

DC holding magnet

Optionally with or without armature

Optionally with polished or zinc-coated pole face

9

Product group

G MH G ZZ

- According to DIN VDE 0580
- High holding force
- Increasing force vs. stroke characteristic
- Gimbal mounted armature
- Exciter coil corresponds to insulation class B
- Electrical connection and protection class with duly executed installation
 - with 2 pole terminal
Protection class according to DIN VDE / EN 60529 – IP 20
 - with free flexible lead ends
Protection class according to DIN VDE 0470 / EN 60529 – IP 00
- Size 020:
Fastening via central thread at the reverse side
- Size 025 to 100:
Fastening via 3 tapped holes at the reverse side or central thread
- Pole face optionally polished or zinc-coated
- Protection class IP 65 on request
- Application examples:
Machine construction, fixture construction, materials-handling handling technology, door holding devices, interlocking of all sorts, solenoids for short strokes



Fig. 1: Holding magnet with armature
Type G MH X 065 X20 A01 and
Type G ZZ E 065 X00 A01

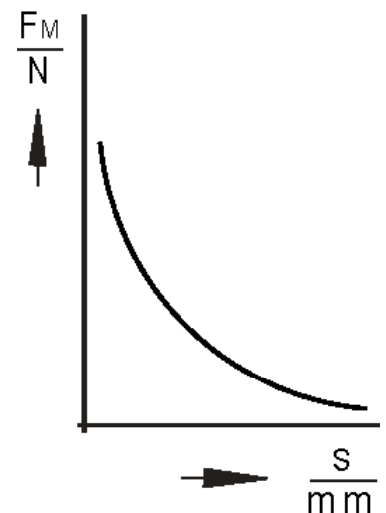


Fig. 2: force vs. stroke characteristic



Technical data

G MH X	020	025	030	040	050	065	080	100
Operating mode	S1 100%	S1 100%	S1 100%	S1 100%	S1 100%	S1 100%	S1 100%	S1 100%
Rated power P_{20} (W)	1,9	3,2	4	5,6	6,2	9,8	12,4	17
Solenoid weight m_M (kg)	0,025	0,07	0,1	0,22	0,38	0,75	1,3	2,2
Armature weight m_A (kg)	0,007	0,012	0,029	0,05	0,1	0,21	0,4	0,74
Armature thickness (mm)	2,5	3	5	5	6	8	10	12
Armature diameter \varnothing (mm)	20	25	30	40	50	65	80	100
Stroke s (mm)	Magnetic force F_M (N)							
... A01 (polished pole face) 0	88	150	280	520	800	1480	2280	3700
... A11 (zinc-coated pole face) 0	80	135	250	470	720	1330	2050	3330
0,1	10	36,3	70	275	569	1128	1942	3140
0,16	6	18,2	38	157	373	883	1600	2747
0,25	2,1	9,8	20	80	216	618	1256	2354
0,4	0,5	3,5	10	30	93	294	657	1520
0,6	—	1,8	5	14	41	132	314	804
1,0	—	0,9	2	6,2	18	61	128	324
1,6	—	—	—	2,6	7	18	45	137
2,5	—	—	—	1,3	2,2	10	18	58
4	—	—	—	0,5	0,8	3,2	9,8	26
6	—	—	—	—	0,4	2,6	4,9	11
Magnetic force $F_M^{(1)}$ at stroke of 0mm with armature G ZZ E for .A01	70	130	230	420	700	1200	1850	3000
for ..A11	63	115	210	380	630	1080	1660	2700

1) The armatures are corrosion protected through nickel-coating. The nickel-coat which is not magnetically conducting causes an air gap, so the above mentioned magnetic forces can be measured. The adhesive force is of 5% of the magnetic force with a stroke of 0mm. The external return forces must be above this adhesive force with a sufficient safety margin.

Rated voltage ≈ 24 V, the exciter coil can be adjusted to a rated voltage of

≈ 110 V for size 020 up to 030,
 ≈ 250 V for size 040 up to 100

The force values indicated in the tables refer to 90% of the rated voltage ($U_N = \approx 24$ V, for other voltages deviations of magnetic force may occur) and to the normal operating temperature.

