



## 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.

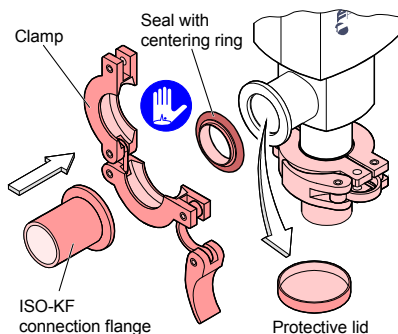
When handling vacuum components, take appropriate measures to ensure cleanliness and prevent damages.

**Caution**



Keep the protective lids and put them in place again when removing the product from the vacuum system.

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**



Specifications for the plastic tube:

- $\varnothing 4$  mm,  $\varnothing 6$  mm or  $\varnothing 1/4$ "
- bursting pressure  $\geq 10$  bar overpressure (1 MPa)
- material: PA soft or PU.

**Caution**



The compressed air must meet the following specifications:

- free of particles >5  $\mu\text{m}$
- DN 16 and DN 25: 3 ... 5 bar overpressure
- DN 40: 3 ... 6 bar overpressure

- dry, free of oil or containing oil (keep using the same quality).

If compressed air containing oil is used, dispose of the exhaust compressed air outlet in accordance with the relevant regulations.

**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

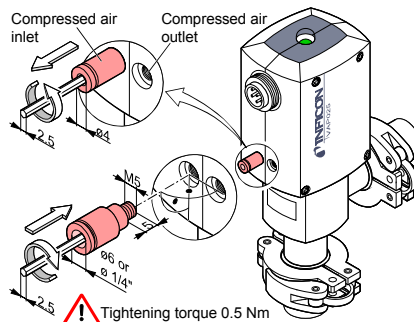
**Caution**



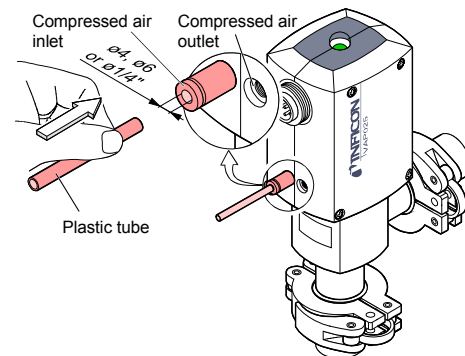
Contrary to the illustration below, the compressed air inlets and outlets of the following angle valves are reversed in position:

- Vacuum connection DN 40 ISO-KF and serial number (F-No) from
- 101 for valve with aluminum housing
- 118 for valve with stainless steel housing

If you wish to connect a  $\varnothing 6$  mm, or  $\varnothing 1/4$ " plastic tube, exchange the instant push-in fitting.



Insert 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

**Caution**

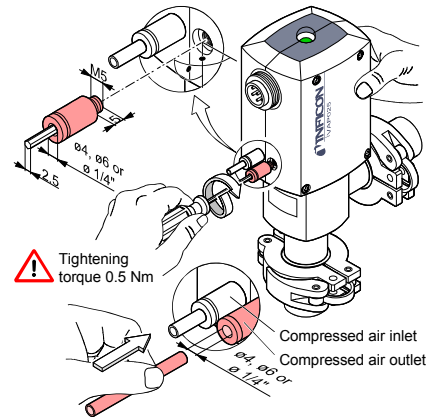


Contrary to the illustration below, the compressed air inlets and outlets of the following angle valves are reversed in position:

Vacuum connection DN 40 ISO-KF and serial number (F-No) from

- 101 for valve with aluminum housing
- 118 for valve with stainless steel housing

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.



### Electrical 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.

**WARNING**



Caution: mains voltage

The pilot valve can get destroyed if a wrong mains voltage is applied.

The local mains power rating must correspond with the nominal voltage of the pilot valve (see product nameplate). If they do not correspond, exchange the pilot valve ( $\rightarrow$  Further information).

**Caution**

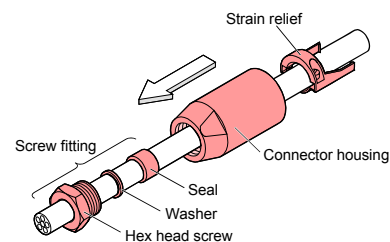


The cable must meet the following specifications:

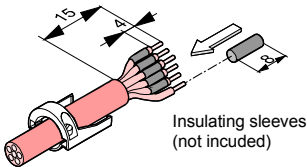
- flexible
- conductor cross-section  $\leq 0.75$  mm<sup>2</sup>
- cable diameter  $\leq 10$  mm
- 6-pole without protective conductor or 7-pole with protective conductor.

