6	2,5	70	20	80
4010 16	16	20	2	3	150	30	80
4010 20	20	25	5	4	280	59	80
4010 25	25	35	7	5	450	132	80
4010 32	32	40	5	6	720	246	80



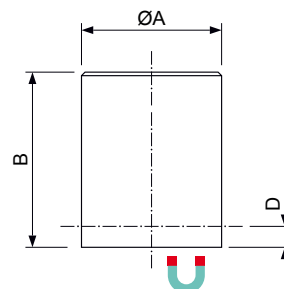
With fit tolerance and thread, not shortened

Item-Nr.	Dimension (mm)				Thread MxL (mm)	Holding power (N)	Weight (g)	Temperature (°C)
	ØA h6	B	D					
4022 06	6	20	1,5	M3 x 5	10	4	80	
4022 08	8	20	1,5	M3 x 5	25	7,5	80	
4022 10	10	20	2	M4 x 7	45	11	80	
4022 13	13	20	2,5	M4 x 7	70	19,5	80	
4022 16	16	25	3	M4 x 8	150	38	80	
4022 20	20	25	4	M6 x 6	280	58	80	
4022 25	25	35	5	M6 x 8	450	130	80	
4022 32	32	40	6	M6 x 6	720	243	80	



At the adhesive surface removably to measure D

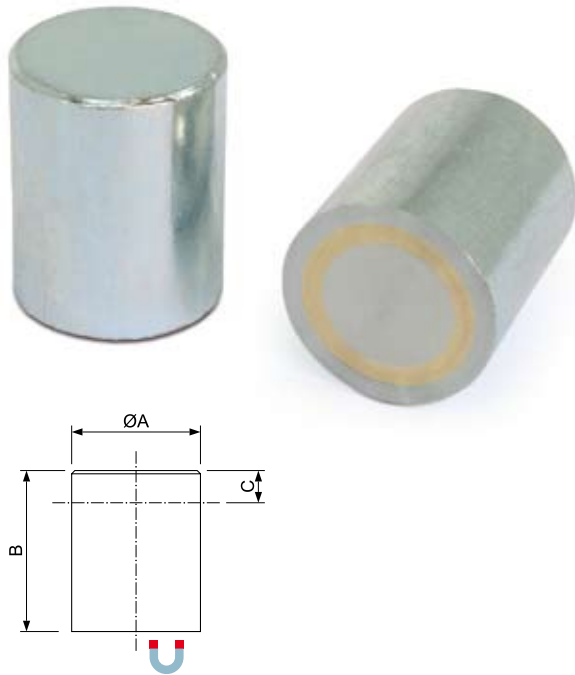
Item-Nr.	Dimension (mm)			Holding power (N)	Weight (g)	Temperature (°C)
	ØA ±0,2	B	D			
4029 06	6	20	3	6	4	80
4029 08	8	20	3	12	7,5	80
4029 10	10	20	5	24	11	80
4029 13	13	20	5	60	20	80
4029 16	16	20	6	90	30	80
4029 20	20	25	7	135	58	80
4029 25	25	35	8	190	131	80
4029 32	32	40	10	340	243	80



Note:
Rod gripper in brass housing must not be installed directly into iron molds with magnetic surfaces. To avoid a loss of adhesive force is the distance to iron-wall according measure complied D necessarily. The distance must be maintained even after the rear when the magnet system has been shortened by the dimension C. The length B will be max. reduced by C level without the adhesive force decreases.

ALNICO Rod gripper in Steel housing

Rod gripper AlNiCo, steel housing in 3 versions

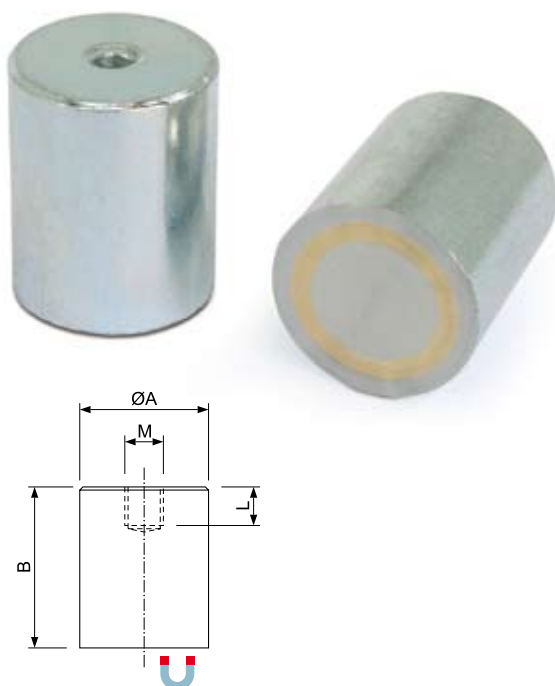


Standard, shortened to measure C

Item-Nr.	Dimension (mm)			Holding power (N)	Weight (g)	Temperature (°C)
	ØA ±0,2	B	C			
4023 06	6	20	12	2	4,5	450
4023 08	8	20	11	4	7,5	450
4023 10	10	20	10	8,5	12	450
4023 13	13	20	8	12	19	450
4023 16	16	20	6	20	30	450
4023 20	20	25	5	40	58	450
4023 25	25	35	13	60	125	450
4023 32	32	40	9	160	220	450
4023 40	40	50	10	240	440	450
4023 50	50	60	10	400	813	450
4023 63	63	65	10	660	1306	450

Fit tolerance h6, shortened to measure C

Item-Nr.	Dimension (mm)			Holding power (N)	Weight (g)	Temperature (°C)
	ØA h6	B	C			
4012 06	6	10	2	2	2	450
4012 08	8	12	3	4	4,5	450
4012 10	10	16	6	8,5	9,5	450
4012 13	13	18	6	12	18	450
4012 16	16	20	6	20	30	450
4012 20	20	25	5	40	57	450
4012 25	25	30	7	60	106	450
4012 32	32	35	4	160	187	450
4012 40	40	45	5	240	390	450
4012 50	50	50	-	400	639	450
4012 63	63	60	5	660	1175	450



Standard with Thread, not shortened

Item-Nr.	Dimension (mm)		Thread MxL (mm)	Holding power (N)	Weight (g)	Temperature (°C)
	ØA h6	B				
4013 06	6	20	M3 x 5	2	4	450
4013 08	8	20	M3 x 5	4	7,5	450
4013 10	10	20	M4 x 7	8,5	11	450
4013 13	13	20	M4 x 7	12	19	450
4013 16	16	20	M4 x 5	20	30	450
4013 20	20	25	M6 x 7	40	55	450
4013 25	25	35	M6 x 9	60	121	450
4013 32	32	40	M8 x 9	160	220	450
4013 40	40	50	M8 x 9	240	440	450
4013 50	50	60	M10 x 12	400	750	450
4013 63	63	65	M10 x 12	660	1280	450

NDFEB Rod gripper in Steel housing

Rod gripper in NdFeB, steel housing in 3 versions.

