elesa+GANTER

Retaining magnets

Standard Machine Elements Worldwide

Retaining magnets

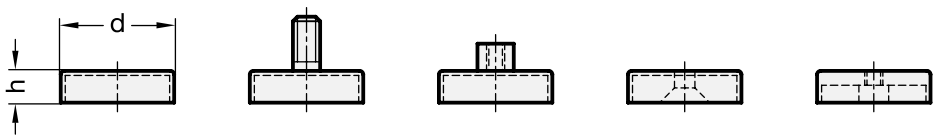
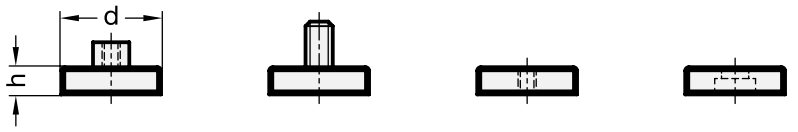
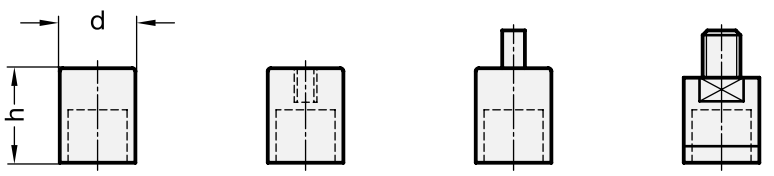
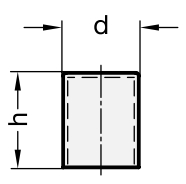
Retaining magnets

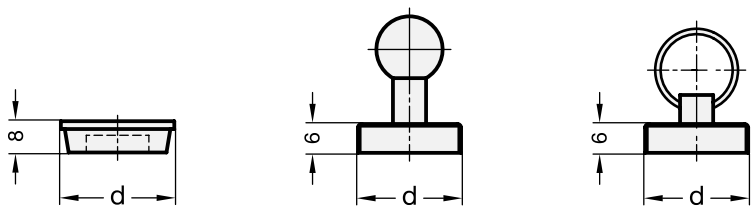
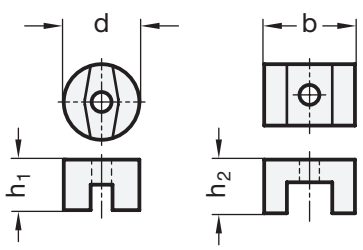
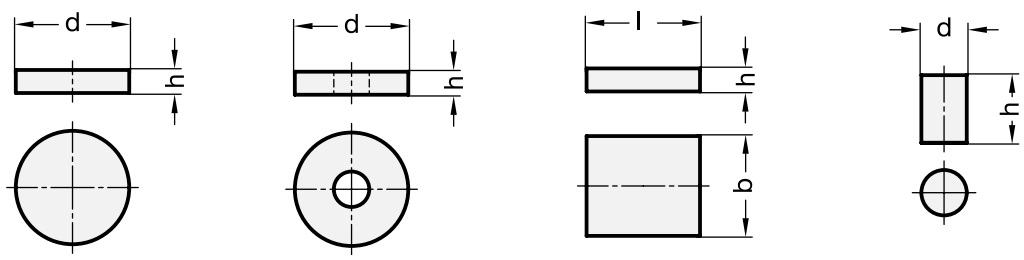
Types - Range of retaining magnets / raw magnets

Retaining magnets / Raw magnets are simple problem solvers for no-wear fixings.

Owing to their structure, these magnet systems have only one adhesion level. The magnets and iron poles are optimal arranged such that the whole of the magnetic energy is focused on the adhesive surface.

The spatial effect of the magnetic field is limited in shielded systems, with the effect that surrounding objects are not magnetised.

Flat gripper	Ø d = 6 ... 125 h = 4.5 ... 26 Housing steel, zinc plated, red lacquered or stainless steel
	
	Ø d = 12 ... 88 h = 6 ... 8.5 Housing steel, zinc plated, with rubber jacket
	
Rod gripper	Ø d = 4 ... 63 h = 10 ... 65 Housing steel, zinc plated or red lacquered
	
	Ø d = 6 ... 32 h = 20 ... 40 Sandwich configuration of the steel poles , housing brass
	

Magnets	Ø d = 18 ... 40 Housing plastic grey or red Ø d = 22 ... 43 Housing steel zinc plated, with rubber jacket with ball knob with key ring
	
Screws with retaining magnet	Ø d = M6 ... M16 Steel zinc plated
	
Button-type / U-Magnets	Ø d = 13 ... 32 h_1 = 10 ... 25.4 b = 22 ... 79 h_2 = 17 ... 54 Cast, unshielded systems, red lacquered
	
Raw magnets	Ø d = 4 ... 24 h = 3 Ø d = 3 ... 34 h = 10 ... 80 l = 7.5 ... 33 b = 4 ... 26.3 h = 1.5 ... 6.5 Ø d = 3 ... 34 h = 10 ... 80
	

Retaining magnets / Raw magnets - Materials of the magnet

Hard ferrite (HF)
SrFe (Strontium ferrite)
Magnets made of hard ferrite (80% iron oxide) are made by sintering process.
Like all ceramic materials, these magnets are very hard and brittle and virtually non-machinable.
The magnetic adhesive force drops when the magnet is heated.

AlNiCo (AN)
Aluminium nickel cobalt
Magnets made of AlNiCo (main constituents include aluminium, nickel, cobalt and iron) are made by sintering or casting process.
The material is very hard and tough, but can be redressed.
These magnets are used in applications in which the magnetic field is to remain as static and stable as possible, also under higher temperature fluctuations.

SmCo (SC)
Samarium cobalt
Magnets made of SmCo (main constituents include samarium and cobalt) are made by sintering process.
The material is very hard and brittle and is virtually non-machinable.
The magnetic adhesive force drops when the magnet is heated.

NdFeB (ND)
Neodymium iron boron
Magnets made of NdFeB (main constituents include neodymium, iron and boron) are made by sintering process.
The material is very hard and brittle and is virtually non-machinable.
This material delivers ultimate magnetic holding power.
The magnetic adhesive force drops when the magnet is heated.

Materials of the magnet in comparison

Description	Hard ferrite (HF)	AlNiCo (AN)	SmCo (SC)	NdFeB (ND)
Adhesive force	good	medium	strong	very strong
Max. working temperature *)	≈ 200 °C	≈ 450 °C	≈ 200 °C	≈ 80 °C
Corrosion resistance	very good	very good	good	less good
Machineability	not possible	diamond cutting, grinding	not possible	not possible
Demagnetisation capability	moderate	easy	very difficult	difficult
	by demagnetising fields	by demagnetising fields	only by large demagnetising fields	only by large demagnetising fields
Price	very reasonable	high	very high	reasonable

*) The max. temperature used is only a guide value because it also depends on the dimensions of the magnet.

Retaining magnets / Raw magnets - Adhesive forces

Other factors apart from the magnet material and the size of the magnet affecting the magnetic adhesive force are:

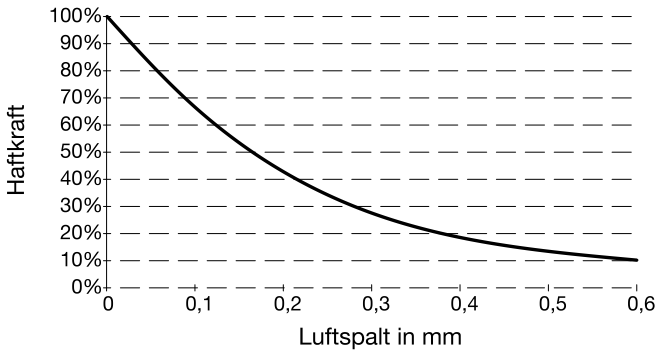
- an air gap (magnetically non-conductive materials act like an air gap)
- the quality of the surface (roughness and shape)
- the temperature
- the content of ferro-magnetic material in the steel or its volume to absorb the entire magnetic flux.

The magnetic adhesive force can also be impaired by alternating thermal stress and by chemical factors (aggressive baths, gases, etc.).
The diagrams and graphs below show guide values relating to the impact on the magnetic adhesive force caused by different mechanical specifications.

The nominal magnetic adhesive forces shown in the tables of the standard pages are minimum values which are achieved at:

- room temperature
- perpendicular „tear-off" under full surface contact of the magnet
- workpieces made of low-carbon steel with a minimum thickness of 10 mm

Influence of the air gap

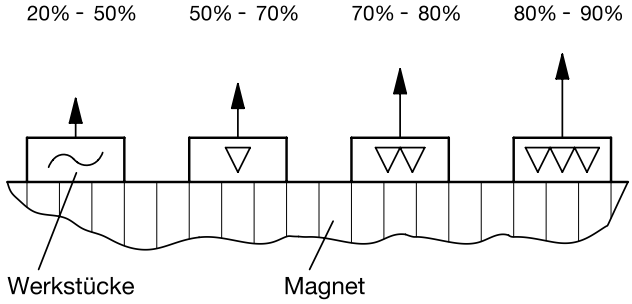


Influence of the material (Steel grade)

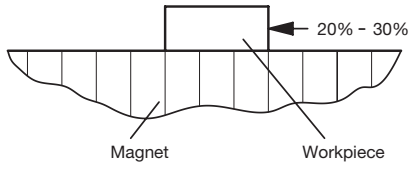
100%	technically pure iron	86%	C60, X6Cr17
95%	St37, C15	84%	42CrMo4
94%	St44-2, 34CrNiMo6	75%	St50
93%	St52-3	72%	X155CrMo12
92%	90MnV8	65%	X210CrW12
90%	C45	50%	20MnCr5
87%	Ck45	30%	GG

Hardened workpieces are bad conductors of the magnetic flux. The magnetic adhesive force is therefore lower.

Influence of the workpiece surface on the magnetic adhesive force



Displacement force = 20 % to 30 % of the magnetic adhesive force



The displacement force is also influenced by the surface roughness and the adhesion.

GN 50.1

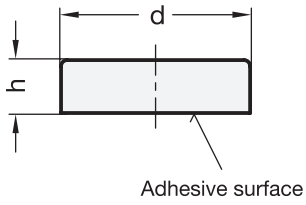
Retaining magnets

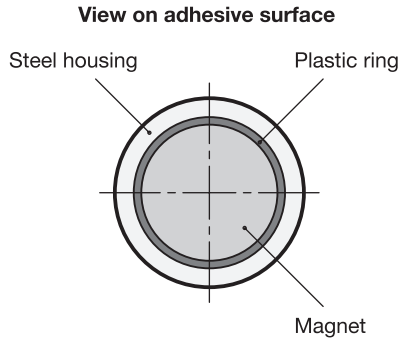
RoHS

- **Specification**
  Disc-shaped, without thread.
  Housing steel, zinc-plated.
- **Materials of the magnet**
  - Hard ferrite **HF**, temperature resistant up to 200 °C.
  - Samarium, cobalt SmCo **SC**, temperature resistant up to 200 °C.
  - Neodymium, iron, boron NdFeB **ND**, temperature resistant up to 80 °C.

Features and applications

Retaining magnets GN 50.1 are a shielded magnetic system.
Fixed in place by gluing or side-mounted thrust bolt
(e.g. GN 913.2 grub screw with pointed nose).





