

## Ex m Solenoid Operator Type 0515 / 1215



### Operating Instructions

Dear Customer!

In order to guarantee the function and for your own safety, please read the enclosed operating instructions attentively before starting installation. Should there still arise any question or queries, please contact nass magnet GmbH.

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### General Conditions

- We are not liable for any damage caused by non-observation of this information as well as in case of improper intervention regarding this device. Furthermore, warranty for the devices and accessories will become void.
- Further to the valid generally accepted rules of technology the EC type-examination certificate and these operating instructions refer to **special conditions** and further application conditions that must be observed in any case.
- **The EC type-examination certificate exclusively covers solenoid operators with nass magnet armature assembly and with nass magnet solenoid coil.**
- Take suitable measures to exclude unintentional activation or inadmissible impairment.
- Make sure not to detach pipes and valves of pressurized systems.
- **Caution! Risk of injury! The solenoid's surface can get very hot during continuous operation.**

### Installation

- After removing the packing, make sure that dirt cannot penetrate into the system.
- Before mounting the system, check that there is no dirt in the piping or the valve housing.
- When inserting the system, make sure that the O-ring at the flange respectively the screw-in thread is not damaged.
- If coils are used in manifold assembly (directly side by side) pay attention to the minimum distance according to the temperature class (see technical data).
- Mounting is admissible in any position. Preferably the solenoid system has to point upwards.
- The solenoid coil can be locked when offset by 45 °.
- Tightening torque for fastening nut: 0.5 Nm.
- Electrical connection with the integrated cable of the solenoid coil (wire ends suitable for screw terminals/clamps) in the hazardous area with approved explosion-protected equipment (e.g. terminal box with type of protection Increased Safety "e" according EN 60079-7).
- When connecting the flying leads make sure the wire ends of the leads are properly inserted into the electrical terminal.

- Prevent the connecting cables from being buckled and damaged in order to avoid short circuits and interruptions.
- Before initial operation of the device make sure that the overall equipment or unit respectively meets the requirements of the EMC directive.
- Please order spare parts completely by indicating the identification number provided on the units (imprint / type plate).
- At installation and maintenance it is essential to keep to the concerning Ex standards, especially EN 60079-14. The electrical installation has to be carried out by authorized personnel following additional relevant national regulations (in Germany VDE 0100).
- Each solenoid operator has to be protected by a fuse according to the rated current (max. 3x rated current accord. to IEC 60127-2-1) resp. motor protection switch with short-circuit and fast thermal tripping protection. The fuse can be accommodated in the associated device or must be added separately. The fuse voltage has to be equal or higher than the Nominal solenoid voltage. The shutdown capability has to be equal or higher than the maximum assumed short-circuit current at the installation point (usually 1500 A). The maximum permissible ripple for all magnets of DC-design is 20 %.
- At choice of the material of the valve bodies must be observed:
  - Casting alloys:  
The maximum admissible percent by weight may, in total, not exceed 7.5 % magnesium and titanium, when, according to the ignition hazard assessment, a risk of ignition by friction, stroke or friction sparks exists.
  - Plastics:  
In order to avoid the build-up of electrostatic charges the requirements according to EN 60079-0 section 7.4 must be observed..

## Operation




- Admissible media are gas and liquids that do not affect the system and the sealing material contained therein.
- The outside surfaces of the solenoid should be free of contact with liquids or corrosives.
- The degree of protection (by enclosure) is IP65 according to EN 60529.
- The device's operating pressure depends on the armature system used. The mass magnet standard armature system is suited for up to 12 bars (1200 kPa) and does not have a special marking. For operating pressures greater than 12 bars other documents are available.
- Do not strain the system by bending or torsion.
- Prevent the connecting cables from being buckled in order to avoid short circuits and interruptions.

## Troubleshooting

- Check the cable connections, operating voltage and pressure.
- Should the problem persist, remove pressure and disconnect from power supply.
- Defective explosion-proof devices must not be repaired but must be replaced.

## Certificate of Conformity

nass magnet GmbH, Hanover, declares and bears sole responsibility for the following Ex products to be in compliance with the safety standards:

Solenoid operator 0515 00 to 0515 29		II 2G Ex mb IIC T4	IEC Ex mb IIC T4
Solenoid operator 1215 00 to 1215 29		II 2D Ex mb tb IIIC T130°C	Ex mb tb IIIC T130°C
Solenoid operator 0515 30 to 0515 59		II 2G Ex mb IIC T5	IEC Ex mb IIC T5
Solenoid operator 1215 30 to 1215 59		II 2D Ex mb tb IIIC T95°C	Ex mb tb IIIC T95°C
Solenoid operator 0515 60 to 0515 99		II 2G Ex mb IIC T6	IEC Ex mb IIC T6
Solenoid operator 1215 60 to 1215 99		II 2D Ex mb tb IIIC T80°C	Ex mb tb IIIC T80°C

The EC type-examination certificate with the number

**PTB 03 ATEX 2018 X** and **IECEX PTB 04.0002X**

issued by Physikalisch Technische Bundesanstalt (registration entity no. 0102) are applicable for the named Ex-products.

