

## Fast Closing Shutter with double acting pneumatic actuator

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

77332 - . E44

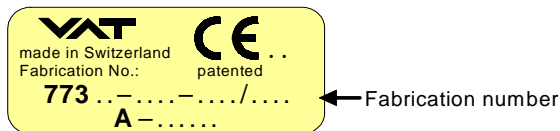
77336 - . E44

77340 - . E44

77344 - . E44



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!



Keep body parts and objects away from the valve opening!



Attention!



Hot surfaces; do not touch!



Product is in conformity with EC guidelines, if applicable!



Loaded springs and/or air cushions are potential hazards!



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



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 773, DN 40 - 160 (I.D. 1 ½ - 6")**

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**Imprint:**

**Manufacturer** VAT Vakuumventile AG, CH-9469 Haag, Switzerland

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## 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  $< 1 \times 10^{-10} \text{ mbar/ls}^{-1}$
- Valve seat  $< 1 \text{ mbar ls}^{-1}$

Pressure range UHV to 1.2 bar (abs)

Admissible temperatures

- 
- Body  $\leq 300^\circ\text{C}$
- Actuator  $\leq 50^\circ\text{C}$

Further data according to VAT catalogue «VAT Vacuum Valves 2008».

## 2 Installation

### 2.1 Unpacking

Installation must be carried out according to standard high vacuum practice and sealing surfaces and edges must not be damaged.

The shutter has to be installed with the seat side into direction of the vacuum system (opposite air inrush). The seat side is indicated by a "▽" marking on the plate.

### 2.2 Installation into the system

The valve must not support other components and has to be protected from forces of the system (e.g. by bellows sections).

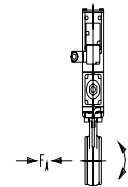
#### 2.2.1 Admissible forces

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 connections



Connect compressed air only if  
 - valve 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: (see drawing on page 7)

Compressed air pressure (min. - max. overpressure): 4 - 6 bar / 55 - 85 psig

Use only clean, dry or slightly lubricated air!

### 2.3.2 Electrical connection



Do not touch electrical parts under voltage!

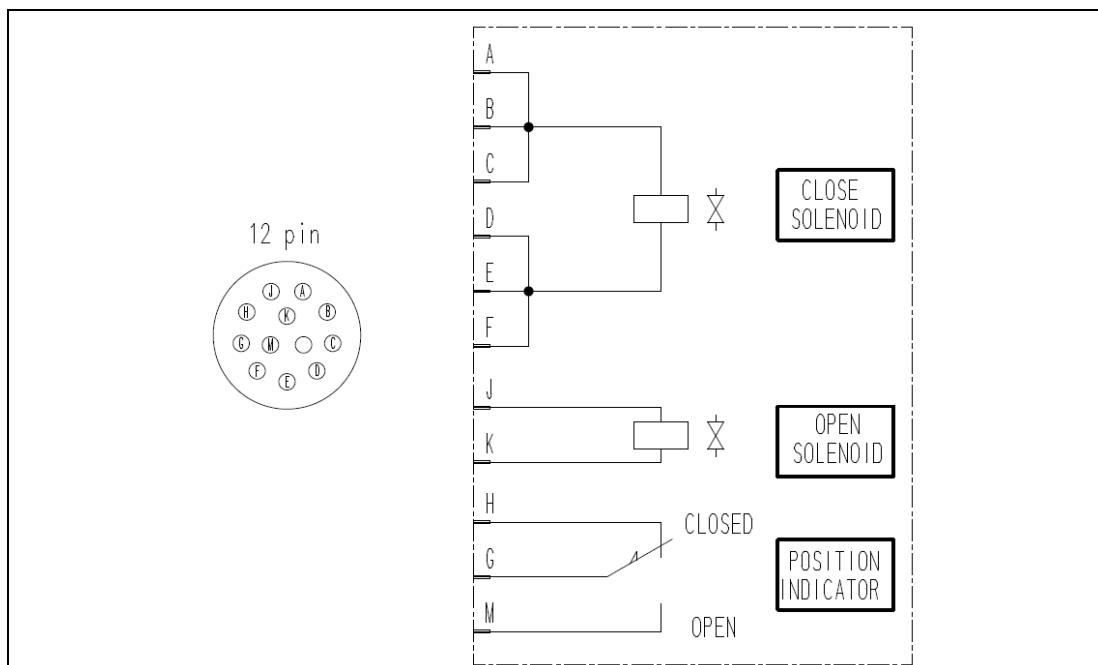


Connect electrical power only if  
 - valve is installed into the vacuum system  
 - moving parts cannot be touched

Verify that mains voltage matches voltage stated on the solenoid!