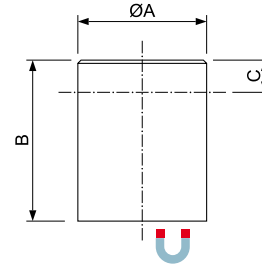
Standard, shortened to measure C

Item-Nr.	Dimension (mm)			Holding power (N)	Weight (g)	Temperature (°C)
	ØA ±0,2	B	C			
4025 04	4	20	15	2,5	2	80
4025 05	5	20	15	4,5	3	80
4025 06	6	20	15	6	4,5	80
4025 08	8	20	15	12	8	80
4025 10	10	20	15	24	12	80
4025 13	13	20	15	60	21	80
4025 16	16	20	15	90	31	80
4025 20	20	25	18	135	61	80
4025 25	25	35	27	190	133	80
4025 32	32	40	32	340	249	80



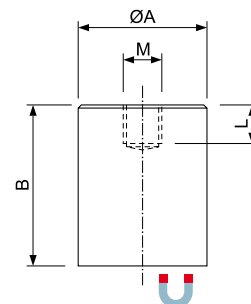
Fit tolerant h6, shortened to measure C

Item-Nr.	Dimension (mm)			Holding power (N)	Weight (g)	Temperature (°C)
	ØA h6	B	C			
4028 06	6	10	5	6	2	80
4028 08	8	12	7	12	5	80
4028 10	10	16	11	24	10	80
4028 13	13	18	13	60	18	80
4028 16	16	20	15	90	31	80
4028 20	20	25	18	135	61	80
4028 25	25	30	22	190	114	80
4028 32	32	35	27	340	217	80



Standard with thread, not shortened

Item-Nr.	Dimension (mm)			Holding power (N)	Weight (g)	Temperature (°C)
	ØA ±0,2	B	Thread MxL (mm)			
4027 06	6	20	M3 x 5	6	4	80
4027 08	8	20	M3 x 5	12	7,5	80
4027 10	10	20	M4 x 7	24	11	80
4027 13	13	20	M4 x 7	60	20	80
4027 16	16	20	M4 x 7	90	30	80
4027 20	20	25	M6 x 9	135	58	80
4027 25	25	35	M6 x 9	190	131	80
4027 32	32	40	M8 x 12	340	243	80
4027 40	40	50	M8 x 12	700	480	80
4027 50	50	60	M10 x 12	1000	900	80
4027 63	63	65	M12 x 14	1700	1560	80

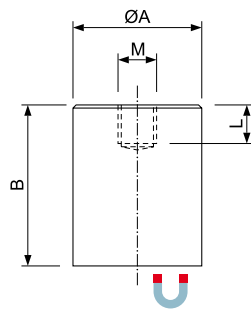


ALNICO Rod gripper in Steel housing

Rod gripper AlNiCo, steel body painted red and internal thread

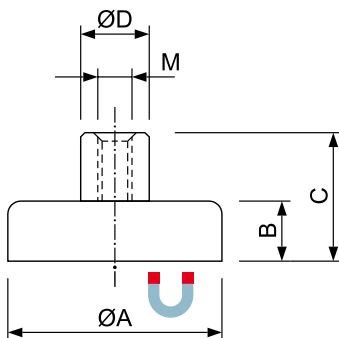


Item-Nr.	Dimension (mm)		Thread MxL (mm)	Holding power (N)	Weight (g)	Temperature (°C)
	ØA ±0,2	B				
4031 12	12,5	16	M4 x 7	20	15	220
4031 17	17	16	M6 x 5	26	29	220
4031 21	21	19	M6 x 7	40	50	220
4031 27	27	25	M6 x 9	65	98	220
4031 35	35	30	M6 x 9	150	205	220
4031 65	65	43	M12 x 13	400	1060	220



HARTFERRIT Flat gripper

Flat pot magnets hard ferrite with threaded bush, galvanized



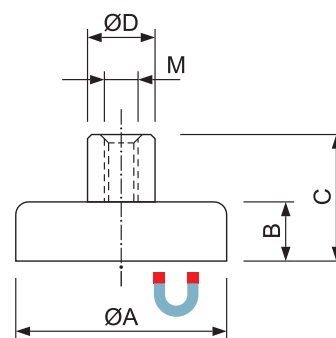
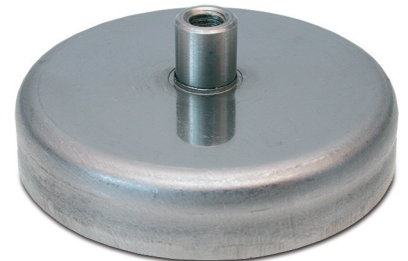
Item-Nr.	Dimension (mm)				Thread (M)	Holding power (N)	Weight (g)	Temperature (°C)
	ØA	B	C	ØD				
4035 01006	10	4,5	11,5	6	M3	4	3	200
4035 01306	13	4,5	11,5	6	M3	10	4	200
4035 01606	16	4,5	11,5	6	M3	18	6	200
4035 02006	20	6	13	6	M3	30	11	200
4035 02508	25	7	15	8	M4	40	20	200
4035 03208	32	7	15	8	M4	80	31	200
4035 03608	36	7,7	16	8	M4	100	42	200
4035 04008	40	8	16,5	8	M4	125	57	200
4035 04010	40	8	18	10	M5	125	59	200
4035 04708	47	9	17	8	M4	180	86	200
4035 04712	47	9	21	12	M6	180	91	200
4035 05008	50	10	18,5	8	M4	220	105	200
4035 05012	50	10	22	12	M6	220	111	200
4035 05708	57	10,5	18,5	8	M4	280	147	200
4035 05712	57	10,5	22,5	12	M6	280	153	200
4035 06308	63	14	22	8	M4	350	228	200
4035 06315	63	14	30	15	M8	350	245	200
4035 08012	80	18	28,5	12	M6	600	477	200
4035 08020	80	18	34	20	M10	600	499	200
4035 10022	100	22	43	22	M12	900	956	200
4035 12525	125	26	50	25	M14	1300	1720	200

HARTFERRIT Flat gripper

Flat pot magnets hard ferrite with threaded bush in a stainless steel housing. The systems with stainless steel housing are particularly suitable for rooms with special hygiene requirements.

They also have excellent resistance to chemicals and can therefore also be used with galvanic applications. In addition, a higher temperature resistance is achieved.

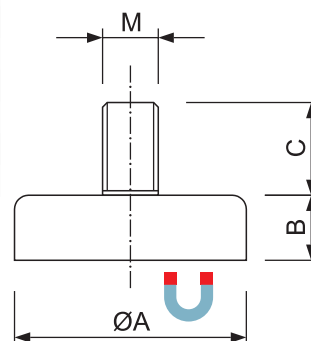
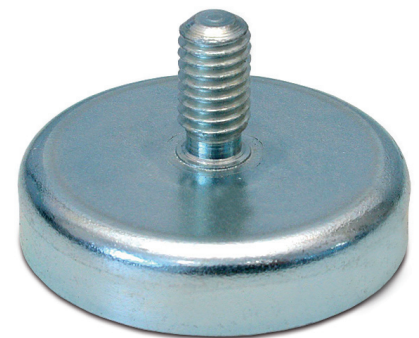
Item-Nr.	Dimension (mm)				Thread (M)	Holding power (N)	Weight (g)	Temperature (°C)
	ØA	B	C	ØD				
4036 25	25	7	16	8	M5	32	20	220
4036 32	32	7	16	8	M5	64	31	220
4036 40	40	8	16,5	8	M5	100	56	220
4036 50	50	10	18,5	8	M5	175	105	220
4036 63	63	14	22	8	M5	280	228	220



HARTFERRIT Flat gripper

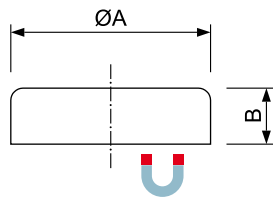
Flat pot magnets hard ferrite, with threaded rod galvanized

Item-Nr.	Dimension (mm)			Thread (M)	Holding power (N)	Weight (g)	Temperature (°C)
	ØA	B	C				
4037 1007	10	4,5	7	M3	4	2	200
4037 1308	13	4,5	7	M3	10	3	200
4037 1607	16	4,5	7	M3	18	5	200
4037 1606	16	4,5	6	M4	18	5	200
4037 2007	20	6	7	M3	30	10	200
4037 2030	20	6	30	M6	30	15	200
4037 2508	25	7	8	M4	40	19	200
4037 2515	25	7	15	M5	40	20	200
4037 2520	25	7	20	M6	40	22	200
4037 3208	32	7	8	M4	80	30	200
4037 3212	32	7	12	M6	80	31	200
4037 3210	32	7	10	M8	80	32	200
4037 4708	47	9	8	M6	180	85	200
4037 5708	57	10,5	8	M6	280	146	200
4037 6315	63	14	15	M6	350	233	200



HARTFERRIT Flat gripper

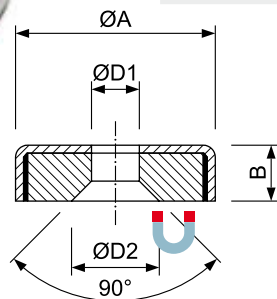
Flat pot magnets hard ferrite, galvanized