Standard Elements	Main dimensions		Nominal adhesive forces in N	⚖
Description	d	h		g
GN 50.1-HF-10	10 ±0.1	4.5 +0.2/-0.1	4	2
GN 50.1-HF-13	13 ±0.1	4.5 +0.2/-0.1	10	3
GN 50.1-HF-16	16 ±0.1	4.5 +0.2/-0.1	18	5
GN 50.1-HF-20	20 ±0.1	6 +0.2/-0.1	30	10
GN 50.1-HF-25	25 ±0.1	7 +0.3/-0.1	40	18
GN 50.1-HF-32	32 ±0.1	7 +0.3/-0.1	80	29
GN 50.1-HF-40	40 +0.2/-0.1	8 +0.4/-0.1	125	55
GN 50.1-HF-50	50 +0.2/-0.1	10 +0.5/-0.1	220	102
GN 50.1-HF-63	63 +0.3/-0.1	14 +0.5/-0.1	350	226
GN 50.1-HF-80	80 +0.5/-0.1	18 +0.5/-0.1	600	468
GN 50.1-HF-100	100 +0.5/-0.1	22 +0.5/-0.1	900	915
GN 50.1-HF-125	125 +0.5/-0.1	26 +0.5/-0.1	1300	1680
GN 50.1-SC-6	6 ±0.1	4.5 ±0.1	5	1
GN 50.1-SC-8	8 ±0.1	4.5 ±0.1	11	2
GN 50.1-SC-10	10 ±0.1	4.5 ±0.1	20	3
GN 50.1-SC-13	13 ±0.1	4.5 ±0.1	40	4
GN 50.1-SC-16	16 ±0.1	4.5 ±0.1	60	7
GN 50.1-SC-20	20 ±0.1	6 ±0.1	90	14
GN 50.1-SC-25	25 ±0.1	7 ±0.2	150	26
GN 50.1-SC-32	32 ±0.1	7 ±0.2	220	42
GN 50.1-ND-6	6 ±0.1	4.5 ±0.1	5	1
GN 50.1-ND-8	8 ±0.1	4.5 ±0.1	13	2
GN 50.1-ND-10	10 ±0.1	4.5 ±0.1	25	2.5
GN 50.1-ND-13	13 ±0.1	4.5 ±0.1	60	4
GN 50.1-ND-16	16 ±0.1	4.5 ±0.1	95	6
GN 50.1-ND-20	20 ±0.1	6 ±0.1	140	14
GN 50.1-ND-25	25 ±0.1	7 ±0.2	200	25
GN 50.1-ND-32	32 ±0.1	7 ±0.2	350	41

GN 50.3

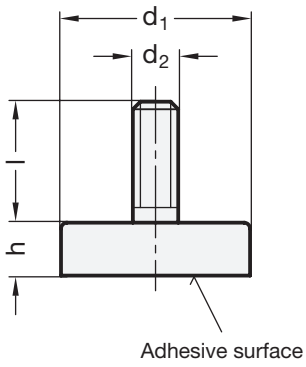
Retaining magnets

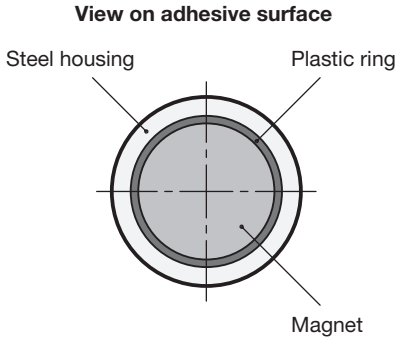
RoHS

- **Specification**
  Disc-shaped, with threaded stud.
  Housing / Threaded stud steel, zinc-plated.
- **Materials of the magnet**
  - Hard ferrite **HF**, temperature resistant up to 200 °C.
  - Neodymium, iron, boron NdFeB **ND**, temperature resistant up to 80 °C.

Features and applications

Retaining magnets GN 50.3 are a shielded magnetic system.





Standard Elements	Main dimensions				Nominal adhesive forces in N	⚖
Description	d_1	d_2	h	Length l		g
GN 50.3-HF-10-M3	10 ±0.1	M 3	4.5 +0.2/-0.1	7	4	2
GN 50.3-HF-13-M3	13 ±0.1	M 3	4.5 +0.2/-0.1	7	10	3
GN 50.3-HF-16-M3	16 ±0.1	M 3	4.5 +0.2/-0.1	7	18	5
GN 50.3-HF-20-M3	20 ±0.1	M 3	6 +0.2/-0.1	7	30	10
GN 50.3-HF-25-M4	25 ±0.1	M 4	7 +0.3/-0.1	8	40	19
GN 50.3-HF-32-M4	32 ±0.1	M 4	7 +0.3/-0.1	8	80	30
GN 50.3-HF-47-M6	47 +0.2/-0.1	M 6	9 +0.5/-0.1	8	180	85
GN 50.3-HF-63-M6	63 +0.3/-0.1	M 6	14 +0.5/-0.1	15	350	233
GN 50.3-ND-10-M4	10 ±0.1	M 4	4.5 ±0.1	8	25	3
GN 50.3-ND-13-M5	13 ±0.1	M 5	4.5 ±0.1	8	60	5
GN 50.3-ND-16-M6	16 ±0.1	M 6	4.5 ±0.1	8	95	5
GN 50.3-ND-20-M6	20 ±0.1	M 6	6 ±0.1	10	140	15
GN 50.3-ND-25-M6	25 ±0.1	M 6	7 ±0.1	10	200	27
GN 50.3-ND-32-M6	32 ±0.1	M 6	7 ±0.1	10	350	42

GN 50.2

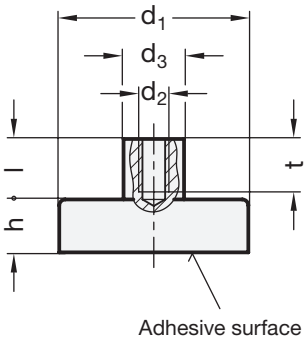
Retaining magnets

RoHS

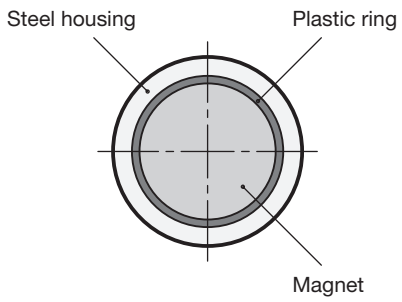
- **Specification**
  Disc-shaped, with female thread.
  Housing / Threaded bush steel, zinc-plated.
- **Materials of the magnet**
  - Hard ferrite **HF**, temperature resistant up to 200 °C.
  - Samarium, cobalt SmCo **SC**, temperature resistant up to 200 °C.
  - Neodymium, iron, boron NdFeB **ND**, temperature resistant up to 80 °C.

Features and applications

Retaining magnets GN 50.2 are a shielded magnetic system.



View on adhesive surface



Standard Elements	Main dimensions						Nominal adhesive forces in N	⚖
Description	d_1	d_2	d_3	h	Length l	t		g
GN 50.2-HF-10-M3	10 ±0.1	M 3	6 ±0.1	4.5 +0.2/-0.1	7	5	4	3
GN 50.2-HF-13-M3	13 ±0.1	M 3	6 ±0.1	4.5 +0.2/-0.1	7	5	10	4
GN 50.2-HF-16-M3	16 ±0.1	M 3	6 ±0.1	4.5 +0.2/-0.1	7	5	18	6
GN 50.2-HF-20-M3	20 ±0.1	M 3	6 ±0.1	6 +0.2/-0.1	7	5	30	11
GN 50.2-HF-25-M4	25 ±0.1	M 4	8 ±0.1	7 +0.3/-0.1	8	7	40	20
GN 50.2-HF-32-M4	32 ±0.1	M 4	8 ±0.1	7 +0.3/-0.1	8	7	80	31
GN 50.2-HF-40-M5	40 +0.2/-0.1	M 5	10 ±0.1	8 +0.4/-0.1	10	9	125	59
GN 50.2-HF-50-M6	50 +0.2/-0.1	M 6	12 ±0.1	10 +0.5/-0.1	12	11	220	111
GN 50.2-HF-63-M8	63 +0.3/-0.1	M 8	15 ±0.1	14 +0.5/-0.1	16	14	350	242
GN 50.2-HF-80-M10	80 +0.5/-0.1	M 10	20 ±0.1	18 +0.5/-0.1	16	15	600	500
GN 50.2-HF-100-M12	100 +0.5/-0.1	M 12	22 ±0.1	22 +0.5/-0.1	21	18	900	948
GN 50.2-HF-125-M14	125 +0.5/-0.1	M 14	25 ±0.1	26 +0.5/-0.1	24	20	1300	1732
GN 50.2-SC-6-M3	6 ±0.1	M 3	6 ±0.1	4.5 ±0.1	7	6	5	2
GN 50.2-SC-8-M3	8 ±0.1	M 3	6 ±0.1	4.5 ±0.1	7	6	11	3
GN 50.2-SC-10-M3	10 ±0.1	M 3	6 ±0.1	4.5 ±0.1	7	6	20	4
GN 50.2-SC-13-M3	13 ±0.1	M 3	6 ±0.1	4.5 ±0.1	7	6	40	6
GN 50.2-SC-16-M4	16 ±0.1	M 4	6 ±0.1	4.5 ±0.1	7	6	60	8
GN 50.2-SC-20-M4	20 ±0.1	M 4	8 ±0.2	6 ±0.1	7	7	90	16
GN 50.2-SC-25-M4	25 ±0.1	M 4	8 ±0.2	7 ±0.2	7	7	150	28
GN 50.2-SC-32-M5	32 ±0.1	M 5	10 ±0.2	7 ±0.2	8.5	8	220	47
GN 50.2-ND-6-M3	6 ±0.1	M 3	6 ±0.1	4.5 ±0.1	7	6	5	2
GN 50.2-ND-8-M3	8 ±0.1	M 3	6 ±0.1	4.5 ±0.1	7	6	13	3
GN 50.2-ND-10-M3	10 ±0.1	M 3	6 ±0.1	4.5 ±0.1	7	6	25	4
GN 50.2-ND-13-M3	13 ±0.1	M 3	6 ±0.1	4.5 ±0.1	7	6	60	5
GN 50.2-ND-16-M4	16 ±0.1	M 4	6 ±0.1	4.5 ±0.1	7	6	95	7
GN 50.2-ND-20-M4	20 ±0.1	M 4	8 ±0.2	6 ±0.1	7	7	140	16
GN 50.2-ND-25-M4	25 ±0.1	M 4	8 ±0.2	7 ±0.2	7	7	200	27
GN 50.2-ND-32-M5	32 ±0.1	M 5	10 ±0.2	7 ±0.2	8.5	8	350	45

GN 50.25

INOX
Stainless Steel

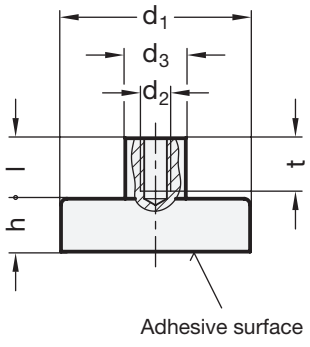
Retaining magnets

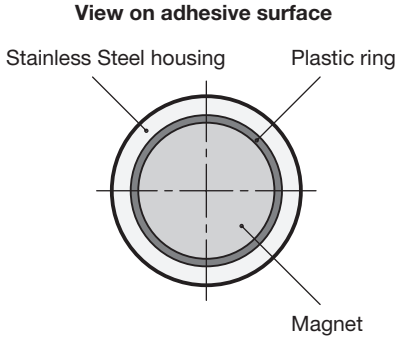
RoHS

- **Specification**
  Disc-shaped, with female thread.
  Housing / Threaded bush stainless steel.
- **Material of the magnet**
  Hard ferrite **HF,** temperature resistant up to 220 °C.

Features and applications

Retaining magnets GN 50.25 are a shielded magnetic system.
Owing to the lower magnetic conductivity of the stainless steel housing, the adhesive forces are lower than in steel.





Standard Elements	Main dimensions						Nominal adhesive forces in N	⚖
Description	d_1	d_2	d_3	h	Length l	t		g
GN 50.25-HF-25	25 ±0.1	M 5	8	7 +0.3/-0.1	9	8.25	32	20
GN 50.25-HF-32	32 ±0.1	M 5	8	7 +0.3/-0.1	9	9	64	31
GN 50.25-HF-40	40 +0.2/-0.1	M 5	8	8 +0.3/-0.1	8.5	9	100	56
GN 50.25-HF-50	50 +0.2/-0.1	M 5	8	10 +0.4/-0.1	8.5	9	175	105
GN 50.25-HF-63	63 +0.3/-0.1	M 5	8	14 +0.5/-0.1	8	9	280	228

GN 50.5

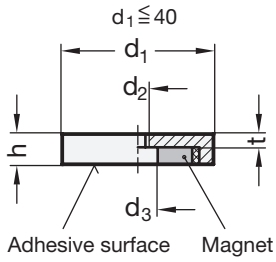
Retaining magnets

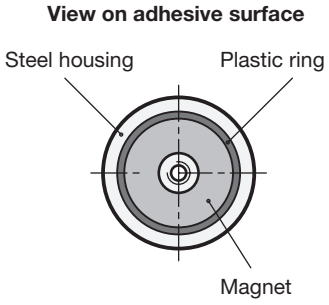
RoHS

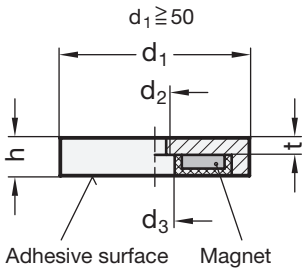
- **Specification**
  Disc-shaped, with female thread.
  Housing steel, zinc-plated.
  Plastic cover, polyamide based (PA) technopolymer.
- **Material of the magnet**
  Neodymium, iron, boron NdFeB **ND**, temperature resistant up to 80 °C.

