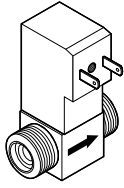


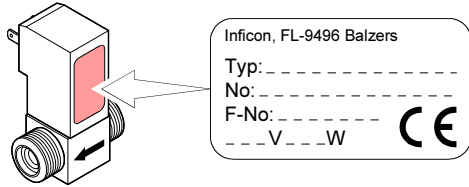
Control Valve VDM005-X



Operating Manual
Incl. Manufacturer's Declaration
sina36e1 (0004)

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 250-515.
The part number can be taken from the product nameplate.
We reserve the right to make technical changes without prior notice.

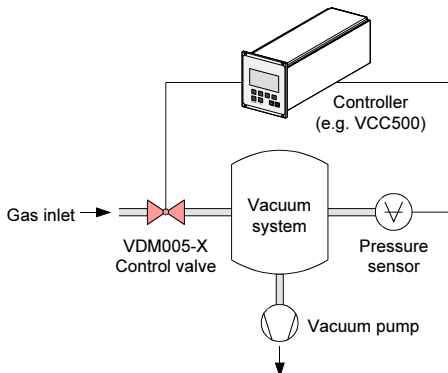
Intended Use

The VDM005-X Control valve is used in conjunction with the VCC500 Controller or another control device for controlling gas flows and thus maintaining a desired pressure in a vacuum system.
It must not be used for controlling liquid gases.

Functional Principle

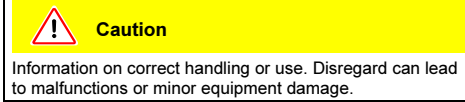
The VDM005-X Control valve opens and closes as a function of the control voltage.
It will close or remain closed in the event of a power loss.

Example of a control loop:

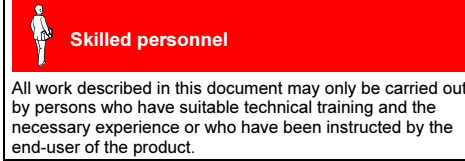


Safety

Symbols Used



Personnel Qualifications



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 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.

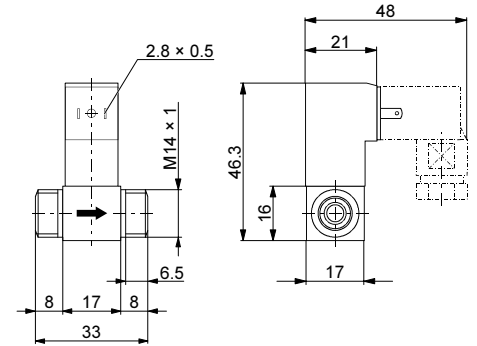
The end-user assumes the responsibility in conjunction with the process media used.

Technical Data

Vacuum connection	M14x1
Adapters (accessories) flange fitting tube fitting	DN 10 ISO-KF OD 1/4" OD 6 mm
Installation angle	any, preferably perpendicular
Nominal diameter	1.6 mm
Pressure range	1×10 ⁻⁸ ... 2 bar (absolute)
Tightness	1×10 ⁻⁹ mbar l/s
Gas flow for air at a pressure difference Δp = 1 bar	1×10 ⁻⁵ ... 100 mbar l/s
Response time	10 ... 15 ms (0 ... 90% of stroke)
Control voltage	0 ... 24 VDC
Power	2 W
Duty cycle	100%
Type of protection	IP 51
Temperatures	
ambiance	5 °C ... 50 °C
heat generation ¹⁾ solenoid coil housing	55 °C 50 °C
bakeout	80 °C (with idle coil)
Materials	
housing	stainless steel 1.4301
armature plate	stainless steel 1.4510
guiding tube	stainless steel 1.4105
seals	FPM
Weight	80 g

¹⁾ Duty cycle 100% and ambiance 40 °C

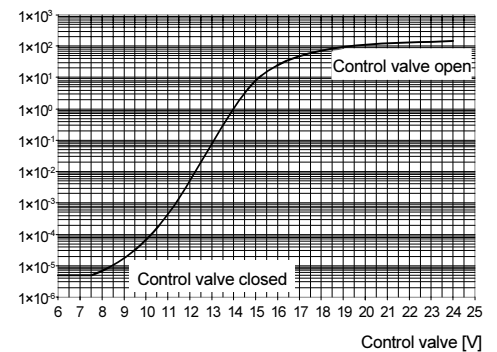
Dimensions [mm]



Flow rate curve

Example of a flow rate curve (mean values) at a pressure difference Δp = 1 bar.

Gas flow [mbar l/s]



Installation

Vacuum Connection

Caution



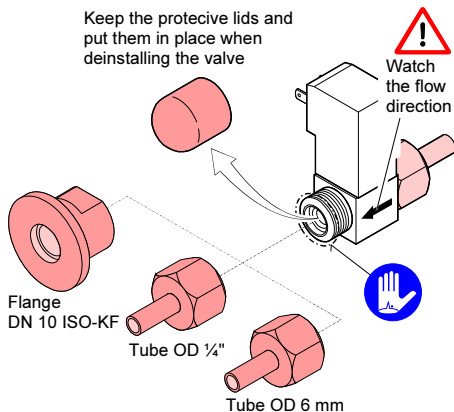
Caution: vacuum component
Dirt and damages impair the function of the vacuum component.
When handling vacuum components, take appropriate measures to ensure cleanliness and prevent damages.

