



Permanent Holding Magnet with D.C. Electromagnet Release

Armature Type G ZZ
Rectifier for A.C. supply
Range up to 500 N

9

Product group

Type **G MP G ZZ**

- According to VDE 0580 and ISO 9001 (conform with article 10 of directions 73/23/EEC – according to CENELEC memorandum no. 3 of March 1987).
- D.C. Electromagnet, built-in, overcomes permanent magnet force for release of load
- Armature, nickel plated, with self-aligning mounting, type G ZZ, provides optimum holding force and low remanence (Optional)
- Permanent magnet of special alloy provides fail-safe, high holding force
- Four sizes, 25 to 50 mm diameter
- Robust cylindrical construction, passivated zinc plated, with body mounting
- Connections with free leads or plug connector (sizes 035 and 050 only)
- Protection classification – with free leads DIN VDE 0470 / EN 60529 – IP 00
- Increasing force characteristic
- Class B coil insulation
- Boxed – protective or weather-proof assemblies
- Release mechanisms for shutters and doors
- Modifications and special designs on request
- General-purpose holding magnets for arduous service in the field of:
 - Machine tool guards
 - Security doors
 - Lifting-locking-door holding
 - Feeder mechanisms
 - Short stroke/high force operations
 - Automation
 - Office machines
 - Grill locking
 - Packaging machinery

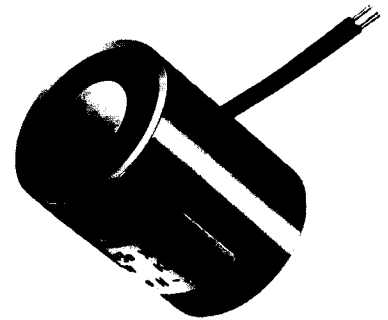


Fig. 1
Type G MP X 030 X 00 A01
With free leads

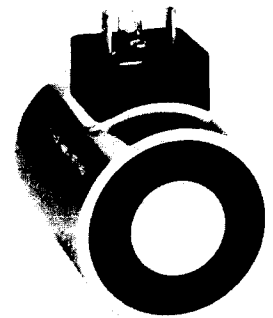


Fig. 2
Type G MP X 050 X 20 A02
With plug base

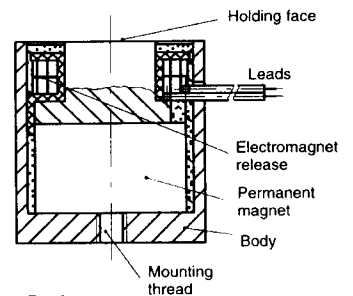


Fig. 3
Type G MP
Schematic diagram

Performance tables for type GMP magnet and G ZZ armature

GMP X		025	030	035	050
Duty rating ED (%)	(%)	Impulse	Impulse	Impulse	Impulse
Power consumption P ₂₀ (W)	(W)	6,7	6,4	6,6	9,8
Holding force (F _M) at 0 mm Air gap (N) (see note 1)	(N)	120	180	300	500
Remanence (F _{MR}) at 0 mm Air gap (N) (see note 1)	(N)	20	30	50	80
Holding force with armature G ZZ (N) at 0 mm Air gap (see note 2)	(N)	105	155	260	435
Remanence with armature GZZ (N) at 0 mm Air gap (see note 2)	(N)	17	26	44	70
Magnet weight m _M (kg)	(kg)	0,1	0,17	0,28	0,75
Armature diameter Ø (mm)	(mm)	25	30	40	50
Armature thickness (mm)	(mm)	3	4	5	6
Armature weight m _A (kg)	(kg)	0,012	0,029	0,05	0,1

NOTES

1. That force produced when using plain pole faces and plain steel armature of material ST 37 (9S Mn 28) with thickness as in tables and a surface finish of 15 µm.
2. That force produced when using plain pole faces and plated (chemical nickel) armature type G ZZ.
3. The forces will be reduced if other material specifications, thicknesses and surfaces are used, or if the armature fails to make contact over the full diameter of the magnet face.
4. The magnetic remanence can be reduced by increasing the air gap. This can be achieved by plating either or both surfaces or by machining away an area of armature surface.

PERFORMANCE TABLE

Terms are explained in Technical Bulletin G XX & VDE 0580/35.

TABLE BASIS

24 V D.C. Impulse duty Ambient temperature 35° C
Lifting vertically Free air mounted
Tolerance ± 10 % (inherent & manufacture).

MAGNETIC FORCE

Is quoted nett of armature weight. Adjust for armature weight.

