

Ex i Solenoid Operator Type 1262

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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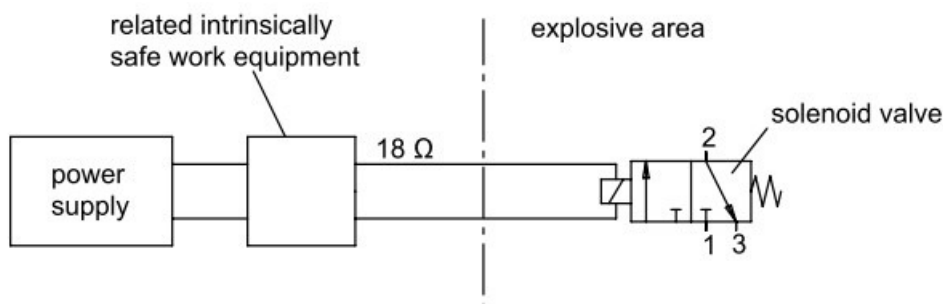
General Conditions

- 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.
- In its installed state the device is certified for equipment protection by **intrinsic safety "i"** for potentially explosive gas atmospheres or dust atmospheres of Group IIB, IIC or IIIC with an ignition temperature higher than T4 or optional T6. The Equipment Protection Level (EPL) is Ga and Db.
- 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.

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.
- 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 installation and maintenance it is essential to keep to the concerning Ex standards, especially EN 60079-14.
- At choice of the material of the valve bodies must be observed:
 - Casting alloys:
The maximum admissible percent by weight may not exceed the following limits according to the desired Equipment Protection Levels:
Group II EPL Ga: in total 10 % aluminium, magnesium, titanium and zirconium;
Group II EPL Gb and Group III EPL Db: in total 7,5 % magnesium and titanium;
 - Plastics:
In order to avoid the build-up of electrostatic charges the requirements according to EN 60079-0 section 7.4 must be observed.
- Electrical connection in gas-explosive locations:
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.
- The diameters or widths of cables with an elongated, non-conductive surface, independent of their length, must not exceed the following measures:
3 mm for the work equipment of Group IIB, and
1 mm for the work equipment of Group IIC.
- The solenoid has to be connected by inserting related intrinsically safe work equipment (e.g. isolating element or barrier) in accordance with the manufacturer's instructions.

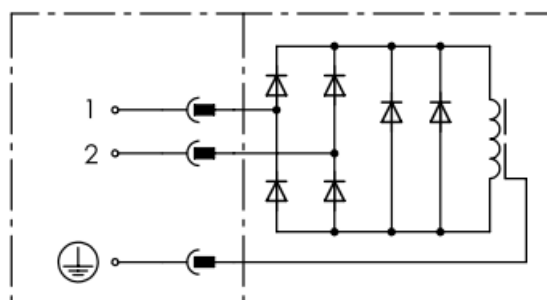


- Connection to a certified intrinsically safe circuit of type of protection:

| | | | |
|-----------|---------------------|----------------------|------------------------|
| Ex ia IIC | with maximum values | $U_i = 28\ \text{V}$ | $I_i = 115\ \text{mA}$ |
| Ex ia IIB | with maximum values | $U_i = 32\ \text{V}$ | $I_i = 195\ \text{mA}$ |

The effective inductance and capacitance of the solenoid is negligible low ($L_i \approx 0$, $C_i \approx 0$).