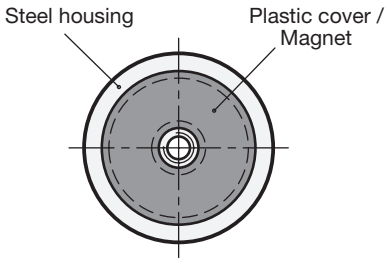
Features and applications

Retaining magnets GN 50.5 are a shielded magnetic system. For diameter d1 ≥ 50 the adhesive surface is lagged with a plastic cover.
To ensure that the magnetic properties (adhesive forces) are not impaired, the fixing screws must be made of **non-magnetic** material.









Standard Elements	Main dimensions					Nominal adhesive forces in N	⚖
Description	d1 ±0.1	d2	d3	h2 ±0.2	t		g
GN 50.5-ND-32	32	M 5	5.5	7	3	330	40
GN 50.5-ND-40	40	M 5	10.5	8	6	500	74
GN 50.5-ND-50	50	M 8	10.5	10	5.5	800	140
GN 50.5-ND-63	63	M 10	11.7	14	8.5	1100	315
GN 50.5-ND-75	75	M 10	13	15	8.5	1750	479

GN 50.4

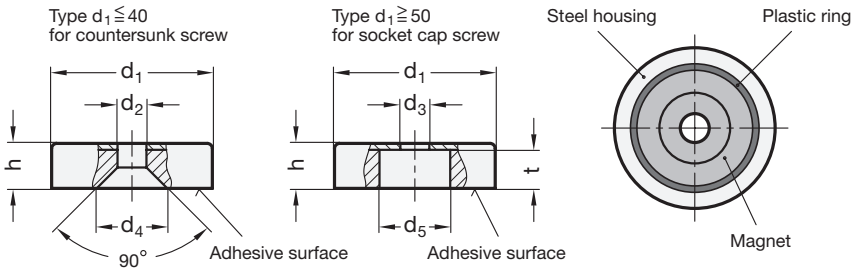
Retaining magnets

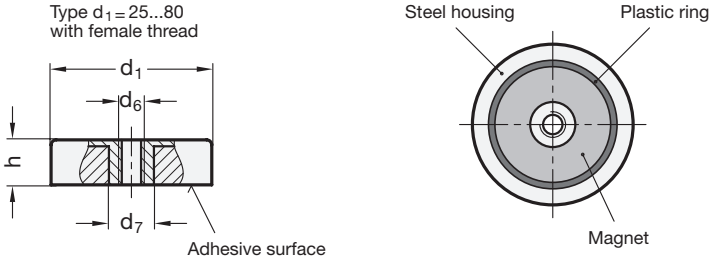
RoHS

- **Specification**
  Disc-shaped, with bore / female thread.
  Housing steel, zinc plated.
- **Materials of the magnet**
  - Hard ferrite **HF**, temperature resistant up to 200 °C.
  - Neodymium, iron, boron NdFeB **ND** temperature resistant up to 80 °C.

Features and applications

Retaining magnets GN 50.4 are a shielded magnetic system.
To ensure that the magnetic properties (adhesive forces) are not impaired, the fixing screws of the types for countersunk screws and socket cap screws must be made of **non-magnetic** material.





Standard Elements	Main dimensions									Nominal adhesive forces in N	⚖
Description	d1	d2	d3	d4	d5	d6	d7	h	t		g
GN 50.4-HF-16	16 ±0.1	3.5	-	7.5	-	-	-	4.5 +0.2/-0.1	-	14	4
GN 50.4-HF-20	20 ±0.1	4.1	-	10.5	-	-	-	6 +0.2/-0.1	-	27	9
GN 50.4-HF-25	25 ±0.1	5.5	-	12	-	-	-	7 +0.3/-0.2	-	36	17
GN 50.4-HF-32	32 ±0.1	5.5	-	12	-	-	-	7 +0.3/-0.1	-	72	27
GN 50.4-HF-40	40 +0.2/-0.1	5.5	-	13.5	-	-	-	8 +0.4/-0.1	-	90	52
GN 50.4-HF-50	50 +0.2/-0.1	-	8.5 ±0.2	-	22	-	-	10 +0.5/-0.1	8.5	180	84
GN 50.4-HF-63	63 +0.3/-0.1	-	6.5 ±0.2	-	24	-	-	14 +0.5/-0.1	12	290	197
GN 50.4-HF-80	80 +0.5/-0.1	-	6.5 ±0.2	-	11.5	-	-	18 +0.5/-0.1	15	540	458
GN 50.4-HF-100	100 +0.5/-0.1	-	10.5 ±0.2	-	34	-	-	22 +0.5/-0.1	18	680	815
GN 50.4-ND-16	16 ±0.1	3.5	-	6.6	-	-	-	4.5 +0.2/-0.1	-	75	6
GN 50.4-ND-20	20 ±0.1	4.5	-	9	-	-	-	6 +0.2/-0.1	-	105	13
GN 50.4-ND-25	25 ±0.1	4.5	-	9	-	-	-	7 +0.3/-0.2	-	160	24
GN 50.4-ND-32	32 ±0.1	5.5	-	11	-	-	-	7 +0.3/-0.1	-	310	39
GN 50.4-ND-40	40 +0.2/-0.1	5.5	-	10.6	-	-	-	8 +0.4/-0.1	-	500	73
GN 50.4-HF-25-M4	25 ±0.1	-	-	-	-	M 4	5.2	7 +0.3/-0.2	-	36	17
GN 50.4-HF-32-M4	32 ±0.1	-	-	-	-	M 4	5.2	7 +0.3/-0.1	-	72	29
GN 50.4-HF-40-M4	40 +0.2/-0.1	-	-	-	-	M 4	5.2	8 +0.4/-0.1	-	90	54
GN 50.4-HF-50-M6	50 +0.2/-0.1	-	-	-	-	M 6	12	10 +0.5/-0.1	-	180	96
GN 50.4-HF-50-M8	50 +0.2/-0.1	-	-	-	-	M 8	12	10 +0.5/-0.1	-	180	92
GN 50.4-HF-63-M8	63 +0.3/-0.1	-	-	-	-	M 8	13	14 +0.5/-0.1	-	290	209
GN 50.4-HF-80-M8	80 +0.5/-0.1	-	-	-	-	M 8	14.5	18 +0.5/-0.1	-	540	482
GN 50.4-HF-80-M10	80 +0.5/-0.1	-	-	-	-	M 10	14.5	18 +0.5/-0.1	-	540	479

GN 50.45

INOX
Stainless Steel

Retaining magnets

RoHS

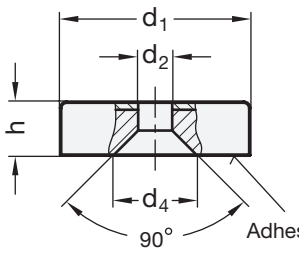
- **Specification**
  Disc-shaped, with bore.
  Housing stainless steel.
- **Materials of the magnet**
  - Hard ferrite **HF**, temperature resistant up to 220 °C.
  - Samarium, cobalt SmCo **SC**, temperature resistant up to 350 °C.

Features and applications

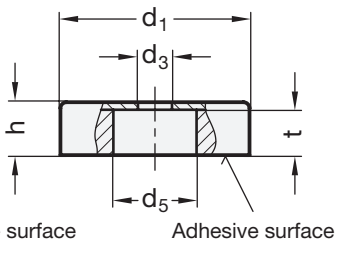
Retaining magnets GN 50.45 are a shielded magnetic system.
Owing to the lower magnetic conductivity of the stainless steel housing, the adhesive forces are lower than in steel.
To ensure that the magnetic properties (adhesive forces) are not impaired, the fixing screws must be made of **non-magnetic** material.

Version **HF**

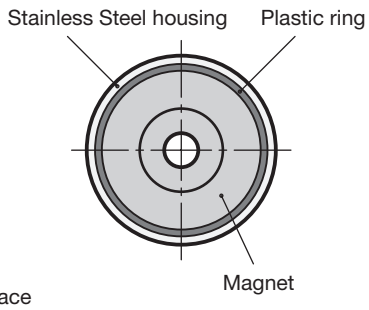
Type $d_1 \leqq 40$
for countersunk screw



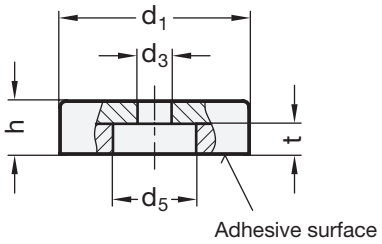
Type $d_1 \geqq 50$
for socket cap screw



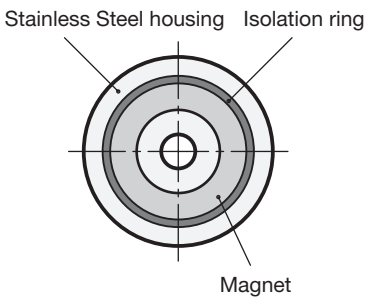
View on adhesive surface



Version **SC**
d_1= 20...40



View on adhesive surface



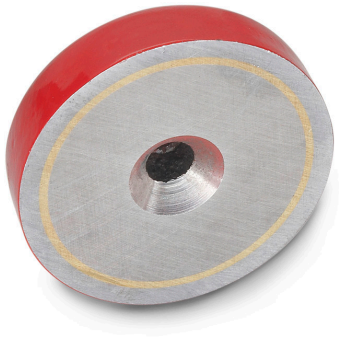
Standard Elements	Main dimensions							Nominal adhesive forces in N	⚖
Description	d_1	d_2	d_3	d_4	d_5	h	t		g
GN 50.45-HF-20	20 ±0.1	4.1	-	10	-	6 +0.2/-0.1	-	22	9
GN 50.45-HF-25	25 ±0.1	5.5	-	11.5	-	7 +0.3/-0.2	-	29	17
GN 50.45-HF-32	32 ±0.1	5.5	-	11.5	-	7 +0.3/-0.2	-	58	27
GN 50.45-HF-40	40 +0.2/-0.1	5.5	-	11.5	-	8 +0.4/-0.2	-	72	52
GN 50.45-HF-50	50 +0.2/-0.1	-	8.5	-	22	10 +0.5/-0.2	8.5	145	85
GN 50.45-HF-63	63 +0.3/-0.1	-	6.5	-	24	14 +0.5/-0.2	12	230	195
GN 50.45-SC-20	20 ±0.1	-	4.5	-	8	6 ±0.1	3.5	60	13
GN 50.45-SC-25	25 ±0.1	-	4.5	-	8	7 ±0.2	4	80	24
GN 50.45-SC-32	32 ±0.1	-	5.5	-	11	7 ±0.2	4	200	39
GN 50.45-SC-40	40 +0.2/-0.1	-	5.5	-	10.5	8 ±0.2	4	420	85

GN 58

Pot magnets

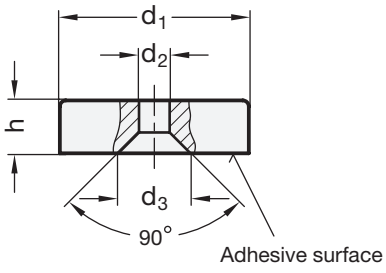
RoHS

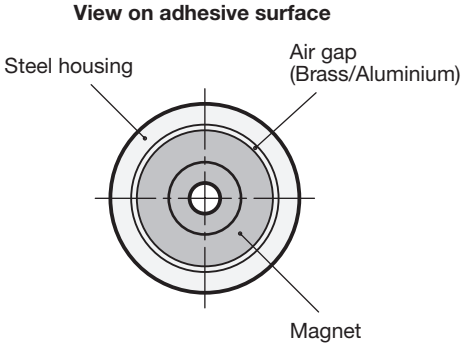
- **Specification**
  With bore.
  Housing steel.
- **Material of the magnet**
  Aluminium, nickel, cobalt AlNiCo **AN**, temperature resistant up to 280 °C.
  Lacquering red, temperature resistant up to 180 °C.



