

EVI 005 S
Mini Angle Valve, manually operated

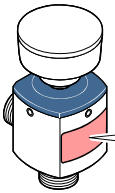
Operating Instructions

BP 5104 BEN (2010-06)



Product Identification

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



Pfeiffer Vacuum, D-35614 Aslar

Typ: _____

No: _____

F-No: _____

Validity

This document applies to products with part number PF H12 031.

The part number (No) can be taken from the product nameplate.

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

All dimensions in mm.

Intended Use

The angle valve EVI 005 S is universally used in vacuum systems.

Functional Principle

The EVI 005 S is opened and closed by turning the rotary knob. The longitudinal movements of the valve plate are produced by the spindle drive.

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.

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.

General Safety Instructions

- Adhere to the applicable regulations and take the necessary precautions for the process media used. Consider possible reactions between the materials (→ "Technical Data") 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.

Liability and Warranty

Pfeiffer Vacuum 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.

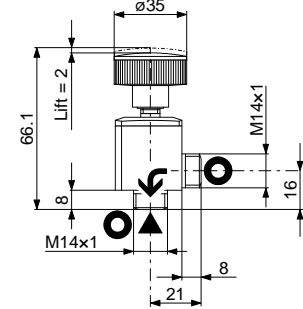
Failures due to contamination or wear and tear, as well as expendable parts (seals), are not covered by the warranty.

Technical Data

Nominal diameter	ø5 mm, M14x1
Vacuum connections (accessories)	<ul style="list-style-type: none"> flange fitting DN 10 ISO-KF pipe connection OD ¼" pipe connection OD 6 mm
Degree of protection	IP 65
Conductance for air	0.4 l/s
Molecular flow	4 l/s
Laminar flow	
Mounting orientation	any
Flow direction	any ¹⁾
Cycles to first maintenance	1'500'000 ²⁾
Tightness	1x10 ⁻⁹ mbar l/s
Resistance to pressure	5 bar (absolute)
Operating pressure	1x10 ⁻⁸ mbar ... 4 bar
Pressure difference Δp	
In closing direction	4 bar
In opening direction	4 bar
Opens against a pressure difference Δp	4 bar
Temperatures	
Ambiance	5 ³⁾ ... 70 °C
Bakeout	150 °C (actuator 80 °C)
Materials	
Housing, Bellows	stainless steel 1.4301
Actuator	aluminum and plastic
Seals	FPM
Weight	0.15 kg

- Recommended mounting orientation: valve seat toward vacuum chamber.
- Under clean operating conditions. If the valve is operated under harsh or dirty conditions, it should be cleaned / maintained before the specified service time to maintenance has been reached.
- 15 °C, if the ambience is free of condensable gases.

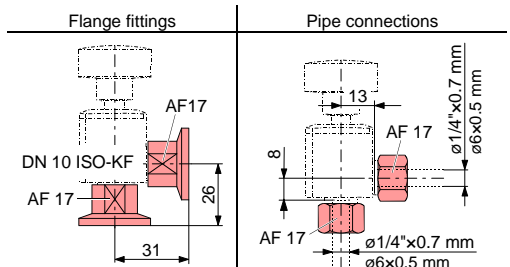
Dimensions [mm]



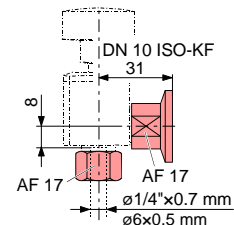
- Compressed air inlet
- Valve seat side
- Protective lid

Installation dimensions with accessories

(ordering numbers → "Installation")



Flange fitting and pipe connections



Installation

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

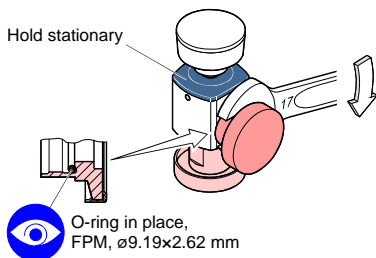
Caution: dirt sensitive area
Touching the product or parts thereof with bare hands increases the desorption rate.
Always wear clean, lint-free gloves and use clean tools when working in this area.

Accessories (1 piece per part number)

<p>Flange fitting DN 10 ISO-KF</p> <p>Part no. PT 420 912-T</p>	<p>Flange fitting DN 10 ISO-KF</p> <p>Part no. PT 420 912-T</p>
<p>Pipe connection OD ¼"</p> <p>Part no. PT 420 913-T</p>	<p>Pipe connection OD ¼"</p> <p>Part no. PT 420 913-T</p>
<p>Pipe connection OD 6 mm</p> <p>Part no. PT 420 914-T</p>	<p>Pipe connection OD 6 mm</p> <p>Part no. PT 420 914-T</p>

Flange connections

- 1 Remove the protective lids and mount two flange fittings.



