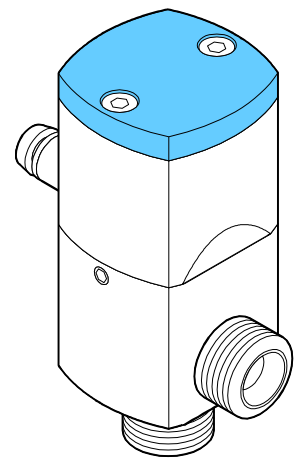


Angle Valve

pneumatically operated, bellows sealed

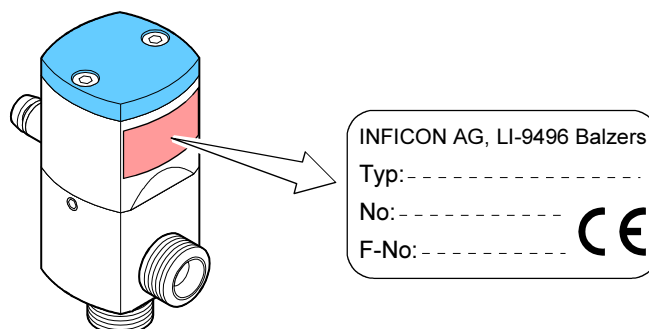
VAP005-X



CE

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.



Validity

This document applies to products with part number 250-040.
The part number (No.) can be taken from the product nameplate.

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

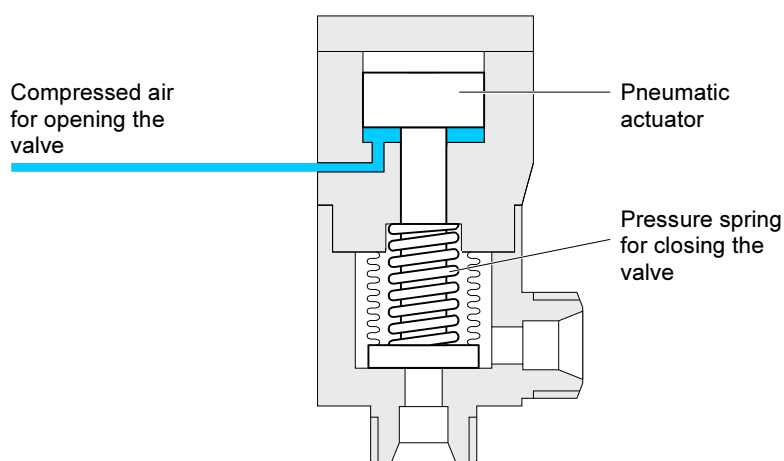
Dimensions in mm.

Intended Use

The angle valve is universally used in vacuum systems.

Function

The VAP005-X is opened pneumatically and closed by the prestressed pressure spring.



It closes automatically in the event of a compressed air failure.

Contents

Product Identification	2
Validity	2
Intended Use	2
Function	2
1 Safety	4
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1 Safety

1.1 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.

→  See page ...


1.2 Personnel Qualifications



Skilled personnel

All work described in this document may only be carried out by persons who have suitable technical training and the necessary experience or who have been instructed by the end-user of the product.

1.3 General Safety Instructions

- Adhere to the applicable regulations and take the necessary precautions for the process media used.
Consider possible reactions between the materials (→  6) 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 the safety instructions to all other users.

1.4 Liability and Warranty

Inficon assumes no liability and the warranty becomes null and void if the 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 not listed in the corresponding product documentation.

