nass magnet GmbH
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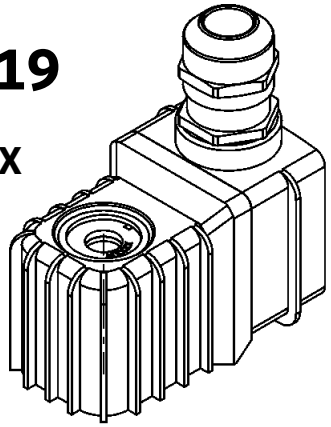
30179 Hannover
Germany

Doc. No. 113-720-0002
Revision No. 5
08 March 2021

EN

Ex m, e, t Solenoid Operator Type 0519



PTB 11 ATEX 2027 X **IECEx PTB 15.0015X**

Operating Instructions

Dear Customer!

To ensure the function and for your own safety, please read these operating instructions attentively before you begin with the installation. If you still have questions, 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 equipment. Furthermore, warranty for the equipment and accessories will become void. Our general terms and conditions apply.
- The EC-type-examination certificate exclusively covers solenoid operators with nass magnet armature assembly and with nass magnet solenoid coil; please consider the corresponding power levels.

  Applied standards by the certification bodies:

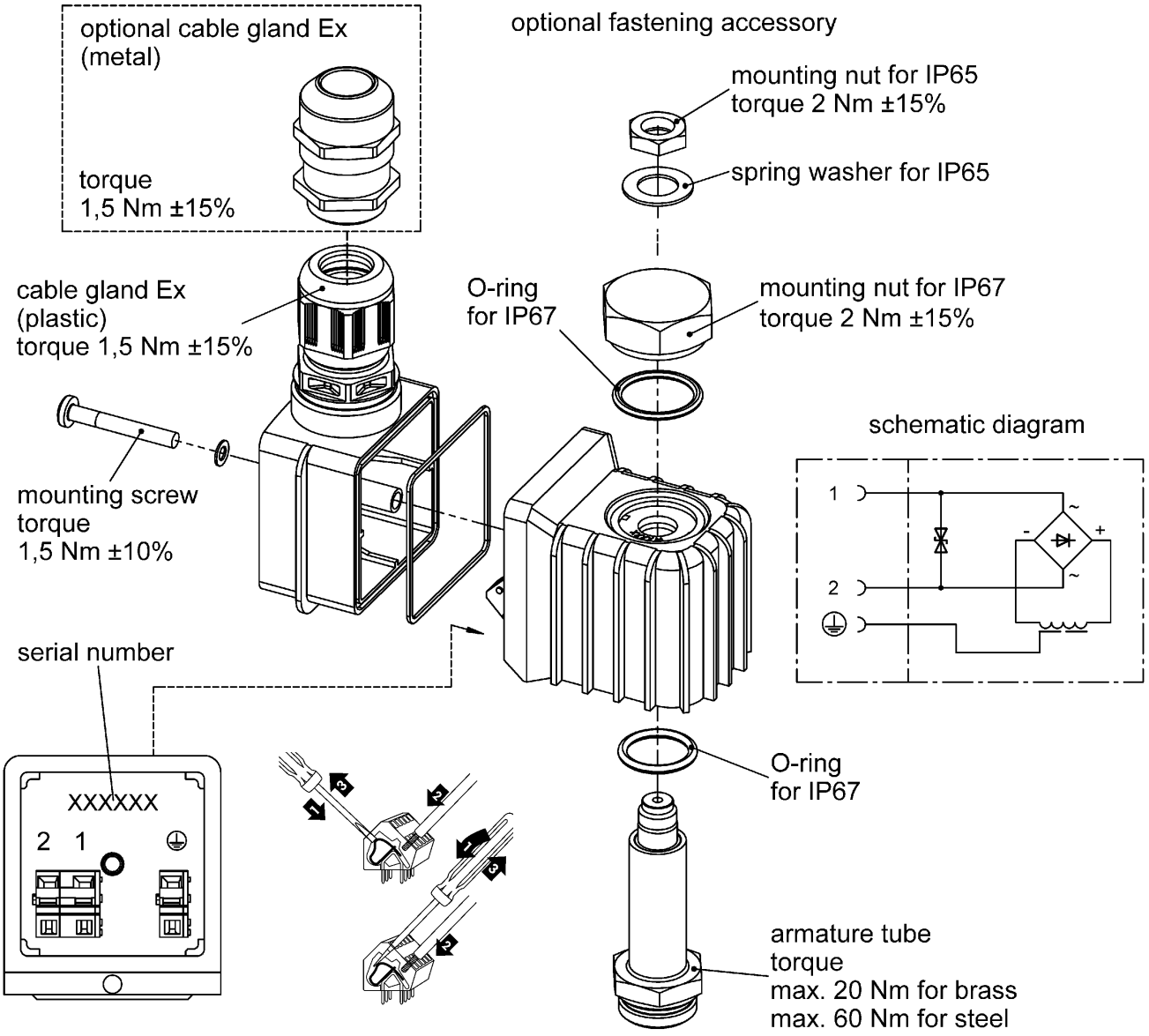
EN 60079-0:2012	IEC 60079-0:2011 (Ed. 6.0)
EN 60079-7:2007	IEC 60079-7:2006-07 (Ed. 4)
EN 60079-18:2009	IEC 60079-18:2009 (Ed. 3)
EN 60079-31:2009	IEC 60079-31:2008 (Ed. 1)