Features and applications

Pot magnets GN 58 are a shielded magnetic system.
To ensure that the magnetic properties (adhesive forces) are not impaired, the fixing screws must be made of **non-magnetic** material.
For easier handling and/or to avoid demagnetisation, these magnets have an iron plate on their adhesive surface.





Standard Elements	Main dimensions				Nominal adhesive forces in N	⚖
Description	d1	d2	d3	h		g
GN 58-AN-19	19	3.7	8.7 +0.8/-0.2	7.5	30	17
GN 58-AN-29	29	4.8	10.5 +1/0	8.5 ±0.5	50	43
GN 58-AN-38	38	4.8	10 +1/-0.5	10.5	130	83

GN 51.3

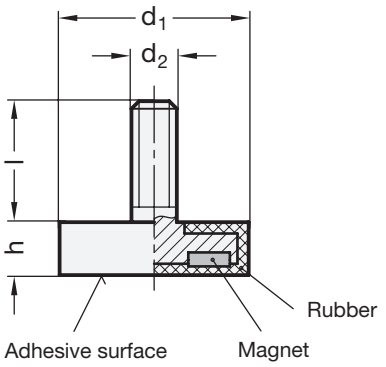
Retaining magnets

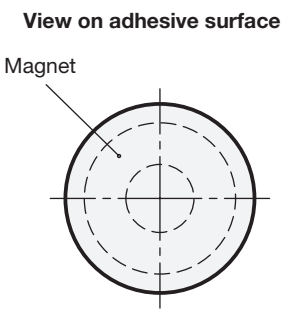
RoHS

- **Specification**
  Disc-shaped, with threaded stud, with rubber jacket.
  Steel part zinc plated.
  Rubber jacket Elastomer (TPE), 80 Shore A ≈, black.
- **Material of the magnet**
  Neodymium, iron, boron NdFeB **ND**, temperature resistant up to 80 °C.

Features and applications

Retaining magnets GN 51.3 are a shielded magnetic system with rubber jacket.
The rubber jacket protects sensitive surfaces from being damaged by the magnet and also delivers a higher friction coefficient, resulting in high lateral adhesion forces.





Standard Elements	Main dimensions				Nominal adhesive forces in N	⚖
Description	d1	d2	h	Length l		g
GN 51.3-ND-22	22	M 4	6	6.5	50	11
GN 51.3-ND-43	43	M 6	6	15	85	32
GN 51.3-ND-66	66	M 8	8.5	15	180	107
GN 51.3-ND-88	88	M 8	8.5	15	420	193

GN 51.2

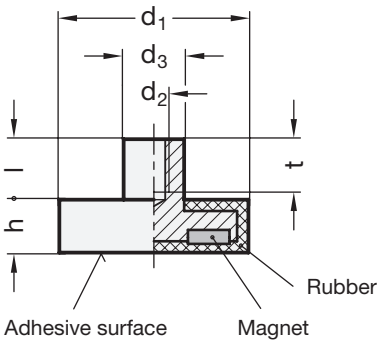
Retaining magnets

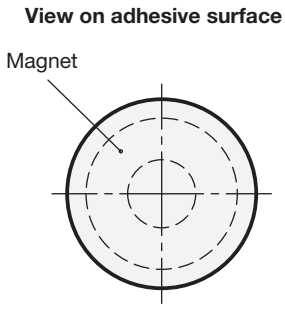
RoHS

- **Specification**
  Disc-shaped, with female thread, with rubber jacket.
  Steel part zinc plated
  Rubber jacket Elastomer (TPE), 80 Shore A ≈, black.
- **Material of the magnet**
  Neodymium, iron, boron NdFeB **ND**, temperature resistant up to 80 °C.

Features and applications

Retaining magnets GN 51.2 are a shielded magnetic system with rubber jacket.
The rubber jacket protects sensitive surfaces from being damaged by the magnet and also delivers a higher friction coefficient, resulting in high lateral adhesion forces.





Standard Elements	Main dimensions						Nominal adhesive forces in N	⚖
Description	d_1	d_2	d_3	h	Length l	$t_{min.}$		g
GN 51.2-ND-12	12	M 4	8	7	8	6	10	6
GN 51.2-ND-22	22	M 4	8	6	5.5	5	50	13
GN 51.2-ND-31	31	M 4	8	6	5.5	5	75	22
GN 51.2-ND-43	43	M 4	8	6	4.5	5	85	30
GN 51.2-ND-66	66	M 5	10	8.5	6.5	8	180	105
GN 51.2-ND-88	88	M 8	12	8.5	8.5	11	420	192

GN 51.5

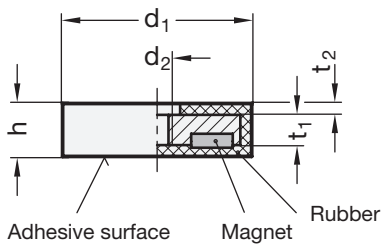
Retaining magnets

RoHS

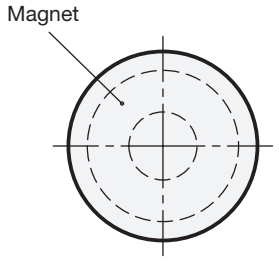
- **Specification**
  Disc-shaped, with female thread, with rubber jacket.
  Steel part zinc plated.
  Rubber jacket, Elastomer (TPE), 80 Shore A ≈, black.
- **Material of the magnet**
  Neodymium, iron, boron NdFeB **ND**, temperature resistant up to 80 °C.

Features and applications

Retaining magnets GN 51.5 are a shielded magnetic system with rubber jacket.
The rubber jacket protects sensitive surfaces from being damaged by the magnet and also delivers a higher friction coefficient, resulting in high lateral adhesion forces.



View on adhesive surface



Standard Elements	Main dimensions					Nominal adhesive forces in N	⚖
Description	d_1	d_2	h	t_1	t_2		g
GN 51.5-ND-22	22	M 4	6	4.5	0.8	35	9
GN 51.5-ND-31	31	M 5	6	4.5	0.8	75	21
GN 51.5-ND-43	43	M 4	5.5	4	0.8	85	29
GN 51.5-ND-66	66	M 6	8.5	6	1.8	180	100
GN 51.5-ND-88	88	M 6	8.5	6	1.8	420	186

GN 51.4

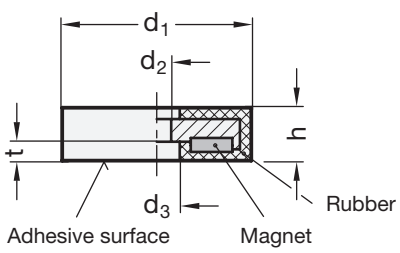
Retaining magnets

RoHS

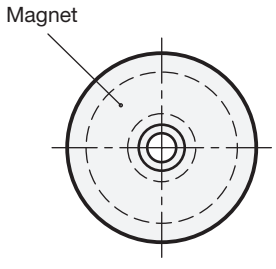
- **Specification**
  Disc-shaped, with bore, with rubber jacket.
  Steel part zinc plated.
  Rubber jacket, Elastomer (TPE), 80 Shore A ≈, black.
- **Material of the magnet**
  Neodymium, iron, boron NdFeB **ND**, temperature resistant up to 80 °C.

Features and applications

Retaining magnets GN 51.4 are a shielded magnetic system with rubber jacket.
The rubber jacket protects sensitive surfaces from being damaged by the magnet and also delivers a higher friction coefficient, resulting in high lateral adhesion forces.



View on adhesive surface



Standard Elements	Main dimensions					Nominal adhesive forces in N	⚖
Description	d_1	d_2	d_3	t	h		g
GN 51.4-ND-22	22	4	8	3.5	6	35	8
GN 51.4-ND-31	31	6	9	3.5	6	75	20
GN 51.4-ND-57	57	8	25.3	3.5	7.5	175	77
GN 51.4-ND-66	66	5.5	25	3.5	8.5	210	100

GN 51.6

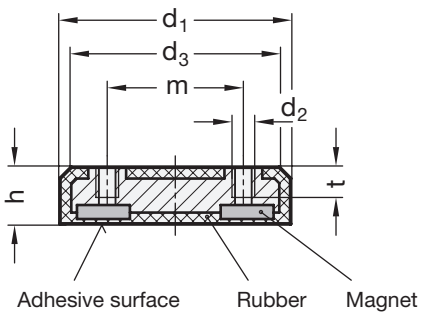
Retaining magnets

RoHS

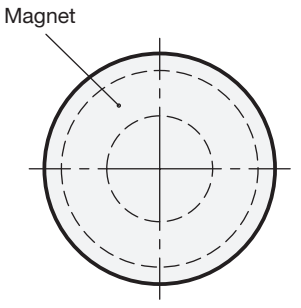
- **Specification**
  Disc-shaped, with two female threads, with rubber jacket.
  Steel part zinc plated.
  Rubber jacket Elastomer (TPE), 80 Shore A≈, black.
- **Material of the magnet**
  Neodymium, iron, boron NdFeB **ND**, temperature resistant up to 80 °C.

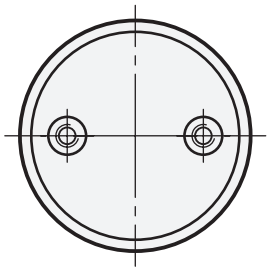
Features and applications

Retaining magnets GN 51.6 are a shielded magnetic system with rubber jacket.
The rubber jacket protects sensitive surfaces from being damaged by the magnet and also delivers a higher friction coefficient, resulting in high lateral adhesion forces.
Its dimensions, especially the drill hole spacing m and the thread d_2, match the clamp mountings GN 473, GN 477 and GN 480.

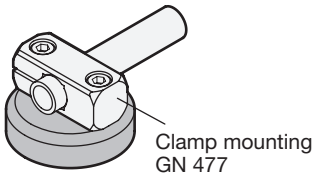


View on adhesive surface





Application example



Standard Elements	Main dimensions						Nominal adhesive forces in N	⚖
Description	d_1	m	d_2	d_3	h	$t_{min.}$		g
GN 51.6-ND-43-22-M4	43	22	M 4	39	10.3	6	85	37
GN 51.6-ND-43-27-M5	43	27	M 5	39	10.3	7	85	36
GN 51.6-ND-57-32-M6	57	32	M 6	53	11.3	7	175	87
GN 51.6-ND-57-36-M6	57	36	M 6	53	11.3	7	175	87

GN 51.7

Retaining magnets

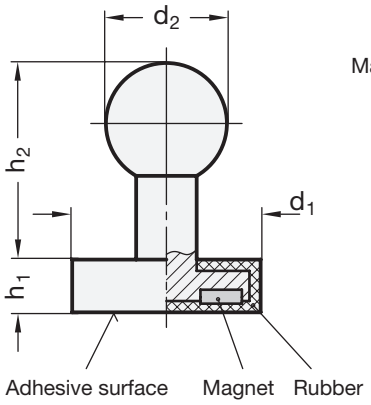
RoHS

- **Specification**
  With rubber jacket.
  Steel part nickel plated.
  Rubber jacket Elastomer (TPE), 80 Shore A ≈, black.
- **Standard versions available**
  - Type **A**: with knob.
  - Type **B**: with key ring.
- **Material of the magnet**
  Neodymium, iron, boron NdFeB **ND**, temperature resistant up to 80 °C.
- **Ball knob**
  Plastic, polyamide based (PA) technopolymer, black, matt.
- **Key ring**
  Steel nickel plated.