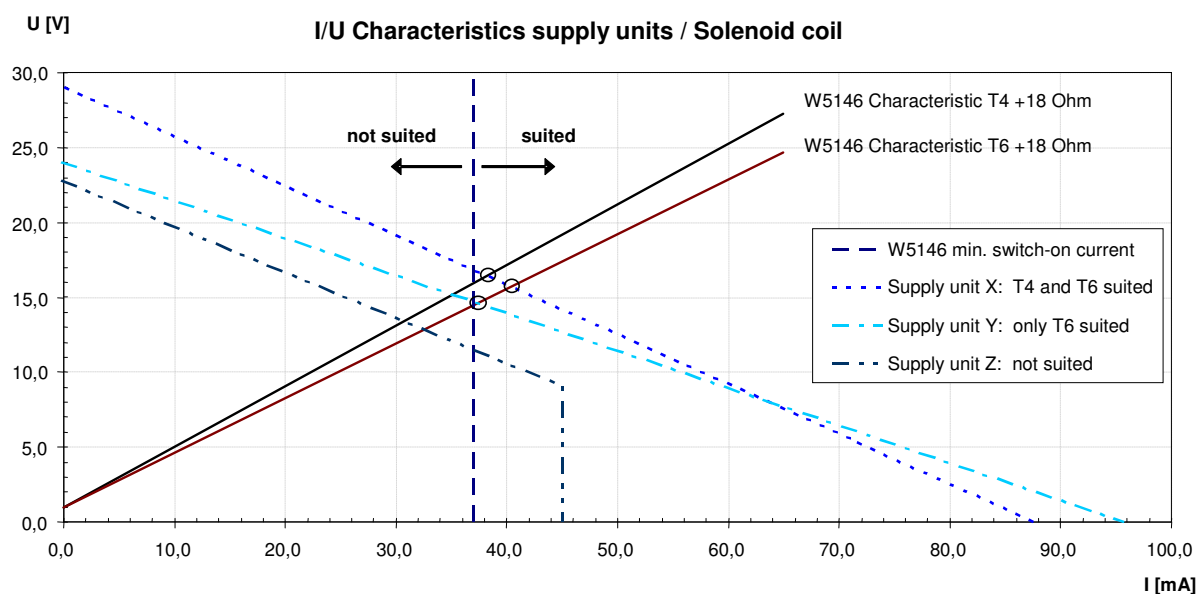
circuit diagram



- For ensuring the switching function in the entire temperature range a minimum switch-on current is necessary. At maximum temperature rise of the coil, an equivalent 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 W | minimum switch-on current [mA] | nominal resistance [Ω] | equivalent resistance T4 [Ω] | equivalent resistance T6 [Ω] | NW / operating pressure [mm] / [kPa] / [bar] |
|--------------|---|------------------------------|------------------------------------|------------------------------------|--|
| 5146 | 37 | 275 | 385 | 345 | 0.8 / 800 / 8 |
| | | | | | 0.6 / 1000 / 10 |
| 7210 | 27 | 400 | 510 | 455 | 0.6 / 800 / 8 |

- As an example, three possible characteristics of supply units 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.



