

## Permanent Holding Magnet

# 9

### G MP ... B01 G ZZ

#### Function

- high holding force
- increasing force vs. stroke characteristic
- closed circuit principle:
  - de-energized: max. holding force through integrated permanent magnet
  - energized: holding force is compensated

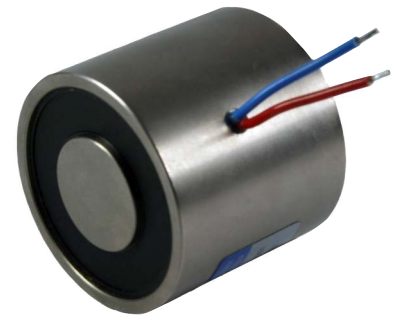


Fig. 1: Type G MP X 050 X00 B01

#### Construction

- mounting via central thread at the rear
- coil insulation to class B
- electrical connection via free flexible lead ends
- protection class IP 00 according to DIN VDE / EN 60529

#### Application examples

- mechanical engineering and fixture construction, conveyor technology, door holding systems
- interlocking of all sorts

#### Options

- protection class IP 65 on request

#### Standards

- design and testing according to DIN VDE 0580
- production according to ISO 9001

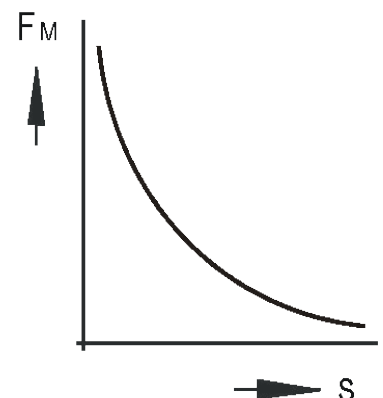


Fig. 2: Force vs stroke characteristic



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**Technical data**

<b>G MP X ... X00 B01</b>	<b>025</b>	<b>030</b>	<b>035</b>	<b>050</b>
Operating mode ED	S2 (2 s)	S2 (2 s)	S2 (2 s)	S2 (2 s)
Max. duty cycle <sup>4)</sup>	S3 15%	S3 30%	S3 25%	S3 25%
Rated power P <sub>20</sub> (W)	16	10	16	31
Magnetic forces using the specimen* and air gap 0 mm				
Holding force F <sub>M</sub> (N)	140	240	320	800
<sup>1)</sup> Residual holding force F <sub>MR</sub> at U <sub>N</sub> (N)	18	30	35	100
<sup>2)</sup> Residual holding force F <sub>MR</sub> at I <sub>ab</sub> = const. (N)	6	8	8	10
Magnetic forces using armature type GZZE (fig. 5) and air gap 0 mm <sup>3)</sup>				
Holding force F <sub>M</sub> (N)	110	190	260	640
<sup>1)</sup> Residual holding force F <sub>MR</sub> at U <sub>N</sub> (N)	15	24	28	80
<sup>2)</sup> Residual holding force F <sub>MR</sub> at I <sub>ab</sub> = const. (N)	5	7	7	8
I <sub>ab</sub> = const. (A)	0.55	0.35	0.5	1.1
Reference temperature ϑ <sub>13</sub> (°C)	35	35	35	35
Solenoid weight mM (kg)	0.053	0.106	0.200	0.577
Test specimen diameter (mm)	25	30	35	50
* Test specimen thickness (mm)	3	4	5	6

\* The test specimen is made of 9 S Mn. The pole surface is plane and polished and has a roughness of 15 µm max. With smaller specimen thickness or bad surface quality the magnetic force decreases. The use of materials having a different permeability may lead to considerable deviations regarding the holding force.

- 1) The external return forces have to be sufficiently higher than the residual force.
- 2) In order to eliminate the influence of the coil resistance (dependent on the temperature rise) on the residual force we recommend you to drive the solenoid with constant current (see also fig. 3).
- 3) When using the armature GZZE the magnetic forces are reduced due to the layer thickness of the electroplating.
- 4) The devices are designed for short time duty cycle, S2. In principle, operation with the indicated admissible max. duty cycle is possible. It should be noted that the residual holding force changes by heating (see also <sup>2)</sup>).

**Notes on the tables**

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

**Rated voltage**

Rated voltage is  $\approx$  24 V. An adaptation of the exciter coil to a rated voltage less than  $\approx$  60 V is possible on request.

Standard values for voltage and operating mode: 24V, S2 (5%).

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).

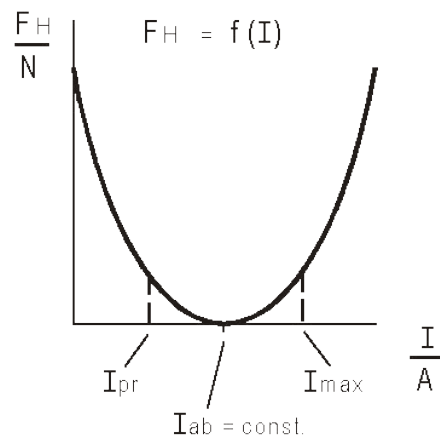


Fig. 3: characteristic

**Information and remarks concerning European directives** can be taken from the corresponding information sheet which is available on our [website](#).

