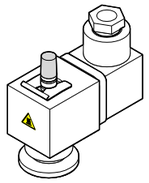
Power Failure Venting Valve

electromagnetically actuated
DN 10 ISO-KF

21320-KA66-....

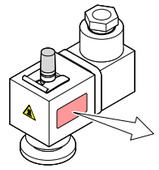


Operating Manual

601467EA (2013-06)

Product Identification

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



made in Switzerland
Fabrication No.:
.....-....-..../....
A-......

Validity

This document applies to products with part numbers

21320-KA66-000. (24 VDC)
21320-KA66-ABM. (200 … 230 VAC)
21320-KA66-ABK. (110 … 115 VAC)

The part number can be taken from the product nameplate.

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

Intended Use

The Power failure venting valve is used for automatic venting of pumps as well as of small and medium vacuum systems.

If the Power failure venting valve is to be integrated in a vacuum system where toxic process gases are used or toxic gases arise during the process and where an overpressure can occur, take appropriate safety measures for exhausting such gases and dispose of them without polluting the environment.

Functional Principle

The Power failure venting valve opens in the event of a power failure. However, if the pressure in the vacuum system is >2.5 bar, the valve remains closed.

The Power failure venting valve remains closed as long as the solenoid coil is energized.

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 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

VAT 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 and options not listed in the corresponding product documentation.

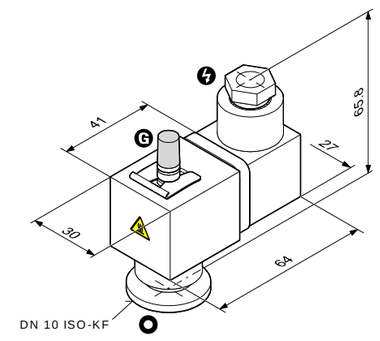
The end-user assumes the responsibility in conjunction with the process media used.

Technical Data

Part number	21320-KA66-000.	21320-KA66-ABM.	21320-KA66-ABK.
Connection flange	DN 10 ISO-KF		
Nominal voltage	24 VDC ±10%	200 … … 230 V ±10% 50/60 Hz	100 … … 115 V ±10% 50/60 Hz
Nominal power pickup holding	2.5 W 2.5 W	5 VA 3.7 VA	5 VA 3.7 VA
Type of connection	cable socket DIN 43650		
Duty cycle	100%		
Installation angle	any		
Actuation	opens with pressure spring closes electromagnetically		
Opening time[1] Closing time[1]	30 ms 30 ms		
Service life[2]	3 million cycles		
Tightness	$<1\times10^{-7}$ mbar l/s		
Venting time for 50 l vessel	270 s		
Pressure range	1×10^{-6} mbar … 2.5 bar (absolute)		
Flow direction in the event of a power failure	Pressure in the vacuum system <1 bar Flow direction If the pressure in the vacuum system is >2.5 bar, the valve remains closed.	Pressure in the vacuum system 1 … 2.5 bar Flow direction	
Temperatures ambiance solenoid coil ambiance 20 °C ambiance 50 °C bakeout housing actuator	0 °C … 50 °C ≤55 °C ≤80 °C <60 °C <50 °C		
Degree of protection	IP 65 according to DIN 40 050		
Materials housing armature pole tube pressure spring sealing profile filter protective lid packing	 aluminum steel brass steel NBR bronze PE carton box, foamed material		
Weight	0.1 kg		

[1] At a pressure difference Δp = 0 bar.
[2] Switching cycles under clean conditions.

Dimensions [mm]



Electrical connection
Gas inlet
Protective lid

Installation

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.

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.

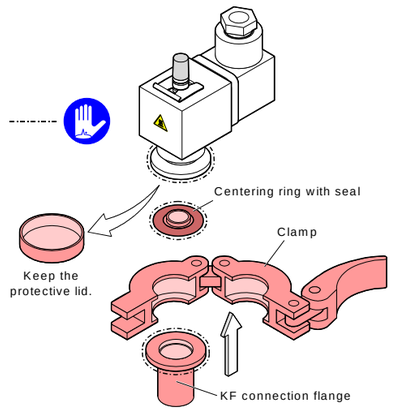
Caution

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 protective lid and connect the valve to the vacuum system using a small flange fitting.