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

2 Technical Data

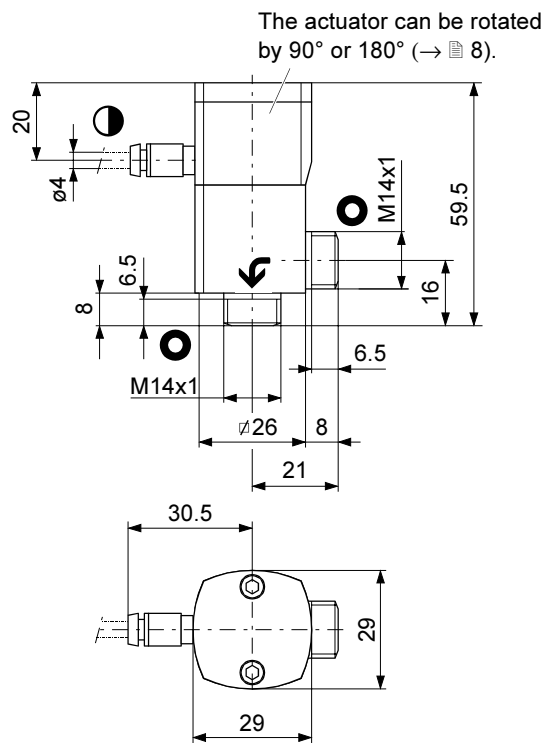
Vacuum connection	ø5 mm / M14×1
Accessories for connection to M14×1 thread	<ul style="list-style-type: none"> • flange fitting DN 10 ISO-KF • tube connection OD ¼" • tube connection OD 6 mm
Compressed air Connection Pressure range Volume	instant push-in fitting ø4 mm 4 ... 8 bar overpressure 0.24 cm ³
Protection class	IP 65 according to DIN 40 050
Conductance for air Molecular flow Laminar flow	0.4 l/s 4 l/s
Mounting orientation	any
Switching frequency max.	150 / min ¹⁾
Cycles to first maintenance	≈ 5,000,000 ²⁾
Tightness	1×10 ⁻⁹ mbar l/s
Pressure range	1×10 ⁻⁸ mbar ... 4 bar (absolute)
Pressure difference Δp In closing direction In opening direction	3 bar 3 bar
Opens against Δp	3 bar (compressed air: 4 bar overpressure)
Closing time Opening time	35 ms } (Δp = 0, compressed air: 35 ms } 4 bar overpressure)
Temperatures Ambiance Bakeout	5 °C ³⁾ ... 80 °C 150 °C (actuator 80 °C)
Materials Housing Bellows Actuator Seals	stainless steel 1.4301 stainless steel 1.4301 anodized aluminium FPM
Weight	0.2 kg

¹⁾ With pressure difference Δp = 0.

²⁾ Under clean operating conditions.

³⁾ -15 °C, if the ambiance is free of condensable gases.

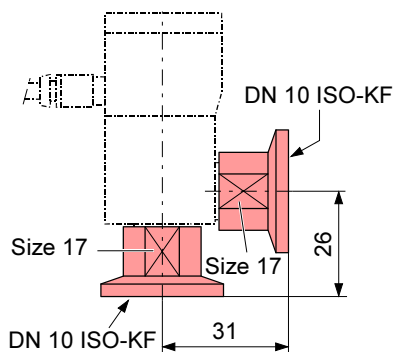
Dimensions [mm]



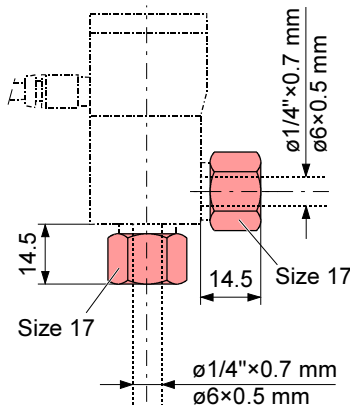
- Flow direction
- Compressed air connection
- Protective lid

Installation dimensions with accessories
(accessories → 19)

