

D. C. Holding Magnet Type G MH

With or Without Armature Type G ZZ

9

Product group

GMH G ZZ

Pamphlet

- To DIN VDE 0580
- High holding force
- Increasing force vs stroke characteristic
- Armature with cardan bearing
- Coil to insulation class B
- Electrical connection and protection rating if mounted properly:
 - With 2 pole terminal block
Protection to DIN VDE 0470/EN 60529 - IP 20
- Type 020
Mounting with centre thread in rear face
- Type 025 to 100
Mounting with three tapped holes in rear face or with centre thread
- Modifications and special designs on request
- Application examples:
Machine tools, feeder mechanisms, lifting-locking-door holding, short stroke operations



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

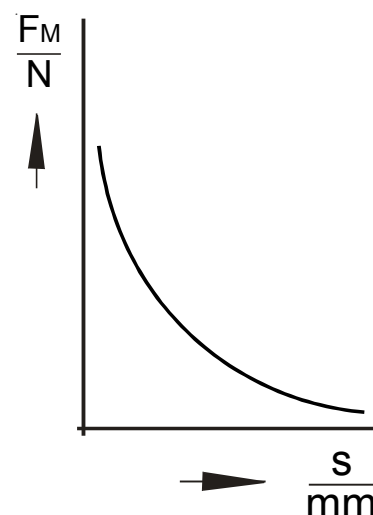


Fig. 2: Magnetic force vs stroke
characteristic



Technical data

G MH X	020	025	030	040	050	065	080	100
Operating mode	S1	S1	S1	S1	S1	S1	S1	S1
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 Ø (mm)	20	25	30	40	50	65	80	100
Stroke s (mm)	Magnetic Force F _M (N)							
0	88	150	280	520	800	1480	2280	3700
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 0 mm Stroke with Armature G ZZ E	70	130	230	420	700	1200	1850	3000

1) Being Ni-coated, the armatures are protected against corrosion. Due to the nickel-layer, which is no magnetic conductor, there will be an artificial air gap - thus marginal magnetic force values will be measured. The adhesive force is 5% of the magnetic force at 0 mm stroke. The outer return forces have to lie above this adhesive force sufficiently safe.

Rated voltage $\overset{\text{---}}{\text{---}}$ 24 VDC, on request the coil winding can be adjusted to a rated voltage of

$\overset{\text{---}}{\text{---}}$ 110 VDC for size 020 up to 030,
 $\overset{\text{---}}{\text{---}}$ 250 VDC for size 040 up to 100.

The magnetic-force values mentioned in the tables refer to 90 % of the rated voltage, (UN = $\overset{\text{---}}{\text{---}}$ 24 VDC, for other voltages the magnetic force may deviate) and in hot condition.

Owing to natural dispersion, the magnetic-force values may deviate by $\pm 10\%$ from the values indicated in the tables.

Hot condition is based on:

a) rated voltage $\overset{\text{---}}{\text{---}}$ 24 VDC

b) operating mode S1

c) reference temperature 35° C

In the interest of a low surface temperature, excess temperature of the devices is $\Delta \mu 32 = 60$ K. Magnetic-force values were measured from a test specimen made of 9 S Mn 28 with ground surface and a surface roughness of 15 μm max. On request the magnetic force can be increased through a special adjustment of the coil winding. If the thickness of the test specimen is smaller, the magnetic force decreases. If materials with a different permeability or with a lower surface quality are used, the deviations from the rated magnetic force may be bigger.

Please find further details and definitions in our -Technical Explanation or, in VDE 0580 respectively.

Note on the technical harmonisation guidelines within the EU



Electromagnetic solenoids of this product range are subject to the low-voltage guideline 73 / 23 EWG.

To guarantee the targets of this regulation, products are manufactured and inspected to the valid edition of DIN VDE 0580. This also equals a declaration of conformity by the manufacturer.

Note on the EMC (electromagnetic compatibility) guideline 89/336 EWG

Electromagnetic solenoids are not affected by this guideline because neither do they cause electromagnetic disturbances nor can they be disturbed through electromagnetic disturbances. Therefore, the adherence to the EMC guideline has to be guaranteed by the user through appropriate circuitry wiring. Examples for protection circuits can be taken from the corresponding technical documents.

