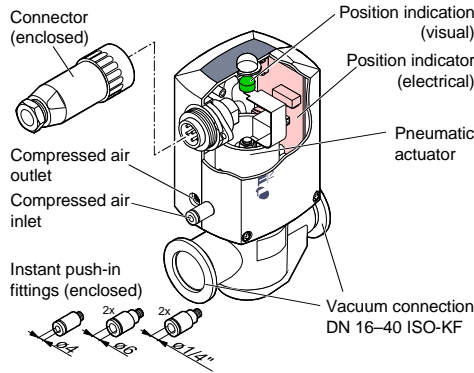


Description



Functional principle

When compressed air is admitted to the inline valve, it opens and the green position indicator becomes visible.

When no compressed air is admitted to the inline valve, it is closed by the pressure spring and the green position indicator is no longer visible.

The final positions can be polled by the electrical position indicator.

Safety

Symbols Used

| | |
|---|----------------|
| | DANGER |
| Information on preventing any kind of physical injury. | |
| | WARNING |
| Information on preventing extensive equipment and environmental damage. | |
| | Caution |
| Information on correct handling or use. Disregard can lead to malfunctions or minor equipment damage. | |

20 Dimensions in mm

General Safety Instructions

- Adhere to the applicable regulations and take the necessary precautions for the process media used. Consider possible reactions between the materials and the process media.
- Adhere to the applicable regulations and take the necessary precautions for all work you are going to do and consider the safety instructions in this document.
- Before beginning to work, find out whether any vacuum components are contaminated. Adhere to the relevant regulations and take the necessary precautions when handling contaminated parts.

Communicate all safety instructions to other users.

Liability and Warranty

Inficon assumes no liability and the warranty becomes null and void if end-user or third parties

- disregard the information in this document
- use the product in a non-conforming manner
- make any kind of interventions (modifications, alterations etc.) on the product
- use the product with accessories and options not listed in the corresponding product documentation.

The end-user assumes the responsibility in conjunction with the process media used.

Technical Data

| | | | |
|--|--|----------------------|----------------------|
| Position indicator connection rating | soldered joints 250 VAC / 25 VA / 0.1 A 50 VDC / 12.5 W / 0.25 A | | |
| Connection flange | DN 16 ISO-KF | DN 25 ISO-KF | DN 40 ISO-KF |
| Actuation | opening: pneumatic closing: by pressure spring | | |
| Compressed air supply tube connection pressure range | ø4 mm, ø6 mm or ø1/4" 3 ... 7 bar overpressure | | |
| piston displacement | 5.5 cm ³ | 12.1 cm ³ | 26.2 cm ³ |
| Stroke of the valve plate | 5 mm | 10 mm | 14 mm |
| Conductance ¹⁾ | 2.5 l/s | 8 l/s | 20 l/s |
| Switching frequency ²⁾ | 100 / min | 100 / min | 75 / min |
| Opening time ²⁾ | 100 ms | 110 ms | 250 ms |
| Closing time ²⁾ | 200 ms | 290 ms | 500 ms |
| Cycle life ³⁾ | 10 million | | |
| Tightness | 1×10 ⁻⁸ mbar l/s | | |
| Pressure range min. | 1×10 ⁻⁸ mbar | | |
| Pressure range max.(abs.) | 4 bar | 2.5 bar | |
| Pressure difference Δp in closing direction | 4 bar | 2 bar | |
| in opening direction | 2 bar | 1.5 bar | |
| Opening against a pressure difference Δp ⁴⁾ | 4 bar | 2 bar | |
| Temperatures ambience | 0 °C ... 50 °C | | |
| bakeout | | | |
| housing | 150 °C | | |
| actuator | 50 °C | | |
| pilot valve | 50 °C | | |
| Type of protection | IP 50 according to DIN 40 050 | | |
| Protection class | II | | |
| Installation angle | any | | |
| Flow direction | any | | |
| Materials housing | 1.4301 | | |
| stainless steel | 1.4541 / 14301 | | |
| bellows / valve plate | | | |
| pressure spring | 1.4301 | | |
| DN 16+25 ISO-KF | 1.1200 | | |
| DN 40 ISO-KF | FPM | | |
| seals | PBTP | | |
| shell | PBTP | | |
| cylinder unit | PE | | |
| protective lids | carton box, PE, PU | | |
| packing material | | | |
| Weight | 0.42 kg | 0.88 kg | 1.5 kg |