**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 document is intended for technically qualified personnel. It is for information purposes only and should not be construed as a mandatory illustration of the products unless otherwise expressly confirmed.

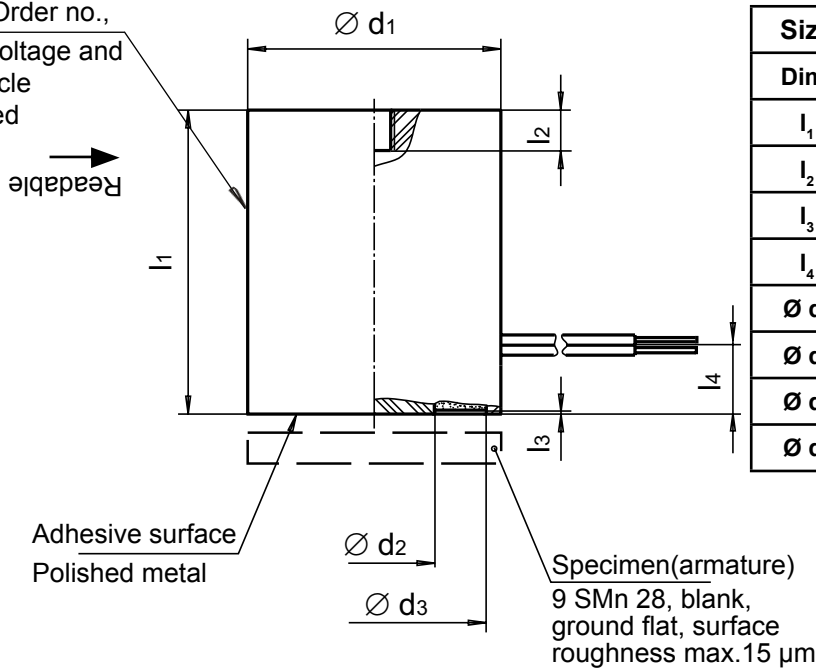


**Dimension tables**

MSM, Order no.,

Type, voltage and  
duty cycle  
Stamped

→  
Readable



Size	025	030	035	050
Dim.	Dimensions in mm			
$l_1$	18	24	32	44
$l_2$	3.8	5.2	5	6
$l_3$	0.2	0.2	0.2	0.5
$l_4$	6.3	10.3	15	19.8
$\varnothing d_1$	25	30	35	50
$\varnothing d_2$	12	14.4	16.8	23.7
$\varnothing d_3$	22.1	26.4	30.9	44
$\varnothing d_4$	M4	M4	M5	M5

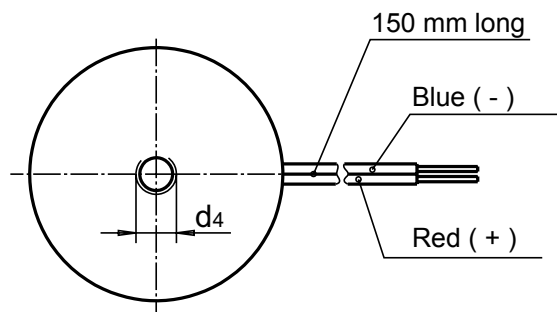
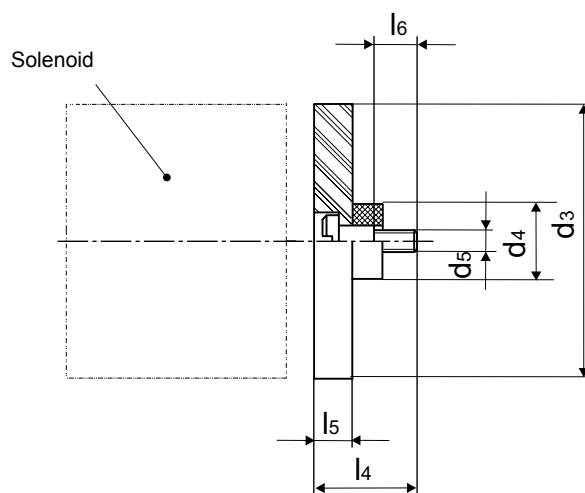


Fig. 4: Type G MP X 025 X00 B01  
to G MP X 050 X00 B01

**Armatures for solenoids**



G Z Z E				
Size	025	030	040	050
Dim.	Dimensions in mm			
$d_3$	25	30	40	50
$d_4$	8	10.5	10.5	10.5
$d_5$	M3	M4	M4	M4
$l_4$	9.5	14	14	15
$l_5$	3	5	5	6
$l_6$	4.5	6	6	6

Fig. 5: G Z Z E 025 X 00 A01  
up to G Z Z E 050 X 00 A01  
(size 030: ... D01)



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## Type code

Type	Magnet size	Suitable armature	Standard values, Voltage, duty cycle
G MP X 025 X00 B01	025	G ZZ E 025 X00 A01	24V, S2
G MP X 030 X00 B01	030	G ZZ E 030 X00 D01	
G MP X 035 X00 B01	035	G ZZ E 040 X00 A01	
G MP X 050 X00 B01	050	G ZZ E 050 X00 A01	

## Order example

Type                    G MP X 050 X00 B01  
Voltage                --- 24 V DC  
Operating mode        S2 (short-time duty)

## 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.