Electrical Connection

Caution

Caution: supply voltage

Incorrect voltages can destroy the product.

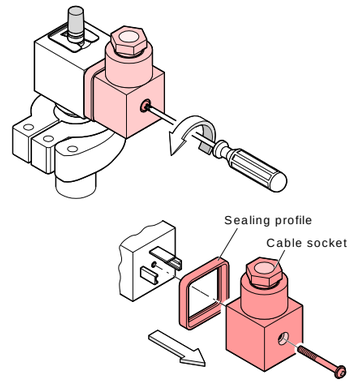
The rating of the supply voltage must correspond to the nominal voltage of the product (→ nameplate). If they do not correspond, exchange the solenoid coil (→ "Maintenance/Repair").

The cable must meet the following specifications:

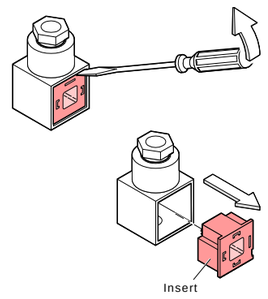
- flexible
- conductor cross section 0.75 mm²
- cable diameter ≤7 mm
- 3 poles with protective conductor

Procedure

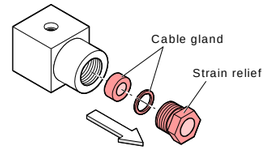
❶ Unfasten the screw and unplug the cable socket.



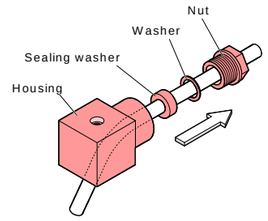
❷ Remove the insert.



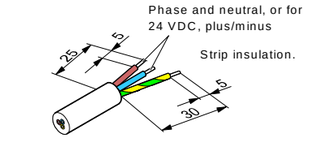
❸ Unscrew the strain relief and remove the cable gland.

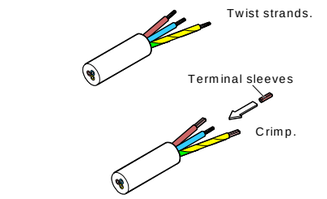


❹ Slide the nut, washer, sealing washer and housing on the cable.



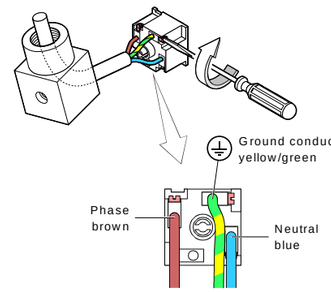
❺ Prepare the cable.



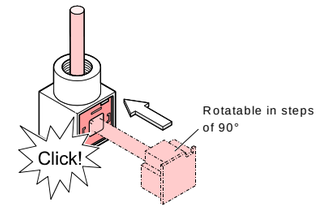


❻ Connect the cable.

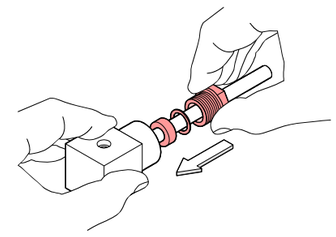
For the 24 VDC version, the polarity need not be taken into consideration.
For safety reasons, we recommend to connect the protective ground also to the 24 VDC version.



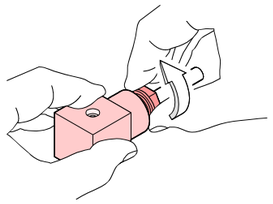
❼ Push the insert and in until it catches.



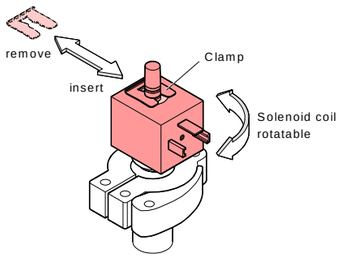
❽ Mount the cable gland and strain relief.