Item-Nr.	Dimension (mm)		Holding power (N)	Weight (g)	Temperature (°C)
	ØA	B			
4038 010	10	4,5	4	2	200
4038 013	13	4,5	10	3	200
4038 016	16	4,5	18	5	200
4038 020	20	6	3	10	200
4038 025	25	7	40	18	200
4038 032	32	7	80	29	200
4038 036	36	7,7	100	39	200
4038 040	40	8	125	55	200
4038 047	47	9	180	84	200
4038 050	50	10	220	102	200
4038 057	57	10,5	280	141	200
4038 063	63	14	350	226	200
4038 080	80	18	600	468	200
4038 100	100	22	900	915	200
4038 125	125	26	1300	1680	200

HARTFERRIT Flat gripper

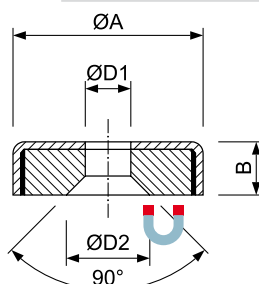
Flat pot magnets hard ferrite with bore and counter bore, galvanized



Item-Nr.	Dimension (mm)				Holding power (N)	Weight (g)	Temperature (°C)
	ØA	B	ØD1	ØD2			
4039 16	16	4,5	3,5	6,5	14	47	200
4039 20	20	6	4,2	9,4	27	9	200
4039 25	25	7	5,5	11,5	36	17	200
4039 32	32	7	5,5	11,5	72	27	200
4039 40	40	8	5,5	11,5	90	52	200

HARTFERRIT Flat gripper

Flat pot magnets hard ferrite with bore and counter-bore in stainless steel housing. The systems with stainless steel housing are particularly suitable for rooms with special hygiene requirements. They also have excellent resistance to chemicals and can therefore also be used with galvanic applications. In addition, a higher temperature resistance is achieved.

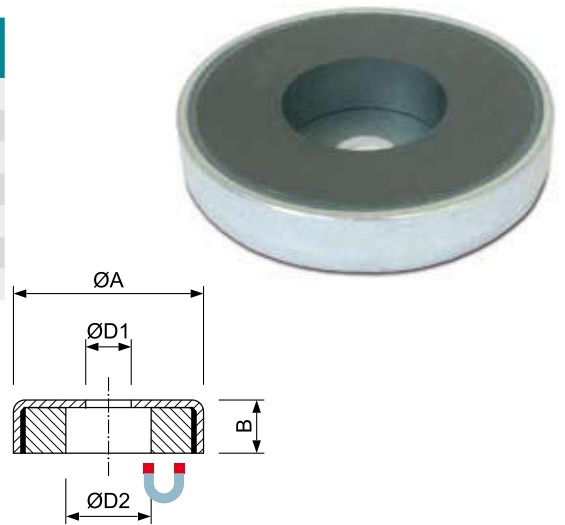


Item-Nr.	Dimension (mm)				Holding power (N)	Weight (g)	Temperature (°C)
	ØA	B	ØD1	ØD2			
4040 20	20	6	4,2	9,4	22	9	220
4040 25	25	7	5,5	11,5	29	17	220
4040 32	32	7	5,5	11,5	58	27	220
4040 40	40	8	5,5	11,5	72	52	220

HARTFERRIT Flat gripper

Flat pot magnets hard ferrite with cylinder-bore, galvanized

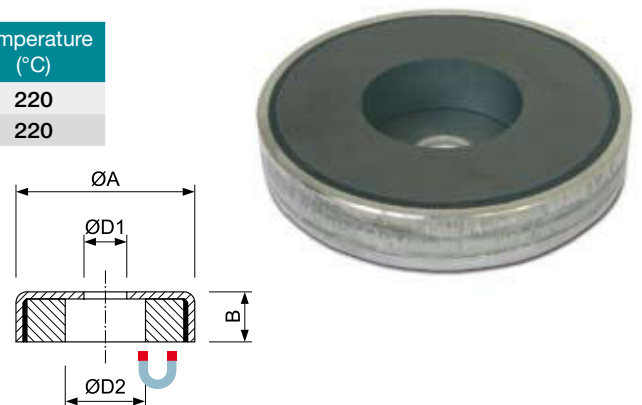
Item-Nr.	Dimension (mm)				Holding power (N)	Weight (g)	Temperature (°C)
	ØA	B	ØD1	ØD2			
4041 05010	50	10	8,5	22	180	85	200
4041 05711	57	11	6,5	24	230	130	200
4041 06314	63	14	6,5	24	290	197	200
4041 08010	80	10	6,4	32	450	235	200
4041 08018	80	18	6,5	11,5	540	458	200
4041 08318	83	18	10,5	32	600	444	200
4041 10022	100	22	10,5	34	680	815	200



HARTFERRIT Flat gripper

Flat pot magnets hard ferrite with cylinder-bore in stainless steel housing. The systems with stainless steel housing are particularly suitable for rooms with special hygiene requirements. They also have excellent resistance to chemicals and can therefore also be used with galvanic applications. In addition, a higher temperature resistance is achieved.

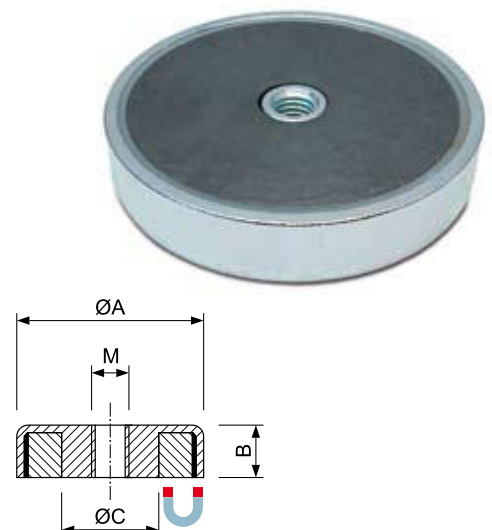
Item-Nr.	Dimension (mm)				Holding power (N)	Weight (g)	Temperature (°C)
	ØA	B	ØD1	ØD2			
4042 50	50	10	8,5	22	145	85	220
4042 63	63	14	6,5	24	230	195	220



HARTFERRIT Flat gripper

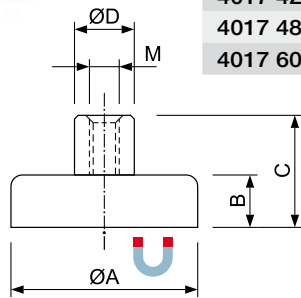
Flat pot magnets hard ferrite with internal thread, galvanized

Item-Nr.	Dimension (mm)				Holding power (N)	Weight (g)	Temperature (°C)
	ØA	B	ØC	Thread (M)			
4043 2504	25	7	5,2	M4	36	18	200
4043 3204	32	7	5,2	M4	75	29	200
4043 4004	40	8	5,2	M4	90	53	200
4043 5006	50	10	12	M6	170	94	200
4043 5008	50	10	12	M8	170	94	200
4043 6308	63	14	13	M8	290	206	200
4043 8008	80	18	14,5	M8	550	472	200
4043 8010	80	18	14,5	M10	550	466	200



NDFEB Flat gripper

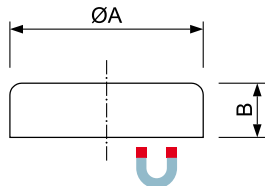
Flat Gripper with threaded bush in NdFeB, galvanized



Item-Nr.	Dimension (mm)				Thread (M)	Holding power (N)	Weight (g)	Temperature (°C)
	ØA	B	C	ØD				
4017 10	10	5	12	5,5	M3	25	3	80
4017 12	12	5	13	6	M3	55	5	80
4017 16	16	5	13	6	M4	95	8	80
4017 20	20	7	15	8	M4	140	17	80
4017 25	25	8	17	10	M5	200	25	80
4017 32	32	8	18	10	M5	350	48	80
4017 36	36	8	18	10	M6	450	60	80
4017 42	42	9	20	12	M6	580	78	80
4017 48	48	11	24	12	M8	800	94	80
4017 60	60	15	30	14	M10	1150	110	80