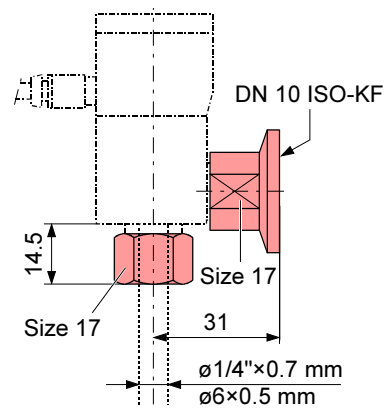
Flange fittings



Tube connections



Flange fitting and tube connection



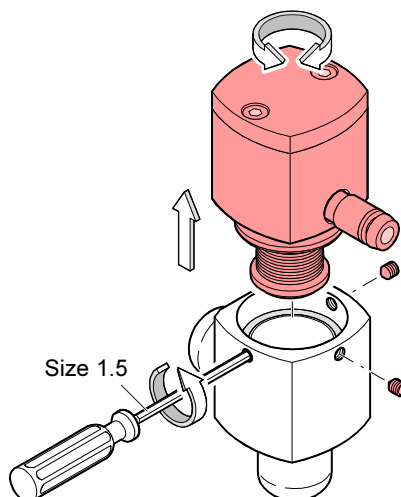
3 Installation

3.1 Orientation of the Compressed Air Connection

Procedure

To facilitate access to the compressed air connection, the actuator can be rotated by 90° or 180°.

- 1 Remove the three hexagon socket set screws, lift the actuator and turn it into the desired position.



- 2 Put the actuator in place and secure it with the three hexagon socket set screws.

3.2 Vacuum Connection



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

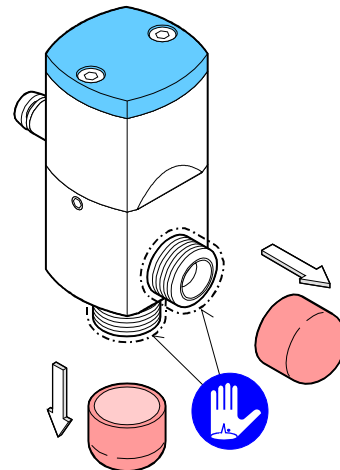


Caution: dirt sensitive area

Touching the product or parts thereof with one's bare hands increases the desorption rate.

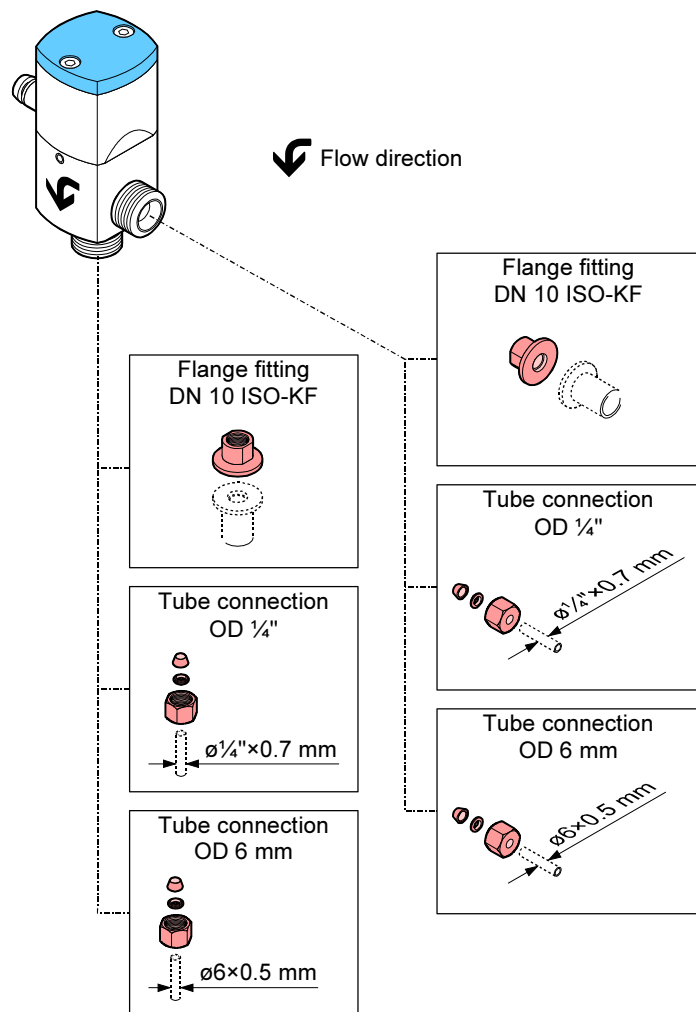
Always wear clean, lint-free gloves and use clean tools when working in this area.

