



Ex i Solenoid Operator Type 1259

PTB 02 ATEX 2154 IECEx PTB 08.0023

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.
- 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.

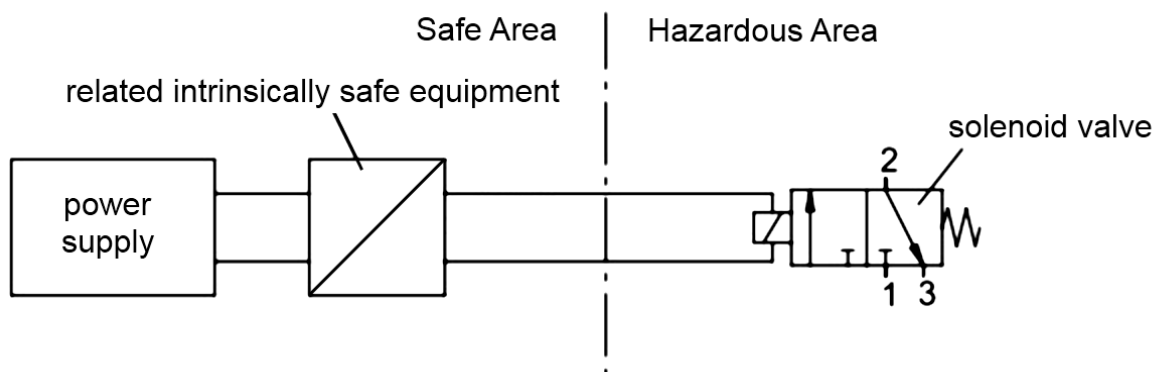
Applied standards of the type-examinations:

EN 60079-0:2012+A11:2013 IEC 60079-0:2011 (Ed. 6),
EN 60079-11:2012 IEC 60079-11:2011 (Ed. 6)

- In its installed state the device is certified for potentially explosive gas atmospheres of Group IIC or IIB with an ignition temperature higher than T4 or optional T6. The Equipment Protection Level (EPL) is Gb intended for use in Zone 1 .
- 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. However these operating instructions cannot consider all possible conditions and applications completely and do not replace the specifications valid in each case.

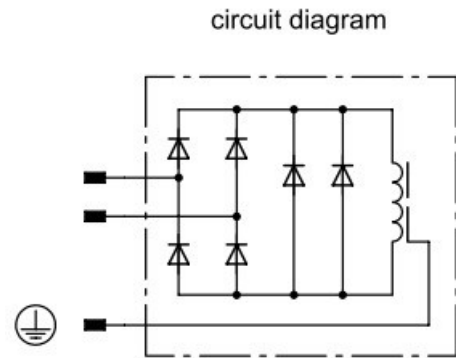
Installation

- At installation and maintenance it is essential to keep to the concerning Ex standards, especially IEC/EN 60079-14.
- 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.
- 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.
- Mounting is admissible in any position. Preferably the solenoid coil points upwards.
- The solenoid coil can be locked when offset by 45°.
- At choice of the material of the valve bodies must be observed:
 - Metal: The maximum admissible percent by weight 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.
- Electrical connection in gaseous hazardous areas:
solder and plug-in terminals suitable for push-on receptacles 6.3 DIN 46247 or appliance socket according to EN 175301-803, version A or ISO 4400 respectively.
- Observe the fastening torques according to the installation scheme.
- The solenoid has to be connected by inserting related intrinsically safe equipment (e.g. an isolating amplifier or barrier) in accordance with the manufacturer's instructions.



- Connection to certified intrinsically safe circuits in:
Category ia IIC with maximum values $U_i = 28\text{ V}$ $I_i = 115\text{ mA}$ $P_i = 1.6\text{ W}$
Category ia IIB with maximum values $U_i = 32\text{ V}$ $I_i = 195\text{ mA}$ $P_i = 1.6\text{ W}$
The effective inductance and capacitance is negligible low ($L_i \approx 0$, $C_i \approx 0$).

- To ensure the functioning in the entire temperature range a minimum switch-on current is necessary. At maximum temperature rise of the coil the warm resistance of the coil must be assumed (values see table). In the characteristic diagram have been considered an additional line resistance of 18 Ohm and a series voltage of 1 V, needed for the internal electronics.



| winding | min switch-on current | nominal resistance | warm coil resistance T4 | warm coil resistance T6 | nominal width ; max. operating pressure |
|---------|-----------------------|--------------------|-------------------------|-------------------------|---|
| W | [mA] | [Ω] | [Ω] | [Ω] | [mm]; [kPa]/[bar] |
| 5146 | 37 (at 1 bar) | 275 | 385 | 345 | 0.8 ; 800 / 8 |
| | | | | | 0.6 ; 1000 / 10 |
| 7210 | 27 (at 1 bar) | 400 | 510 | 455 | 0.6 ; 800 / 8 |

As an example, possible characteristics are charted below. At interconnection, the units work at the point of intersection of the respective characteristics. The operating point must be on the right side of the characteristic of the minimum switch-on current (in this example 37 mA).