POWER CONSUMPTION

Is listed with a 20° C coil temperature (decrease/HOT).

DUTY RATING

Impulse period should be no longer than necessary to release armature up to a maximum of 5 seconds. Optimum release is provided in the cold condition.

SUPPLY VOLTAGES

The standard supply voltages are: 12 V, 24 V, 97 V, 195 V, 205 V, 214 V D.C. (for rectified 110 V, 220 V, 230 V, 240 V 50/60 Hz A.C.). Max. 60 V sizes 025 and 030, max. 214 V sizes 035 and 050.

DESIGN ARRANGEMENTS

Free leads—...X 00 A 01 — Side entry
Plug base —...X 20 A 02 — (Sizes 035 and 050). For use with plug connector, D.C. Z KB X 211 B 01 — A.C. Z KB G 211 A 02 (rectifier).

MOUNTING

Single tapped hole for adjustable mounting in rear face. Any attitude may be used.

SPECIAL PROTECTION

The magnets may be provided with plated pole faces and protective or weatherproof boxed assemblies, with test switch and indicator light as required. Plated pole faces on the magnet will reduce magnetic forces and remanence by up to 30 %.

APPLICATION

Correct polarity must be observed to overcome permanent magnet.
Optimum release is provided in the **cold condition**, thus impulse operation is advised.
Prolonged heat or heavy impact may reduce the special alloy permanent magnetic force.
Flux path design permits electromagnetic release without harm to permanent magnet.
Reduced holding force will result if the armature fails to make positive contact over the full diameter of the magnet face.

SPECIAL

Special magnets and armatures are available, including release mechanisms and strip magnet assemblies to meet specific requirements. Please advise full application and operating details.

Conversion Factors

1 N = 0.102 kp ≈ 0.1 kg
1 kg = 2.2 lb.
1 mm = 0.039 in.
1 Ncm = 0.086 in. lb.

Dimension tables for type G MP magnet and G ZZ armature

Free leads

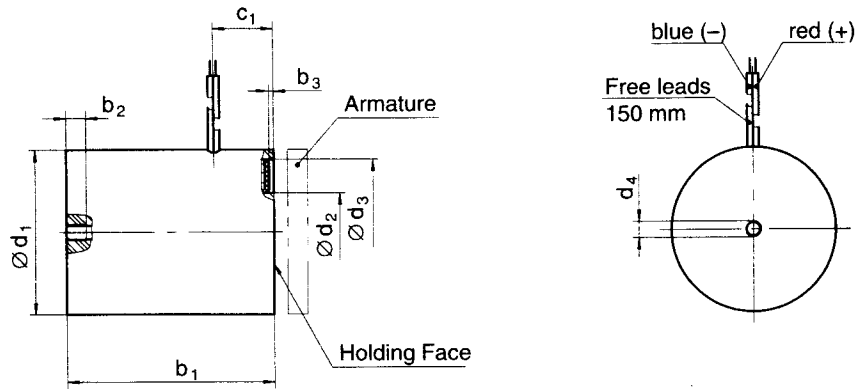


Fig. 4 Free Leads
Type G MP X 025 to 050 X 00 A01

Plug connector

Plug Connector
(4 x 90°) Pg 11
D.C. - Z KB X 211 B 01
A.C. - Z KB G 211 A 02
(built-in rectifier)

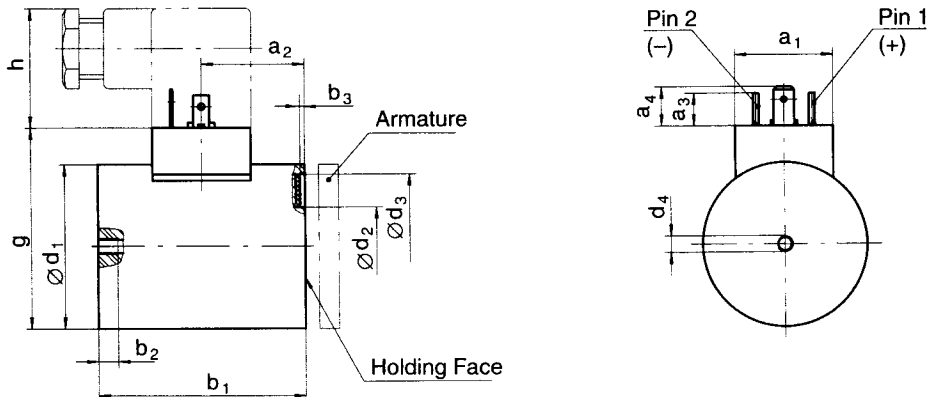


Fig. 5 Plug connector
Type G MP X 035 & 050 X 20 A02

Armature

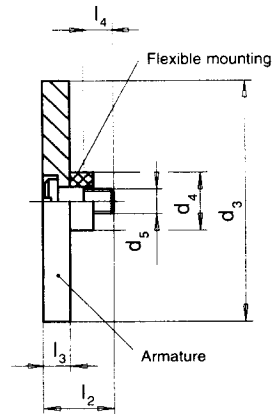


Fig. 6 Armature
Type G ZZ E 025 to 100 X 00 A01 (Size 030 ... D01)