- 1 Remove protective lids.



Keep the protective lids.

- 2 Make vacuum connection by means of the accessories (→ 19).



Mount the accessories according to manual supplied with the accessories..

3.3 Compressed Air Connection

DANGER

Caution: compressed air
 Unprofessionally handling compressed air can cause physical injury. Adhere to the relevant regulations and take the necessary precautions when handling compressed air.

Caution

Specifications for the plastic tube:

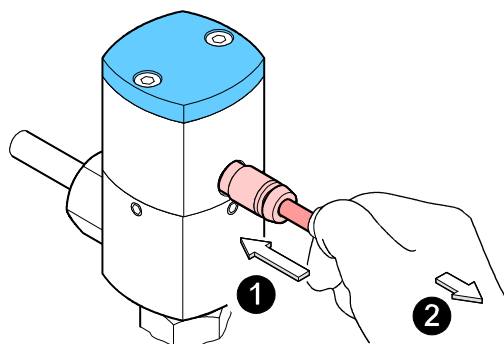
- $\varnothing 4$ mm
- bursting pressure ≥ 10 bar (overpressure)
- material: PA soft or PU

Caution

To ensure leak tightness

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

Insert the plastic tube into the instant push-in fitting until the mechanical stop is reached and verify correct mounting by slightly pulling.



The compressed air control must be provided by the end-user.

Recommended control valve:

- Nominal diameter $\geq \varnothing 1$ mm
- 3/2-way pneumatic valve

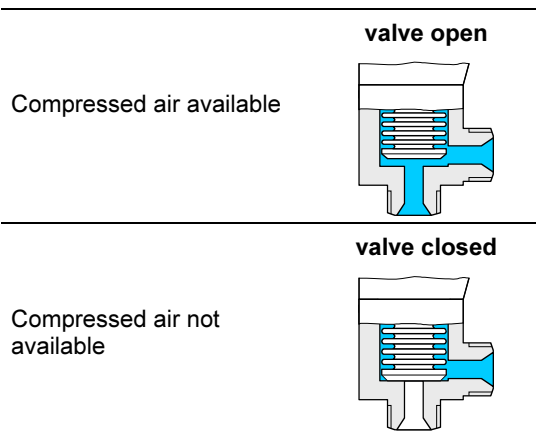
The compressed air must meet the following specifications:

- free of oil
- dry
- free of particles $> 10 \mu\text{m}$
- 4 ... 8 bar overpressure

4 Operation

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

Valve position



Pressure difference Δp in closing direction

Caution

Caution: pressure difference
At $\Delta p > 3$ bar the valve may be damaged.
Avoid pressure differences $\Delta p > 3$ bar.

Pressure difference Δp in opening direction

Caution

Caution: pressure difference
At $\Delta p > 3$ bar the valve is opened.
Avoid pressure differences $\Delta p > 3$ bar.

Opens against a pressure difference Δp

Caution

Caution: pressure difference
At $\Delta p > 3$ bar the valve may be damaged.
Avoid pressure differences $\Delta p > 3$ bar.

5 Deinstallation

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.

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.

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



Caution: dirt sensitive area

Touching the product or parts thereof with one's bare hands increases the desorption rate.

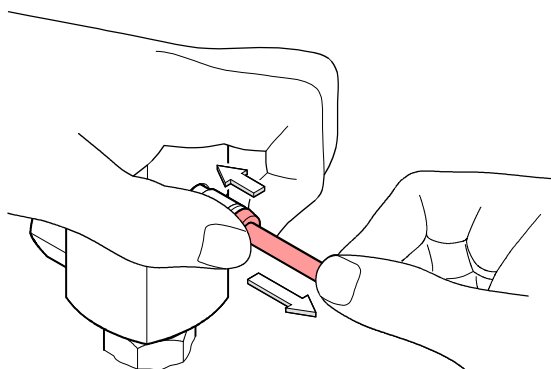
Always wear clean, lint-free gloves and use clean tools when working in this area.