Due to natural dispersion the force values may deviate by $\pm 10\%$ from the values indicated in the tables.

The normal operating temperature is based on:

- Rated voltage ≈ 24 V
- Operating mode S1 100%
- Reference temperature 35° C
- Mounting on heat-insulating base

In the interest of a low surface temperature, the excessive temperature of the devices is $\Delta_{v,32} = 60$ K. The magnetic force values are measured using a specimen made of 9 S Mn 28 with plane ground surface and a surface roughness of 15 μ m max. On request an increase of the magnetic force is possible by a special adjustment of the winding. If the specimen thickness is small, the magnetic force is reduced. The use of materials with other permeability or bad surface quality may cause higher deviations of the rated force.

The pole face of types ...A01 is polished. This causes higher holding forces at increased susceptibility to corrosion. In case that due to the ambient conditions corrosion on the pole face must be expected, we recommend using type ...A11 with zinc-coated pole face but slightly reduced holding forces.

Dimension tables

Solenoid without armature

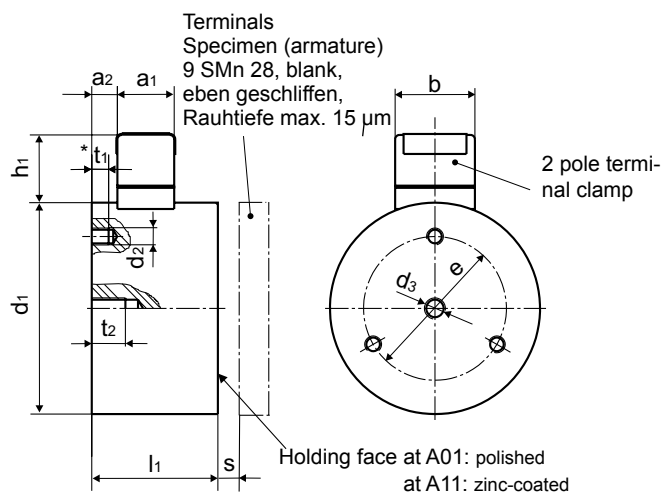


Fig. 3: Type G MH X 025 X 20 A01 / A11
to G MH X 100 X 20 A01 / A11

G MH X								
Size	020	025	030	040	050	065	080	100
Dim.	Dimensions in mm							
a ₁	—	13,5	13,5	13,5	13,5	13,5	13,5	13,5
a ₂	—	4,5	5,6	6	6	7	8,5	11
b	—	19	19	19	19	19	19	19
d ₁	20	25	30	40	50	65	80	100
d ₂	—	M3	M3	M4	M4	M5	M6	M6
d ₃	M4	M4	M5	M5	M5	M8	M8	M10
e	—	15	18	26	34	40	50	75
h ₁	—	16	16	16	16	16	16	16
l ₁	15	20	24	27	30	35	38	43
l ₂	150	150	150	150	150	150	150	150
l ₃	10,5	11,4	15	17,4	20,4	24,4	25,8	28,3
* t ₁	—	3	4	4	4	5	7	7
t ₂	4	6	5	8	8	12	12	15

* We cannot exceed the thread depth t, this could damage the coil.

Size 020 is not available with terminal clamp.

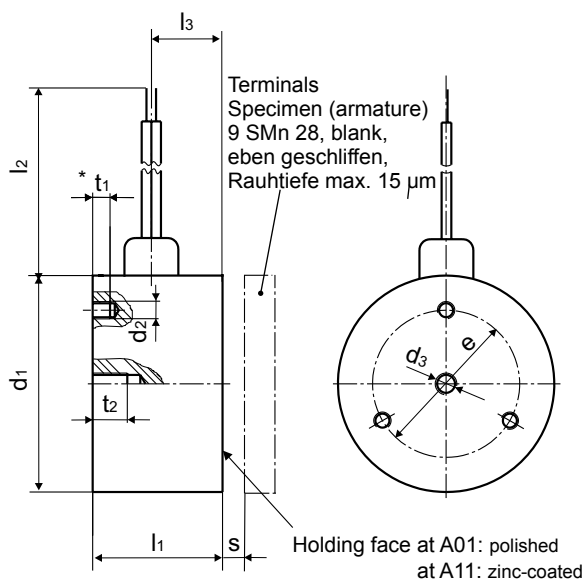


Fig. 4: Type G MH X 020 X 00 A01 / A11
to G MH X 100 X 00 A01 / A11

This part list is a document for technically qualified personnel. The present publication is for informational purposes only and shall not be construed as mandatory illustration of the products unless otherwise confirmed expressively.