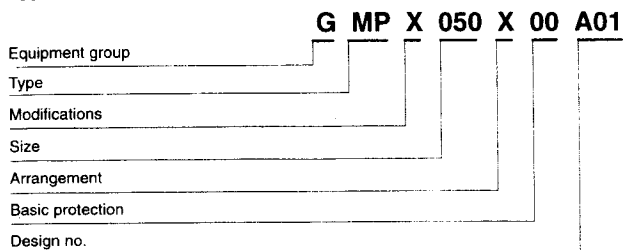
Type	G MP X Magnet			
Size	025	030	035	050
Dim.	Dims. mm			
a ₁	-	-	29.8	29.8
a ₂	-	-	24.2	31.4
a ₃	-	-	10	10
a ₄	-	-	12	12
b ₁	30	37	48	63
b ₂	4	5	5	6
b ₃	0.2	0.2	0.2	0.2
c ₁	6	10	15	20
d ₁	25	30	35	50
d ₂	12	14.4	16.8	23.8
d ₃	22	26.4	30.8	44
d ₄	M4	M4	M5	M5
g	-	-	45	62.2
h	-	-	36	36

Type	G ZZ E Armature						
Size	025	030	040	050	065	080	100
Dim.	Dimensions (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 ₂	9,5	14	14	15	19	23	26
l ₃	3	5	5	6	8	10	12
l ₄	4,5	6	6	6	7	9	11

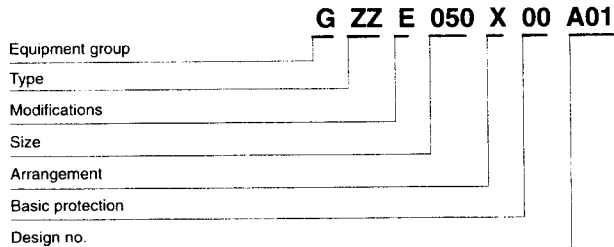
* Do not use overlength mounting screws

Classification for type G MP magnet and G ZZ armature

Type code – magnet



Type code – armature



Order Example

1. MAGNET

Equipment group	– Group		– G
Type	– Standard		– MP
Modification	– Standard		– X
Size	– Select from tables		– 050
Arrangement	– Standard		– X
Protection	– Free leads – 00		– 00
	– Plug connector – 20		
Design number	– Free leads	... A 01	– A 01
	– Plug connector	... A 02 (size 035 & 050)	

Additional requirements

1. Special protection

Plated pole face	– Free leads	...D 02
	– Plug connector	...D 01

2. Plug connector

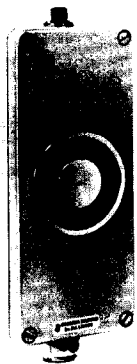
D.C. plug Z KB X 211 B 01	
A.C. plug Z KB G 211 A 02	– Built-in rectifier

Voltage (V) – standards – page 2

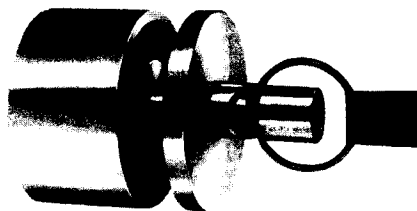
Duty rating (ED %)	– Impulse	– 24 V
		– Impulse

2. ARMATURE comprises ARMATURE, bolt and washer)

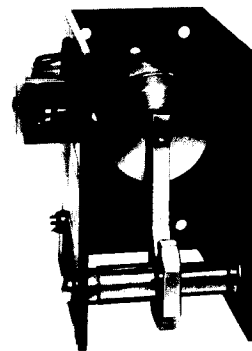
Equipment group	– Group	– G
Type	– Standard	– ZZ
Modification	– Standard	– E
Size	– Select from tables	– 050
Arrangement	– Standard	– X
Protection	– Standard	– 00
Design number	– Standard (size 030 ... D 01)	– A 01



**Boxed
Assembly**



**Ring
Release**



**Release
Mechanism**