In the following example, the results are as follows:

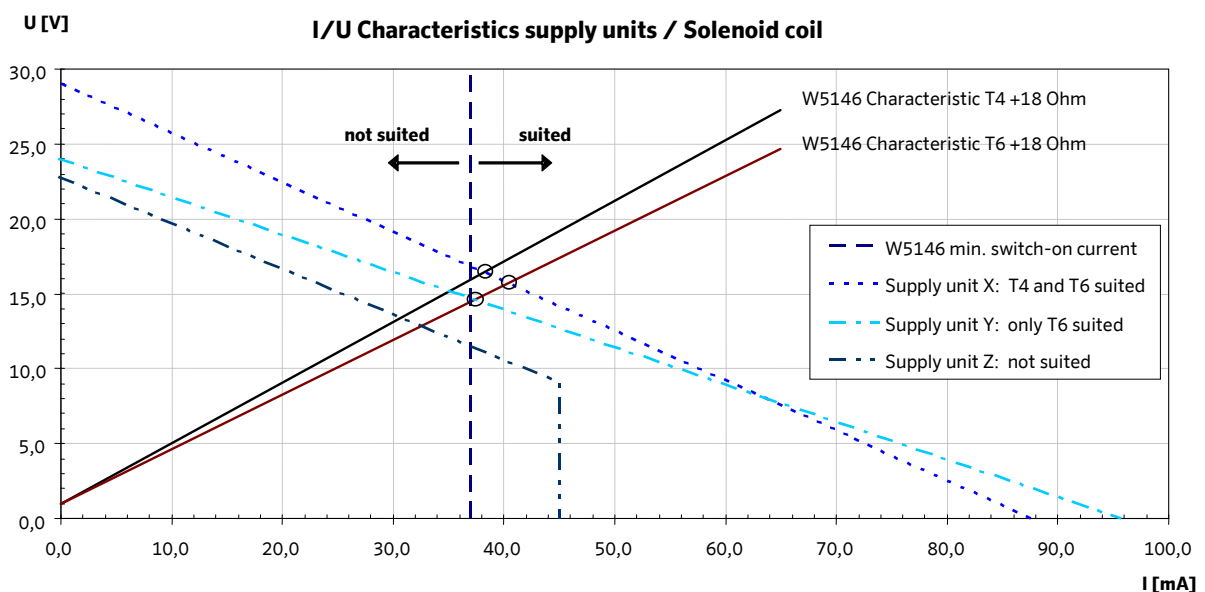
Supply unit X is suited.

Supply unit Y is only suited for T6.

Supply unit Z is not suited.

The characteristics of the supply units can be learnt from the supplier's data sheets.

Note that lower coil temperature or short wiring yields less ohmic resistance, operating pressure support causes less minimum switch-on current.



- Before initial operation of the device, make sure that the overall unit or appliance respectively meets the requirements of the applicable EU directives (e.g. the EMC directive).
- Please order spare parts completely by indicating the identification number provided on the units (imprint / type plate).