NDFEB Flat gripper

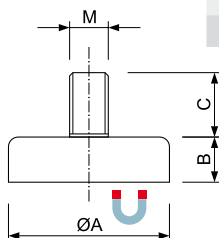
NdFeB flat pot, galvanized



Item-Nr.	Dimension (mm)		Holding power (N)	Weight (g)	Temperature (°C)
	ØA	B			
4019 06	6	4,5	6	1	80
4019 08	8	4,5	13	1,5	80
4019 10	10	4,5	25	2,5	80
4019 13	13	4,5	60	4,5	80
4019 16	16	4,5	100	6,5	80
4019 20	20	6	150	15	80
4019 25	25	7	200	22	80
4019 32	32	7	350	40	80

NDFEB Flat gripper

Flat gripper with threaded pin in NdFeB, galvanized

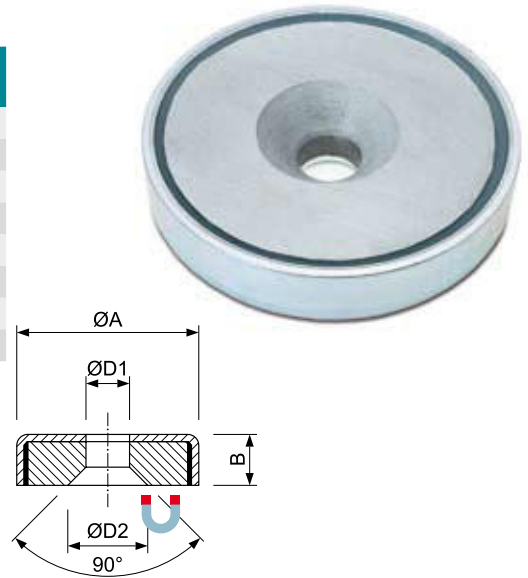


Item-Nr.	Dimension (mm)			Thread (M)	Holding power (N)	Weight (g)	Temperature (°C)
	ØA	B	C				
4016 10	10	5	7	M3	25	3	80
4016 12	12	5	8	M3	55	5	80
4016 16	16	5	8	M4	95	8	80
4016 20	20	7	8	M4	140	17	80
4016 25	25	8	9	M5	200	25	80
4016 32	32	8	10	M6	350	48	80
4016 36	36	8	10	M6	450	60	80
4016 42	42	9	11	M6	580	78	80
4016 48	48	11	13	M6	800	94	80
4016 60	60	15	15	M8	1150	110	80

NDFEB Flat gripper

NdFeB flat pot with bore, galvanized

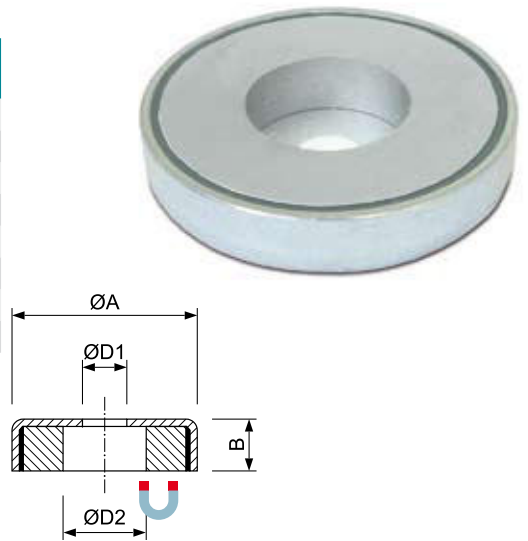
Item-Nr.	Dimension (mm)				Holding power (N)	Weight (g)	Temperature (°C)
	ØA	B	ØD1	ØD2			
4014 16	16	5	3,5	6,5	75	4	80
4014 20	20	7	4,5	8,6	105	12	80
4014 25	25	8	5,5	10,4	160	22	80
4014 32	32	8	5,5	10,4	310	40	80
4014 42	42	9	6,5	12	520	80	80
4014 48	48	11,5	8,5	16	660	100	80
4014 60	60	15	8,5	16	880	120	80
4014 75	75	18	10,5	19	110	150	80



NDFEB Flat gripper

NdFeB flat pot with cylinder bore, galvanized

Item-Nr.	Dimension (mm)				Holding power (N)	Weight (g)	Temperature (°C)
	ØA	B	ØD1	ØD2			
4015 16	16	5	3,5	6,5	75	4	80
4015 20	20	7	4,5	8	105	12	80
4015 25	25	8	5,5	9	160	22	80
4015 32	32	8	5,5	9	310	40	80
4015 42	42	9	6,5	11	520	80	80
4015 48	48	11,5	8,5	15	660	100	80
4015 60	60	15	8,5	15	880	120	80
4015 75	75	18	10,5	18	1100	150	80

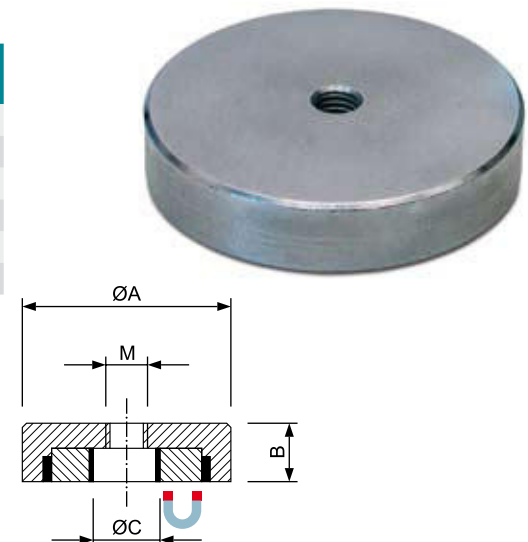


NDFEB Flat gripper

Flat Gripper with internal thread in NdFeB, galvanized

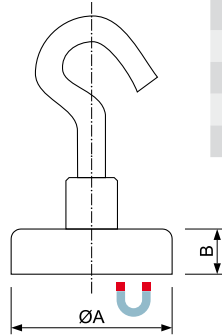
Item-Nr.	Dimension (mm)			Thread (M)	Holding power (N)	Weight (g)	Temperature (°C)
	ØA	B	ØC				
4048 32	32	7	5,5	M5	330	40	80
4048 40	40	8	10,5	M5	500	74	80
4048 50 *	50	10	9,5	M8	800	140	80
4048 63 *	63	14	11,7	M10	1100	315	80
4048 75 *	75	15	13	M10	1750	479	80

* With these dimensions, the adhesive surface is protected by a plastic coating.



NDFEB Flat gripper

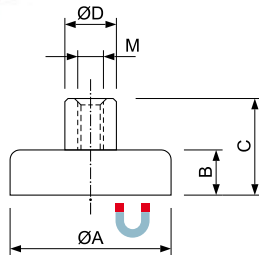
NdFeB flat pot with mounted hook, galvanized



Item-Nr.	Dimension (mm)		Holding power (N)	Weight (g)	Temperature (°C)
	ØA	B			
4018 16	16	5	75	4	80
4018 20	20	7	105	12	80
4018 25	25	8	160	22	80
4018 32	32	8	310	40	80
4018 42	42	9	580	80	80
4018 48	48	11,5	800	100	80
4018 60	60	15	1150	120	80
4018 75	75	18	1600	150	80

SMCO Flat gripper

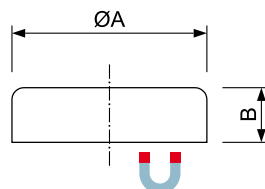
Flat pot SmCo with threaded bush, galvanized



Item-Nr.	Dimension (mm)				Thread (M)	Holding power (N)	Weight (g)	Temperature (°C)
	ØA	B	C	ØD				
4049 06	6	4,5	11,5	6	M3	5	2	200
4049 08	8	4,5	11,5	6	M3	11	3	200
4049 10	10	4,5	11,5	6	M3	20	4	200
4049 13	13	4,5	11,5	6	M3	40	6	200
4049 16	16	4,5	11,5	6	M4	60	7	200
4049 20	20	6	13	8	M4	90	16	200
4049 25	25	7	14	8	M4	150	28	200
4049 32	32	7	15,5	10	M5	220	47	200