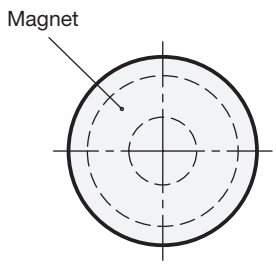
Features and applications

Retaining magnets GN 51.7 are a shielded magnetic system with rubber jacket.
The rubber jacket protects sensitive surfaces from being damaged by the magnet and also delivers a higher friction coefficient, resulting in high lateral adhesion forces.

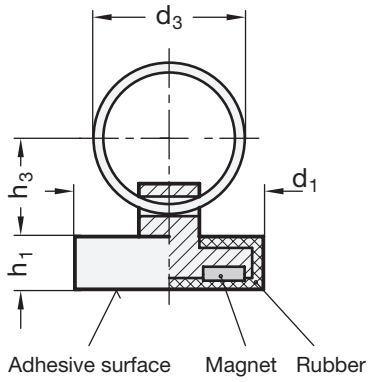
Type **A**



View on adhesive surface



Type **B**



Standard Elements	Main dimensions						Nominal adhesive forces in N	⚖
Description	d_1	d_2	d_3	h_1	h_2	h_3		g
GN 51.7-ND-22-A	22	16	-	6	26	-	35	17
GN 51.7-ND-31-A	31	16	-	6	26	-	75	28
GN 51.7-ND-43-A	43	16	-	5.5	26	-	85	35
GN 51.7-ND-22-B	22	-	20	6	-	13	35	14
GN 51.7-ND-31-B	31	-	25	6	-	14.5	75	25
GN 51.7-ND-43-B	43	-	30	5.5	-	17	85	34

GN 52.1

Retaining magnets

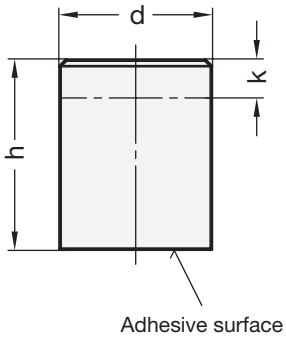
RoHS

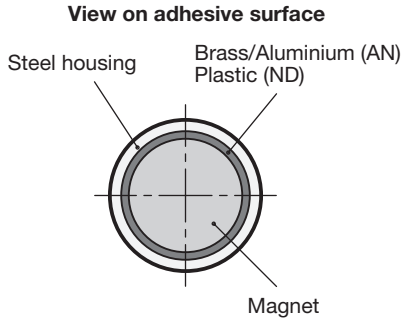
- **Specification**
  Rod-shaped, smooth finish.
  Housing steel.
  - Identification no. **1**: zinc plated, tolerance d = +0.2 / -0.2.
  - Identification no. **2**: blank, tolerance d = h6.
- **Materials of the magnet**
  - Aluminium, nickel, cobalt AlNiCo **AN**, temperature resistant up to 450 °C.
  - Neodynium, iron, boron NdFeB **ND**, temperature resistant up to 80 °C.

Features and applications

Retaining magnets GN 52.1 are a shielded magnetic system.
Attachment options include pressing in, shrinking in or gluing in.

*) k is the maximum dimension by which the retaining magnet can be shortened without losing its properties.





Standard Elements	Main dimensions			Nominal adhesive forces in N	⚖
Description	d	h ±0.2	k *)		g
GN 52.1-AN-6-1	6	20	12	2	5
GN 52.1-AN-8-1	8	20	11	4	8
GN 52.1-AN-10-1	10	20	10	8.5	12
GN 52.1-AN-13-1	13	20	8	12	19
GN 52.1-AN-16-1	16	20	6	20	30
GN 52.1-AN-20-1	20	25	5	40	58
GN 52.1-AN-25-1	25	35	13	60	125
GN 52.1-AN-32-1	32	40	9	160	220
GN 52.1-AN-40-1	40	50	10	240	440
GN 52.1-AN-50-1	50	60	10	400	813
GN 52.1-AN-63-1	63	65	10	660	1306
GN 52.1-AN-6-2	6	10	2	2	2
GN 52.1-AN-8-2	8	12	3	4	5
GN 52.1-AN-10-2	10	16	6	8.5	10
GN 52.1-AN-13-2	13	18	6	12	18
GN 52.1-AN-16-2	16	20	6	20	30
GN 52.1-AN-20-2	20	25	5	40	57
GN 52.1-AN-25-2	25	30	7	60	106
GN 52.1-AN-32-2	32	35	4	160	187
GN 52.1-AN-40-2	40	45	5	240	390
GN 52.1-AN-50-2	50	50	-	400	639
GN 52.1-AN-63-2	63	60	5	660	1175
GN 52.1-ND-4-1	4	20	15	2.5	2
GN 52.1-ND-5-1	5	20	15	4.5	3
GN 52.1-ND-6-1	6	20	15	6	5
GN 52.1-ND-8-1	8	20	15	12	8
GN 52.1-ND-10-1	10	20	15	24	12
GN 52.1-ND-13-1	13	20	15	60	21
GN 52.1-ND-16-1	16	20	15	90	31
GN 52.1-ND-20-1	20	25	18	135	61
GN 52.1-ND-25-1	25	35	27	190	133
GN 52.1-ND-32-1	32	40	32	340	249
GN 52.1-ND-6-2	6	10	5	6	2
GN 52.1-ND-8-2	8	12	7	12	5
GN 52.1-ND-10-2	10	16	11	24	9
GN 52.1-ND-13-2	13	18	13	60	18
GN 52.1-ND-16-2	16	20	15	90	31
GN 52.1-ND-20-2	20	25	18	135	60
GN 52.1-ND-25-2	25	30	22	190	115
GN 52.1-ND-32-2	32	35	27	340	218

GN 54.1

Retaining magnets

RoHS

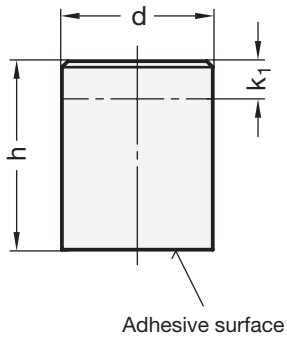
- **Specification**
  Rod-shaped, smooth finish.
  Housing brass.
- **Materials of the magnet**
  - Samarium, cobalt SmCo **SC**, temperature resistant up to 200 °C.
  - Neodymium, iron, boron NdFeB **ND**, temperature resistant up to 80 °C. Identification of ND: blue inked adhesive surface.

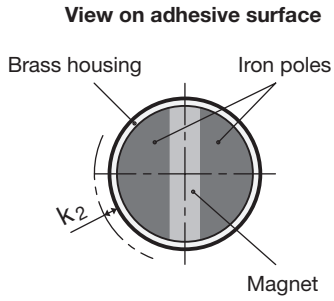
Features and applications

Retaining magnets GN 54.1 are a shielded magnetic system.
The configuration of magnetic and iron poles is known as sandwich magnet system. These retaining magnets deliver ultimate holding power, also with smaller workpieces.
Attachment options include pressing in or gluing in.

1) k_1 is the maximum dimension by which the retaining magnet can be shortened without losing its properties.

2) Mounting these retaining magnets directly in steel components will create a magnetic short-circuit which reduces the retaining power by as much as 15 %. To avoid this effect, the spacings k_2 between brass jacket and steel component should be observed. These spacings should also be maintained if the retaining magnet is shortened.





Standard Elements	Main dimensions				Nominal adhesive forces in N	⚖
Description	d h_6	h	k_1 1)	k_2 2)		g
GN 54.1-ND-6	6	20 ±0.2	10	1.5	10	5
GN 54.1-ND-8	8	20 ±0.2	10	1.5	22	8
GN 54.1-ND-10	10	20 ±0.2	8	2	45	12
GN 54.1-ND-13	13	20 ±0.2	6	2.5	70	20
GN 54.1-ND-16	16	20 ±0.2	2	3	150	30
GN 54.1-ND-20	20	25 ±0.2	5	4	280	59
GN 54.1-ND-25	25	35 ±0.3	7	5	450	132
GN 54.1-ND-32	32	40 ±0.3	4.5	6	700	246
GN 54.1-SC-6	6	20 ±0.2	10	1.5	8	5
GN 54.1-SC-8	8	20 ±0.2	10	1.5	22	8
GN 54.1-SC-10	10	20 ±0.2	8	2	40	12
GN 54.1-SC-13	13	20 ±0.2	6	2.5	60	20
GN 54.1-SC-16	16	20 ±0.2	2	3	125	30
GN 54.1-SC-20	20	25 ±0.2	5	4	250	60
GN 54.1-SC-25	25	35 ±0.3	7	5	400	134
GN 54.1-SC-32	32	40 ±0.3	4.5	6	600	251

GN 52.2

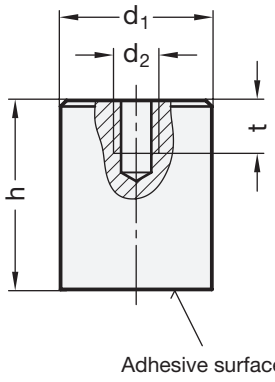
Retaining magnets

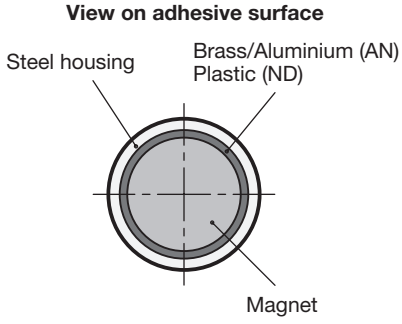
RoHS

- **Specification**
  Rod-shaped, with female thread.
  Housing steel, zinc plated.
- **Materials of the magnet**
  - Aluminium, nickel, cobalt AlNiCo **AN**, temperature resistant up to 450 °C.
  - Neodymium, iron, boron NdFeB **ND**, temperature resistant up to 80 °C.

Features and applications

Retaining magnets GN 52.2 are a shielded magnetic system.





Standard Elements	Main dimensions				Nominal adhesive forces in N	⚖
Description	d_1 ±0.2	d_2	h ±0.2	t min.		g
GN 52.2-AN-6	6	M 3	20	5	2	4
GN 52.2-AN-8	8	M 3	20	5	4	8
GN 52.2-AN-10	10	M 4	20	7	8.5	11
GN 52.2-AN-13	13	M 4	20	7	12	19
GN 52.2-AN-16	16	M 4	20	7	20	30
GN 52.2-AN-20	20	M 6	25	9	40	55
GN 52.2-AN-25	25	M 6	35	9	60	121
GN 52.2-AN-32	32	M 8	40	12	160	212
GN 52.2-AN-40	40	M 8	50	12	240	437
GN 52.2-AN-50	50	M 10	60	12	400	793
GN 52.2-AN-63	63	M 12	65	14	660	1273
GN 52.2-ND-6	6	M 3	20	5	6	4
GN 52.2-ND-8	8	M 3	20	5	12	8
GN 52.2-ND-10	10	M 4	20	7	24	11
GN 52.2-ND-13	13	M 4	20	7	60	20
GN 52.2-ND-16	16	M 4	20	7	90	30
GN 52.2-ND-20	20	M 6	25	9	135	58
GN 52.2-ND-25	25	M 6	35	9	190	131
GN 52.2-ND-32	32	M 8	40	12	340	243
GN 52.2-ND-40	40	M 8	50	12	600	480
GN 52.2-ND-50	50	M 10	60	12	900	904
GN 52.2-ND-63	63	M 12	65	14	1300	1555

GN 52.3

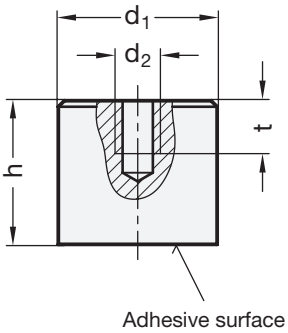
Retaining magnets

RoHS

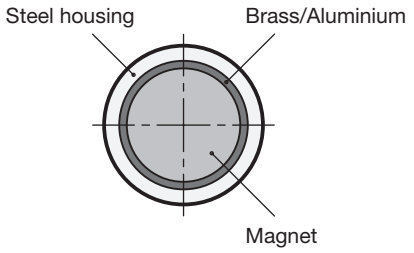
- **Specification**
  Rod-shaped, with female thread.
  Housing steel.
- **Material of the magnet**
  Aluminium, nickel, cobalt AlNiCo **AN**, temperature resistant up to 450 °C.
  Lacquering red, temperature resistant up to 180 °C.