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

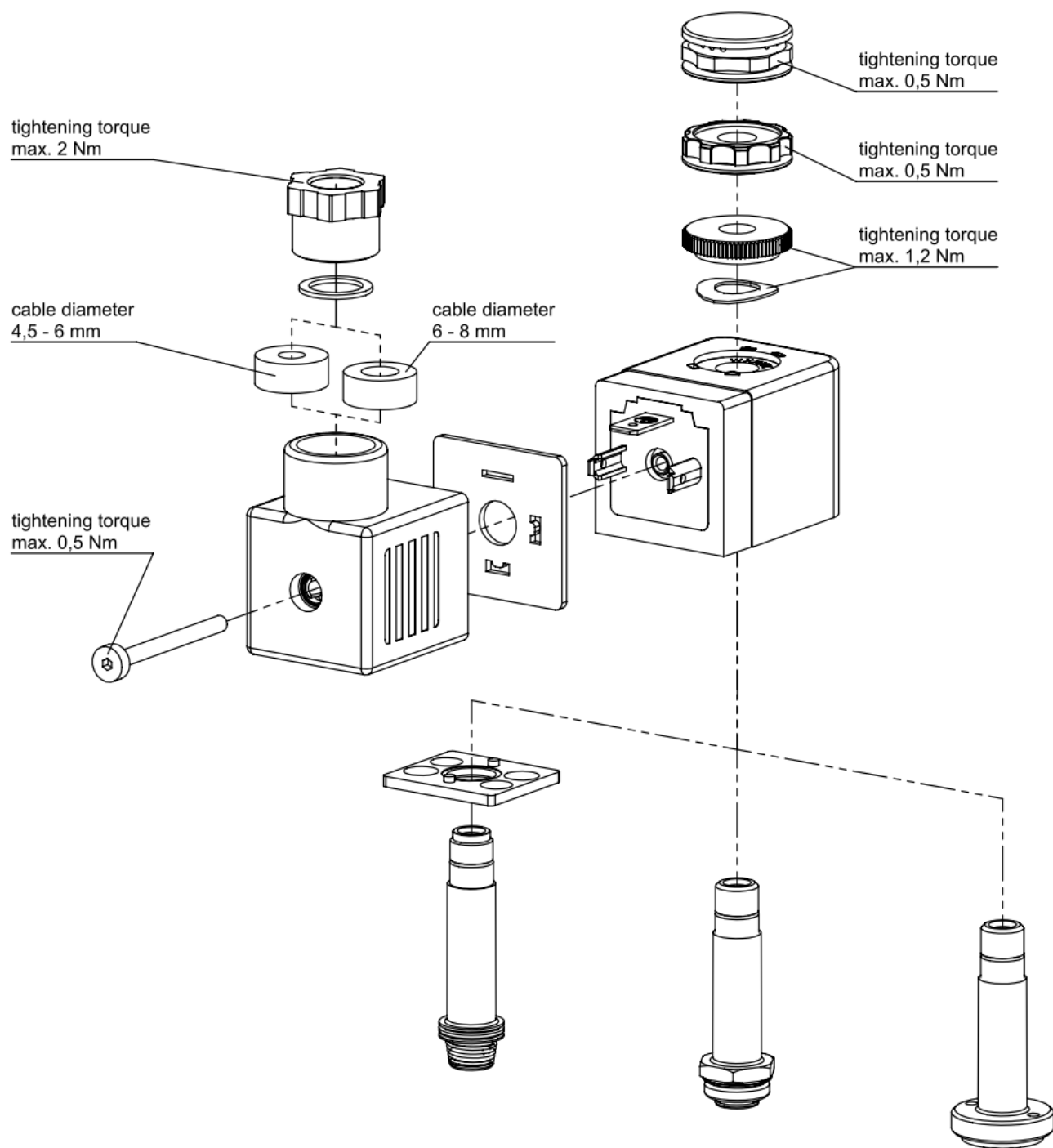
Operation

- Admissible media are gas and liquids that do not affect the system and the gasket material contained therein.
- The solenoid operators 1262 00 to 1262 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 1262 50 to 1262 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 series mounting.
- Prevent the device's exterior surfaces from getting in contact with liquid or corrosive media.
- The device's operating pressure depends on the armature system used. The nass 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.
- **Caution! Risk of injury! The solenoid's surface can get very hot during continuous operation.**
- 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


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


Installation scheme



EU Declaration 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 1262 00 to 1262 49  II 2 G Ex ia IIC T6 Ga
II 2 G Ex ia IIB T6 Ga
II 2 D Ex t IIIC T80 °C Db IP65

Solenoid operator 1262 50 to 1262 99  II 2 G Ex ia IIC T4 Ga
II 2 G Ex ia IIB T4 Ga
II 2 D Ex t IIIC T130 °C Db IP65

The EC type-examination certificate with the number

PTB 09 ATEX 2001

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 Groups IIB, IIC and IIIC, designed for application in atmospheres according to Category 2 G and 2 D, Temperature Class T4 or T6, the Equipment Protection Level (EPL) is Ga and Db.

The device, that bears the CE marking, meets the following standards:

| | |
|----------------------|--|
| EN 60079-0:2009 | Explosive atmospheres – Part 0: Equipment - General requirements |
| EN 60079-11:2012 | Explosive atmospheres – Part 11: Equipment protection by intrinsic safety "i" |
| EN 60079-31:2009 | Explosive atmospheres – Part 31: Equipment dust ignition protection by enclosure "t" |
| EN 60 529:2000 | Degrees of protection provided by enclosures (IP code) |
| DIN VDE 0580:2011 | Electromagnetic devices and components – General specifications |
| Directive 94/9/EC | Equipment and protective systems intended for use in potentially explosive atmospheres |
| Directive 2011/65/EU | on the restriction of the use of hazardous substances in electrical and electronic equipment (recast of 8 June 2011) |

Hanover, September 01, 2012



Klaus Kirchheim
General Manager