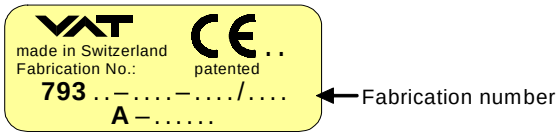
Beam Stopper Insert
with watercooling
with pneumatic actuator

This manual is valid for the valve ordering number(s):
79340-.E14/24/34/44
79344-.E14/24/34/44
79346-.E14/24/34/44
79348- .E14/24/34/44

The fabrication number is indicated on each product as per the label below (or similar):



Explanation of symbols:

Read declaration carefully before you start any other action!

Attention!

Product is in conformity with EC guidelines, if applicable!

Disconnect electrical power and compressed air lines. Do not touch parts under voltage!

Keep body parts and objects away from the valve opening!

Hot surfaces; do not touch!

Loaded springs and/or air cushions are potential hazards!

Wear gloves!

Read these **«Installation, Operating & Maintenance Instructions»** and the enclosed **«General Safety Instructions»** carefully before you start any other action!

Imprint:

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Contents:

1 Use of product

Use product for clean and dry indoor vacuum applications under the conditions indicated in chapter «Technical data» only! Other applications are only allowed with the written permission of VAT.

1.1 Technical data

Pressure range	extreme UHV to 1 bar (abs)
Admissible temperature:	
Pneumatic actuator	≤ 80°C
Position indicator	≤ 80°C (option: 200°C)
Solenoid	≤ 80°C
Absorber (with watercooling)	
max. beam load Ø < 60 mm	5 kW
max. beam load Ø > 60 mm	6 kW
max. density	25 W/mm^2
Quantity of cooling water	15 l / min
max. water pressure	8 bar
Mounting position	any
Position indicator: Contact rating	≤ 50 V AC / DC; ≤ 1.2 A (80°C version) ≤ 50 V AC / DC; ≤ 1 A (200°C version)
Solenoid	see tag on solenoid

2 Installation

2.1 Unpacking

Be careful during opening the boxes and nylon bag, do not contaminate the beam stopper.

Also pay attention that beam stopper and flange are not damaged when the valve get lifted out of the box and handled afterwards.

2.2 Installation into the system

The beam stopper bonnet flange is connected to the system.

2.2.1 Removal of transport protection

For safety reason the beam stopper insert is kept in open position during transport.

- version without solenoid: remove the locking screw which is attached to air connection «close»
- version with solenoid: connect air supply and do electrical connection according to this manual. Control the solenoid to open the valve and remove then the locking screw which is attached to connection «3» of the solenoid.

2.3 Connections

2.3.1 Compressed air connection

Compressed air may only be connected if
- beam stopper is installed into the vacuum system
- moving parts cannot be touched

Connection: internal thread R 1/8“ (1/8“ NPT for USA)

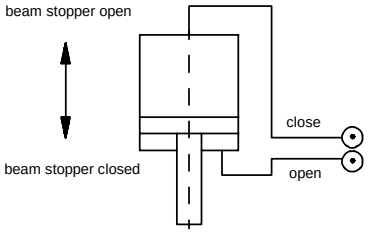
Connection for compressed air supply: ⊙

Compressed air pressure (min. - max. overpressure): 4 - 7 bar / 55 - 100 psig

Use only clean, dry or slightly oiled air!

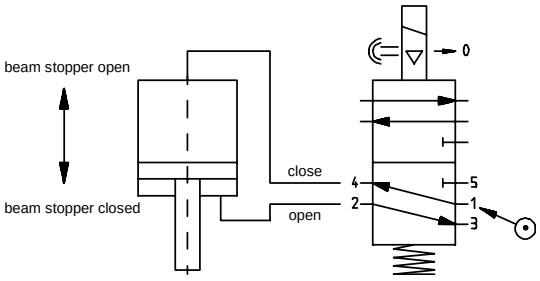
Wiring diagrams:

Without solenoid
Connections «open» and «closed» for air supply
Air supply first in closing direction!

