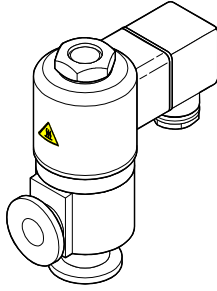


Angle Valve

VVM010-A

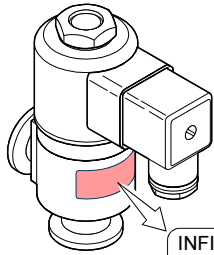


Instruction Sheet
incl. Manufacturer's Declaration

sima65e1 (0012)

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 AG, LI-9496 Balzers
 Typ: _____
 No: _____
 F-No: _____
 _____ V



Validity

This document applies to products with the following part numbers:

- 250-530 (24 VDC)
- 250-531 (24 VAC)
- 250-532 (115 VAC)
- 250-533 (230 VAC)

The part number 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 electromagnetic angle valve can be used in the medium and high vacuum ranges as a shut-off or venting valve. If the product is to be integrated in a vacuum system where toxic process gases are used or toxic gases arise during the process and where the overpressure can rise to >1 bar, take appropriate safety measures for educating the exhaust gases and dispose of them without polluting the environment.

Functional Principle

This angle valve is opened by a magnet screwed directly to the valve body and opened by the action of a prestressed spring. It closes automatically in the event of a power failure.

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

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.

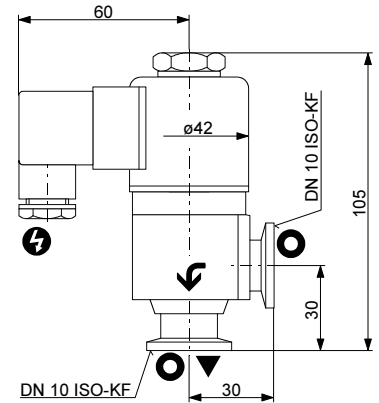
The end-user assumes the responsibility in conjunction with the process media used.

Technical Data

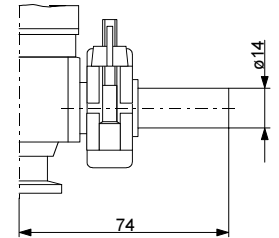
| | |
|-----------------------|-------------------------------|
| Part number | Nominal voltage |
| 250-530 | 24 VDC ±10% |
| 250-531 | 24 VAC ±10% 50 ... 60 Hz |
| 250-532 | 115 VAC ±10%, 50 ... 60 Hz |
| 250-533 | 230 VAC ±10% 50 ... 60 Hz |
| Vacuum connection | DN 10 ISO-KF |
| Electrical connection | socket |
| Pickup power | 35 VA |
| Holding power | 15 VA |

| | |
|---|---|
| Duty cycle | 100% |
| Mounting orientation | any |
| Actuation | opens electromagnetically closes with pressure spring |
| Conductance at 1 mbar 0.1 mbar Molecular flow | 3.5 l/s 1.3 l/s 1 l/s |
| Switching frequency | 50/min |
| Opening time Closing time | 45 ms 60 ms |
| Cycles to first maintenance | 1'500'000 cycles |
| Venting time | 23 s for 100 l |
| Tightness | 1 × 10 ⁻⁹ mbar l/s |
| Pressure range | 1 × 10 ⁻⁸ mbar ... 10 bar (absolute) |
| Opens to a pressure difference Δp | 2 bar |
| Pressure difference Δp In closing direction In opening direction | 10 bar 1 bar |
| Temperatures Operation (ambient) Operation at 100% duty cycle Storage | 5 ... 40 °C 75 °C 5 ... 50 °C |
| Materials Housing Valve plate Pressure spring Valve seat seal Protective lids Packing | Al 3.2315 X4CrMoS18 stainless steel FPM PE carton box, foamed material |
| Weight | 0.460 kg |

Dimensions

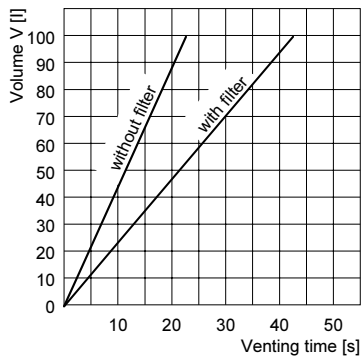


With filter
(accessories)



- Power connection
- Protective lid
- Valve seat side
- Preferred flow direction

Venting as a function of the volume



Installation

Preliminary Classification

Vorsicht

Caution: Supply voltage
A wrong supply voltage may damage the product.
The supply voltage must match the nominal voltage (→ product nameplate). Please contact the next Inficon service center otherwise.

Vacuum Connection

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.

DANGER

Caution: overpressure in the vacuum system >4 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.