SMCO Flat gripper

Flat pot SmCo, galvanized

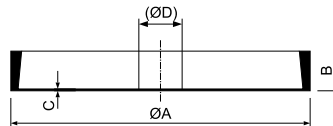


Item-Nr.	Dimension (mm)		Holding power (N)	Weight (g)	Temperature (°C)
	ØA	B			
4050 06	6	4,5	5	1	200
4050 08	8	4,5	11	2	200
4050 10	10	4,5	20	3	200
4050 13	13	4,5	40	4	200
4050 16	16	4,5	60	7	200
4050 20	20	6	90	14	200
4050 25	25	7	150	26	200
4050 32	32	7	220	42	200

ACCESSORIES Flat gripper

Rubber-lip available as a protective coating for flat gripper with hole

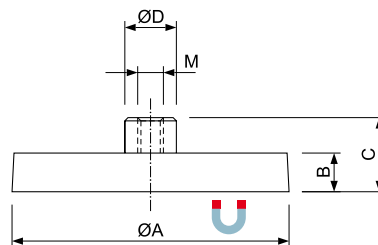
Item-Nr.	Dimension (mm)			
	ØA	B	C	ØD
4052 052	52	6	0,5	-
4052 059	59	6	0,5	-
4052 065	65	8	0,5	-
4052 083	83	11	0,5	-
4053 050	52	6	0,5	20
4053 063	65	8	0,5	20
4053 080	83	11	0,5	24
4053 104	104	12	0,5	34



NDFEB Rubber sheath Flat gripper

Flat Gripper in NdFeB, rubber sheath, black with threaded bush

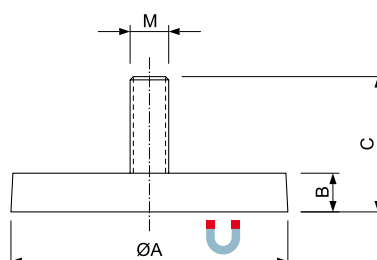
Item-Nr.	Dimension (mm)				Thread (M)	Holding power (N)	Weight (g)	Temperature (°C)
	ØA	B	C	ØD				
4054 12	12	7	14,8	8	M4	10	6	60
4054 22	22	6	11,5	8	M4	50	13	60
4054 31	31	6	11,5	8	M4	75	22	60
4054 43	43	6	10,5	8	M4	85	30	60
4054 66	66	8,5	15	10	M5	180	105	80
4054 88	88	8,5	17	12	M8	420	192	80



NDFEB Rubber sheath Flat gripper

Flat Gripper in NdFeB, rubber sheath, black with threaded pin

Item-Nr.	Dimension (mm)			Thread (MxL)	Holding power (N)	Weight (g)	Temperature (°C)
	ØA	B	C				
4055 22	22	6	12,5	M4 x 6,5	50	11	60
4055 43	43	6	21	M6 x 15	85	32	80
4055 66	66	8,5	23,5	M8 x 15	180	107	80
4055 88	88	8,5	23,5	M8 x 15	420	193	80

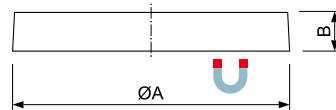


NDFEB Rubber sheath Flat gripper

Flat Gripper in NdFeB, rubber coat black



Item-Nr.	Dimension (mm)		Holding power (N)	Weight (g)	Temperature (°C)
	ØA	B			
4056 22	22	6	50	9,5	60
4056 31	31	6	75	25	60
4056 43	43	6	85	28	60

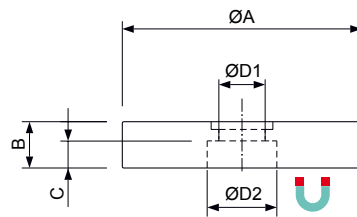


NDFEB Rubber sheath Flat gripper

Flat Gripper in NdFeB, rubber sheath, black with cylinder bore



Item-Nr.	Dimension (mm)						Holding power (N)	Weight (g)	Temperature (°C)
	ØA	B	C	ØD1	ØD2				
4057 22	22	6	3,5	4	8,2	35	8	60	
4057 31	31	6	3,5	6	9	75	20	60	
4057 43	43	6	4,2	7	12,8	85	27	60	
4057 57	57	7,6	3,3	8	25,3	175	77	60	
4057 66	66	8,5	3,2	5,5	25	210	100	60	

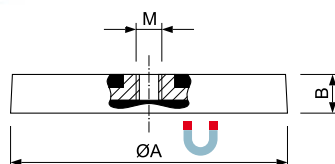


NDFEB Rubber sheath Flat gripper

Flat Gripper in NdFeB, rubber coat with internal thread



Item-Nr.	Dimension (mm)		Thread (M)	Holding power (N)	Weight (g)	Temperature (°C)
	ØA	B				
4058 22	22	6	M4	35	9	60
4058 31	31	6	M5	75	21	60
4058 43	43	6	M4	85	29	60
4058 66	66	8,5	M6	180	100	80
4058 88	88	8,5	M6	420	186	80



Hint:
Rubber sheathed flat pot bring maximum support against pushing forces and can be used on painted metal surfaces without damaging the surface.

NDFEB Gripper Magnet

Neodymium magnetic grip, nickel-plated. Powerful, handy magnet for versatile use.

Item-Nr.	Dimension (mm)		Holding power (N)	Weight (g)
	ØD	H		
4060 12	12	16	55	7
4060 16	16	34	100	15
4060 28	28	68	180	28



NDFEB Magnetic Foil

Multi-pole-magnetized NdFeB tighten up and down. Therefore, they are particularly well suited to sheet metal parts such as to attach signs. The magnetic films can be cut with a knife and placed in the form.

Select the version painted with adhesive foil to install magnetizable parts on a nonmagnetizable ground like concrete. Select the version unpainted without adhesive foil to connect two magnetizable surfaces or parts together.

Magnetic foil painted with adhesive foil

Item-Nr.	Dimension (mm)			Holding power (N)	Weight (g)	Temperature (°C)
	L	W	H ±0,3			
4063 0100	203	97	3,8	200	260	75
4063 0101	227	97	3,5	200	300	75
4063 0102	227	37	3,5	200	120	75



Magnetic foil unpainted without adhesive foil

Item-Nr.	Dimension (mm)			Holding power (N)	Weight (g)	Temperature (°C)
	L	W	H ±0,2			
4063 0200	203	97	3,8	200	260	75
4063 0201	227	97	3,5	200	300	75
4063 0202	227	37	3,5	200	120	75

NDFEB Magnetic Strips

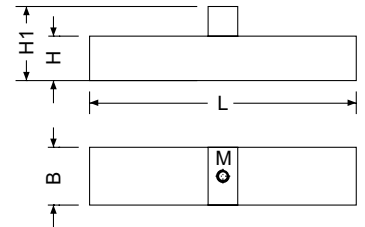
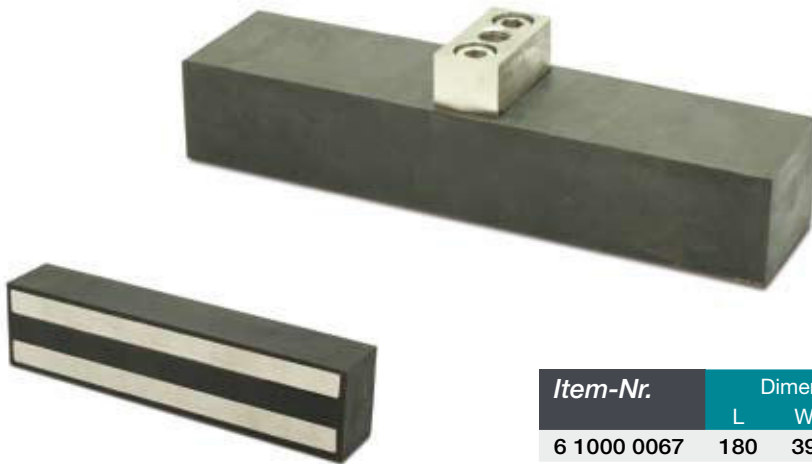
NdFeB magnetic strips achieve by their long detention areas best holding forces even with thin materials. They are ideally suited to attach signs and strips.