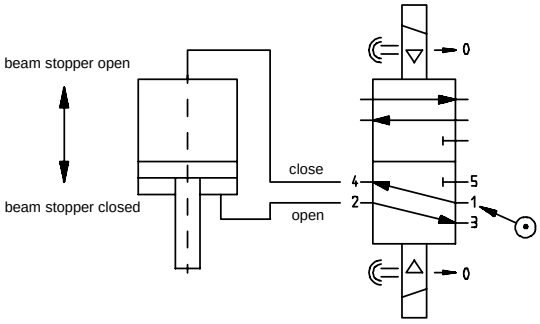


With solenoid or pneumatic box (series 80)
Connection «1» for air supply, connections «3» and «5» for exhaust

Standard solenoid



Solenoid for impulse actuation



2.3.2 Electrical connection

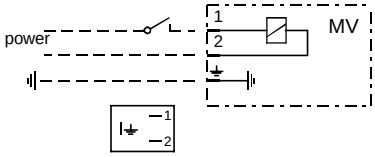
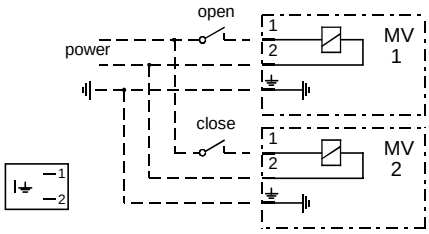
Do not touch electrical parts under voltage!

Connect electrical power only if
- beam stopper is installed into the vacuum system
- moving parts cannot be touched

Verify that control voltage matches voltage stated on the solenoid!
Socket for solenoid is supplied with the beam stopper.

Wiring diagrams:

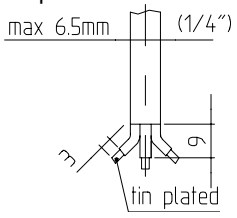
Solenoids

Standard solenoid	Solenoid for impulse actuation (option)
	
MV = coil of solenoid	MV = coil of solenoid Minimum pulse duration 50 ms

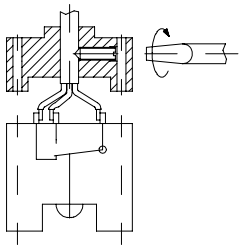
Position indicator

Cable connection to position indicator

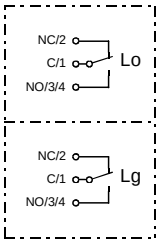
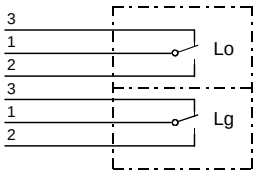
Prepare cable:



Connect cable:



a) Slide upper part on cable
b) Join strands by soldering
c) Slide upper part on lower part and tighten cable clamp
d) Screw upper part together with lower part on actuator

Position indicator for max. 80°C contact rating ≤ 50 V AC / DC; ≤ 1.2 A	Position indicator for max. 200°C contact rating ≤ 50 V AC / DC; ≤ 1 A (option)
Standard position indicator with double throw switches 	Position indicator with double throw switches 

2.3.3 Water cooling connection

Cooling water may only be connected if
- beam stopper is installed into the vacuum system

Connection: internal thread R ¼“ (¼“ NPT for USA)

Cooling water pressure:	max. 8 bar / 110 psig
Cooling water temperature:	max. 15°C (supply)
Quantity of cooling water:	min. 15 l / min

3 Operation

3.1 Normal operation

Opening of closed beam stopper

- without solenoid:
  - before beam stopper is opened — supply air pressure in closing direction
  - air supply to connection «open»
  - air release through connection «closed»
- with standard solenoid:
  - supply specified control voltage to the coil
- with impulse solenoid:
  - supply an impulse of specified control voltage to the coil for opening (pulse duration min. 50 ms)

Closing of open beam stopper

- without solenoid:
  - before beam stopper is closed — supply air pressure in opening direction
  - air supply to connection «close»
  - air release through connection «open»
- with standard solenoid:
  - release control voltage
- with impulse solenoid:
  - supply an impulse of specified control voltage to the coil for closing (pulse duration min. 50 ms)

3.2 Operation under increased temperature

Bake-out

Actuator:	80°C
Position indicator:	80°C (option: 200°C)
Solenoid:	80°C
Heating and cooling rate:	max. 80°C/h

3.3 Behavior in case of compressed air pressure drop

Beam stopper closed:	beam stopper position is undefined
Beam stopper open:	beam stopper position is undefined

3.4 Behavior in case of power failure

Standard solenoid:	beam stopper closes
Solenoid for impulse actuation (option):	beam stopper position does not change, a started movement will be completed

Emergency operation at power failure

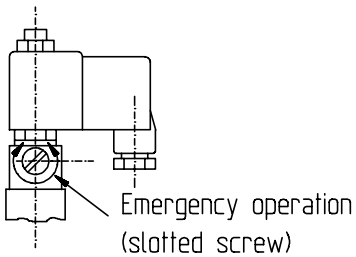
The solenoids have an emergency operation (slotted screw) to operate the beam stopper in case of a power failure (with compressed air available)

Standard solenoid

To close the beam stopper:
Turn the slotted screw counter-clockwise to its stop

To open the beam stopper:
Turn the slotted screw clockwise to its stop

For remote operation make sure that the slotted screw is turned counter-clockwise to its stop.