Sockets for position indicator and solenoid are supplied with the valve.

### 2.3.3 Electrical connection





### 3 Operation

The Fast Closing Shutter series 77.3 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 pressure. The cylinder is permanently maintained under compressed air pressure.

Closing is initiated by a solenoid, which releases a latch. The result is an extremely short closing time. The final stage of closing is pneumatically dampened.

#### 3.1 Operation under increased temperature

See «1.1 Technical data»

#### 3.2 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.

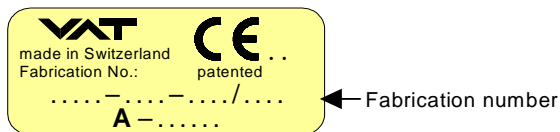
#### 3.3 Behavior in case of power failure

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

## 4 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.

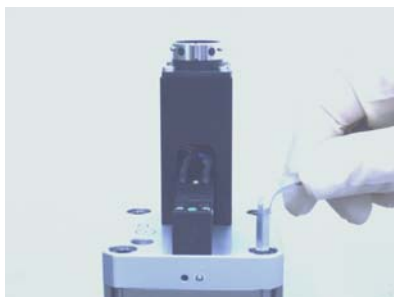


Keep fingers and objects away from the valve opening!

Products returned to VAT must be free of harmful substances such as e.g. toxic, 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.

### 4.1 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 reverse order.
5. Connect compressed air pressure and open the valve.

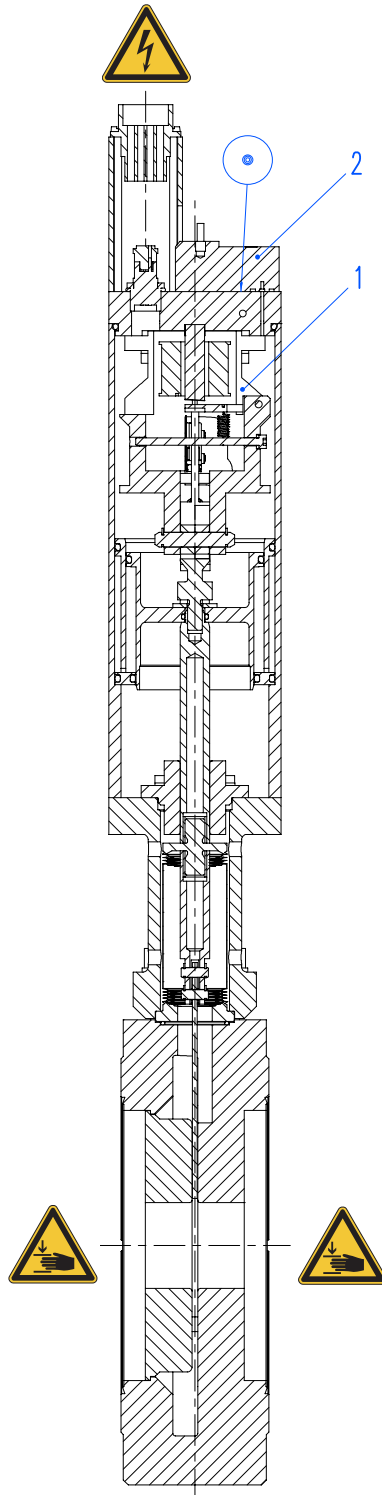


pic. 1



pic. 2

## 5 Drawing







## 6 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 8.

Item	Description	Qty	Part Number
1	Actuation complete	1	346959
2	Solenoide 3/2 way	1	348886

## 7 Warranty

Each product sold by VAT Vakuumentile 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.

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