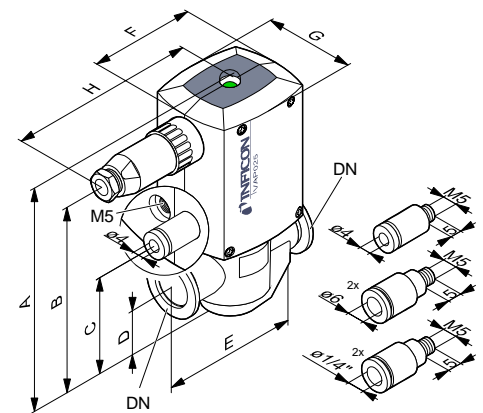
¹⁾ For air with molecular flow

²⁾ With pressure difference Δp=0, compressed air = 5 bar (overpressure)

³⁾ Cycles without expendable parts (seals) and under clean operating conditions

⁴⁾ Compressed air = 5 bar (overpressure)

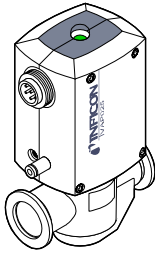
Dimensions



| DN | A | B | C | D | E | F | G | H |
|--------------|-------|-------|------|------|-----|----|----|-----|
| DN 16 ISO-KF | 135.9 | 108.9 | 36.4 | 22 | 80 | 60 | 51 | 100 |
| DN 25 ISO-KF | 157.4 | 128.9 | 74 | 31.5 | 100 | 74 | 63 | 108 |
| DN 40 ISO-KF | 177 | 147.8 | 92.5 | 45.5 | 130 | 98 | 83 | 120 |

Inline Valve

pneumatically actuated
bellows sealed
with position indicator, without pilot valve
VIP016-040-X

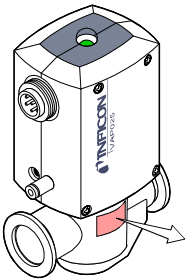


Instruction Sheet
incl. Manufacturer's Declaration

sima50e1-a (0102)

Product Identification

In all communications with Inficon, please specify the information on the product nameplate. For convenient reference copy that information into the space provided below.



Inficon, LI - 9496 Balzers
Typ: _____
No: _____
F-No: _____



Validity

This document applies to products with the following part numbers:

| | |
|---------|----------------|
| 250-314 | (DN 16 ISO-KF) |
| 250-334 | (DN 25 ISO-KF) |
| 250-354 | (DN 40 ISO-KF) |

The part number can be taken from the product nameplate.

If not indicated otherwise in the legends, the illustrations in this document correspond to the valve with the nominal diameter DN 25 ISO-KF. They apply to valves with other nominal diameters by analogy.

We reserve the right to make technical changes without prior notice.

Intended Use

The inline valves are used as shut-off and venting devices for vacuum applications.

Installation

Vacuum Connection

Skilled personnel

The vacuum connection may only be established by persons who have suitable technical training and the necessary experience or who have been instructed by the end-user of the product.

DANGER

Caution: overpressure in the vacuum system >1 bar

Injury caused by released parts and harm caused by escaping process gases can result if clamps are opened while the vacuum system is pressurized.

Do not open any clamps while the vacuum system is pressurized. Use the type clamps which are suited to overpressure.

Caution

Caution: dirt sensitive area

Touching the product or parts thereof with one's bare hands increases the desorption rate. Always wear clean, lint-free gloves and use clean tools when working in this area.

Caution

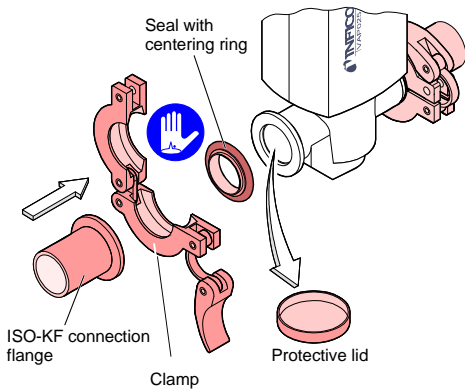
Caution: vacuum component

Dirt and damages impair the function of the vacuum component.

When handling vacuum components, take appropriate measures to ensure cleanliness and prevent damages.



Remove the protective lids and install the valve to the vacuum system by means of the small flange fittings. Any installation angle and flow direction may be chosen.



Compressed Air Connection

Skilled personnel

The compressed air connection may only be established by persons who have suitable technical training and the necessary experience or who have been instructed by the end-user of the product.

Caution

The compressed air must meet the following specifications:

- free of oil
- dry
- free of particles >5 µm
- 3 ... 7 bar (overpressure)

Caution

The plastic tube must meet the following specifications:

- bursting pressure ≥10 bar overpressure
- material: PA soft or PU.

Caution

To ensure leak tightness of the instant push-in fitting

- cut the plastic tube square
- make sure the outside of the plastic tube is not damaged.