Item-Nr.	Dimension (mm)			Drilling (mm)	drilling-distance (mm)	Holding power (N)	Weight (g)	Temperature (°C)
	L	W	H					
4062 0030	30	13,5	5	1 x Ø3	-	90	13	80
4062 0035	35	24,5	7,5	1 x Ø3	-	300	14	80
4062 0040	40	13,5	5	2 x Ø3	30	120	16	80
4062 0050	50	13,5	5	2 x Ø3	30	150	21	80
4062 0100	100	13,5	5	2 x Ø3	60	310	42	80

NDFEB Rubber-coated Magnetic Block

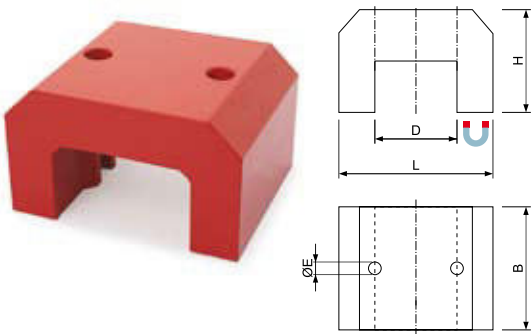
The super strong NdFeB magnet block is entirely elastomer coated to protect against corrosion and nickel on the rake. For mechanical recording a VA - receiving block is constructed with M10 thread. The NdFeB magnet block can be used as holding and mounting magnet even under harsh conditions.



Item-Nr.	Dimension (mm)				mounting thread	Holding power (kN)	Weight (kg)
	L	W	H	H 1			
6 1000 0067	180	39	30	50	M10 x 20mm	3	1,5

ALNICO Horseshoe Magnet

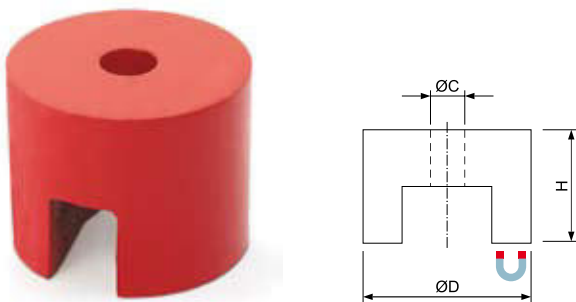
Horseshoe magnet AlNiCo, painted red



Item-Nr.	Dimension (mm)					Holding power (N)	Weight (g)	Temperature (°C)
	L	B	H	D	E			
4020 01	31	20	20	15	Ø4	45	65	450
4020 02	40	25	25	20	Ø5	90	150	450
4020 03	45	30	30	22	Ø6	120	220	450
4020 04	57	44,5	35	35	2 x Ø8	230	380	450
4020 05	71	57	41	41	2 x Ø8	320	1600	450
4020 06	78	82	54,5	48	2 x Ø11	470	2000	450

ALNICO Button Magnet

Button magnet AlNiCo, painted red



Item-Nr.	Dimension (mm)			Holding power (N)	Weight (g)	Temperature (°C)
	L	W	H			
4021 13	13	10	4,2	7	7	450
4021 19	19	13	5,4	19	20	450
4021 25	25	16	5,4	29	56	450
4021 32	32	25	7	66	133	450

ALNICO Flat pot Magnet

Flat pot magnet made of AlNiCo, painted red



Item-Nr.	Dimension (mm)			drilling-Ø (mm)	Holding power (N)	Weight (g)	Temperature (°C)
	ØD	H					
4061 19	19	8		3,5	30	18	450
4061 29	28,6	9,5		6	55	46	450
4061 38	38	10,5		5	95	97	450

Magnetic Gripping and Holding

Metal Plate with Hole

Metal plate with hole and countersink, as a counter unit for flat gripper

Item-Nr.	Dimension (mm)		drilling Ø (mm)	Material	Weight (g)
	ØD	H			
4090 12	12	2	4	galvanized	1,5
4090 17	17	2	6	galvanized	4
4090 23	23,7	1,5	5	nickel	5
4090 27	27	3	5,5	stainless steel	12
4090 28	27	3	5,5	galvanized	12
4090 34	34	3	5,5	galvanized	20
4090 45	45	2	6,2	stainless steel	24
4090 46	45	3	5,5	galvanized	36
4090 64	64	3	5,5	galvanized	65



Metal Plate with Adhesive Foil

Metal plate with adhesive film, as a counter unit for flat gripper

Item-Nr.	Dimension (mm)		Material	Weight (g)
	ØD	H		
4091 20	20	2	galvanized	6
4091 21	20	2	painted white	6
4091 30	30	2	galvanized	12
4091 31	30	2	painted white	12
4091 40	40	2	galvanized	20
4091 41	40	2	painted white	20
4091 60	60	2,5	galvanized	52
4091 61	60	2,5	painted white	52



MARBLE-MAG

Marble-Mag advertising and organization magnets are extremely strong neodymium balls made with high quality nickel-plated surface. A ball with 8mm diameter holds as loose on a whiteboard up to 10 pages 80gr. Paper. For your customers, we pack 10 Marble-Mags in a transparent tube made from environmentally friendly plastic. The tubes of the Marble-Mags can be personalized with your logo, company address or advertising content be printed and are an ideal and functional advertising for your company. The maximum Size of 1-colored Screen printing is 65 x 27mm. After receiving your data we can offer the finished Marble-Mags within supply of 6-8 working days.

Item-Nr.	Dimension (mm)			Weight (g)
	ØD	L	Ball Ø	
8001 0001	14	100	8	20



PERMANENT Raw Magnets

Permanent magnets are used for various applications in all areas. Depending on the requirements, the optimum Raw-magnet and the right surface coating should be selected.

Motors, generators, sensors - almost everything that moves is based on magnetism!



The following magnetic materials are used in the industry:

1. NdFeB

is the most powerful, commercially available permanent-magnetic material.

Main alloy constituents are neodymium, and boron ferrite.

His BH max. is 10 times higher than in ferrite. It is extremely hard magnetic - so immune to accidental demagnetization. The maximum operating temperature for NdFeB is 230°C. NDFEB magnets are very susceptible to corrosion and are therefore usually coated.

2. Ferrit Magnets

Main alloy constituents are ferrite, strontium and barium.

Ferrite magnets reach only comparatively small magnetic forces, but have the advantage to be very inexpensive.

They are not prone to corrosion and can be used at ambient temperatures up to 400°C. Ferrite magnets are the most used.

3. SmCo

Main alloy constituents are samarium and cobalt.

For the limited reserves of samarium and cobalt, SmCo magnets are very expensive. SmCo Magnets reach very high magnetic forces, only about 20% lower than the NdFeB magnets.

Very advantageous is the good temperature resistance. The ambient temperatures up to 300°C allow a reliable coercivity and very low susceptibility to corrosion. A disadvantage the brittle structure and the poor machinability should be mentioned.

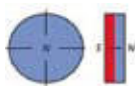
4. AlNiCo

Major alloying constituents are aluminum, nickel and cobalt.

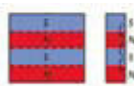
Alnico magnets (aluminum - nickel-cobalt) are the oldest technology used permanent magnets.

They achieve good magnetic holding forces about 30 % of NdFeB magnets and can be used at ambient temperatures up to 550°C. Alnico magnets are extremely hard and brittle and, due to the cobalt content are relatively expensive.