Features and applications

Retaining magnets GN 52.3 are a shielded magnetic system.
For easier handling and/or to avoid demagnetisation, these magnets have an iron plate on their adhesive surface.



View on adhesive surface



Standard Elements	Main dimensions				Nominal adhesive forces in N	⚖
Description	d1	d2	h	t		g
GN 52.3-AN-12.5	12.5	M 4	16	7	20	15
GN 52.3-AN-17	17	M 6	16	5	26	29
GN 52.3-AN-21	21	M 6	19	7	40	42
GN 52.3-AN-27	27	M 6	25	9	65	89
GN 52.3-AN-35	35	M 6	30	9	150	190

GN 52.5

INOX
Stainless Steel

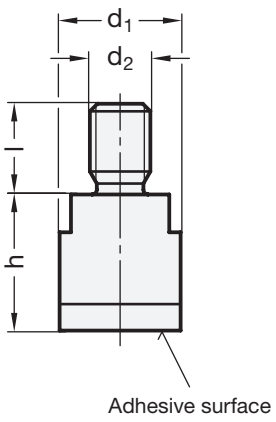
Retaining magnets

RoHS

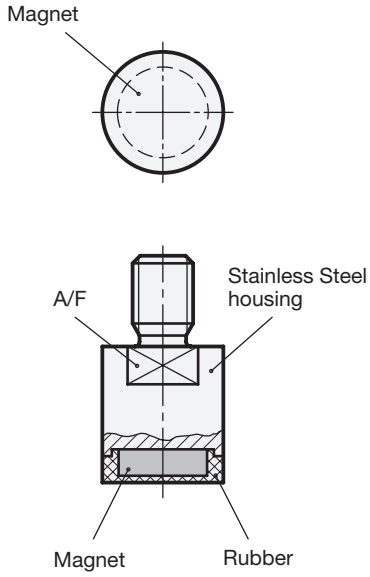
- **Specification**
  Rod-shaped, with gummed adhesive surface.
  Housing stainless steel.
  Rubber Elastomer (TPE), 80 Shore A ≈, black.
- **Material of the magnet**
  Neodymium, iron, boron NdFeB **ND**, temperature resistant up to 80 °C.

Features and applications

Retaining magnets GN 52.5 are a shielded magnetic system with gummed adhesive surface.
They are preferably used for sensitive surfaces. Also, the coefficient of friction is increased, with the effect that high lateral retaining forces are achieved.



View on adhesive surface



Standard Elements	Main dimensions					Nominal adhesive forces in N	⚖
Description	d_1	d_2	h	Length l	A/F		g
GN 52.5-ND-13-M6	13	M 6	16	10	11	15	16
GN 52.5-ND-16-M8	16	M 8	18	12	13	23	29
GN 52.5-ND-20-M10	20	M 10	20	14	17	46	52

GN 52.4

Retaining magnets

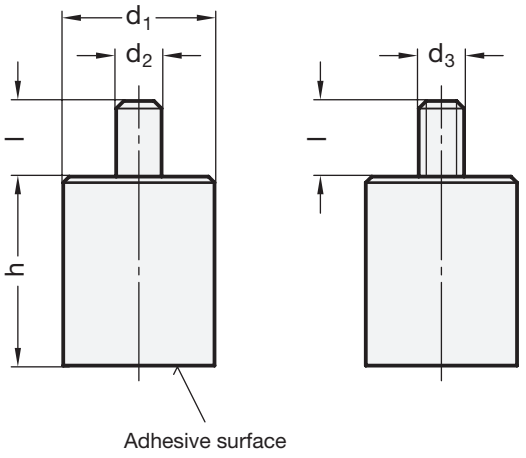
RoHS

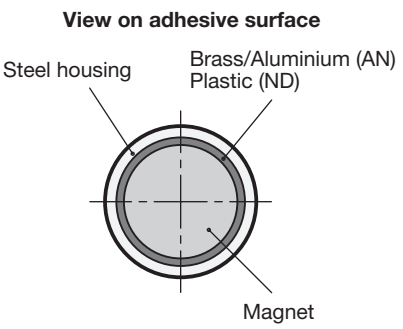
- **Specification**
  Rod-shaped, with stud.
  Housing steel, zinc plated.
  - Type **D**: with smooth stud.
  - Type **E**: with threaded stud.

- **Materials of the magnet**
  - Aluminium, nickel, cobalt AlNiCo **AN**, temperature resistant up to 450 °C.
  - Neodymium, iron, boron NdFeB **ND**, temperature resistant up to 80 °C.

Features and applications

Retaining magnets GN 52.4 are a shielded magnetic system.
Type D with smooth stud is designed for attachment with rivets.





Standard Elements	Main dimensions					Nominal adhesive forces in N	⚖
Description	d_1	d_2 ±0.2	d_3	h ±0.2	Length l		g
GN 52.4-AN-6-3-D	6	3	-	20	8	2	5
GN 52.4-AN-8-3-D	8	3	-	20	8	4	8
GN 52.4-AN-10-4-D	10	4	-	20	8	8.5	13
GN 52.4-AN-13-4-D	13	4	-	20	8	12	21
GN 52.4-AN-16-5-D	16	5	-	20	8	20	32
GN 52.4-AN-20-6-D	20	6	-	25	8	40	59
GN 52.4-AN-25-8-D	25	8	-	35	10	60	128
GN 52.4-AN-32-10-D	32	10	-	40	10	160	220
GN 52.4-AN-40-15-D	40	15	-	50	20	240	468
GN 52.4-AN-50-18-D	50	18	-	60	25	400	872
GN 52.4-AN-63-20-D	63	20	-	65	30	660	1371
GN 52.4-AN-6-M3-E	6	-	M 3	20	7	2	5
GN 52.4-AN-8-M3-E	8	-	M 3	20	7	4	8
GN 52.4-AN-10-M4-E	10	-	M 4	20	8	8.5	13
GN 52.4-AN-13-M4-E	13	-	M 4	20	8	12	21
GN 52.4-AN-16-M4-E	16	-	M 4	20	10	20	31
GN 52.4-AN-20-M6-E	20	-	M 6	25	12	40	60
GN 52.4-AN-25-M6-E	25	-	M 6	35	10	60	125
GN 52.4-AN-32-M8-E	32	-	M 8	40	12	160	217
GN 52.4-AN-40-M8-E	40	-	M 8	50	15	240	458
GN 52.4-AN-50-M10-E	50	-	M 10	60	15	400	855
GN 52.4-AN-63-M12-E	63	-	M 12	65	20	660	1345
GN 52.4-ND-6-3-D	6	3	-	20	8	6	5
GN 52.4-ND-8-3-D	8	3	-	20	8	12	9
GN 52.4-ND-10-4-D	10	4	-	20	8	24	13
GN 52.4-ND-13-4-D	13	4	-	20	8	60	21
GN 52.4-ND-16-5-D	16	5	-	20	8	90	31
GN 52.4-ND-20-6-D	20	6	-	25	8	135	62
GN 52.4-ND-25-8-D	25	8	-	35	10	190	133
GN 52.4-ND-32-10-D	32	10	-	40	10	340	252
GN 52.4-ND-40-15-D	40	15	-	50	20	600	513
GN 52.4-ND-50-18-D	50	18	-	60	25	900	964
GN 52.4-ND-63-20-D	63	20	-	65	30	1300	1654
GN 52.4-ND-6-M3-E	6	-	M 3	20	7	6	5
GN 52.4-ND-8-M3-E	8	-	M 3	20	7	12	9
GN 52.4-ND-10-M4-E	10	-	M 4	20	8	24	14
GN 52.4-ND-13-M4-E	13	-	M 4	20	8	60	23
GN 52.4-ND-16-M4-E	16	-	M 4	20	10	90	33
GN 52.4-ND-20-M6-E	20	-	M 6	25	12	135	62
GN 52.4-ND-25-M6-E	25	-	M 6	35	10	190	127
GN 52.4-ND-32-M8-E	32	-	M 8	40	12	340	220
GN 52.4-ND-40-M8-E	40	-	M 8	50	15	600	461
GN 52.4-ND-50-M10-E	50	-	M 10	60	15	900	860
GN 52.4-ND-63-M12-E	63	-	M 12	65	20	1300	1350

GN 60

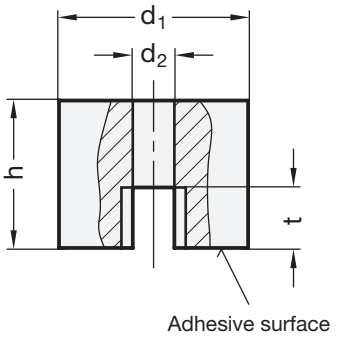
Button-type magnets

RoHS

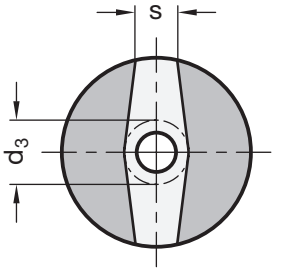
- **Specification**
  With bore.
- **Material of the magnet**
  Aluminium, nickel, cobalt AlNiCo **AN**, temperature resistant up to 280 °C.
  Lacquering red, temperature resistant up to 180 °C.

Features and applications

The button-type magnets GN 60 have a split adhesive surface. These are non-shielded magnetic systems made by casting method.
To ensure that the magnetic properties (adhesive forces) are not impaired, the fixing screws must be made of **non-magnetic** material.
For easier handling and/or to avoid demagnetisation, these magnets have an iron plate on their adhesive surface.



View on adhesive surface



Standard Elements	Main dimensions							Nominal adhesive forces in N	⚖
Description	d1		d2	d3	h	s	t		g
	Nominal dimension	Actual dimension		max. Ø screw head					
GN 60-AN-13	13	13	4.5	7	10	4.5	5	7	6
GN 60-AN-19	19	19.1	4.8	8.7	12.7	5.7	6.5	19	23
GN 60-AN-25	25	25.4	4.5	8.5	20	5.6	8	29	71
GN 60-AN-32	32	31.8	7.1	10	25.4	7.9	12.7	66	132

GN 70

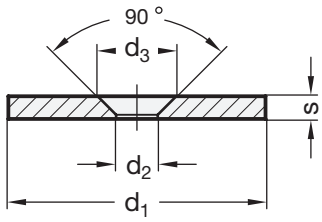
Adhesive discs for retaining magnets

RoHS

- **Material**
  Steel, zinc plated.
- **Standard versions available**
  Type **A**: flat.

Features and applications

Adhesive discs GN 70 are used as companion parts for retaining magnets, e.g. if a magnet is to be used in connection with non-magnetic materials.
They can be fixed with countersunk screws (e.g. DIN 7991), but also with any commercial wood or sheet metal countersunk screws.



Standard Elements	Main dimensions				⚖
Description	d_1	d_2	d_3	s	g
GN 70-12-A-ST	12 ±0.1	4 +0.3	6.5 -0.2/+0.5	2	1
GN 70-17-A-ST	17 ±0.1	6 +0.3	8.5 +0.5	2	3
GN 70-27-A-ST	27 ±0.2	6 +0.3	11 +0.5	3	12
GN 70-34-A-ST	34 +0.3/+0.7	6 +0.3	11 +0.5	3	20
GN 70-45-A-ST	45 +0.1/+0.5	5.5 +0.3	11 +0.5	3	36
GN 70-64-A-ST	64 ±0.3	6 +0.3	11 +0.5	3	74

GN 70

INOX
Stainless Steel

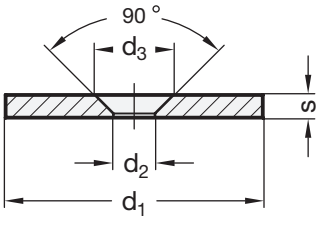
Adhesive discs for retaining magnets

RoHS

- **Material**
  Stainless steel, magnetic.
- **Standard versions available**
  Type **A**: flat.

Features and applications

Adhesive discs GN 70 are used as companion parts for retaining magnets, e.g. if a magnet is to be used in connection with non-magnetic materials.
They can be fixed with countersunk screws (e.g. DIN 7991), but also with any commercial wood or sheet metal countersunk screws.