Caution

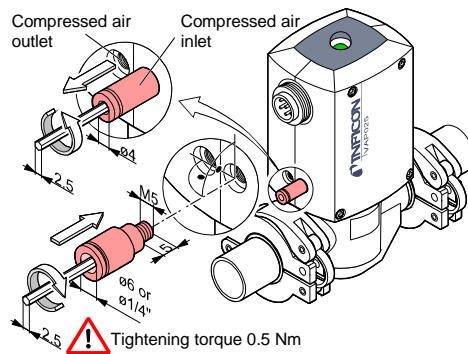
Caution: plastic thread

The plastic thread is damaged by tilting or overturning the instant push-in fitting.

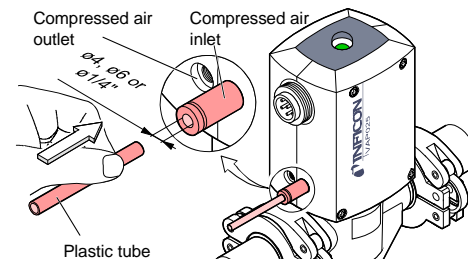
- use the enclosed instant push-in fitting (with extra-long thread) only.
- screw in the instant push-in fitting without tilting it and without exceeding the tightening torque of 0.5 Nm.

Compressed Air Inlet

For connection of a ø6 mm or ¼" plastic tube, exchange the instant push-in fitting.

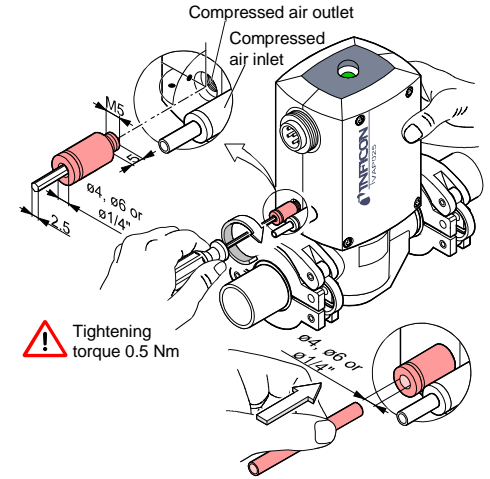


Push the tube into the instant push-in fitting until the mechanical stop is reached. Check that it is correctly mounted by slightly pulling.



Compressed Air Outlet

Screw in the enclosed instant push-in fitting for exhausting the compressed air if necessary. Push the tube into the instant push-in fitting until the mechanical stop is reached. Check that it is correctly mounted by slightly pulling.



Power Connection

Skilled personnel

The electrical connection, in accordance with the VDE 0100 guidelines, may be made only by a licensed electrician, qualified as per VDE 0105. The line cables shall be isolated from the line supply during all electrical work.

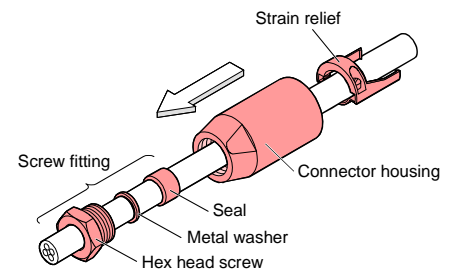
Caution

The cable must meet the following specifications:

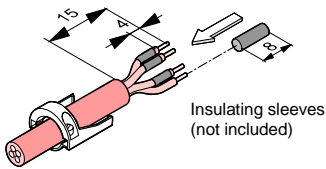
- flexible
- conductor cross-section ≤0.75 mm²
- cable cross-section ≤10 mm
- 4-pole without protective conductor or 5-pole with protective conductor

Preparing the connector

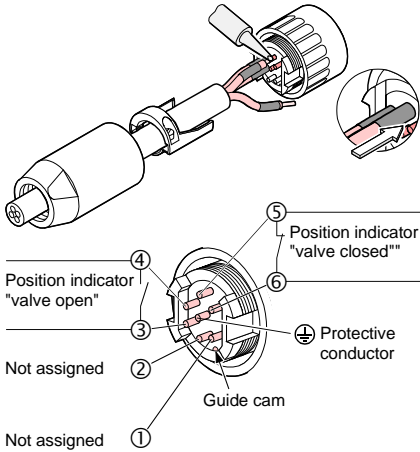
- Slide the screw fitting, connector housing, and strain relief on the cable.



