



## Fast closing valve with pneumatic actuator

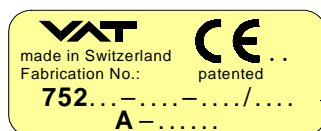
This manual is valid for the valve ordering number(s):

75232-CE44- . . . .

75232-UE44- . . . .

75234-KE44- . . . .

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



← Fabrication number



Explanation of symbols:



Read declaration carefully before you start any other action!



Attention!



Product is in conformity with EC guidelines!



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!



Installation, Operating & Maintenance Instructions  
**Series 75.2, DN 40 (I.D. 1 ½")**

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**Contents:**

1	Use of product .....	3
1.1	Technical data .....	3
2	Installation .....	4
2.1	Unpacking .....	4
2.2	Installation into the system .....	4
2.2.1	Admissible forces .....	4
2.3	Connections .....	5
2.3.1	Compressed air connection .....	5
2.3.2	Electrical connection .....	6
3	Operation .....	7
3.1	Normal operation .....	7
3.2	Operation under increased temperature .....	8
3.2.1	Disassembling of the trigger unit for bake out .....	8
3.3	Behavior in case of compressed air pressure drop .....	8
3.4	Behavior in case of power failure .....	8
4	Trouble shooting .....	9
5	Maintenance & repairs .....	9
5.1	Replacement of actuator/gate assembly .....	10
6	Drawing .....	11
7	Spare parts .....	12
8	Warranty .....	12



## 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

Leak rate	
- Body	$< 5 \cdot 10^{-10} \text{ mbar ls}^{-1}$
- Seat	$< 1 \cdot 10^{-9} \text{ mbar ls}^{-1}$
Molecular flow conductance	160 ls <sup>-1</sup>
Pressure range	1 · 10 <sup>-10</sup> mbar to 1,2 bar (abs)
Differential pressure on the gate	1,2 bar in either direction
Max. differential pressure at opening	30 mbar (1 bar with reduced cycle life)
Cycles until first service	2000 under clean operating conditions
Bake-out temperature	
- Valve	200°C (Trigger unit dismantled)
- Actuator	50°C
Temperature difference seat/gate	< 40°C
Heating and cooling rate	< 80°C h <sup>-1</sup>
Material	
- Body	1.4301, AISI 304
- Mechanism	1.4310, AISI 301
- Bellows	AM350, AISI 636
Seal	
- Bonnet	metal
- Gate	Viton
Mounting position	any
Electrical connection	12-pole plug
Position indicator: contact rating	5A/250 V AC, 3A/50 V DC
Compressed air connection	R 1/8" (1/8" NPT for USA)
Compressed air pressure (overpressure)	4 – 5 bar / 60 – 70 psig
Volume of air cylinder	0.2 l / .007 ft <sup>3</sup>



## Installation, Operating & Maintenance Instructions

### Series 75.2, DN 40 (I.D. 1 1/2")

Solenoid (opening)	
- Supply voltage	24V DC
- Power required	2.5 W
Closing time	< 10 ms
Opening time	7 s
Weight	2 kg / 4.5 lbs

## 2 Installation

### 2.1 Unpacking



Be careful during opening the boxes and nylon bag, do not contaminate the valve.  
Pay attention that valve and flanges are not damaged when the valve is lifted out of the box and handled afterwards.

### 2.2 Installation into the system

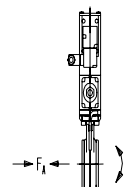
Tighten mounting screws of the flanges uniformly in crosswise order. Observe the maximum torque of 9 Nm / 6.5 lbf · ft for CF flanges.

#### 2.2.1 Admissible forces

Forces from evacuating the system, from the weight of other components, and from baking can lead to deformation of the valve body and to malfunction of the valve. The stress has to be relieved by suitable means, e.g. bellows sections. The following forces are admissible:

Axial tensile or compressive force «FA»: 500 N / 112 lbf  
Bending moment «M»: 30 Nm / 22 lbf · ft

If a combination of both forces («FA» and «M») occurs, the values mentioned above are invalid. Please contact VAT for more information.