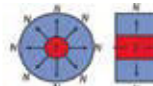
Magnetization directions



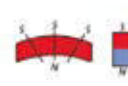
Magnetized axially



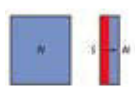
Magnetized in strips



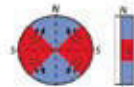
Magnetized radially



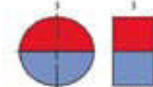
Magnetized radially



Magnetized in the Height



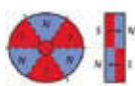
Multipole magnetized on circumference



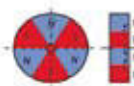
Magnetized diametrically



Magnetized diametrically



Axial sector-shaped magnetized 6 pins



Sector-shaped in an area magnetized 6 pins



Multipolar magnetized on the inner circumference

NDFEB Magnets

Neodymium magnets of the highest quality, we offer you in the qualities of N28-N55 to for working temperature ranges up to 230°C. Here are some examples of magnetic parameters for magnets in the working temperature range up to 80°C.

For further information please ask for our ND-Catalog.

Type	Br T (kGS)		Hcb kA/m kOe	Hcj kA/m kOe	BH max. kJ/m ³ MGOe		Temperature (°C)
	Max.	Min.			Max.	Min.	
N54	1,5	1,47	<835	<875	430	410	<70
	15	14,7	<10,4	<11,0	54	51,5	
N52	1,48	1,44	<876	<955	414	394	<80
	14,8	14,4	<11,0	<12,0	52	49,5	
N50	1,45	1,41	<876	<955	398	382	<80
	14,05	14,1	<11,0	<12,0	50	48	
N48	1,42	1,36	<876	<955	382	358	<80
	14,2	13,6	<11,0	<12,0	48	45	
N45	1,37	1,33	<876	<955	358	334	<80
	13,7	13,3	<11,0	<12,0	45	42	
N42	1,33	1,29	<876	<955	334	318	<80
	13,3	12,9	<11,0	<12,0	42	40	
N40	1,29	1,26	<876	<955	318	303	<80
	12,9	12,6	<11,0	<12,0	40	38	
N38	1,26	1,22	<876	<955	303	287	<80
	12,6	12,2	<11,0	<12,0	38	36	
N35	1,22	1,17	<876	<955	287	263	<80
	12,2	11,7	<11,0	<12,0	36	33	

NDFEB Magnets

Neodymium magnets have to be surface-treated to protect against corrosion. In general, the magnets are coated. Especially for motor magnets but also recommended the process of passivation by heat treatment.

The most common coatings are nickel, zinc and epoxy resin. The coatings have the following properties.

Coating type	Coating thickness	Color	Temperature	Salt Spray Test	Pressure Cooker Test	Rating
Nickel	10 - 30 µm	bright silver	< 200 °C	> 96 h	> 48 h	Good protection against Corrosion, even at higher temperatures. High protection against abrasion of the coating
Zinc	5 - 10 µm	dark silver	< 160 °C	> 48 h	0	Sufficient for installation sheet turns into a little aggressive environments
Epoxid-resin	10 - 30 µm	dark grey	< 120 °C	> 500 h	0	Best resistance to corrosion, poor protection against abrasion of the coating.

NdFeB magnet materials are produced in a press - sintering process and machined after the sintering process to produce the desired shape.

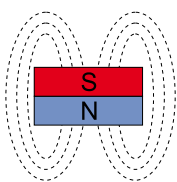
Rare earth magnets are very brittle and not easy to work with. The higher is the maximum operating temperature of the material, the more brittle the material.

The table below lists the physical properties of NdFeB standard material.

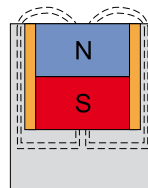
Signs	Parameter	Unit	Defaults
(Tc)	Curie-Temperature	°C	310 - 380
(Tw)	max. Operation-temperature	°C	80 - 230
(HV)	Hardness	HV	620
(ρ)	electrical resistance	Ω Ohm	180 - 200
(D)	Density	g/cm ³	7.45 - 7.65
(μ rec)	Recoil Permeability		1.05
(Hs)	Magnetic field Strength	kOe kA/m	>30 >2400
(βBZ)	Bending Strength	MPa	295 - 345
(Br)	Temp. Factor Br	%/°C	-0.11 ~ -0.12
(Hcj)	Temp. Factor Hcj	%/°C	-0.5 ~ -0.7

INSTALLATION INSTRUCTIONS for Permanent Magnets

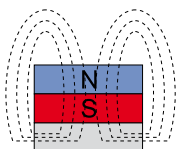
Iron poles have resulted in improved power line density in the magnetic circuit. This leads to a significantly improved adhesion, as redirecting the magnetic flux and can concentrate on the adhesive surface. An approximate increase factor for the lifting capacity is given in the illustrated drawings.



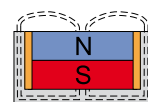
Open magnetic core as Discs or bars without Affected by iron poles
100 %



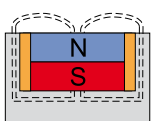
Magnetic wand made of AlNiCo in iron sleeve
750%



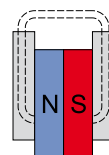
With Iron yoke plate
130%



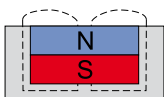
Magnetic-plate in U-Angle made of iron
550%



Magnetic slice in iron pot
600%



Sandwich from a magnetic disk between 2 flat iron poles
1800 %



Non-magnetisable material

Incorporation of magnetic cores:
A magnetic short circuit is formed when the two magnetic poles are connected by iron. Connections should therefore be made of non-magnetisable materials such as brass or stainless steel.



Magnetisable material

Material-dependent holding force

Material	Holding performance (%)
Carbon steel 0,1 - 0,3 % C	100
Carbon steel 0,4 - 0,5 % C	90
alloy Steel F-522	80 - 90
cast iron	45 - 60
stainless steel	0
Brass, Aluminum, Copper	0

Holding force at respective surfaces

Surface	Holding performance (%)
Raw steel	50
roughed	70
settled	90
polished	100

PERMANENT Raw Magnets

An important quality of NdFeB magnets is their dimensional stability, since, depending on the form of some tolerances are very difficult to comply with. You see, if possible, in the construction of unnecessary tight tolerancing from. This will facilitate the installation of the magnets.

Below you will find our standard tolerances for the most common magnetic shapes:

Dimensions (mm) Blocks	Tolerance (mm)	Parallelism (mm)
L ≤ 10	± 0,03	0,04
L 10 - 30	± 0,05	0,06
L 30 - 50	± 0,08	0,08
L ≥ 50	± 0,1	0,1



Dimensions (mm) Slices	Tolerance (mm)	Parallelism (mm)
D ≤ 10	± 0,02	0,03
D 10 - 30	± 0,03	0,03
D ≥ 30	± 0,04	0,04



Dimensions (mm) Rings	Tolerance (mm)	coaxiality (mm)
d ≤ 10	± 0,04	0,06
d 10 - 30	± 0,05	0,06
d 30 - 50	± 0,06	0,08
d ≥ 50	± 0,08	0,1



Segments	Dimensions (mm)	Tolerance (mm)
Thickness	T ≤ 10	± 0,04
	T 10 - ≥ 30	± 0,05
Length	L ≤ 10	± 0,03
	L 10 - 30	± 0,05
	L 30 - 50	± 0,08
	L ≥ 50	± 0,1
Chord length	W ≤ 10	± 0,05
	W ≥ 50	± 0,06



ACCESSORIES

In the following chapter, you will find accessories such as demagnetizing devices and measuring instruments Magnetic systems.



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Demagnetizing Devices



Page 181

HGF Handgaussmeter

DEMAGNETIZER

Demagnetizer Remove unwanted magnetism from workpieces and tools. Unintentional Magnetism may remain in parts that have been exposed deliberately or accidentally to a magnetic field. In Practice, these are mostly tools, vices and small workpieces, but also great tool plates. The tougher and harder a material, the more prone he is due to its dense surface structure for the preservation of residual magnetism. In magnetized workpieces and permanent magnets, the molecules of the material are aligned in one direction. Under demagnetization is understood that this alignment is eliminated. You reach that by the workpiece exposing a decreasing alternating magnetic field. In practice, this is realized by

PLATE-DEMAGNETIZER

In the case of plate demagnetizing devices, the workpiece is guided slowly over the pole surface at a constant speed and thereby demagnetized. For large workpieces that are difficult to handle, hand tools are used, which are guided over the workpiece like an iron.