Preconditions

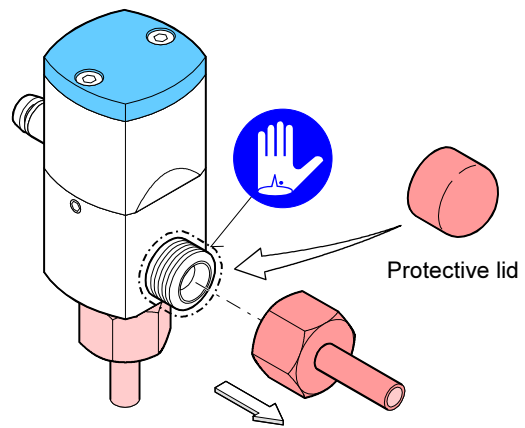
- The vacuum system has been vented
- The compressed air supply has been interrupted
- The compressed air line has been relieved

Procedure

- 1 Press the ring towards the valve and pull the plastic tube.



- 2** Remove valve from vacuum system and place the protective lids.



6 Maintenance / Repair

Under clean operating conditions, the product requires no maintenance during the rated cycle life.

6.1 Cleaning the Valve / Replacing Parts

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

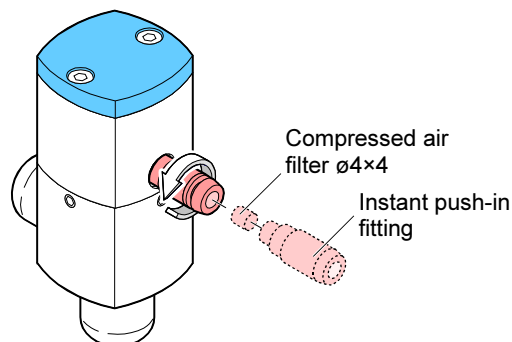
Caution: vacuum component
 Dirt and damages impair the function of the vacuum component.
 When handling vacuum components, take appropriate measures to ensure cleanliness and prevent damages.

Preconditions

The valve has been deinstalled (→ 12).

Replacing the compressed air filter

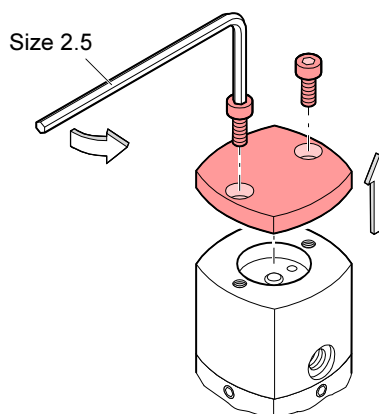
- 1 Unscrew the instant push-in fitting.
Remove the compressed air filter and replace it.



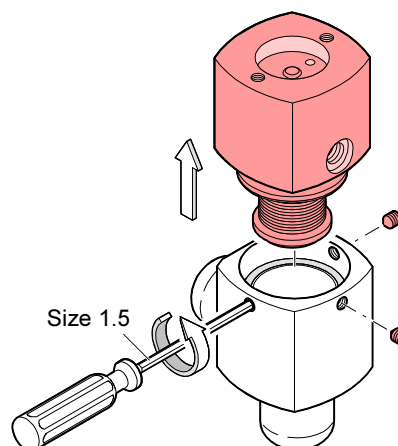
Further information → 20.

Disassembling the valve

- 2** Remove the cover.



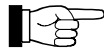
- 3** Remove the actuator.



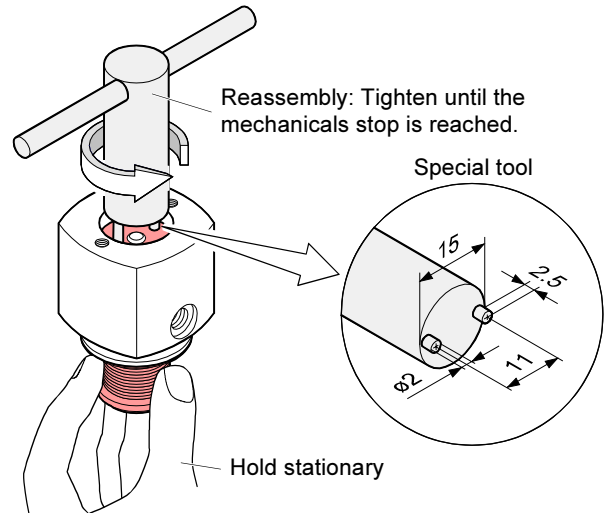
- 4** Remove the seal from the housing.