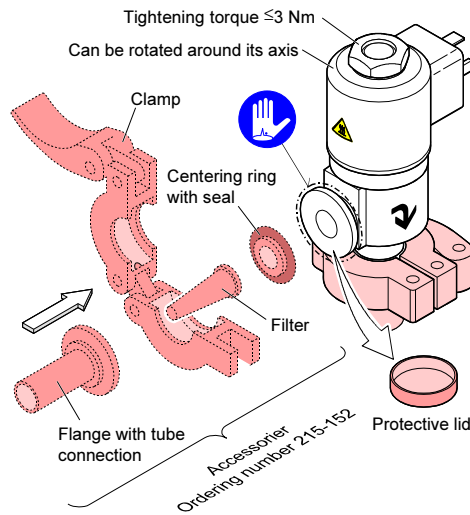
Caution

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 lid and install the product at the vacuum system.



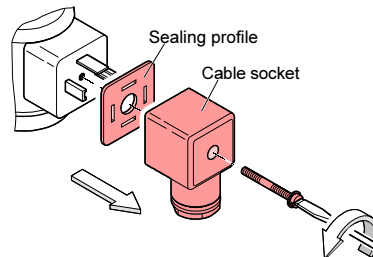
Preferred flow direction

Keep the protective lids.

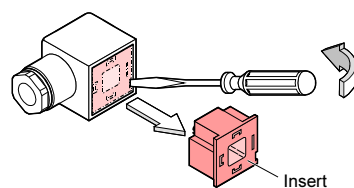
To prevent contamination of the vacuum system during venting, a filter (accessories) can be mounted.

Power Connection

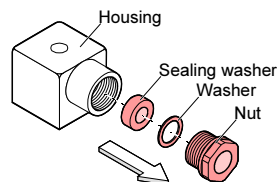
1 Unfasten the screw and unplug the cable socket.



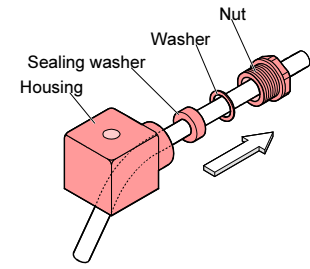
2 Remove the insert.



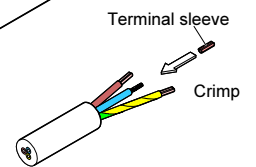
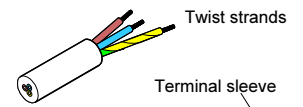
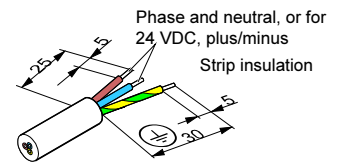
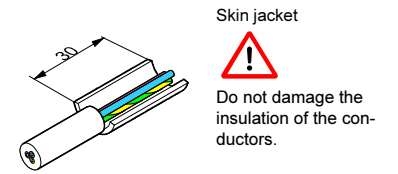
3 Unscrew the nut on the cable socket and remove the washer and the sealing profile.



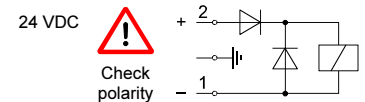
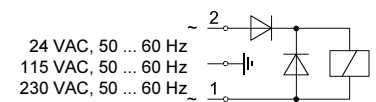
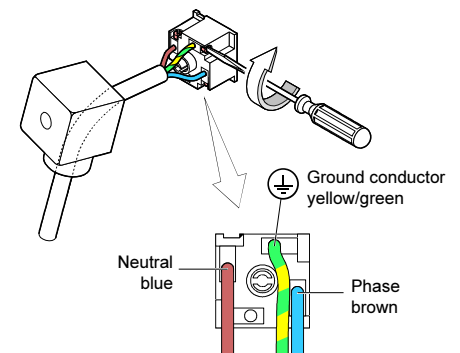
4 Slide the nut, washer, gasket and housing on the cable.



5 Prepare the cable.

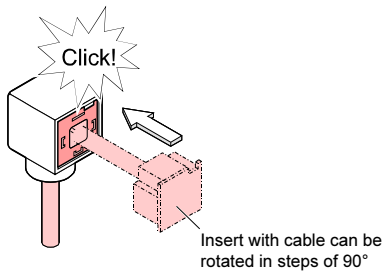


6 Connect the cable.

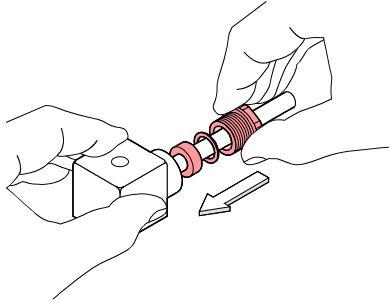


(0012)

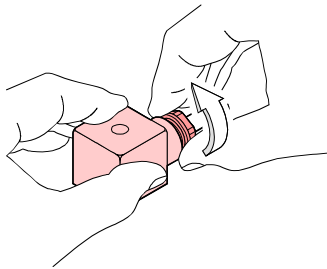
- 7 Push the insert in until it catches.



