

DC Holding magnet

Optionally with or without armature

9

Product group

G MH G ZZ

Function

- High holding force
- Increasing force vs. stroke characteristic
- Gimbal mounted armature

Construction

- Fastening via thread bores on the rear side
- Insulation materials of the excitation winding correspond to thermal class F
- Electrical connection via free flexible lead ends or via bipolar clamp
- Protection class according to DIN VDE/DIN EN 60529 when it is properly installed
 - Free flexible lead ends: IP 00
 - bipolar clamp: IP 20
- Pole face zinc-coated

Application examples

- Mechanical engineering and fixture construction, conveyor technology, door holding systems
- Interlocking of all sorts
- Use as control solenoid for short strokes

Options

- Protection class IP 65 on request

Standards

- Design and testing according to DIN VDE 0580
- Quality management to ISO 9001



Fig. 1: Holding magnet with armature
Type G MH X 065 X20 A11 and
Type G ZZ E 065 X00 A01

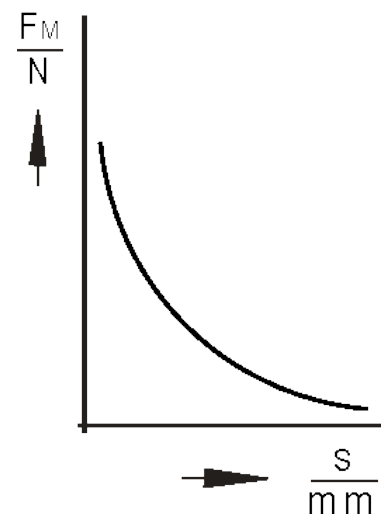


Fig. 2: force vs. stroke characteristic

Technical data

G MH X		025	030	040	050	065	080	100
Operating mode		S1 100%	S1 100%	S1 100%	S1 100%	S1 100%	S1 100%	S1 100%
Rated power P ₂₀	(W)	3,2	4	5,6	6,5	9,8	12,4	17
Solenoid weight m _M	(kg)	0,07	0,1	0,22	0,38	0,75	1,3	2,2
Armature weight m _A	(kg)	0,012	0,029	0,05	0,1	0,21	0,4	0,74
Armature thickness	(mm)	3	5	5	6	8	10	12
Armature diameter Ø	(mm)	25	30	40	50	65	80	100
Stroke s	(mm)	Magnetic force F _M (N) (mit Prüfkörper)						
Holding force ¹⁾	0 ¹⁾	135	250	470	720	1330	2050	3330
	0,1	36,3	70	275	569	1128	1942	3140
	0,16	18,2	38	157	373	883	1600	2747
	0,25	9,8	20	80	216	618	1256	2354
	0,4	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 ²⁾ at stroke of 0mm with armature G ZZ E		115	210	380	630	1080	1660	2700

1) For corrosion protection, the device's pole surfaces are galvanized, as is the whole device surface. So the retention forces are reduced by 10% in comparison to models with blank pole surfaces.

2) The armatures are protected against corrosion by nickel coating. Due to the insulating nickel layer, an artificial air gaps comes into existence so that the adjacent magnetic force's values can be measured.

Notes on the tables

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

Due to natural dispersion the magnetic force values may deviate by approx. ± 10 % from the table values.

The normal operating temperature is based on:

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

Rated voltage

Rated voltage is 24 V. An adaptation of the exciter coil to a rated voltage less than 120 V is possible on request.

Standard values for voltage and operating mode: 24 V, S1 (100%).

The devices correspond to protection class III. Electrical equipment of protection class III may be only connected to low voltage systems (PELV, SELV)(IEC 60364-4-41). The design limit of the equipment is a rated voltage not higher than 120 V (EN 61140:2002) with DC. On request we are pleased to check to what extent the delivery of higher rated voltages is possible as special solutions by agreement.

In the interest of a low surface temperature, the excessive temperature of the devices is $\Delta_{v32} = 60$ K.

The magnetic force values are measured using blank specimen made of 9 S Mn 28 with plane ground surface and a surface roughness of 15 µm 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.

After switching off the supply voltage, a retention force of about 5% of the magnetic force remains. This retention force decreases by using an armature with surface coating.

The pole surfaces of models ...A11 are galvanized. This surface coating accounts for a reduced retention forces in comparison to blank surfaces, however, in turn, reduces the probability of losing retention forces by corrosion.