- In its installed state the equipment is appropriate for potentially explosive gas atmospheres of Group IIC (protection type “e mb”). The Equipment Protection Level (EPL) is Gb for intended application in Zone 1, ATEX Category 2G. Alternatively the equipment is appropriate for potentially explosive dust atmospheres of Group IIIC (protection type “tb mb”). The according Equipment Protection Level is Db for intended application in Zone 21, ATEX Category 2D.
- Beyond recognized rules of sound engineering practice, the EC type-examination certificate and these operating instructions refer to special conditions and further application conditions that must be observed in any case. However, these operating instructions cannot consider all possible conditions and applications completely and do not replace the specifications valid in each case.

Installation

- At installation and maintenance, it is essential to observe applicable standards for electrical safety and electrical installations in potentially explosive atmospheres, especially IEC/EN 60079-14.
- Take suitable measures to exclude unintentional activation or inadmissible impairment.

- Before mounting the valve system check that there is no dirt in the piping or the valve housing.
- Make sure not to damage O-rings and seals during assembly.
- Make sure not to detach pipes and valves of pressurised systems.
- The centre-to-centre spacing from one equipment to the other in a row must be at least 55mm.
- Mounting is admissible in any position. Preferably the solenoid coil points upwards.
- Fastening torque of the mounting nut: 2.0 Nm.
- The equipment is optionally available with ingress protection types IP65 or IP67, the according mounting accessories must be used, see below.
- Connecting cables and connecting lines shall be suitable for permanent application in a temperature range of -40 °C up to +105 °C and must be laid fixed to the equipment. The user shall provide for a strain relief. When using silicone or silicone-containing cables for connection or cables that are not resistant to scoring, these shall be protected against mechanical damage.
- The cable gland is suitable for sheathed cable diameters ranging from 7 to 13mm. Fastening torque: 2.0 Nm. Types 0519 ... 7J have impact protection corresponding to a high level of mechanical risk. Cable glands made of metal are optionally available; they must be included in equipotential bonding (e.g. by the cable shield) or to be protected against electrostatic charging by other means.
- The rated conductor cross-section may range from 0.5 mm^2 to 2.0 mm^2. Solid, stranded and fine-stranded conductors may be used.



- Prevent the cable and wires from being damaged and make sure that the conductor ends are properly inserted into the connection terminals. A suitable tool shall be used.
- **Attention! The terminal box cover must be installed for the equipment to operate and may only be opened when the equipment is de-energised.**
- **Attention! Each particular solenoid operator must be protected by a fuse.** Note the rated values according to the technical data charts of the associated temperature class (refer to 'Technical Data').
- For all DC voltage operated solenoids, the maximum permissible ripple is 45 %.
- At choice of the material of the valve bodies must be observed:
  - Metal: The maximum admissible weight percentage may not exceed the following limits for EPL Gb and Db: in total 7.5 % magnesium, titanium and zirconium.
  - Plastics: In order to avoid the build-up of electrostatic charges the requirements according to IEC/EN 60079-0 section 7.4 must be observed.
- In order to keep the maximum allowable temperature limits, the size of the attached valve body must meet the following material-related minimum dimensions:
  - Metal, box-shaped, length sum of the 3 dimensions min. 95 mm – or –
  - Metal, free surface area (not facing the solenoid), min. 5000 mm^2
- Check that all the connections have been mounted correctly before initial commissioning.
- Before operational start-up of the equipment it must be ensured that the entire machine or system complies with the local regulations, e.g. the EMC Directive.