The solenoid operator is an encapsulated safe electrical apparatus of Group II, designed for application in atmospheres according to Category 2G and 2D, the EPL is Gb and Db (temperature class as per imprint). The degree of protection (by enclosure) is IP65.

The device, which is provided with the CE symbol, meets the following standards:

EN 60079-0: 2009	Explosive atmospheres – Part 0: Equipment - General requirements
IEC 60079-0: 2007	Explosive atmospheres – Part 0: Equipment - General requirements
EN 60079-18: 2009	Explosive atmospheres – Part 18: Equipment protection by encapsulation "m"
IEC 60079-18: 2009	Explosive atmospheres – Part 18: Equipment protection by encapsulation "m"
EN 60079-31: 2009	Explosive atmospheres – Part 31: Equipment dust ignition protection by enclosure "t"
IEC 60079-31:2008+Cor.1	Explosive atmospheres – Part 31: Equipment dust ignition protection by enclosure "t"
DIN EN 60 529: 2000	Degrees of protection provided by enclosures (IP code)
DIN VDE 0580: 2000	Electromagnetic devices and components - General specifications
Directive 94/9/EC	Equipment and protective systems intended for use in potentially explosive atmospheres

Hanover, June 01, 2012



Klaus Kirchheim  
General manager

## Technical Data – Temperature Class T4

Solenoid operator



IEC

II 2G Ex mb IIC T4  
 II 2D Ex mb tb IIIC T130°C  
 Ex mb IIC T4  
 Ex mb tb IIIC T130°C

Degree of protection (by enclosure): IP65

Supply voltage tolerance +/- 10 %

Type	0515 00 ... 0515 29				1215 00 ... 1215 29			
Supply	AC-operation 50...60 Hz				DC-operation, max. 20 % ripple			
Ambient Temperature								
- Single assembly	-20 °C ... +60 °C				-20 °C ... +50 °C			
- Manifold assembly	-20 °C ... +60 °C				-20 °C ... +50 °C			
Max. media temperature	80 °C				80 °C			
Manifold assembly Min. distance	yes 0 mm				yes 0 mm			
Nominal Voltage $U_N$ [V]	Nominal current $I_N^{1)}$ [mA]	Nominal Power $P_N$ [VA]	Limit Power $P_G^{2)}$ [W]	Fuse $^3)$ [mA]	Nominal current $I_N^{1)}$ [mA]	Nominal Power $P_N$ [W]	Limit Power $P_G^{2)}$ [W]	Fuse $^3)$ [mA]
6	–	–	–	–	815	4,9	4,1	1600
12	380	4,6	3,6	1000	471	5,6	4,6	1000
24	171	4,1	3,3	400	218	5,2	4,3	500
26	–	–	–	–	197	5,1	4,2	500
32	–	–	–	–	145	4,7	3,9	315
36	134	4,8	3,9	315	–	–	–	–
42	135	5,7	4,5	315	–	–	–	–
48	116	5,6	4,5	250	106	5,1	4,2	200
60	–	–	–	–	85	5,1	4,2	200
110	43	4,7	3,8	100	54	5,9	4,9	100
120	47	5,7	4,6	125	–	–	–	–
125	–	–	–	–	48	6,0	5	100
220	22	4,8	3,9	63	27	6,0	5	63
230	23	5,3	4,2	63	–	–	–	–
240	24	5,8	4,6	63	–	–	–	–

1) (Rated current)

2) Steady-state power, maximum power at the thermal load limit

3) Each solenoid operator has to be protected by a fuse according to the rated current (max. 3x rated current according to IEC 60127-2-1. The fuse ratings listed above are recommended.) resp. motor protection switch with short-circuit and fast thermal tripping protection. The fuse can be accommodated in the associated device or must be added separately.

The rated fuse voltage has to be equal or higher than the nominal solenoid voltage. The shutdown capability has to be equal or higher than the maximum assumed short-circuit current at the installation point (usually 1500 A).