Dimensions sheets

Solenoid without armature

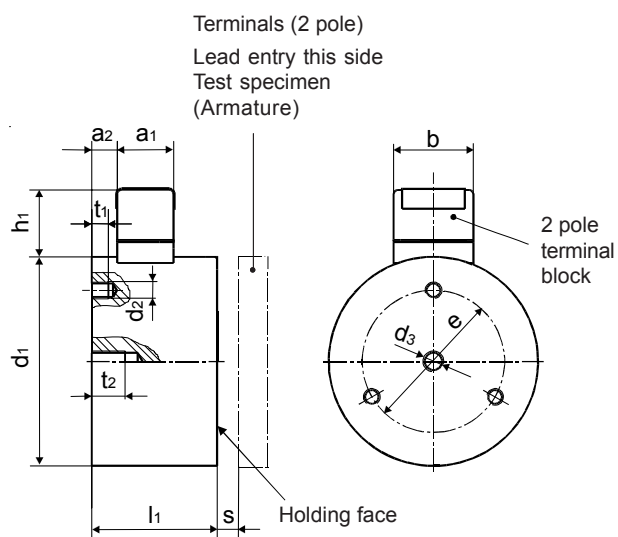


Fig. 3: Type G MH X 025 X 20 A01
to G MH X 100 X 20 A01

G MH X								
Size	020	025	030	040	050	065	080	100
Dim.	Dims. 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	---	---	---	---	---
l ₃	10,5	11,5	15	---	---	---	---	---
t ₁	---	3	4	4	4	5	7	7
t ₂	4	6	5	8	8	12	12	15

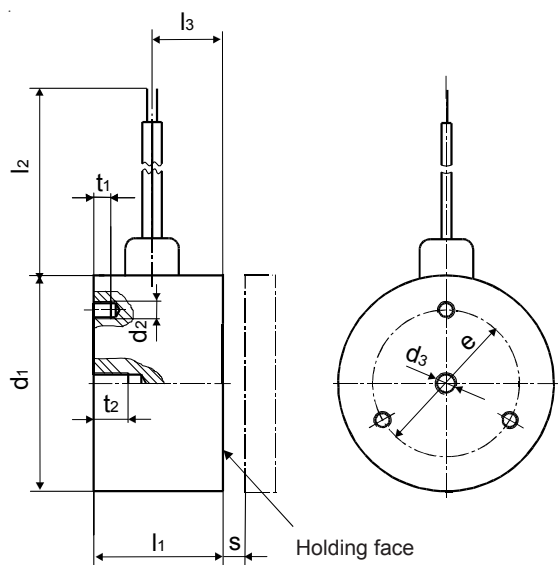
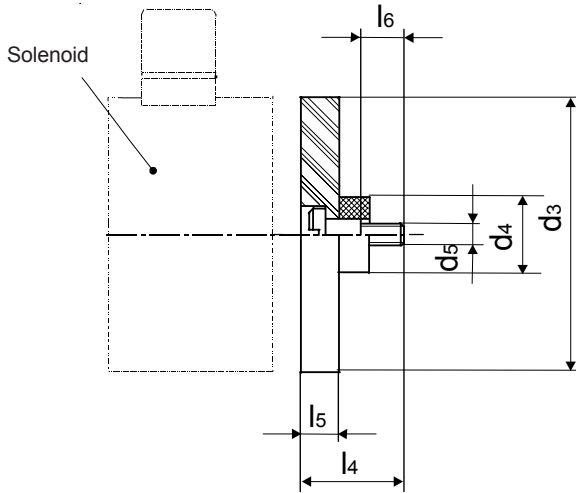


Fig. 4: Type G MH X 020 X 00 A01
and G MH X 030 X 00 A01

Size 020 with terminal block not available.



Armature for Solenoid



G Z Z E								
Size	020	025	030	040	050	065	080	100
Dim.	Maße 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

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

The solenoid shown is not a ready-to-use device in the sense of DIN VDE 0580. The general requirements and protective measures, which have to be taken by the user, are included in DIN VDE 0580.

Design with plug connector on request.

Order Example

(Holding Magnet without armature)

Type G MH X 050 X20 A01
Voltage $\overline{=}$ 24 V
Operating mode S1 (100%)


(Holding Magnet with armature)

Type G MH X 050 X20 A01
G Z Z E 050 X00 A01
Voltage $\overline{=}$ 24 V
Operating mode S1 (100%)

Type code

	G	MH	X	050	X	20	A01
Equipment group							
Basic construction							
Standard design							
Size							
Arrangement							
Basic protection							
Design number							

Specials

Special designs are available on request for which full application conditions should be specified in accordance with our  -Technical Explanations.

Permanent holding magnets with D. C. electro-magnet release see pamphlet G MP.