## 2.3 Connections

### 2.3.1 Compressed air connection



- Connect compressed air only if
- valve has been installed into the vacuum system
  - moving parts cannot be touched

Connect compressed air to **p** (internal thread R 1/8", 1/8" NPT for USA)

Compressed air pressure (min. - max. overpressure): 4.5 - 7 bar / 65 - 100 psi

Use only clean, dry or slightly lubricated air!

Commercially available water separators and filters have to be installed.

Compressed air pressure: See „Technical data“ and label attached to valve.

The air lines have to be flushed or even cleaned before they are connected to the valve.

Only clean compressed air may be used for flushing the air lines and for operating the valve.

To avoid malfunctions of the solenoid, we recommend to seal the thread of the compressed air inlet with liquid plastic (e.g. Loctite) and not by means of Teflon ribbon or similar fibrous material.

### 2.3.2 Electrical connection



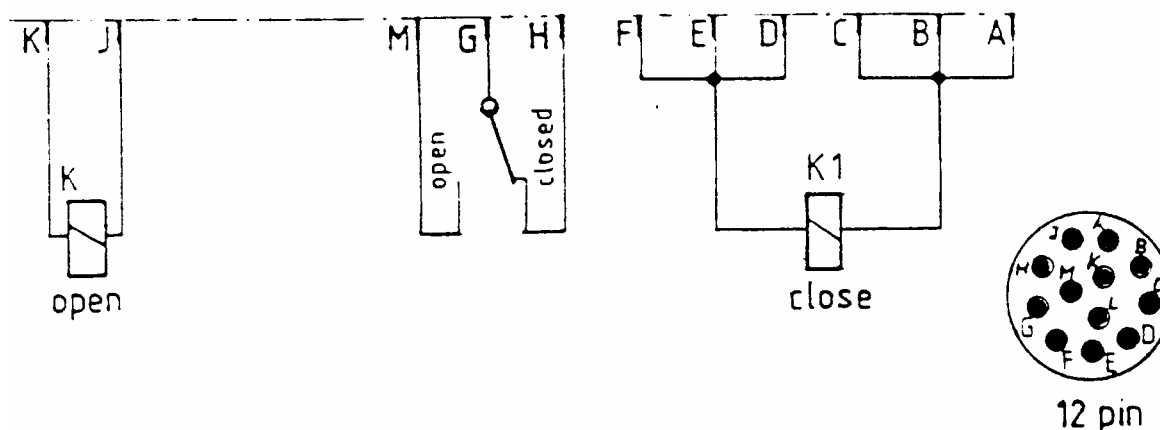
Do not touch any electrically charged parts!



Connect electrical power only if

- valve has been installed into the vacuum system
- moving parts cannot be touched

Electrical connection between fast closing valve and controller is performed by a single connection cable according to the following drawing.



Before the controller is connected to the mains make sure that

- the voltage set inside the controller matches the mains voltage (see label near mains socket)
- the opening of the valve is completely free and the plate can move without obstruction

**Note:** The controller has to be disconnected from the mains before it is disconnected from or connected to the valve.



## 3 Operation

### 3.1 Normal operation



Warning: Keep fingers and objects away from the valve opening!

The fast closing valve series 75.2 may only be operated by the controller VF-2 (series 77). Start-up and operation of the complete system is described in a separate manual.

The valve is closed and opened by compressed air. The valve is kept in the open position by a latch in the actuator. The cylinder is permanently maintained under compressed air pressure.

Closing is initiated by electromagnetically releasing the latch. After releasing, the compressed air pressure acts immediately on the cylinder. This results in an extremely short closing time. The final stage of closing is pneumatically dampened.

To open the valve, the cylinder is actuated by compressed air via a solenoid. The cylinder is engaged with the latch and pressurized again at the end of the opening movement.