Standard Elements	Main dimensions				⚖
Description	d_1	d_2	d_3	s	g
GN 70-27-A-NI	27 +0.1/+0.5	5.5 ±0.3	11 +0.5	3	12
GN 70-45-A-NI	45 ±0.2	6 ±0.3	8.5 +0.5	2	24

GN 62

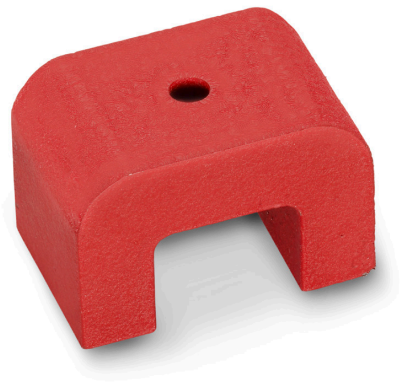
U-Magnets

RoHS

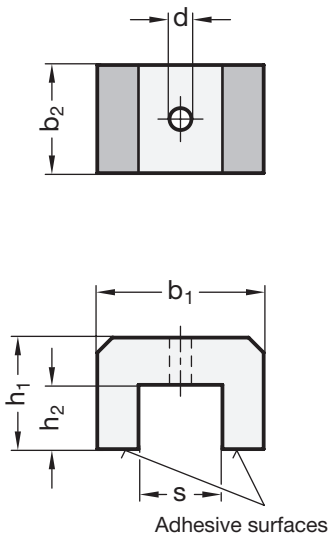
- **Material of the magnet**
  Aluminium, nickel, cobalt AlNiCo **AN**, temperature resistant up to 350 °C.
  Lacquering red, temperature resistant up to 180 °C.

Features and applications

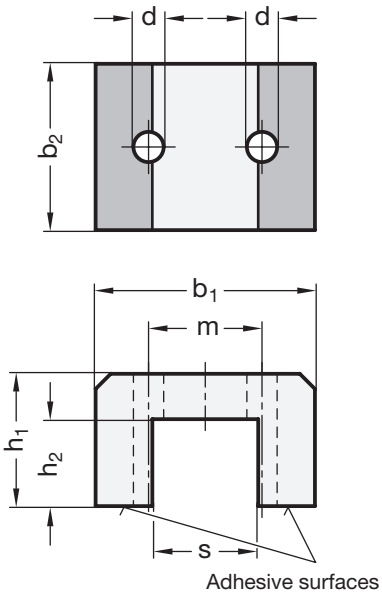
The U-magnets GN 62 have a split adhesive surface. These are non-shielded magnetic systems made by casting method.
To ensure that the magnetic properties (adhesive forces) are not impaired, the fixing screws must be made of **non-magnetic** material.
For easier handling and/or to avoid demagnetisation, these magnets have an iron plate on their adhesive surface.



Type b_1 = 22, 30, 39, 45



Type b_1 = 57, 70, 79



Standard Elements	Main dimensions							Nominal adhesive forces in N	⚖
Description	b_1	b_2	d	h_1	h_2	m	s		g
GN 62-AN-22	22	25	7	17	9	-	8	30	64
GN 62-AN-30	30	20	5	20	11	-	15	45	69
GN 62-AN-39	39	25.4	4.7	25	14	-	19	90	151
GN 62-AN-45	45	30	4.7	30	17	-	23	120	209
GN 62-AN-57	57	44.5	8	35	23	31.5	27.8	180	498
GN 62-AN-70	70	57	8	41	25	38	35	320	770
GN 62-AN-79	79	82	9.5	54	36	43	38.5	470	1570

GN 251.6

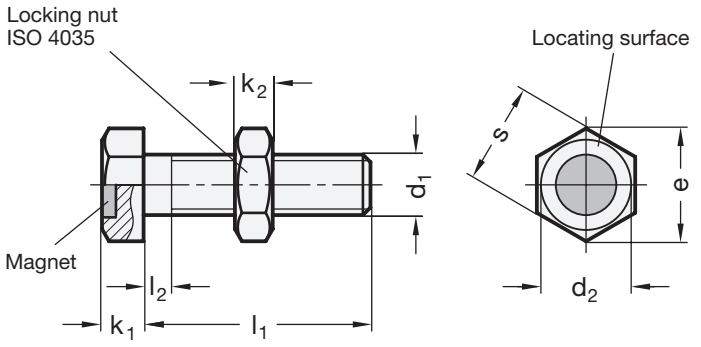
Setting bolts with retaining magnet

RoHS

- **Material**
  Steel zinc plated, blue passivated, tensile strength class 5.8 (500 N/mm²).
- **Locking nut**
  Steel zinc plated, blue passivated, tensile strength class 5.8 (500 N/mm²).
- **Material of the magnet**
  Neodymium, iron, boron NdFeB **ND**, temperature resistant up to 80 °C.

Features and applications

Setting bolts GN 251.6 with retaining magnet are a shielded magnetic system. Suitable e.g. as workpiece stop, with the magnet holding the workpiece in place. The locking nut (included) can be used to secure the stop screw after positioning.



Standard Elements	Main dimensions								Nominal adhesive forces in N	⚖
Description	d_1 *	l_1	d_2	e ≈	k_{1-1}	k_2	l_2	s		g
GN 251.6-M6-12-ND	M 6	12	10	11	4	3.2	3	10	25	5
GN 251.6-M6-16-ND	M 6	16	10	11	4	3.2	3	10	25	6
GN 251.6-M6-20-ND	M 6	20	10	11	4	3.2	3	10	25	7
GN 251.6-M6-25-ND	M 6	25	10	11	4	3.2	3	10	25	8
GN 251.6-M6-30-ND	M 6	30	10	11	4	3.2	3	10	25	9
GN 251.6-M8-16-ND	M 8	16	13	14.4	5.3	4	3.7	13	50	13
GN 251.6-M8-20-ND	M 8	20	13	14.4	5.3	4	3.7	13	50	14
GN 251.6-M8-25-ND	M 8	25	13	14.4	5.3	4	3.7	13	50	16
GN 251.6-M8-30-ND	M 8	30	13	14.4	5.3	4	3.7	13	50	17
GN 251.6-M8-40-ND	M 8	40	13	14.4	5.3	4	3.7	13	50	21
GN 251.6-M10-20-ND	M 10	20	17	17.8	6.4	5	4.5	17	75	26
GN 251.6-M10-25-ND	M 10	25	17	17.8	6.4	5	4.5	17	75	30
GN 251.6-M10-30-ND	M 10	30	17	17.8	6.4	5	4.5	17	75	37
GN 251.6-M10-40-ND	M 10	40	17	17.8	6.4	5	4.5	17	75	39
GN 251.6-M10-50-ND	M 10	50	17	17.8	6.4	5	4.5	17	75	42
GN 251.6-M12-25-ND	M 12	25	19	20	7.5	6	5.2	19	110	44
GN 251.6-M12-30-ND	M 12	30	19	20	7.5	6	5.2	19	110	48
GN 251.6-M12-40-ND	M 12	40	19	20	7.5	6	5.2	19	110	55
GN 251.6-M12-50-ND	M 12	50	19	20	7.5	6	5.2	19	110	62
GN 251.6-M12-60-ND	M 12	60	19	20	7.5	6	5.2	19	110	84
GN 251.6-M16-30-ND	M 16	30	24	26.8	10	8	6	24	145	93
GN 251.6-M16-40-ND	M 16	40	24	26.8	10	8	6	24	145	104
GN 251.6-M16-50-ND	M 16	50	24	26.8	10	8	6	24	145	118
GN 251.6-M16-60-ND	M 16	60	24	26.8	10	8	6	24	145	131
GN 251.6-M16-80-ND	M 16	80	24	26.8	10	8	6	24	145	157

* thread: nut mobility.

GN 913.6

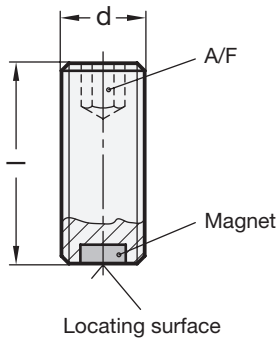
Grub screws with retaining magnet

RoHS

- **Material**
  Steel zinc-plated, blue passivated, tensile strength class 5.8 (500 N/mm²).
- **Material of the magnet**
  Neodymium, iron, boron NdFeB **ND**, temperature resistant up to 80 °C.

Features and applications

Grub screws GN 913.6 with retaining magnet are a shielded magnetic system. Suitable e.g. as workpiece stop, with the magnet holding the workpiece in place.



Standard Elements	Main dimensions			Nominal adhesive forces in N	⚖
Description	d *	Length l	A/F		g
GN 913.6-M6-12-ND	M 6	12	3	2.5	2
GN 913.6-M6-16-ND	M 6	16	3	2.5	2
GN 913.6-M6-20-ND	M 6	20	3	2.5	3
GN 913.6-M6-25-ND	M 6	25	3	2.5	4
GN 913.6-M6-30-ND	M 6	30	3	2.5	5
GN 913.6-M8-16-ND	M 8	16	4	7	4
GN 913.6-M8-20-ND	M 8	20	4	7	5
GN 913.6-M8-25-ND	M 8	25	4	7	7
GN 913.6-M8-30-ND	M 8	30	4	7	8
GN 913.6-M8-40-ND	M 8	40	4	7	11
GN 913.6-M10-20-ND	M 10	20	5	11	8
GN 913.6-M10-25-ND	M 10	25	5	11	10
GN 913.6-M10-30-ND	M 10	30	5	11	13
GN 913.6-M10-40-ND	M 10	40	5	11	18
GN 913.6-M10-50-ND	M 10	50	5	11	23
GN 913.6-M12-25-ND	M 12	25	6	17	14
GN 913.6-M12-30-ND	M 12	30	6	17	18
GN 913.6-M12-40-ND	M 12	40	6	17	25
GN 913.6-M12-50-ND	M 12	50	6	17	32
GN 913.6-M12-60-ND	M 12	60	6	17	39
GN 913.6-M16-30-ND	M 16	30	8	35	32
GN 913.6-M16-40-ND	M 16	40	8	35	46
GN 913.6-M16-50-ND	M 16	50	8	35	58
GN 913.6-M16-60-ND	M 16	60	8	35	71
GN 913.6-M16-80-ND	M 16	80	8	35	97

* thread: nut mobility.

GN 53.1

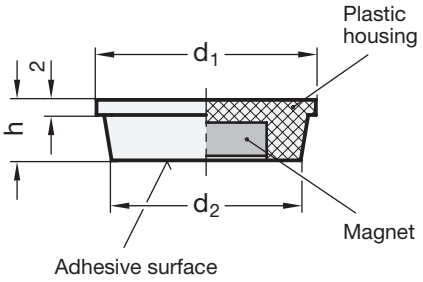
Magnets

RoHS

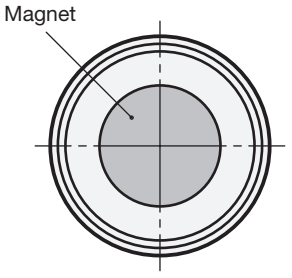
- **Specification**
  Housing plastic.
  - Version **WS**: RAL 9003 white colour.
  - Version **GR**: RAL 7040 grey colour.
  - Version **RT**: RAL 3031 red colour.
- **Material of the magnet**
  Neodymium, iron, boron NdFeB **ND**, temperature resistant up to 80 °C.

Special executions on request
Magnets with custom imprint.

Features and applications
Magnets GN 53.1 are primarily used for holding drawings and the like.
The magnetic material ND is characterized by a high adhesive force.