- 5** Loosen the piston by means of the special tool or pliers for Seeger circlip ring.



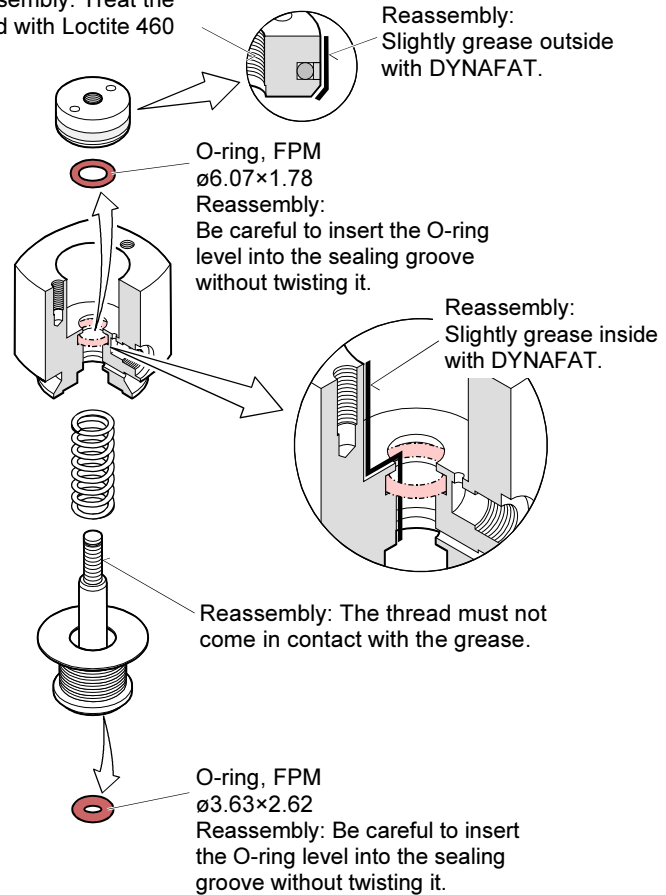
The screw connection is secured with Loctite 460 and thus difficult to loosen.



- 6** Disassemble the actuator.

Reassembly: Treat the thread with Loctite 460

Reassembly: Slightly grease outside with DYNAFAT.