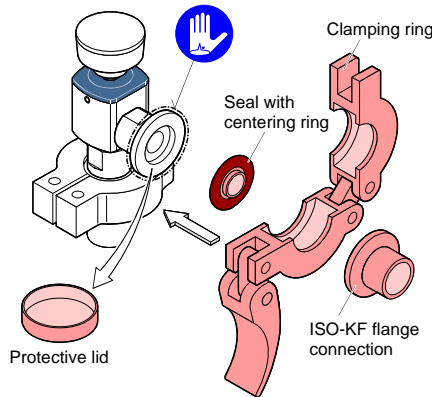
- 2 Remove the protective lids and install the product to the vacuum system.

DANGER

DANGER: 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 of clamps which are suited to overpressure.

DANGER

DANGER: overpressure in the vacuum system >2.5 bar
KF flange connections with elastomer seals (e.g. O-rings) cannot withstand such pressures. Process media can thus leak and possibly damage your health.
Use O-rings provided with an outer centering ring.

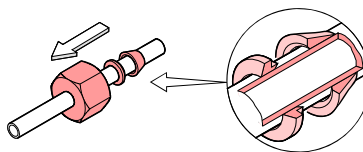


Keep the protective lids.

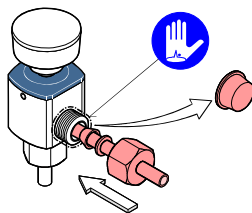
- 3 Check that the vacuum connections are leak tight.

Tube connections

- 1 Cut the tube to the required length and remove the burs.
- 2 Slide the union nut and clamping rings over the tube.

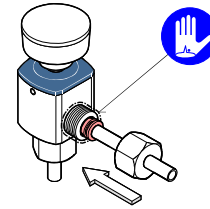


- 3 Remove the protective lid and insert the tube until the mechanical stop is reached.

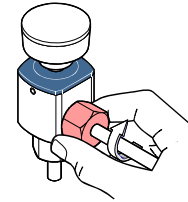


Keep the protective lids.

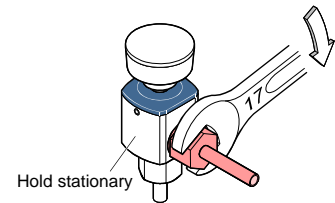
- 4 Slide the clamping rings up to the mechanical stop.



- 5 Tighten the union nut with your fingers.



- 6 Tighten the union nut
 - initial installation by ¼ turns (stainless steel)
 - subsequent installation by ¼ turns (stainless steel).

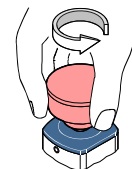


- 7 Check that the vacuum connections are leak tight.

Operation

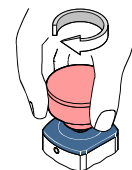
The product is ready for operation as soon as it has been installed.

Opening the valve



The maximum flow is reached by turning the rotary knob $\approx 1\frac{1}{2}$ times from the closed position.

Closing the valve



The closing position is reached as soon as the closing resistance is decreased.
The seal of the valve is pressed against the valveseat by a spring.



Deinstallation

Precondition: Vacuum system vented

STOP DANGER

DANGER: 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

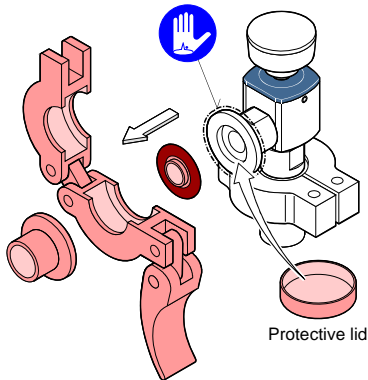
Caution: vacuum component
Dirt and damages impair the function of the vacuum component.
When handling vacuum components, take appropriate measures to ensure cleanliness and prevent damages.

Caution

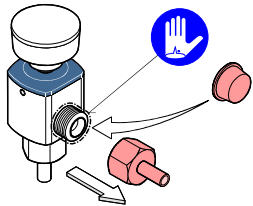
Caution: dirt sensitive area
Touching the product or parts thereof with bare hands increases the desorption rate.
Always wear clean, lint-free gloves and use clean tools when working in this area.

Remove the valve from the vacuum system and install the protective lids.

Flange connections



Pipe connections



Maintenance, Repair

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

Failures due to contamination or wear and tear, as well as expendable parts (seals), are not covered by the warranty.

