



# Ex m, e, t Solenoid Operator Type 0519

PTB 11 ATEX 2027 X      IECEx PTB 15.0015X



## 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. 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:

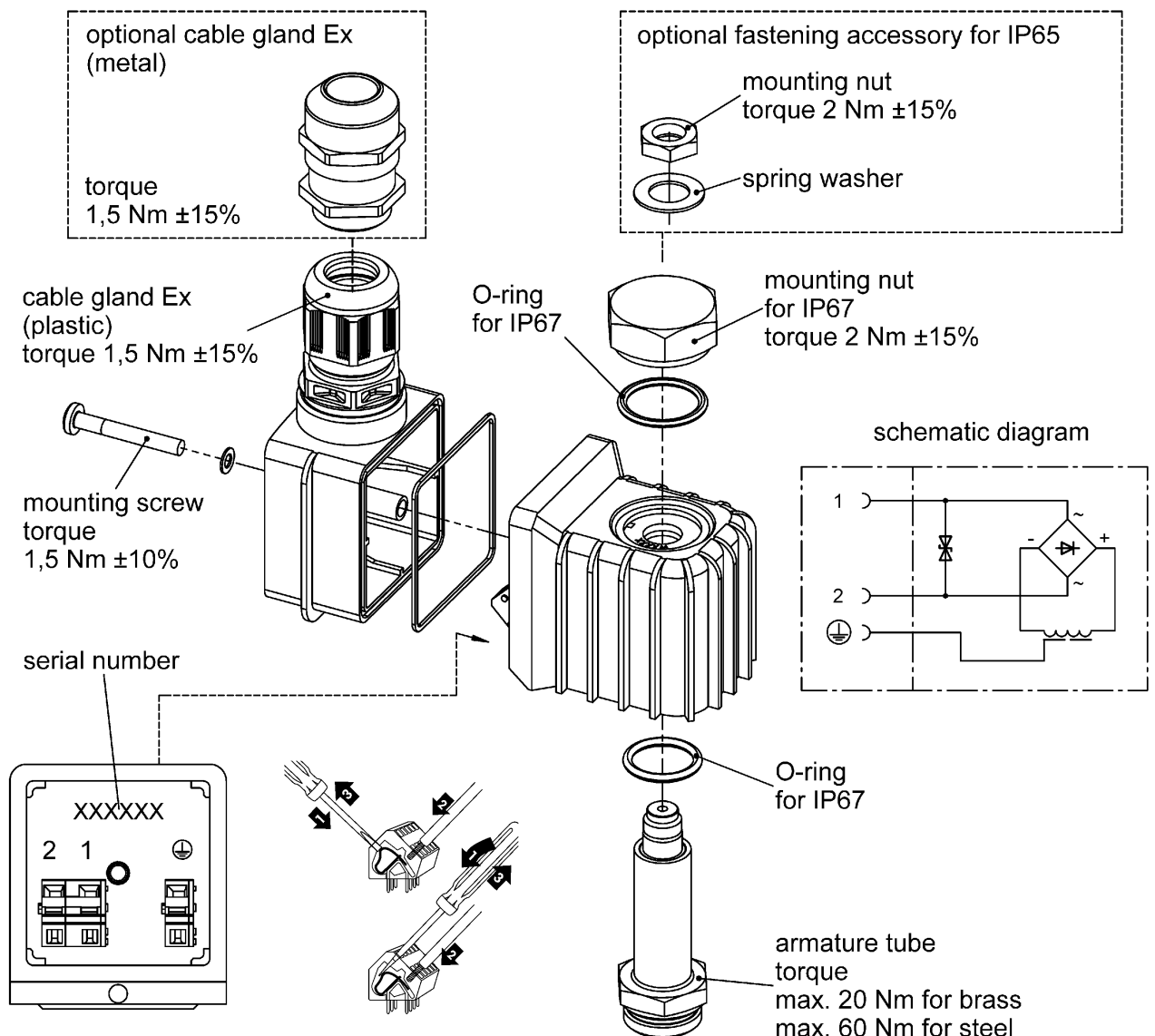
EN 60079-0:2012	IEC 60079-0:2011 (Ed. 6.0)
EN 60079-7:2007	IEC 60079-7:2006-07 (Ed. 4)
EN 60079-18:2009	IEC 60079-18:2009 (Ed. 3)
EN 60079-31:2009	IEC 60079-31:2008 (Ed. 1)

- In its installed state the device 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 device 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.
- After removing the packing, make sure that dirt cannot penetrate into the system.
- Before mounting the valve system check that there is no dirt in the piping or the valve housing.