- 8 Mount the strain relief.



- 9 Tighten the strain relief.



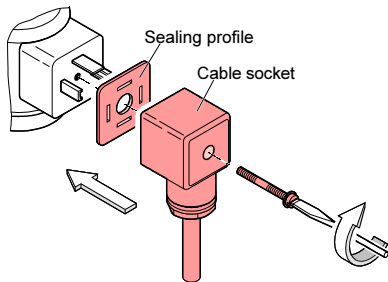
- 10 Connect cable.

STOP DANGER

Caution: protective ground

Incorrectly grounded products can be extremely hazardous in the event of a fault. Use only a 3-conductor power cable with protective ground. The power connector may only be plugged into a socket with a protective ground. The protection must not be nullified by an extension cable without protective ground.

- Before connecting the product, turn off the control system.



Operation

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

It will close, or remain closed, on power loss.

STOP DANGER

Caution: hot surface

Touching the hot surface ($>55\text{ }^{\circ}\text{C}$) can cause burns.

Wear protective gloves.

Pressure difference Δp in closing direction

Caution

Caution: pressure difference Δp

At Δp 10 bar the valve cannot be opened.

Avoid pressure differences $\Delta p > 2$ bar.

Pressure difference Δp in opening direction

Caution

Caution: pressure difference Δp

At $\Delta p > 1$ bar the valve is opened.

Avoid pressure differences $\Delta p > 1$ bar.

Opening against a pressure difference Δp

Caution

Caution: pressure difference Δp

At $\Delta p > 2$ bar the valve cannot open.

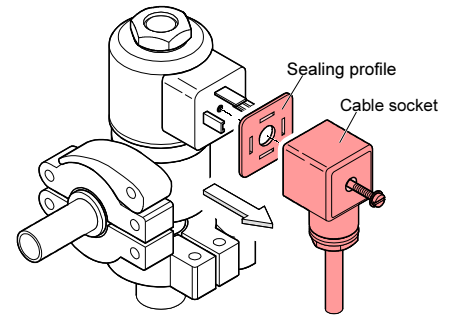
Avoid pressure differences $\Delta p > 2$ bar.

Deinstallation

Electrical Connection

- Before connecting the product, turn off the control system.

Unlock the cable socket and unplug it.



Vacuum Connection

STOP 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.

Caution

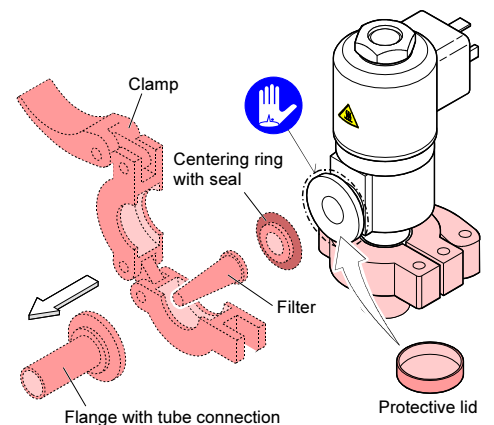
Caution: dirt sensitive area

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 wait until the valve has cooled down to $<55\text{ }^{\circ}\text{C}$.

Remove the small flange fittings and put the protective lid in place.



Maintenance, Repair

See Operating Manual sina65e1. It can be

- downloaded from our internet site
- or ordered.

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



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.



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.

- Description of product**
 Type _____
 Article No. _____
 Serial No. _____
- Reason for return**

- Operating fluid(s) used**

- Process related contamination of product:**

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

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

*) Products thus contaminated will not be accepted without written evidence of decontamination!
- 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) |
|---------------------------------|---------------------------|
| | |
| | |
| | |
| | |
| | |

| Dangerous material class | Measures in case of spillage | First aid in case of contact |
|--------------------------|------------------------------|------------------------------|
| | | |
| | | |
| | | |
| | | |
| | | |
- 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 _____

 Company stamp _____

 Date and legally binding signature _____

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

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 VVM010-A

Part numbers

250-530
250-531
250-532
250-533

Standards

Harmonized and international/national standards and specifications:

- EN 292-1/-2 (Safety of machinery)
- EN 294 (Safety distances to prevent danger zones being reached by the upper limbs)
- EN 60204-1 (Electrical equipment of machines)

Signatures

Inficon AG, 9496 Balzers

21 December 2000

21 December 2000

Robert Polacek
Product management

Oskar Untermarzoner
Product development



LI-9496 Balzers
Liechtenstein
Tel +423 / 388 3237
Fax +423 / 388 3728
reach.liechtenstein@inficon.com
www.inficon.com