View on adhesive surface



Standard Elements	Main dimensions			Nominal adhesive forces in N	⚖
Description	d1	d2	h		g
GN 53.1-ND-18-WS	18	14	8	10	3
GN 53.1-ND-18-GR	18	14	8	10	3
GN 53.1-ND-18-RT	18	14	8	10	3
GN 53.1-ND-25-WS	25	22	8.5	14	8
GN 53.1-ND-25-GR	25	22	8.5	14	8
GN 53.1-ND-25-RT	25	22	8.5	14	8
GN 53.1-ND-30-WS	30	28.5	8.5	27	9
GN 53.1-ND-30-GR	30	28.5	8.5	27	9
GN 53.1-ND-30-RT	30	28.5	8.5	27	9
GN 53.1-ND-36-WS	36	32.5	8.5	35	11
GN 53.1-ND-36-GR	36	32.5	8.5	35	11
GN 53.1-ND-36-RT	36	32.5	8.5	35	11
GN 53.1-ND-40-WS	40	36	8	35	12
GN 53.1-ND-40-GR	40	36	8	35	12
GN 53.1-ND-40-RT	40	36	8	35	12

GN 55.1

Raw magnets

RoHS

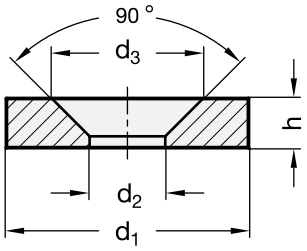
- **Specification**
  Disc-shaped, with bore or countersunk.
- **Materials of the magnet**
  - Samarium, cobalt SmCo **SC**, temperature resistant up to 200 °C.
  - Neodymium, iron, boron NdFeB **ND**, temperature resistant up to 80 °C.

Special executions on request
Made of hard ferrite (HF).

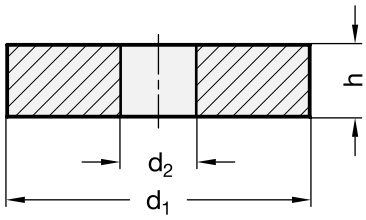
Features and applications
Raw magnets GN 55.1 are unshielded disc-shaped (annular) magnets.
Owing to their vast range of different magnet materials and sizes, they are suitable for virtually universal use. They are mostly attached by gluing.
When used without air gap, individual raw magnets always have lower adhesive forces than a magnet system in which shielding and magnetic return enormously intensify the force acting at the adhesion surface. Depending on the air gap between magnet and mating component, individual raw magnets - unlike magnet systems - can have substantially higher adhesive forces.
In the event that no suitable retaining magnets / magnet systems are available, raw magnets may be used in combination with appropriate holding constructions to build up highly specific magnet systems.

Version **ND**

Countersunk for $d_1 \leqq 24$

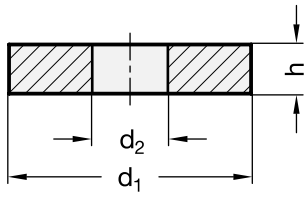


Bore for $d_1 \geqq 32$



Version **SC**

Bore



Standard Elements	Main dimensions				Nominal adhesive forces in N	Packaging units	⚖
Description	d_1	d_2	d_3	h			g
GN 55.1-SC-15-8-3.5	15 ±0.1	8 ±0.1	-	3.5 ±0.1	23	20	4
GN 55.1-SC-18-8-4	18 ±0.1	8 ±0.1	-	4 ±0.1	31	10	7
GN 55.1-SC-24-11-4	24 ±0.1	11.5 ±0.1	-	4 ±0.1	51	10	12
GN 55.1-SC-32-10.5-4	32 ±0.1	10 ±0.1	-	4 ±0.1	67	5	24
GN 55.1-ND-12-3.5-3	12 ±0.1	3.5 ±0.1	6.6 +0.5	3 ±0.1	18	20	2
GN 55.1-ND-15-4.5-3.5	15 ±0.1	4.5 ±0.1	9.3 +0.5	3.5 ±0.1	29	20	4
GN 55.1-ND-18-4.5-4	18 ±0.1	4.5 ±0.1	9.3 +0.5	4 ±0.1	41	10	7
GN 55.1-ND-24-5.5-4	24 ±0.1	5.5 ±0.1	11.5 +0.5	4 ±0.1	66	10	12
GN 55.1-ND-32-10.5-2	32 ±0.1	10.5 ±0.1	-	2 ±0.1	42	5	11
GN 55.1-ND-38-12-4	38 ±0.1	12 ±0.1	-	4 ±0.1	110	1	30
GN 55.1-ND-48-15-5	48 ±0.2	15 ±0.1	-	5 ±0.1	165	1	61
GN 55.1-ND-56-15-6	56 ±0.2	15 ±0.1	-	6 ±0.1	230	1	102

GN 55.2

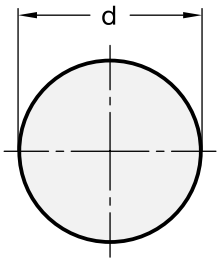
Raw magnets

RoHS

- **Specification**
  Disc-shaped.
- **Materials of the magnet**
  - Samarium, cobalt SmCo **SC**, temperature resistant up to 200 °C.
  - Neodymium, iron, boron NdFeB **ND**, temperature resistant up to 80 °C.

Special executions on request
Made of hard ferrite (HF).

Features and applications
Raw magnets GN 55.2 are unshielded disc-shaped magnets.
Owing to their vast range of different magnet materials and sizes, they are suitable for virtually universal use. They are mostly attached by gluing.
When used without air gap, individual raw magnets always have lower adhesive forces than a magnet system in which shielding and magnetic return enormously intensify the force acting at the adhesion surface. Depending on the air gap between magnet and mating component, individual raw magnets - unlike magnet systems - can have substantially higher adhesive forces.
In the event that no suitable retaining magnets / magnet systems are available, raw magnets may be used in combination with appropriate holding constructions to build up highly specific magnet systems.



Standard Elements	Main dimensions		Nominal adhesive forces in N	Packaging units	⚖
Description	d ±0.1	h ±0.1			g
GN 55.2-SC-4-3	4	3	2.5	20	1
GN 55.2-SC-5-3	5	3	3.5	20	1
GN 55.2-SC-6-3	6	3	4	20	1
GN 55.2-SC-8-3	8	3	8	20	1
GN 55.2-SC-10-3	10	3	10	20	2
GN 55.2-SC-12-3	12	3	11	10	3
GN 55.2-SC-15-3	15	3	16	10	4
GN 55.2-SC-18-3	18	3	25	10	6
GN 55.2-SC-24-3	24	3	36	5	11
GN 55.2-ND-4-3	4	3	4	20	1
GN 55.2-ND-5-3	5	3	5	20	1
GN 55.2-ND-6-3	6	3	7.5	20	1
GN 55.2-ND-8-3	8	3	13	20	1
GN 55.2-ND-10-3	10	3	15	20	2
GN 55.2-ND-12-3	12	3	20	20	2
GN 55.2-ND-15-3	15	3	28	20	4
GN 55.2-ND-18-3	18	3	35	10	5
GN 55.2-ND-20-3	20	3	42	10	7
GN 55.2-ND-24-3	24	3	55	10	10

GN 55.3

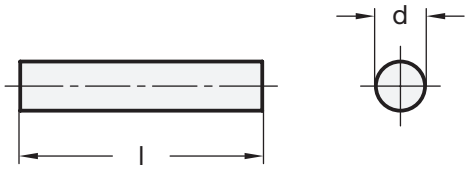
Raw magnets

RoHS

- **Specification**
  Rod-shaped.
- **Material of the magnet**
  Aluminium, nickel, cobalt AlNiCo **AN**.

Special executions on request
Special lengths.

Features and applications
Raw magnets GN 55.3 are unshielded rod-shaped magnets.
Owing to their vast range of different sizes, they are suitable for virtually universal use. They are mostly attached by pressing in or gluing.
When used without air gap, individual raw magnets always have lower adhesive forces than a magnet system in which shielding and magnetic return enormously intensify the force acting at the adhesion surface. Depending on the air gap between magnet and mating component, individual raw magnets - unlike magnet systems - can have substantially higher adhesive forces.
In the event that no suitable retaining magnets / magnet systems are available, raw magnets may be used in combination with appropriate holding constructions to build up highly specific magnet systems.

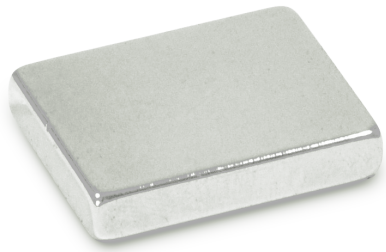


Standard Elements	Main dimensions		Nominal adhesive forces in N	Temperature resistance in °C	Packaging units	⚖
Description	d 0/-0.2	Length l ±0.1				g
GN 55.3-AN-3-10	3	10	1.1	450	10	1
GN 55.3-AN-3-12	3	12	1.3	450	10	1
GN 55.3-AN-4-16	4	16	1.9	450	10	1
GN 55.3-AN-4-20	4	20	2	450	10	2
GN 55.3-AN-5-20	5	20	2.3	450	10	3
GN 55.3-AN-6-15	6	15	2.8	350	5	3
GN 55.3-AN-6-24	6	24	2.8	450	5	4
GN 55.3-AN-6-30	6	30	2.8	450	5	6
GN 55.3-AN-8-25	8	25	3.8	450	5	9
GN 55.3-AN-8-32	8	32	3.8	450	5	11
GN 55.3-AN-10-20	10	20	5	350	5	11
GN 55.3-AN-10-40	10	40	7	450	1	23
GN 55.3-AN-12-40	12	40	8	450	1	33
GN 55.3-AN-12-48	12	48	8	450	1	39
GN 55.3-AN-15-30	15	30	10	350	1	39
GN 55.3-AN-15-60	15	60	11	450	1	76
GN 55.3-AN-20-40	20	40	17	350	1	92
GN 55.3-AN-34-80	34	80	61	350	1	527

GN 55.4

Raw magnets

RoHS



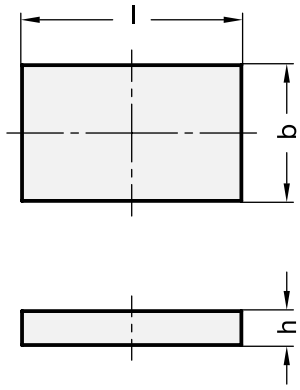
- **Specification**
  Block-shaped.
- **Materials of the magnet**
  - Samarium, cobalt SmCo **SC**, temperature resistant up to 200 °C.
  - Neodymium, iron, boron NdFeB **ND**, temperature resistant up to 80 °C.

Special executions on request

- in other dimensions.
- made of hard ferrite (HF).

Features and applications

Raw magnets GN 55.4 are unshielded block-shaped magnets.
Owing to their vast range of different magnet materials and sizes, they are suitable for virtually universal use. They are mostly attached by gluing.
When used without air gap, individual raw magnets always have lower adhesive forces than a magnet system in which shielding and magnetic return enormously intensify the force acting at the adhesion surface. Depending on the air gap between magnet and mating component, individual raw magnets - unlike magnet systems - can have substantially higher adhesive forces.
In the event that no suitable retaining magnets / magnet systems are available, raw magnets may be used in combination with appropriate holding constructions to build up highly specific magnet systems.



Standard Elements	Main dimensions			Nominal adhesive forces in N	Packaging units	⚖
Description	Length l ±0.1	b ±0.1	h ±0.1			g
GN 55.4-SC-7.5-4-1.5	7.5	4	1.5	3.4	10	1
GN 55.4-SC-7.5-6-2	7.5	6	2	5	10	1
GN 55.4-SC-10-7.5-2	10	7.5	27.5	7.5	10	1
GN 55.4-SC-12-9.5-2.5	12	9.5	2.5	11	5	2
GN 55.4-SC-16-12.5-2.5	16	12.5	2.5	15	5	4
GN 55.4-SC-18-16.5-4	18	16.5	4	29	5	10
GN 55.4-SC-26-20.3-5	26	20.3	5	51	1	22
GN 55.4-SC-33-26.3-6.5	33	26.3	6.5	85	1	47
GN 55.4-ND-7.5-4-1.5	7.5	4	1.5	5	10	1
GN 55.4-ND-7.5-6-2	7.5	6	2	8	10	1
GN 55.4-ND-10-7.5-2	10	7.5	2	11	10	1
GN 55.4-ND-12-9.5-2.5	12	9.5	2.5	17	5	2
GN 55.4-ND-16-12.5-2.5	16	12.5	2.5	24	5	4
GN 55.4-ND-18-16.5-4	18	16.5	4	50	5	9
GN 55.4-ND-26-20.3-5	26	20.3	5	77	1	20
GN 55.4-ND-33-26.3-6.5	33	26.3	6.5	125	1	42

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