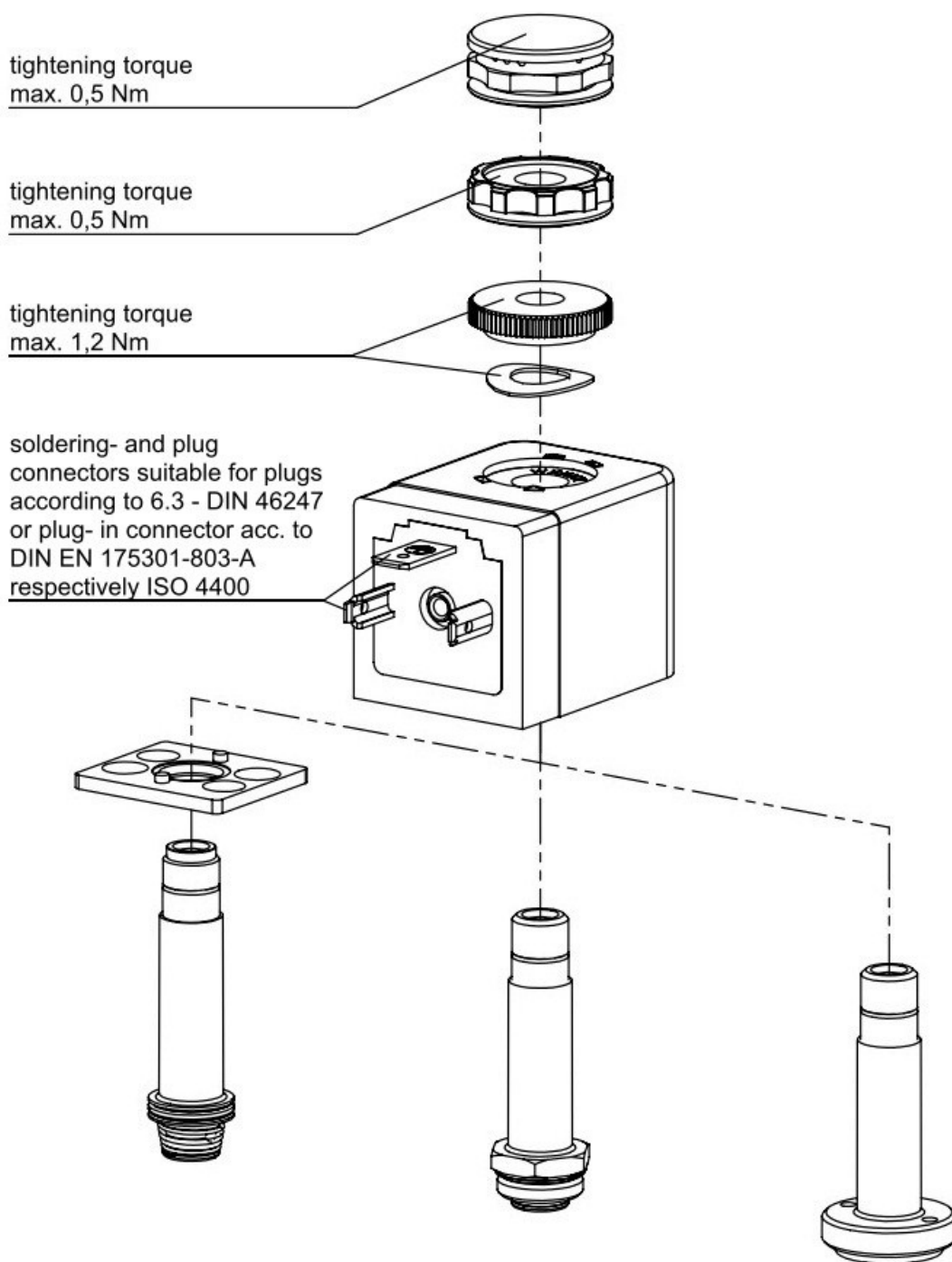
Operation

- The solenoid operators 1259 00 to 1259 49 of temperature class T6 are suitable for the following conditions:
 - Ambient temperature range from -40 °C to +50 °C
 - Maximum admissible media temperature: +70 °C
- The solenoid operators 1259 50 to 1259 99 of temperature class T4 are suitable for the following conditions:
 - Ambient temperature range from -40 °C to +85 °C
 - Maximum admissible media temperature: +80 °C
- The solenoid operators are suitable for single and manifold assembly at a 100% duty cycle.
- **Caution! Risk of injury! The solenoid valve can get very hot during continuous operation.**
- The device's operating pressure depends on the armature system used. The non-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.
- 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.
- Prevent the connecting cables from being buckled or damaged in order to avoid short circuits and interruptions.

Troubleshooting

- At malfunctioning check the cable connections, operating voltage and pressure.
- Check for externally visible damage.
- Should the problem persist the device must be put out of operation. Make sure to disconnect pressure and electrical power supply.
- Defective devices must not be repaired. Please order spare parts by indicating the identification number provided on the units (imprint / type plate).

Installation scheme





EU Declaration of Conformity

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

nass magnet GmbH
Eckenerstrasse 4-6
D-30179 Hannover

Product, Type-number / Object of the declaration:

Ex i Solenoid operator Type 1259 00 to 1259 99

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

2014/34/EU

Equipment and protective systems intended for use in potentially explosive atmospheres
(recast of 26 February 2014)

2011/65/EU

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

97/23/EG

on the approximation of the laws of the Member States concerning pressure equipment
(of 29 May 1997)

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

Physikalisch Technische Bundesanstalt (No. 0102), PTB 02 ATEX 2154.

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 60079-0:2012+A11:2013

Explosive atmospheres - Part 0: Equipment - General requirements

EN 60079-11:2012

Explosive atmospheres - Part 11: Equipment protection by intrinsic safety "i"

EN 60529:2000

Degrees of protection provided by enclosures (IP code)

DIN VDE 0580:2011

Electromagnetic devices and components - General specifications

Signed for and on behalf of

nass magnet GmbH, Hannover, 20 April 2016

Patrick Oelkers

General Manager