### 3.2 Operation under increased temperature

See «1.1 Technical data»

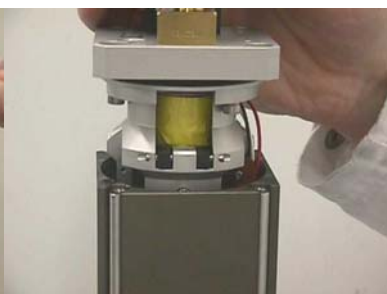
The temperatures specified in the technical data must not be exceeded. Temperature differences exceeding 40°C between gate and seat must be avoided.

#### 3.2.1 Disassembling of the trigger unit for bake out

1. Close the valve and disconnect compressed air pressure (valve is in undefined position).
2. Then remove the screws as it is shown in pic. 1.
3. Now it is possible to remove the trigger unit (pic. 2).
4. To assemble the trigger unit after the bake out you have to proceed in revers order.
5. Connect compressed air pressure and open the valve.



pic. 1



pic. 2

### 3.3 Behavior in case of compressed air pressure drop

Valve open: No change (valve remains open and can no more be closed)

Valve closed: Valve does not remain leaktight (opens slightly; cannot be opened completely until compressed air is available again)

We recommend to use an emergency air reservoir at the compressed air input.

### 3.4 Behavior in case of power failure

The behaviour at power failure can be set inside the controller, either for «no change» or «valve closes».





## 4 Trouble shooting

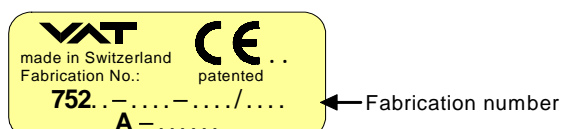
Failure	Check	Action
Valve does not close/open	Power available?	Check Power supply
	Compressed air available?	Check compressed air connection/pressure
Leak at the gate	Correct compressed air pressure?	Check compressed air connection/pressure
		Clean valve seat
		Clean gate seal
		Replace gate seal
Leak at the valve body	Flange seal leaktight?	Check flange seal
	Bonnet seal leaktight?	Check bonnet seal
	Screws at bonnet tightened?	Check closing torque of bonnet srews

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.

## 5.1 Replacement of actuator/gate assembly

The figures in brackets refer to the drawing on page 11

### a) Removal of actuator/gate assembly

1. Vent vacuum chambers on either side of valve
2. Open valve
3. Disconnect compressed air
4. Disconnect electrical power
5. Remove compressed air line and socket (28/4) for electrical connection
6. Remove screws (28/19) from bonnet
7. Withdraw actuator/gate assembly carefully from body and put it on a clean place

### b) Installation of actuator/gate assembly

8. Check and clean sealing surfaces of bonnet and valve seat
9. Put new bonnet seal «VATSEAL» (28/10) on body or bonnet (depending on mounting position)

**Attention:** Bordering of 2 bore holes must be on the body side!

10. Insert actuator/gate assembly carefully. At first, insert two screws (28/19) and tighten them slightly only at both centering holes (bordering) of the bonnet seal VATSEAL (28/10). Afterwards, tighten all screws (28/19) uniformly in diagonal crosswise order, in 2 or 3 steps, by means of the supplied hexagon pin spanner.

**Notice!** A suitable torque wrench with the appropriate hexagonal insert to tighten the screws (torque: 9 Nm) is available from VAT (see Spare parts).