Please make sure that the described devices are suitable for your application. Supplementary information concerning its duly assembly can be found also in -Technical Explanations, in the effective DIN VDE0580 as well as in the relevant specifications.

Information and remarks concerning European directives can be taken from the correspondent information sheet which is available under Produktinfo.Magnet-Schultz.com.

Note on the RoHS Directive

The devices presented in this document do not fall into the scope of RoHS Directive and to our knowledge they do not become part of products which fall into this scope. In case of surfaces zinc coating with yellow chromating and zinc iron with black chromating separate agreements are necessary for applications within the scope of RoHS.



Armature for solenoids

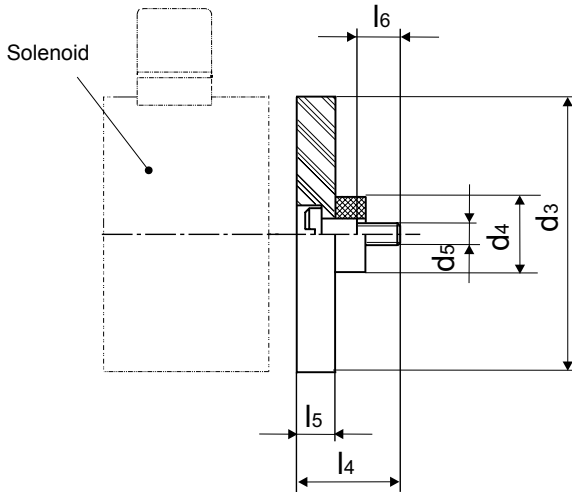


Fig. 5: Type G ZZ E 020 X 00 A01
to G ZZ E 100 X 00 A01
(size 020-030: ... D01)

G ZZ E								
Size	020	025	030	040	050	065	080	100
Dim.	Dimensions in mm							
d ₃	20	25	30	40	50	65	80	100
d ₄	7	8	10,5	10,5	10,5	13,5	16	21,5
d ₅	M2,5	M3	M4	M4	M4	M5	M6	M8
l ₄	8,5	9,5	14	14	15	19	23	26
l ₅	2,5	3	5	5	6	8	10	12
l ₆	3,5	4,5	6	6	6	7	9	11

Design with pin-socket on request

Order example

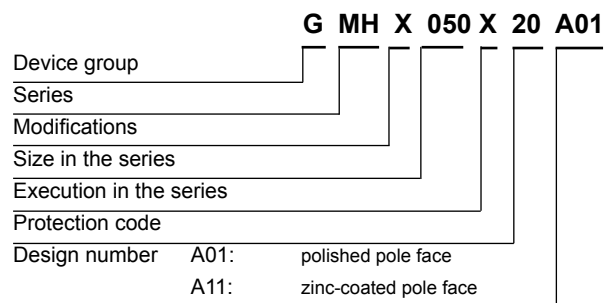
(Holding magnet without armature)

Type G MH X 050 X20 A01
Voltage == 24 V DC
Operating mode S1 (100 %)

(Holding magnet with armature)

Type G MH X 050 X20 A01
G ZZ E 050 X00 A01
Voltage == 24 V DC
Operating mode S1 (100 %)

Type code



Permanent holding magnets see part lists
G MP and **G MP ... B01**.

Specials designs

Please do not hesitate to ask us for application-oriented problem solutions. In order to find rapidly a reliable solution we need complete details about your application conditions. The details should be specified as precisely as possible in accordance with the relevant -Technical Explanations.

If necessary, please request the support of our corresponding technical office.