- Make sure not to detach pipes and valves of pressurized systems.
- Take suitable measures to exclude unintentional activation or inadmissible impairment.
- Make sure not to damage O-rings and seals during assembly.
- The centre-to-centre spacing from one device to the other 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 devices are optionally available with ingress protection types IP65 or IP67, the according mounting accessories have to 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 device. 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 have to 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<sup>2</sup> to 2.0 mm<sup>2</sup>. 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.
- **The connection box cover must be installed while device in service and may only be opened when the device is de-energised.**
- **Each particular solenoid operator has to be protected by a fuse.** Pay attention to the rating according to the technical data charts of the associated temperature class attached to these operating instructions (refer to 'Technical Data').
- For all DC voltage operated solenoids, the maximum permissible ripple is 45 %.
- Check that all the connections have been mounted correctly before initial operation.
- 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 has to 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<sup>2</sup>
- Before operational start-up of the device in the European Union it must be ensured that the entire machine or system corresponds to the determinations of the applicable directives of the EU (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 device 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 operating pressures greater than 12 bars further documents are available.
- Admissible media are gas and liquids that do not affect the system and the gasket material contained therein.
- Prevent the device's exterior surfaces from getting in contact with liquid or corrosive media.
- 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 device. The fins of the ribbed housing are part of the explosion protection. If parts are broken off, the device must be replaced to establish full protection again.

## Troubleshooting

- At malfunctioning check the cable connections, operating voltage and pressure.
- If the problem persists the device must be put out of operation. Make sure to disconnect pressure and electrical power supply.
- Damaged or defective devices 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)

<b>T4</b>	Suitable for valves up to mass magnet power level 3							
Electric Supply	AC-voltage 50...60 Hz or DC-voltage max. 45 % ripple							
Supply Voltage Tolerance	-10 % ... +10 %							
Ambient Temperature	-40 °C ... +60 °C							
Media Temperature	-40 °C ... +70 °C							
Type Number	Nominal Voltage		Nominal Current <sup>1)</sup>		Nominal Power			Fuse <sup>2)</sup> [mA]
	AC U <sub>N,AC</sub> [V]	DC U <sub>N,DC</sub> [V]	AC I <sub>N,AC</sub> [mA]	DC I <sub>N,DC</sub> [mA]	AC S <sub>N,AC</sub> [VA]	AC P <sub>N,AC</sub> [W]	DC P <sub>N,DC</sub> [W]	
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 mass magnet.
not assigned	In case optionally available <b>Metallic Cable Glands</b> are used they have to be included in equipotential bonding (e.g. by cable shield) or to be protected against electrostatic charging by other means.

1) Rated current

2) 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 short-circuit breaking capacity 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 / 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)

<b>T6</b>	Suitable for valves up to mass magnet power level 2							
Electric Supply	AC-voltage 50...60 Hz or DC-voltage max. 45 % ripple							
Supply Voltage Tolerance	-10 % ... +10 %							
Ambient Temperature	-40 °C ... +50 °C							
Media Temperature	-40 °C ... +70 °C							
Type Number	Nominal Voltage		Nominal Current <sup>1)</sup>		Nominal Power			Fuse <sup>2)</sup> [mA]
	AC U <sub>N,AC</sub> [V]	DC U <sub>N,DC</sub> [V]	AC I <sub>N,AC</sub> [mA]	DC I <sub>N,DC</sub> [mA]	AC S <sub>N,AC</sub> [VA]	AC P <sub>N,AC</sub> [W]	DC P <sub>N,DC</sub> [W]	
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 mass magnet.
not assigned	In case optionally available <b>Metallic Cable Glands</b> are used they have to be included in equipotential bonding (e.g. by cable shield) or to be protected against electrostatic charging by other means.

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# 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:

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**2014/34/EU**

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

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**2011/65/EU**

on the restriction of the use of hazardous substances in electrical and electronic equipment (recast of 8 June 2011)

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**2014/68/EU**

... relating to the making available on the market of pressure equipment (recast of 15 Mai 2014)

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:

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**EN 60079-0:2012+A11:2013**

Explosive atmospheres - Part 0: Equipment - General requirements

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**EN 60079-7:2015**

Explosive atmospheres - Part 7: Equipment protection by increased safety "e"

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**EN 60079-18:2015**

Explosive atmospheres - Part 18: Equipment protection by encapsulation "m"

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**EN 60079-31:2014**

Explosive atmospheres - Part 31: Equipment dust ignition protection by enclosure "t"

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**EN 60529:2000**

Degrees of protection provided by enclosures (IP code)

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**DIN VDE 0580:2011**

Electromagnetic devices and components - General specifications

Signed for and on behalf of

**nass magnet GmbH, Hannover, 01 February 2018**

**Patrick Oelkers**  
General Manager