### Preparing the connector

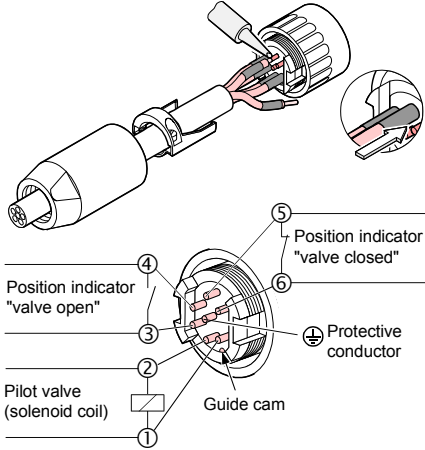
- Slide the screw fitting, connector housing, and strain relief on the cable.



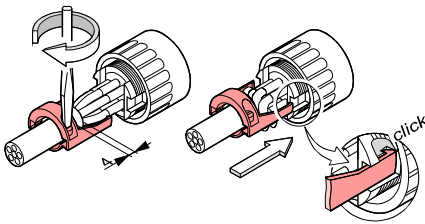
- 2 Skin the cable and mount the insulating sleeves if required.



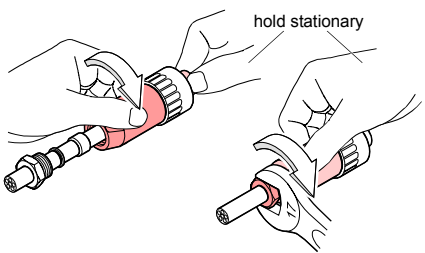
- 3 Solder the cable. Slide the insulating sleeve over the soldered connections. The polarity of the pilot valve (solenoid coil) need not be taken into consideration.



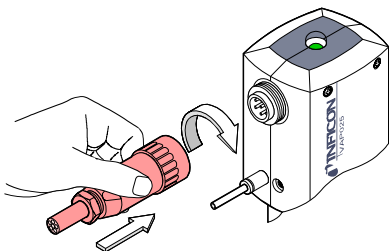
- 4 Tighten the strain relief and insert it (it will catch).



- 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	Control valve	Position indication
closed	available	activated	
	not available	activated	
	not available	deactivated	
open	available	deactivated	

### Pressure range:

DN 16+25 ISO-KF:  $1 \times 10^9$  mbar ... 4 bar (absolute)  
 DN 40 ISO-KF:  $1 \times 10^9$  mbar ... 2.5 bar (absolute)

### Pressure difference $\Delta p$ in closing direction

**Caution**

Caution: pressure difference  $\Delta p$

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 $\Delta p$ in opening direction

**Caution**

Caution: pressure difference  $\Delta p$

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 $\Delta p$

**Caution**

Caution: pressure difference  $\Delta p$

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

### Electrical Connection

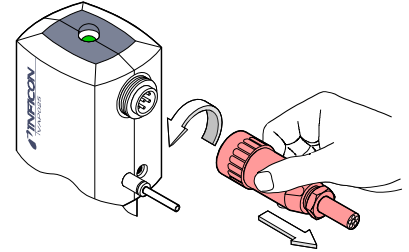
**Skilled personnel**

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**

Caution: compressed air

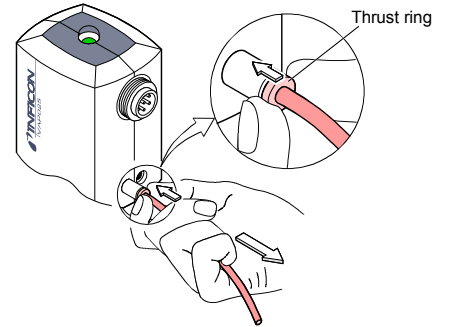
Physical injury can result if a pressurized compressed air line is disconnected. Before doing any work, turn off the compressed air supply and relieve the compressed air lines.

**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**

Caution: contaminated parts

Contaminated parts can be detrimental to health. 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.

**DANGER**

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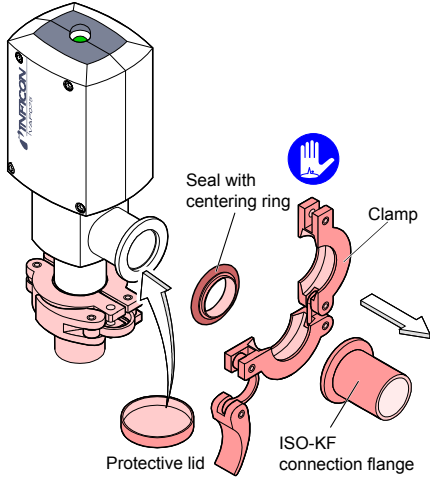
Caution: vacuum component

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

**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.

Vent the vacuum system and disassemble the small flange connection. Place the protective lid.