STOP DANGER

DANGER: 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

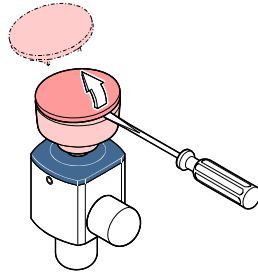
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Caution

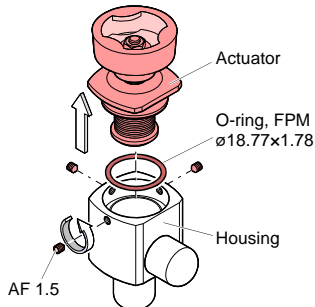
Caution: dirt sensitive area
Touching the product or parts thereof with bare hands increases the desorption rate.
Always wear clean, lint-free gloves and use clean tools when working in this area.

Precondition: Valve deinstalled

1 Remove the cover of the rotary knob.

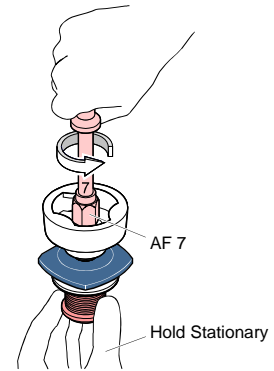


2 Remove the actuator and the O-ring from the housing.

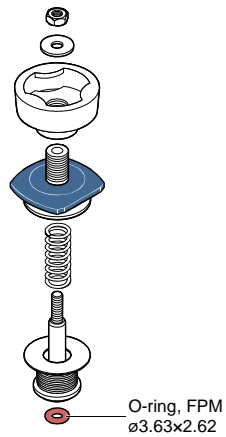


3 Loosen the hex nut by ≈ 1 turn.

The hex nut is secured with Loctite 270 and thus difficult to loosen.



4 Disassemble the actuator.




5 Clean the valve and replace its parts (→ "Spare Parts").

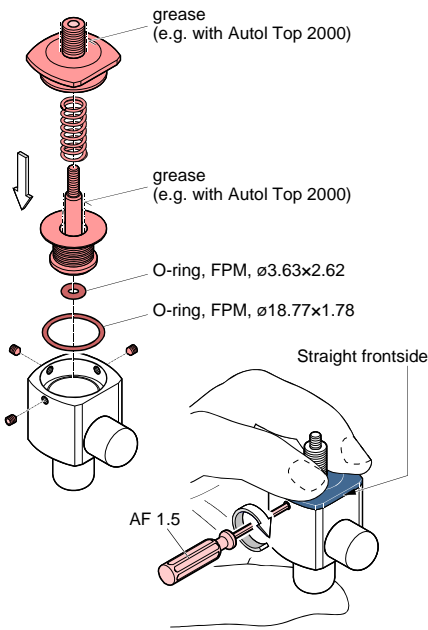
STOP DANGER

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

- 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 ≈ 50 °C in an oven or with an industrial blower.
- Carefully clean the sealing surfaces with a lint-free cloth moistened with alcohol. Allow them to dry.
- Wipe the seals with a lint-free cloth slightly moistened with vacuum oil.

6 Reassemble the actuator (without rotary knob).

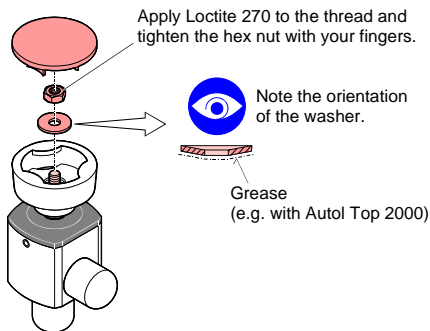
 Be careful to insert the O-rings level into the grooves without twisting them.





7 Screw the rotary knob onto the flange until the mechanical stop is reached.



8 Mount the washer, hex nut and rotary knob cover.



 Allow the Loctite 270 to harden for about 30 min before operating the valve.

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

Spare Parts

When ordering spare parts, always indicate:

- All information on the product nameplate
- Description and ordering number according to the spare parts list

	Ordering number
Seal kit, comprising 5x O-ring, FPM 75, ø18.77x1.78 5x O-ring, FPM 75, ø3.63x2.62	PT 130 166-T
Spare parts kit, comprising 1x pressure spring 1x O-ring, FPM 75, ø18.77x1.78 1x O-ring, FPM 75, ø3.63x2.62 3x hex. socket set screw, M3x4 1x bellows with valve plate	BN 841 317-T

Storage

 **Caution**



Caution: vacuum component

Inappropriate storage leads to an increase of the desorption rate and/or may result in mechanical damage of the product.

Cover the vacuum ports of the product with protective lids or grease free aluminum foil. Do not exceed the admissible storage temperature range (→ "Technical Data").

Returning the Product

 **WARNING**



WARNING: forwarding contaminated products
Contaminated products (e.g. radioactive, toxic, caustic or biological hazard) can be detrimental to health and environment.

Products returned to Pfeiffer Vacuum 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 contamination¹⁾

¹⁾ Form under www.pfeiffer-vacuum.net

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**



DANGER: 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**



WARNING: 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.

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