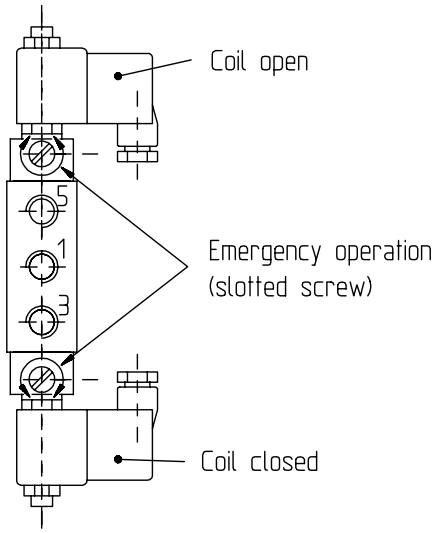


Solenoid for impulse actuation

To close the beam stopper:
Turn the slotted screw (coil «closed») counter-clockwise to its stop. If the valve is closed, turn the screw back to its original position.

To open the beam stopper:
Turn the slotted screw (coil «open») counter-clockwise to its stop. If the beam stopper is open, turn the screw back to its original position.

For remote operation make sure that both slotted screws are turned clockwise to their stop (original position).



4 Trouble shooting

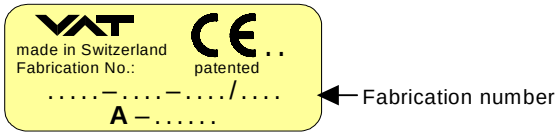
Failure	Check	Action
Mechanism does not move	Compressed air pressure available?	Check compressed air pressure!
	Power available?	Check voltage!

If you need any further information, please contact one of our service centers. You can find the addresses on our website: http://www.vat.ch

5 Maintenance & repairs

Under clean operating conditions, the valve does not require any maintenance during the specified cycle life. Contamination from the process may influence the function and requires more frequent maintenance.

Before carrying out any maintenance or repairs, please contact VAT. It has to be individually decided whether the maintenance/repair can be performed by the customer or has to be carried out by VAT. The fabrication number on the valve



has always to be specified.

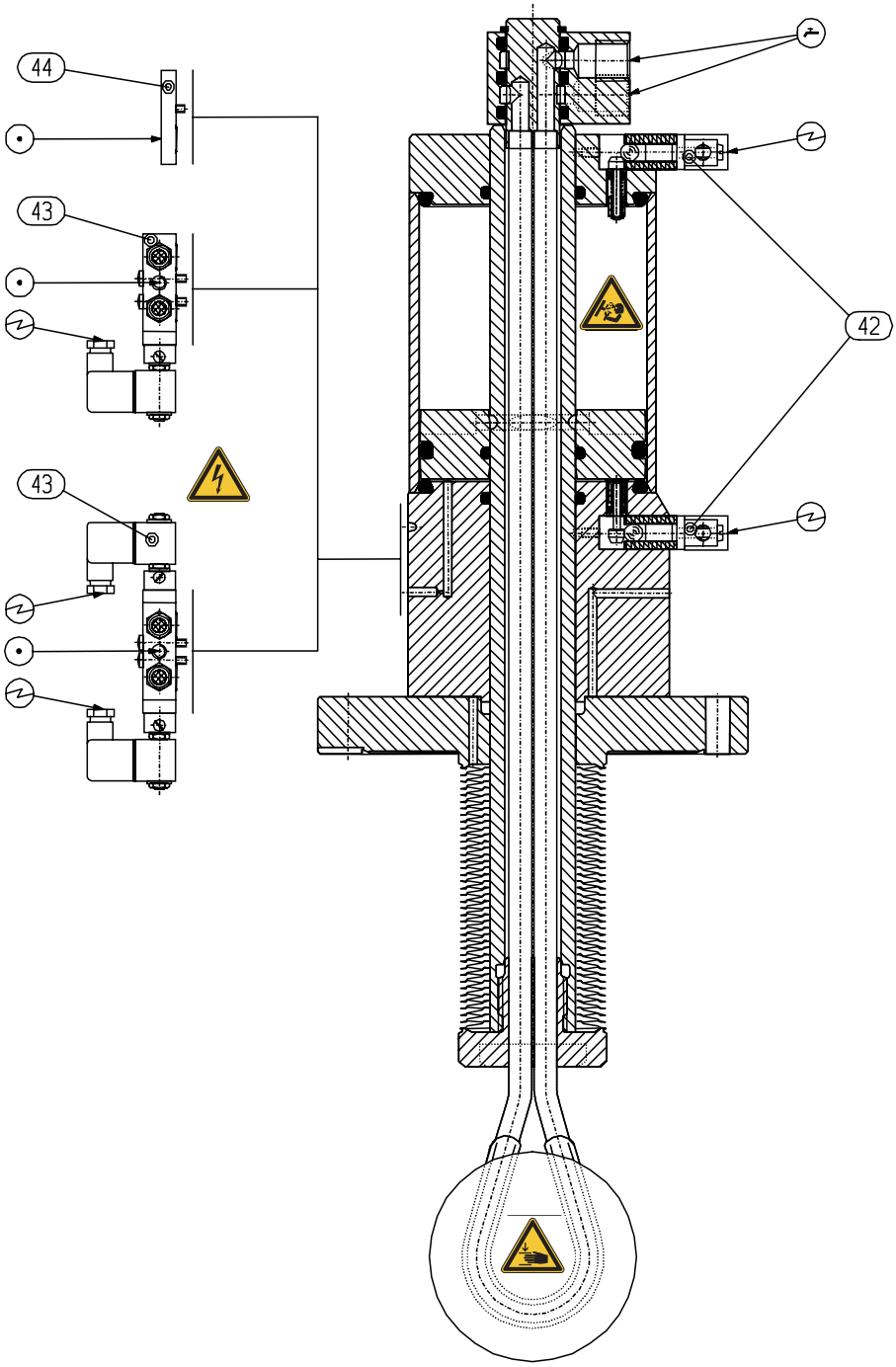
All supplies (e. g. compressed air, electrical power) must be disconnected for removal/installation of the valve from/into the system and for maintenance work.