### Further information

Refer to the Operating manual with regard to maintenance, repair, and spare parts.

The Operating manual sina60e1

- can be downloaded from our website or
- ordered at INFICON.

### Returning the product

**WARNING**

Caution: forwarding contaminated products  
Contaminated products (e.g. radioactive, toxic, caustic or microbiological hazard) can be detrimental to health and environment.  
Products returned to INFICON should preferably be free of harmful substances. Adhere to the forwarding regulations of all involved countries and forwarding companies and enclose a duly completed declaration of contamination.

Products that are not clearly declared as "free of harmful substances" are decontaminated at the expense of the customer.

Products not accompanied by a duly completed declaration of contamination are returned to the sender at his own expense.

### Disposal

**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.

### Separating the components

After disassembling the product, separate its components according to the following criteria:

- Contaminated components  
Contaminated components (radioactive, toxic, caustic, or biological hazard etc.) must be decontaminated in accordance with the relevant national regulations, separated according to their materials, and disposed of.
- Other components  
Such components must be separated according to their materials and recycled.

## Declaration of Contamination

The service, repair, and/or disposal of vacuum equipment and components will only be carried out if a correctly completed declaration has been submitted. Non-completion will result in delay.  
This declaration may only be completed (in block letters) and signed by authorized and qualified staff.

- Description of product**  
Type \_\_\_\_\_  
Part number \_\_\_\_\_  
Serial number \_\_\_\_\_
- Reason for return**  
\_\_\_\_\_
- Operating fluid(s) used**  
(Must be drained before shipping.)  
\_\_\_\_\_
- Used in copper process**  
no  yes  **Seal product in plastic bag and mark it with a corresponding label.**
- Process related contamination of product:**  

toxic	no <input type="checkbox"/> 1)	yes <input type="checkbox"/>	
corrosive	no <input type="checkbox"/> 1)	yes <input type="checkbox"/>	
biological hazard	no <input type="checkbox"/>	yes <input type="checkbox"/> 2)	
explosive	no <input type="checkbox"/>	yes <input type="checkbox"/> 2)	
radioactive	no <input type="checkbox"/>	yes <input type="checkbox"/> 2)	
other harmful substances	no <input type="checkbox"/> 1)	yes <input type="checkbox"/>	

1) or not containing any amount of hazardous residues that exceed the permissible exposure limits  
2) Products thus contaminated will not be accepted without written evidence of decontamination.

The product is free of any substances which are damaging to health. yes
- Harmful substances, gases and/or by-products**  
Please list all substances, gases, and by-products which the product may have come into contact with:  

Trade/product name manufacturer	Chemical name (or symbol)

Precautions associated with substance	Action if human contact
- Legally binding declaration:**  
We hereby declare that the information on this form is complete and accurate and that we will assume any further costs that may arise. The contaminated product will be dispatched in accordance with the applicable regulations.  
Organization/company \_\_\_\_\_  
Address \_\_\_\_\_  
Post code, place \_\_\_\_\_  
Phone \_\_\_\_\_ Fax \_\_\_\_\_  
Email \_\_\_\_\_  
Name \_\_\_\_\_  
Company stamp \_\_\_\_\_

This form can be downloaded from our website.  
Copies: Original for addressee  
1 copy for accompanying documents  
1 copy for file of sender

## Manufacturer's Declaration

as defined by the Directive relating to machinery 98/37/EC, Appendix IIb

We, INFICON, hereby declare that putting the incomplete equipment mentioned below into operation is not permitted until evidence is given that the system into which that incomplete equipment shall be installed is in accordance with the provisions of the EC Directive relating to machinery.

We also declare that the equipment mentioned below complies with the provisions of the Directive relating to electrical equipment designed for use within certain voltage limits 73/23/EEC and the Directive relating to electromagnetic compatibility 89/336/EEC.

## Angle valve

pneumatically actuated  
bellows sealed  
with position indicator and pilot valve  
normally open

VAP016 ... 040-A/X

### Part numbers

250-206 250-226 250-246  
250-216 250-236 250-256

### Standards

Harmonized and international/national standards and specifications:

- EN 292-2
- DIN EN 60 204-1
- ISO 9803
- ISO 1609
- ISO 4414
- DIN 28 403
- DIN 28 404
- DIN 2501-1
- DIN 24 558

### Signatures

INFICON AG, Balzers

22 October 2002

*Remo Klaiber*

Remo Klaiber  
Product Marketing  
Management

22 October 2002

*G. Sele*

Dr. Georg Sele  
Technical Support Manager  
Quality Representative



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