Cleaning the valve / Replacing parts

7 Cleaning the valve / Replacing parts.



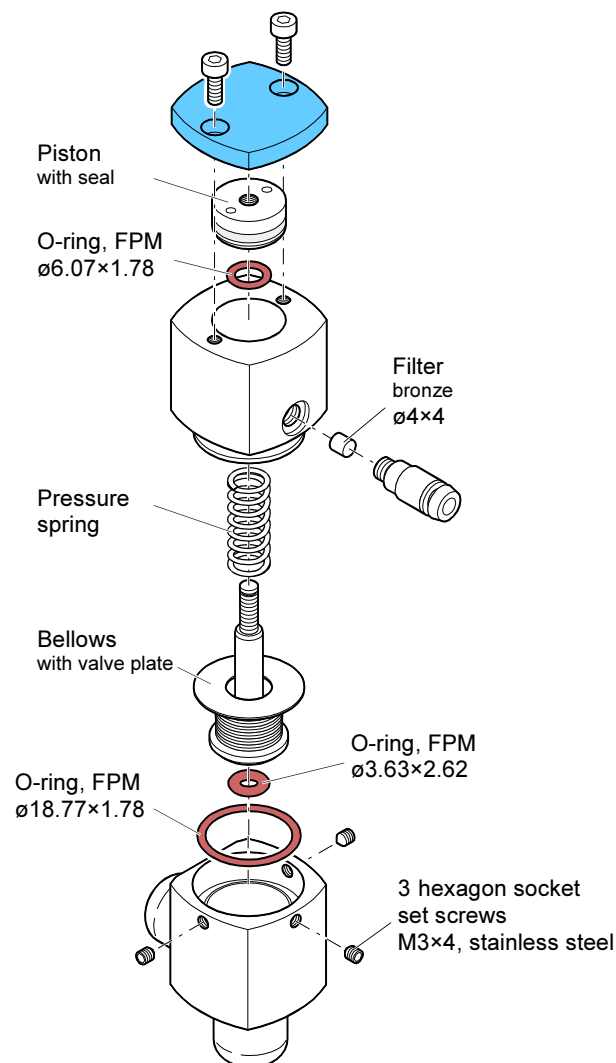
DANGER



Caution: cleaning agents

Cleaning agents can be detrimental to health and environment. Adhere to the relevant regulations and take the necessary precautions when handling and disposing of cleaning agents. Consider possible reactions with the product materials (→ 6).

- Carefully clean the parts with a grease solving, non-scouring cleaner.
- After cleaning the parts should preferably be rinsed with alcohol and subsequently heated to $\approx 50\text{ }^{\circ}\text{C}$ in an oven or with an industrial blower.
- Carefully clean the sealing surfaces with a lint-free cloth soaked with alcohol. Allow them to dry.



Further information → 20.

Reassembling the valve

- 8 Proceed in reverse order to reassemble the valve.



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



Caution: dirt sensitive area

Touching the product or parts thereof with one's bare hands increases the desorption rate.

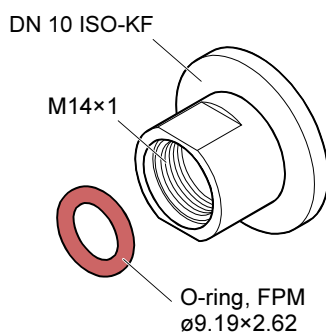
Always wear clean, lint-free gloves and use clean tools when working in this area.



After reassembly, a few switching cycles should be performed in order for the O-rings to perfectly adapt to the sealing surfaces. Take the necessary precautions for this procedure.

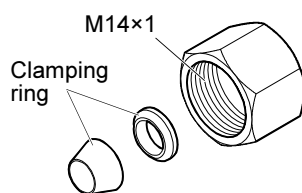
7 Accessories

Flange fitting



	Ordering number
1 flange fitting DN 10 ISO-KF	250-080

Tube connection



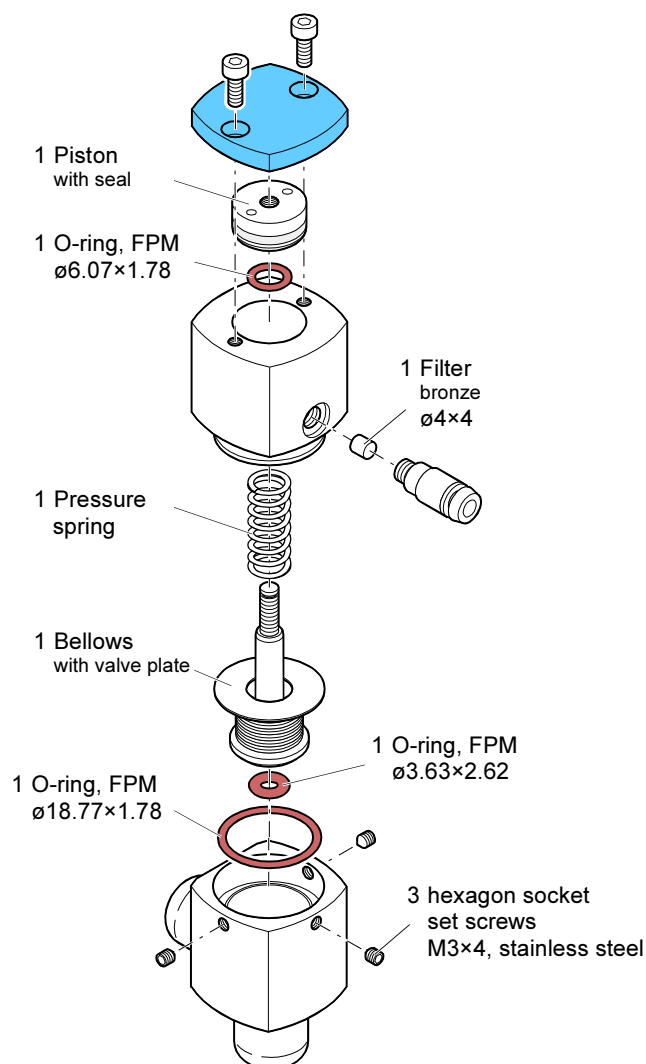
	Ordering number
1 tube connection OD ¼"	250-085
1 tube connection OD 6 mm	250-086