TUNNEL-DEMAGNETIZER

Tunnel demagnetizers are mainly used in conjunction with conveyor belts. The workpiece must be guided through the tunnel at a constant speed.



To select the right demagnetizer for automated application, the following information is required: material dimension, material composition, material strength and required speed. A wide range of standard equipment is available for small series and individual parts.

DM Plate-Demagnetizer

DM plate demagnetizers are high-quality, modern devices with 100% duty cycle and one Unique system which adjusts the field intensity of the size or the volume of the workpiece, whereby a low standby consumption and a high demagnetization quality are achieved. DM demagnetizing devices can also be used as an under- or overband device. The workpieces are guided over the pole plates by hand or by conveyor belt. Mass parts can be collected in a non-magnetic container and guided over the pole surfaces.



Model	Item-Nr.	Pole area (mm)	Height (mm)	Weight (kg)	ED	Performance (W)
DM 3	3010 2518	250 x 180	86	11	100%	350
DM 4	3010 2827	281 x 266	86	14	100%	350
DM 5	3010 4030	401 x 306	86	19	100%	350

Other dimensions and special versions on request!



DMS Plate-Demagnetizer

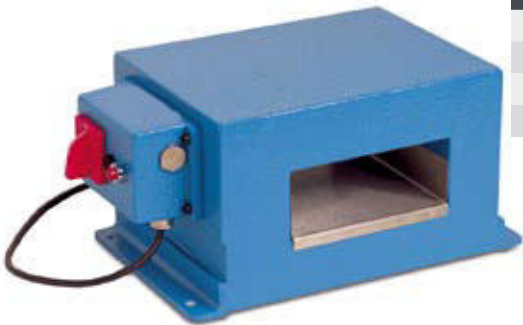
DMS plate demagnetizers are classically stable, powerful and cost-effective devices for the occasional use. They are mainly used in tool and fixture construction. The workpieces are simply guided over the pole plates by hand. Mass parts can be collected in a non-magnetic container and guided over the pole surfaces.



Item-Nr.	Pole area (mm)	Height (mm)	Weight (kg)	ED	Performance (W)
9010 1612	160 x 120	115	5,5	10 min.	300
9010 2217	220 x 170	122	12	10 min.	660
Other dimensions and special versions on request!					

TUNNEL Demagnetizer

Tunnel demagnetizers are used in automated and semi-automated work processes as well as demagnetizing pipes, rods, etc. The workpieces must be guided through the tunnel at a constant speed.



Item-Nr.	Tunnel hole (mm)	external dimensions (mm)	Weight (kg)	ED	Performance (VA)
9011 1560	150 x 60	200x250x160	27	100%	870
9011 2010	200 x 100	200x330x230	45	100%	2300
9011 4020	400 x 200	570x370x350	115	100%	3500
Other dimensions and special versions on request!					

HAND Demagnetizer

Hand Demagnetizers are used for the demagnetization of large parts or workpieces which can not be guided to the device for other reasons, eg: injection molds, punching tools, built-in vices, clamped tools, etc.



Item-Nr.	Pole area (mm)	Height (mm)	Weight (kg)	ED	Performance (VA)
9012 1210	120 x 100	180	4	10 min.	1300

HANDTESLAMETER

The HGF Handgausmeter is an easy to use precision instrument. The superfine 1mm probe magnetic flux densities can be measured extremely close to the magnetic pole and in very narrow air gaps. The HGF can be switched between AC and DC magnetic fields as well as between units Gauss and Tesla. At the edge of the display the pending polarity N/S is in the mode „DC magnetic fields“ constantly displayed, the „peak indicator“ facilitates the search for magnetic surfaces for example, in tracking down unwanted residual magnetism.

The package includes in addition to the meter, the 1mm transversal probe and the batteries and a protective case and a protective cap for the probe. Thus, HGF is also suitable for use in the service industry. Our technicians use it for testing of heavy lifting magnets and clamping systems.

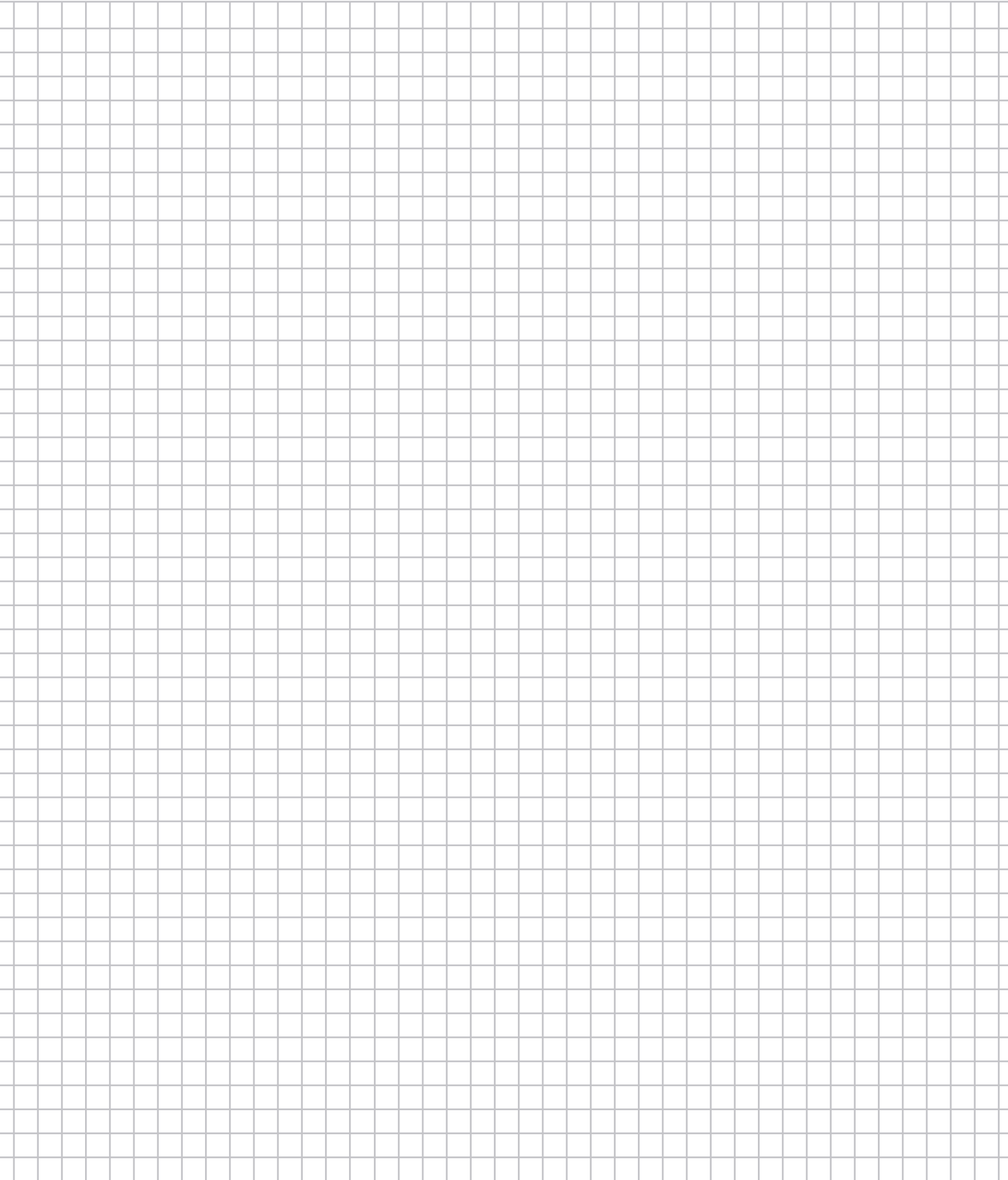


Included in delivery is a safe case storage



Model	Item-Nr.	Measuring range (GS)	Probe cable (m)	Dimension (mm)		
				L	W	H
Handteslameter	3018 0001	0 - 30.000	1	150	70	35
Replacement probe	3018 0001-1	0 - 30.000	1			

Your question, our recommendation! Please contact us regarding your specific application.
Together we will find the right solution for you!







MAGNETIC SOLUTIONS

FAST • SAFE • PRODUCTIVE