11. Connect socket (28/4)
12. Connect compressed air
13. Perform function and leak test

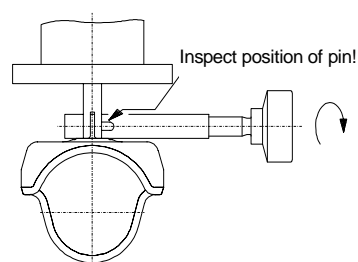
Valve is ready for operation

## Replacement of gate

The figures in brackets refer to the drawing on page 11

1. Press out pin (28/22) by means of tool
2. Take new gate (28/2) and press in new pin (supplied with new gate) by using the same tool

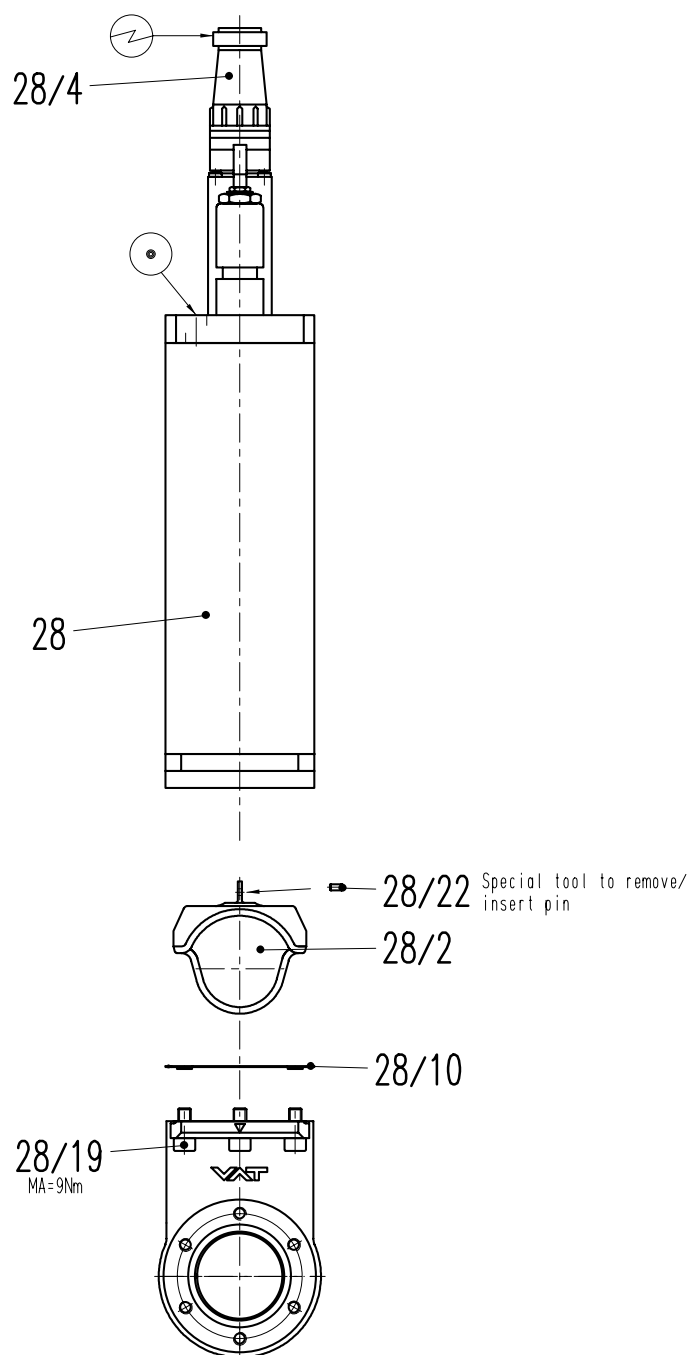
**Attention:** Inspect position of pin in the opening. The pin must be flush with the valve shaft!



## Replacement of bonnet seal

See «Removal and installation of actuator/gate assembly» page 10.

## 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.

The items numbers refer to the drawing on page 11.

Item	Description
28	actuator with gate
28/2 + 28/22	gate compl. with dowel pin <sup>1)</sup>
28/4	actuation compl.
28/10	seal VATSEAL rectangular <sup>1)</sup>
28/19	socket head screw coated

<sup>1)</sup> A complete seal kit consists of gate with pin (item 28/2+28/22) and bonnet seal VATSEAL (item 1).  
Ordering number of seal kit: «D»- in front of ordering number of valve (e.g. D-75232-UE84)

## 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.