Even with disconnected supply, loaded springs and/or air cushions in cylinders can be potential hazards.

Keep fingers and objects away from the valve opening!

Products returned to VAT must be free of harmful substances such as e.g. toxical, caustic or microbiological ones. If products are radioactively contaminated, fill in the VAT form «Contamination and Radiation Report» and send it with the product. The form is available at VAT. The maximum values indicated in the form must not be exceeded.

6 Drawing



7 Spare parts

Please specify the **fabrication number of the valve** (see yellow label on valve) when ordering spare parts. This is to ensure that the appropriate spare parts are supplied.

Item numbers refer to the drawing on page 11.

	Description	**Part / Ordering No.**			
		DN 100	DN 160	DN 200	DN 250
	Pneumatic seal kit, consisting of all elastomer seals inside the pneumatic actuator:	89260-R1	89260-R1	89260-R1	89260-R1

8 Warranty

Each product sold by VAT Vakuumventile AG (VAT) is warranted to be free from the manufacturing defects that adversely affect the normal functioning thereof during the warranty period stated in VAT's «Terms of Sale» immediately following delivery thereof by VAT, provided that the same is properly operated under conditions of normal use and that regular, periodic maintenance and service is performed or replacements made, in accordance with the instructions provided by VAT. The foregoing warranty shall not apply to any product or component that has been repaired or altered by anyone other than an authorized VAT representative or that has been subject to improper installation or abuse, misuse, negligence or accident. VAT shall not be liable for any damage, loss, or expense, whether consequential, special, incidental, direct or otherwise, caused by, arising out of or connected with the manufacture, delivery (including any delay in or failure to deliver), packaging, storage or use of any product sold or delivered by VAT shall fail to conform to the foregoing warranty or to the description thereof contained herein, the purchaser thereof, as its exclusive remedy, shall upon prompt notice to VAT of any such defect or failure and upon the return of the product, part or component in question to VAT at its factory, with transportation charges prepaid, and upon VAT's inspection confirming the existence of any defect inconsistent with said warranty or any such failure, be entitled to have such defect or failure cured at VAT's factory and at no charge therefor, by replacement or repair of said product, as VAT may elect. VAT MAKES NO WARRANTY OR REPRESENTATION OF ANY KIND, EXPRESS OR IMPLIED, (INCLUDING NO WARRANTY OR MERCHANTABILITY), EXCEPT FOR THE FOREGOING WARRANTY AND THE WARRANTY THAT EACH PRODUCT SHALL CONFORM TO THE DESCRIPTION THEREOF CONTAINED HEREIN, and no warranty shall be implied by law.

Furthermore, the «Terms of sale» at the back of the price list are applicable.