Dimension tables

Solenoid without armature

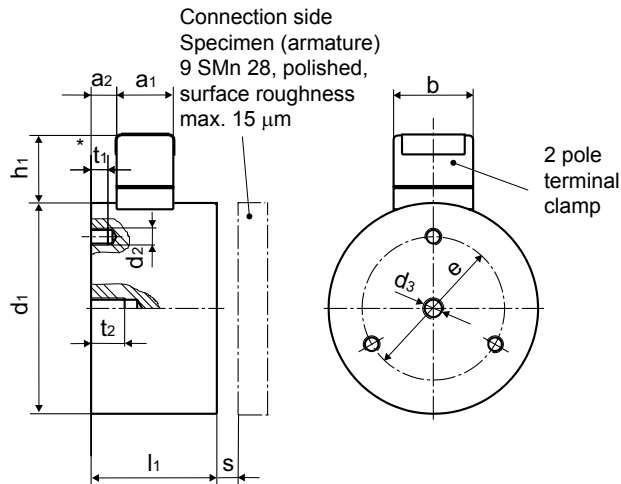


Fig. 3: Type G MH X 025 X 20 A11
to G MH X 100 X 20 A11

G MH X							
Size	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	25	30	40	50	65	80	100
d ₂	M3	M3	M4	M4	M5	M6	M6
d ₃	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	20	24	27	30	35	38	43
l ₂	150	150	150	150	150	150	150
l ₃	11,4	15	17,4	20,4	24,4	25,8	28,3
*t ₁	3	4	4	4	5	7	7
t ₂	6	5	8	8	12	12	15

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

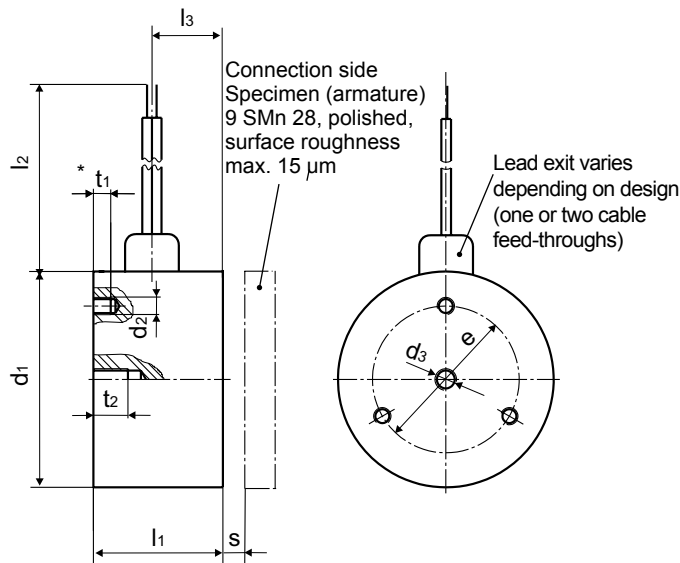



Fig. 4: Type G MH X 025 X 00 A11
to G MH X 100 X 00 A11

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

Please make sure that the described devices are suitable for your application. Our offers for these devices are based on the assumption of maximal 8 in an FMEA severity table, i. e. in case of malfunction of the device model as offered, there is, amongst others, no jeopardy of life or limb. Supplementary information concerning its proper installation can be taken also from the  -Technical Explanation, the effective DIN VDE0580 as well as the relevant specifications.

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 expressly.

Armature for solenoids

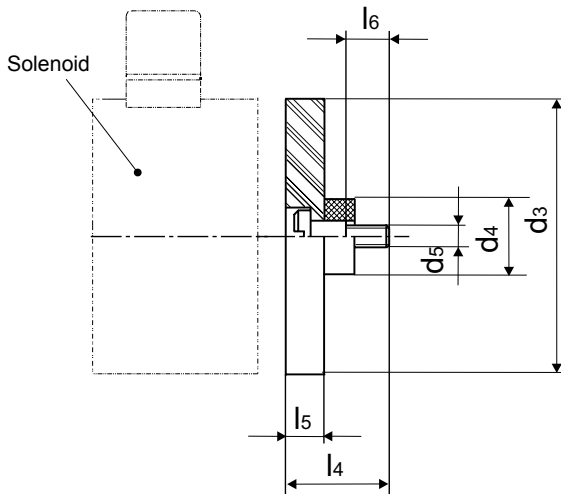
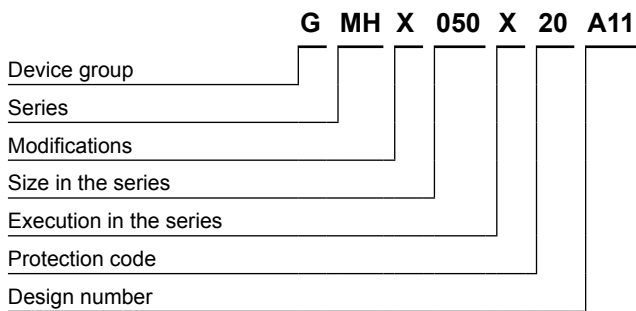


Fig. 5: Type G ZZ E 025 X 00 A01
to G ZZ E 100 X 00 A01
(size 030: ... D01)

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

Design with pin-socket on request

Type code



Order example

(Holding magnet without armature)


Type G MH X 050 X20 A11
Voltage == 24 V DC
Operating mode S1 (100 %)

(Holding magnet with armature)

Type G MH X 050 X20 A11
G ZZ E 050 X00 A01
Voltage == 24 V DC
Operating mode S1 (100 %)

Permanent holding magnets see part list
G MP ... B01.

Specials designs

Please do not hesitate to ask for our assistance with the solution of your application-oriented task. 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.