## Technical Data – Temperature Class T5

Solenoid operator



IEC

II 2G Ex mb IIC T5  
 II 2D Ex mb tb IIIC T95°C  
 Ex mb IIC T5  
 Ex mb tb IIIC T95°C

Degree of protection (by enclosure): IP65

Supply voltage tolerance +/- 10 %

Type	0515 30 ... 0515 59				1215 30 ... 1215 59			
Supply	AC-operation 50...60 Hz				DC-operation, max. 20 % ripple			
Ambient Temperature								
- Single assembly	-20 °C ... +50 °C				-20 °C ... +50 °C			
- Manifold assembly	-20 °C ... +50 °C				-20 °C ... +40 °C			
Max. media temperature	80 °C				80 °C			
Manifold assembly Min. distance	yes 0 mm				yes 0 mm			
Nominal Voltage	Nominal current	Nominal Power	Limit Power	Fuse	Nominal current	Nominal Power	Limit Power	Fuse
$U_N$ [V]	$I_N^{1)}$ [mA]	$P_N$ [VA]	$P_G^{2)}$ [W]	$^3)$ [mA]	$I_N^{1)}$ [mA]	$P_N$ [W]	$P_G^{2)}$ [W]	$^3)$ [mA]
6	–	–	–	–	531	3,2	3,0	1000
12	212	2,5	2,4	500	267	3,2	3,0	500
24	124	2,5	2,4	315	136	3,3	3,0	315
32	–	–	–	–	110	3,5	3,3	250
36	77	2,8	2,6	200	–	–	–	–
42	75	3,1	3,0	200	–	–	–	–
48	66	3,2	3,0	160	68	3,3	3,1	160
60	–	–	–	–	55	3,3	3,1	125
110	27	3,0	2,8	80	33	3,6	3,4	80
120	29	3,5	3,3	80	–	–	–	–
125	–	–	–	–	28	3,5	3,3	63
220	13	2,8	2,6	32	14	3,0	2,8	40
230	14	3,1	2,9	32	–	–	–	–
240	15	3,6	3,4	40	–	–	–	–

1) (Rated current)

2) Steady-state power, maximum power at the thermal load limit

3) Each solenoid operator has to be protected by a fuse according to the rated current (max. 3x rated current according to IEC 60127-2-1. The fuse ratings listed above are recommended.) resp. motor protection switch with short-circuit and fast thermal tripping protection. The fuse can be accommodated in the associated device or must be added separately.  
 The rated fuse voltage has to be equal or higher than the nominal solenoid voltage. The shutdown capability has to be equal or higher than the maximum assumed short-circuit current at the installation point (usually 1500 A).

## Technical Data – Temperature Class T6

Solenoid operator



II 2G Ex mb IIC T6 (Gb)  
II 2D Ex mb tb IIIC T80°C

IEC

Ex mb IIC T6  
Ex mb tb IIIC T80°C

Degree of protection (by enclosure): IP65

Supply voltage tolerance +/- 10 %

Type	0515 60 ... 0515 99				1215 60 ... 1215 99			
Supply	AC-operation 50...60 Hz				DC-operation, max. 20 % ripple			
Ambient Temperature								
- Single assembly	-20 °C ... +50 °C				-20 °C ... +50 °C			
- Manifold assembly	-20 °C ... +40 °C				-20 °C ... +40 °C			
Max. media temperature	70 °C				70 °C			
Manifold assembly Min. distance	yes 1 mm				yes 2 mm			
Nominal Voltage	Nominal current	Nominal Power	Limit Power	Fuse	Nominal current	Nominal Power	Limit Power	Fuse
$U_N$ [V]	$I_N^{1)}$ [mA]	$P_N$ [VA]	$P_G^{2)}$ [W]	$^3)$ [mA]	$I_N^{1)}$ [mA]	$P_N$ [W]	$P_G^{2)}$ [W]	$^3)$ [mA]
6	–	–	–	–	435	2,6	2,5	1000
12	158	1,9	1,8	400	214	2,6	2,4	500
24	80	1,9	1,8	200	109	2,6	2,5	250
32	–	–	–	–	82	2,6	2,5	200
36	60	2,2	2,0	160	–	–	–	–
42	56	2,3	2,2	160	–	–	–	–
48	50	2,4	2,3	125	54	2,6	2,5	125
60	–	–	–	–	44	2,6	2,5	100
110	22	2,4	2,3	63	24	2,6	2,5	63
120	18	2,2	2,0	50	–	–	–	–
125	–	–	–	–	21	2,6	2,4	50
220	11	2,4	2,3	32	12	2,6	2,5	32
230	9	2,1	1,9	32	–	–	–	–
240	10	2,4	2,3	32	–	–	–	–

1) (Rated current)

2) Steady-state power, maximum power at the thermal load limit

3) Each solenoid operator has to be protected by a fuse according to the rated current (max. 3x rated current according to IEC 60127-2-1. The fuse ratings listed above are recommended.) resp. motor protection switch with short-circuit and fast thermal tripping protection. The fuse can be accommodated in the associated device or must be added separately.

The rated fuse voltage has to be equal or higher than the nominal solenoid voltage. The shutdown capability has to be equal or higher than the maximum assumed short-circuit current at the installation point (usually 1500 A).