Operation

- **Caution! Risk of injury! The solenoid valve can get very hot during continuous operation.**
- The operating pressure of the equipment depends on the armature system used. The nass magnet standard armature system is suited for up to 12 bars (1200 kPa) and has no extra identification. For other demands please enquire.
- Admissible media are gas and liquids that do not affect the system and the gasket material contained therein.
- Prevent the equipment's exterior surfaces from getting in contact with liquid or corrosive media.
- Frequent occurrence of condensate can lead to critical accumulation of water, for which the rated protection class IP65 is not sufficient. Exposure to natural weather is generally not permitted.
- Do not strain the system by bending or torsion.
- Pay attention to the technical data ratings according to the charts of the according temperature class.
- Regularly check the integrity of the equipment. The fins of the ribbed housing are part of the explosion protection. If parts are damaged, the equipment must be replaced to establish full protection.

Troubleshooting

- At malfunctioning check the cable connections, operating voltage and pressure.
- If the problem persists the equipment must be put out of operation. Make sure to disconnect pressure and electrical power supply.
- Damaged or defective equipment may not be repaired but must be replaced.

Technical Data – Temperature Class T4 / T130 °C

Solenoid operator Ex e mb IIC T4 Gb Ex tb mb IIIC T130°C Db

Protection provided by enclosure IP65 or IP67 (with appropriate accessories)

T4	Suitable for valves up to nass magnet power level 3
Electric Supply	AC–Voltage 50…60 Hz or DC–Voltage max. 45 % ripple
Supply Voltage Limit Deviation	-10 % … +10 %
Ambient Temperature	-40 °C … +60 °C
Media Temperature	-40 °C … +70 °C

Type Number	Nominal Voltage, Supply Voltage		Rated Current [1]		Rated Power [1]			Fuse [2]
	AC $U_{N,AC}$ [V]	DC $U_{N,DC}$ [V]	AC $I_{R,AC}$ [mA]	DC $I_{R,DC}$ [mA]	AC $S_{R,AC}$ [VA]	AC $P_{R,AC}$ [W]	DC $P_{R,DC}$ [W]	[mA]
0519 00 / 7148 …	12		898	990	10.8	8.8	11.9	1600
0519 00 / 7149 …	24		439	486	10.5	9.0	11.7	1000
0519 00 / 7153 …	36		291	322	10.5	9.1	11.6	600
0519 00 / 7150 …	48		189	209	9.1	8.0	10.0	400
0519 00 / 7151 …	110		90	100	9.9	8.8	11.0	200
	115	-	95	-	10.9	9.7	-	
	120	-	99	-	11.9	10.6	-	
0519 00 / 7152 …	125		79	87	9.9	8.8	10.9	150
0519 00 / 7137 …	220		47	53	10.3	9.2	11.7	100
	230	-	50	-	11.5	10.3	-	
	240	-	52	-	12.5	11.2	-	

Type Number suffix	Further Special Conditions of Safe Use
… 7J	Impact protection corresponding to high mechanical risk level (Group II or III). If the type number suffix is deviating please check if this is the appropriate documentation that belongs to the affected equipment or contact nass magnet.
not assigned	In case optionally available **Metallic Cable Glands** are used they must be included in equipotential bonding (e.g. by cable shield) or to be protected against electrostatic charging by other means.

1) Rated values
2) Each solenoid operator must 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 equipment or must be added separately.
The rated fuse voltage must be equal or higher than the nominal solenoid voltage. The short-circuit breaking capacity must be equal or higher than the maximum assumed short-circuit current at the installation point (usually 1500 A).