Caution



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

- Remove the protective lids, mount two Adapters M14×1 (→ Accessories), and connect the Control valve to the vacuum system as described in the Operating Manual of the Adapters.



- Check that the vacuum connections are leak tight.

Electrical Connection

Caution



The polarity of the 24 VDC connection need not be taken into consideration.
Adhere to the local installation regulations.

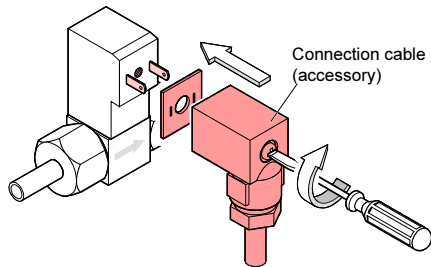
Caution



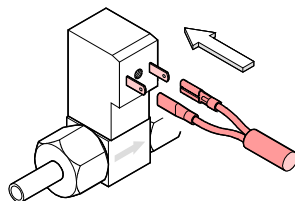
The control system must be disconnected from the power source before any connection to the product is made or interrupted.

The Control valve can be connected in the following ways:

- for operation in conjunction with the VCC500 Controller, use the connection cable



- for autonomous operation, use the enclosed two receptacles



Operation

The VDM005-X Control valve is ready for operation as soon as it has been installed.

It will close or remain closed in the event of a power loss.

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.

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.
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Caution



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

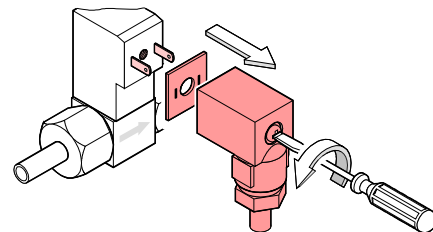
Precondition

The vacuum system has been vented.

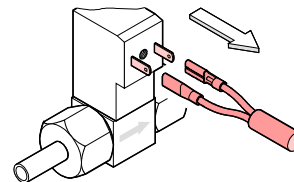
Procedure

- Disconnection:

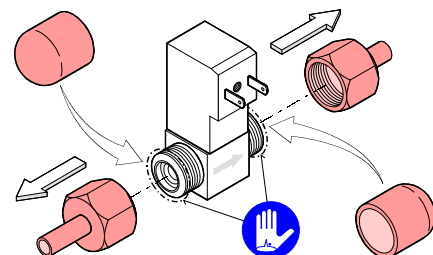
- if using the connection cable



- if using the receptacles



- Disconnect the Control valve from the vacuum system and put the protective lids in place.



(0004)

Maintenance

Under clean operating conditions, the product requires no maintenance.

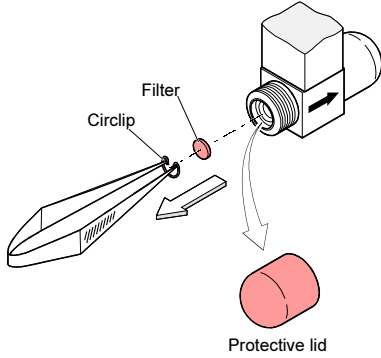
Removing and Cleaning the Filter

Precondition

The Control valve has been deinstalled as described in section "Deinstallation".

Procedure

- 1 Remove the filter from the inlet.



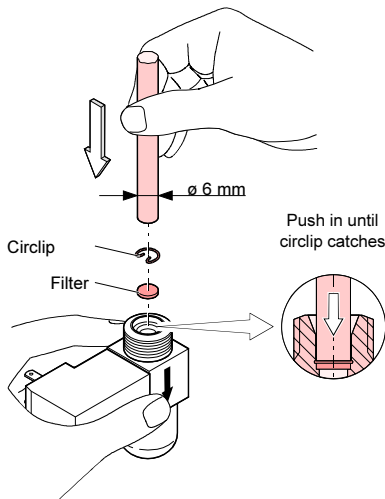
- 2 Clean the filter.

STOP
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.

Preferably rinse the filter with alcohol and dry it with an industrial blower.

- 3 Reinstall the filter.



- 4 For any subsequent installation of the vacuum fittings, proceed as described in the Operating Manual of the Adapters.

Repair

Defective Control valves cannot be repaired. Dispose of them according to section "Disposal".

Accessories

	Ordering number
Adapter M14×1	
1 flange connection DN 10 KF	250-080
1 tube connection OD ¼ "	250-085
1 tube connection OD 6 mm	250-086
Connection cable for VCC500 Controller	
3 m	250-961
5 m	250-962
10 m	250-963
15 m	250-964
20 m	250-965
25 m	250-966

Returning the Product

!
WARNING

Caution: forwarding contaminated products
Contaminated products (e.g. radioactive, toxic, caustic or microbiological) 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

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.

!
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, microbiological hazard etc.) must be decontaminated in accordance with the relevant national regulations, separated according to their materials, and recycled.
- Other components
Such components must be separated according to their materials and recycled.