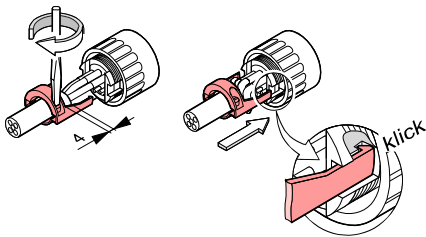
- 2 Skin the cable and mount the insulating sleeves if required.



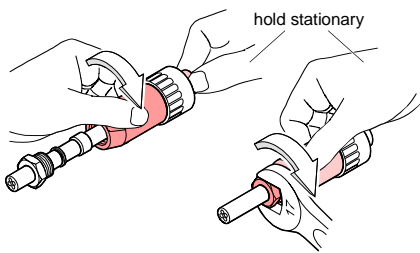
- 3 Solder the cable. Slide the insulating sleeve over the soldered connections. The polarity of the pilot valve (solenoid coil) need not be taken into consideration.



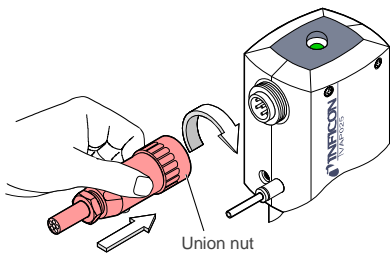
- 4 Tighten the strain relief and insert it (it will catch).



- 5 Reassemble the connector and tighten the screw fitting (width across 17 mm).



- 6 Plug in the connector and secure it with the union nut.



Operation

The product is ready for operation as soon as it has been installed.

| Valve position | Compressed air | Position indication |
|----------------|----------------|---------------------|
| closed | not available | |
| open | available | |

Pressure range

DN 16+25 ISO-KF: 1×10^{-8} mbar ... 4 bar (absolute)
 DN 40 ISO-KF: 1×10^{-8} mbar ... 2.5 bar (absolute)

Pressure difference Δp in closing direction

Caution

Caution: pressure difference Δp

At $\Delta p > 4$ bar (DN 16+25 ISO-KF) and $\Delta p > 2$ bar (DN 40 ISO-KF) the valve may no longer be tight. Avoid bigger pressure differences.

Pressure difference Δp in opening direction

Caution

Caution: pressure difference Δp

With $\Delta p > 2$ bar (DN 16+25 ISO-KF) and $\Delta p > 1.5$ bar (DN 40 ISO-KF) the valve is opened. Avoid bigger pressure differences.

Opening against a pressure difference Δp

Caution

Caution: pressure difference Δp

With $\Delta p > 4$ bar (DN 16+25 ISO-KF) and $\Delta p > 2$ bar (DN 40 ISO-KF) the valve cannot open. Avoid bigger pressure differences.

Deinstallation

Power Connection

Skilled personnel

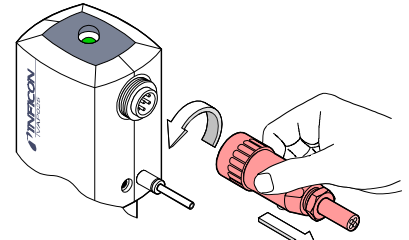
The electrical power must be disconnected by a skilled electrician.

Caution



The control system must be disconnected from the power source before any connection to the product is made or interrupted.

Loosen the connector and unplug it.



Compressed Air Connection

Skilled personnel



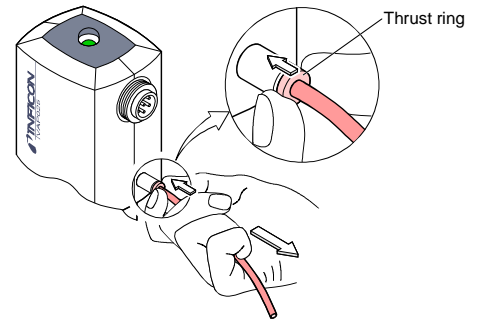
The compressed air may only be disconnected by persons who have suitable technical training and the necessary experience or who have been instructed by the end-user of the product.

DANGER



Caution: compressed air
 Physical injury can result if a pressurized compressed air line is disconnected.
 Before doing any work, turn off the compressed air supply and relieve the compressed air lines.

Pull out the tube while depressing the thrust ring.



Vacuum Connection

Skilled personnel



The vacuum connection may only be disassembled by persons who have suitable technical training and the necessary experience or who have been instructed by the end-user of the product.

DANGER



Caution: contaminated parts
 Contaminated parts can be detrimental to health and environment.
 Before beginning to work, find out whether any parts are contaminated. Adhere to the relevant regulations and take the necessary precautions when handling contaminated parts.

Caution



Caution: vacuum component
 Dirt and damages impair the function of the vacuum component.
 When handling vacuum components, take appropriate measures to ensure cleanliness and prevent damages.