Technical Data – Temperature Class T6 / T80 °C

Solenoid operator Ex e mb IIC T6 Gb Ex tb mb IIIC T80°C Db

Protection provided by enclosure IP65 or IP67 (with appropriate accessories)

T6	Suitable for valves up to nass magnet power level 2
Electric Supply	AC–Voltage 50...60 Hz or DC–Voltage max. 45 % ripple
Supply Voltage Limit Deviation	-10 % ... +10 %
Ambient Temperature	-40 °C ... +50 °C
Media Temperature	-40 °C ... +70 °C

Type Number	Nominal Voltage, Supply Voltage		Rated Current [1]		Rated Power [1]			Fuse [2]
	AC $U_{N,AC}$ [V]	DC $U_{N,DC}$ [V]	AC $I_{R,AC}$ [mA]	DC $I_{R,DC}$ [mA]	AC $S_{R,AC}$ [VA]	AC $P_{R,AC}$ [W]	DC $P_{R,DC}$ [W]	[mA]
0519 60 / 7196 ...	12		399	440	4.8	3.9	5.3	1000
0519 60 / 7156 ...	24		179	198	4.3	3.7	4.8	500
0519 60 / 7154 ...	36		108	119	3.9	3.4	4.3	250
0519 60 / 7197 ...	48		90	100	4.3	3.8	4.8	200
0519 60 / 7198 ...	110		40	44	4.4	3.9	4.8	100
	115	-	42	-	4.8	4.3	-	
	120	-	43	-	5.2	4.6	-	
0519 60 / 7155 ...	125		31	35	3.9	3.5	4.4	75
0519 60 / 7195 ...	220		20	22	4.4	3.9	4.8	50
	230	-	21	-	4.8	4.3	-	
	240	-	22	-	5.3	4.7	-	

Type Number suffix	Further Special Conditions of Safe Use
... 7J	Impact protection corresponding to high mechanical risk level (Group II or III). If the type number suffix is deviating please check if this is the appropriate documentation that belongs to the affected equipment or contact nass magnet.
not assigned	In case optionally available **Metallic Cable Glands** are used they must be included in equipotential bonding (e.g. by cable shield) or to be protected against electrostatic charging by other means.

1) Rated values

2) Each solenoid operator must 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 equipment or must be added separately.
The rated fuse voltage must be equal or higher than the nominal solenoid voltage. The short-circuit breaking capacity must be equal or higher than the maximum assumed short-circuit current at the installation point (usually 1500 A).

DC-NDE-210308-04, language EN

CE 0102

EU Declaration of Conformity

This declaration of conformity is issued under the sole responsibility of the manufacturer:

nass magnet GmbH
Eckenerstrasse 4-6
30179 Hannover, Germany

Product, Type-number / Object of the declaration:

Solenoid Operator Type 0519 00 to 0519 99

The object of the declaration described above is in conformity with the relevant Community harmonisation legislation:

2014/34/EU
...relating to equipment and protective systems intended for use in potentially explosive atmospheres
(recast of 26 February 2014)

2011/65/EU, with (EU) 2015/863 and (EU) 2018/741
on the restriction of the use of hazardous substances in electrical and electronic equipment
(recast of 8 June 2011, amended 31 March 2015 and 1 March 2018)

Regarding pressure-induced hazards, the relevant requirements of Directive 2014/68/EU are complied with.

Notified body (no.) that performed the EC-type examination and no. of the certificate:

Physikalisch Technische Bundesanstalt (No. 0102), PTB 11 ATEX 2027 X.

Relevant harmonised standards used and references to the specifications in relation to which conformity is declared. In case of newer editions as referenced in the certificate we confirm that the changed requirements are either not applicable or the products listed above comply with them:

EN IEC 60079-0:2018
Explosive atmospheres – Part 0: Equipment - General requirements

EN 60079-7:2015
Explosive atmospheres – Part 7: Equipment protection by increased safety "e"

EN 60079-18:2015/A1:2017
Explosive atmospheres – Part 18: Equipment protection by encapsulation "m"

EN 60079-31:2014
Explosive atmospheres – Part 31: Equipment dust ignition protection by enclosure "t"

EN IEC 63000:2018
Technical documentation for the assessment of electrical and electronic products with respect to the restriction of hazardous substances

DIN VDE 0580:2011
Electromagnetic devices and components - General specifications

Signed for and on behalf of

nass magnet GmbH, Hannover, 08 March 2021

Patrick Oelkers
General Manager