Further information → 9.

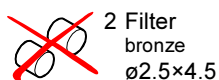
8 Spare Parts

Spare parts kit

Ordering number 215-368
comprising:



Sealing agent DYNAFAT, 100 gr

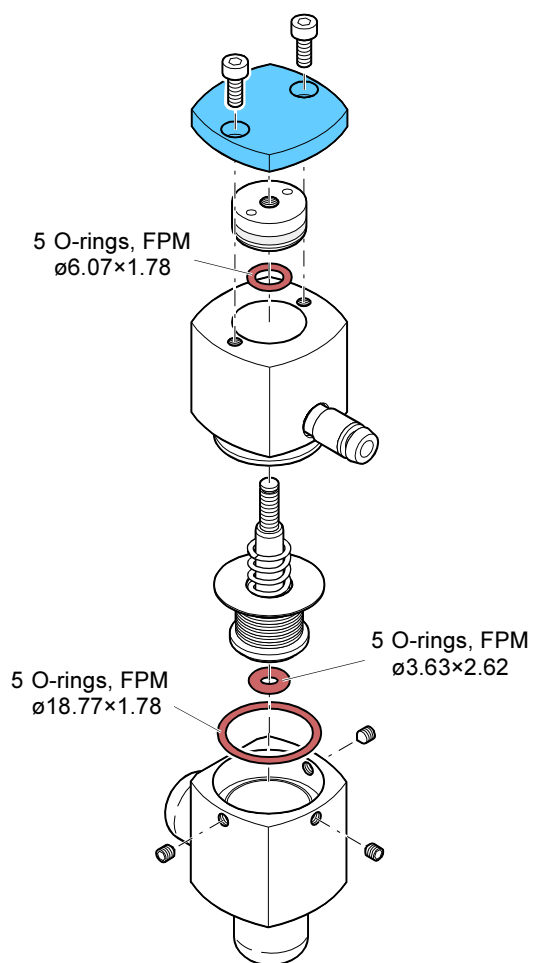


~~2 Filter bronze $\varnothing 2.5 \times 4.5$~~

Not required for this valve type.

Seal kit

Ordering number 215-372
comprising:



9 Returning the Product

WARNING

Caution: forwarding contaminated products

Contaminated products (e.g. radioactive, toxic, caustic or micro-biological 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 (→ 23).

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.

10 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.

WARNING

Caution: substances detrimental to the environment

Products or parts thereof (mechanical and electric components, operating fluids etc.) can be detrimental to the environment.

Dispose of such substances in accordance with the relevant local regulations.

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.

1 Description of product

Type _____

Article Number _____

Serial Number _____

2 Reason for return

3 Operating fluid(s) used (Must be drained before shipping.)

4 Process related contamination of product:

toxic	no <input type="checkbox"/> 1)	yes <input type="checkbox"/>	 2) Products thus contaminated will not be accepted without written evidence of decontamination!
caustic	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"/>	

The product is free of any substances which are damaging to health
 yes

1) or not containing any amount of hazardous residues that exceed the permissible exposure limits

5 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	Chemical name (or symbol)	Precautions associated with substance	Action if human contact

6 Legally binding declaration:

I/we hereby declare that the information on this form is complete and accurate and that I/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 _____

Date and legally binding signature _____ Company stamp _____

Original: German sina08d1 (0104)



si na08e1



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