9 Tighten the strain relief.



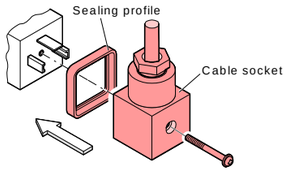
10 Remove the clamp and turn the solenoid coil so that the electrical connection is in the desired position. Fix it by inserting the clamp.

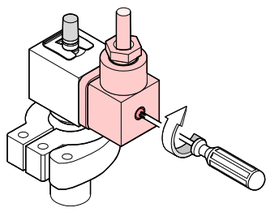


11 Mount the sealing profile. Plug in the cable socket and secure it with the screw.

Notice

To prevent interference with susceptible equipment near the solenoid coil, install the interference suppression kit (→ "Options") instead of the sealing profile.





12 Connect the cable to the power supply.

Before connecting or disconnecting the product, turn off the power supply.

Operation

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

DANGER

Caution: hot surface

Touching the hot surface (>55 °C) can cause burns.

Wear protective gloves.

Valve Positions

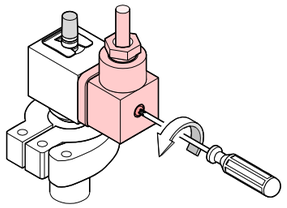
Valve closed: • Solenoid coil energized or • Power failure and p > 2.5 bar	Atmosphere Vacuum Pressure p
Valve open: • Power failure and p ≤ 2.5 bar	Atmosphere Vacuum Pressure p

Deinstallation

Electrical Connection

Before connecting or disconnecting the product, turn off the power supply.

Unlock the cable socket and unplug it.



Vacuum Connection

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

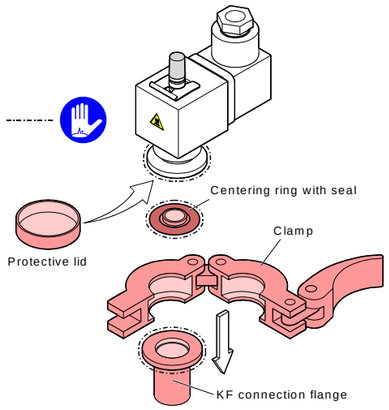
Caution: dirt sensitive area

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

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

The vacuum system must first be vented and the Power failure venting valve cooled down to <55 °C.

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



Maintenance, Repair

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.

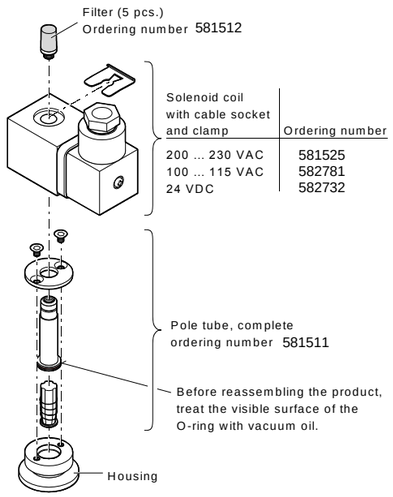
DANGER

Caution: 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 (→ "Technical Data").

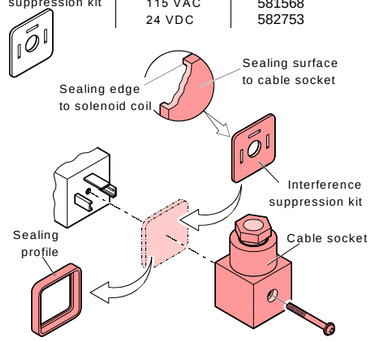
Clean parts (except solenoid coil with cable socket and clamp) in an ultrasonic bath or rinse with alcohol and dry with an industrial blower.



If venting takes considerably longer than before, replace the filter.

Options

Description	Nominal voltage	Ordering number
Interference suppression kit	230 VAC	581568
	115 VAC	581568
	24 VDC	582753



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 VAT 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. The form can be downloaded from our website www.vatvalve.com.

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.