

## All-Metal Gate Valve

manual actuator

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

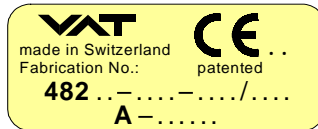
**48236- . E01/05/08**

**48240- . E01/05/08**

**48244- . E01/05/08**



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!



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 482, DN 63-160 (I.D. 2 1/2 -6")**

---

**Imprint:**

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

Website  
www.vatvalve.com

Phone  
+41 81 771 61 61

Fax  
+41 81 771 48 30

Email  
CH@vatvalve.com

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

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

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

**Copyright** © VAT Vakuumventile AG 2008

No part of these Instructions may be reproduced in any way (photocopies, microfilms or any other reproduction processes) nor may it be manipulated with electronic systems, duplicated or distributed without written permission from VAT. Offenders are liable to pay damages.

The original VAT firmware and updated state of the art versions of the VAT firmware are intended for use with VAT products. The VAT firmware contains a limited, time unlimited user license. The VAT firmware may not be used for purposes other than those intended nor is it permitted to make copies of the VAT firmware. In particular, it is strictly forbidden to give copies of the VAT firmware to other people.

The use of trade names, brand names, trademarks, etc. in these Instructions does not entitle third parties to consider these names to be unprotected and to use them freely. This is in accordance with the meaning of the laws and acts covering brand names and trademarks.



**Contents:**

1	Use of product .....	4
1.1	Technical data .....	4
2	Installation.....	4
2.1	Unpacking .....	4
2.2	Installation into the system.....	4
2.3	Connections .....	5
2.3.1	Electrical connections (for valves with position indicator) .....	5
3	Operation .....	6
3.1	Operation under increased temperature .....	6
3.2	Bake out.....	6
4	Trouble shooting .....	6
5	Maintenance & repairs .....	7
6	Drawing.....	8
7	Spare parts .....	9
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

Pressure range	extreme UHV to 2 bar (abs)
Differential pressure on the gate	1 bar in either direction
Max. differential pressure at opening	500 mbar, 1 bar with reduced cycle life
Admissible temperature: Valve	≤ 300°C open and closed
Manual actuator	≤ 140°C (option 200°C)
Position indicator (option)	≤ 80°C or 200°C
Position indicator: Contact rating	≤ 50 V AC / DC; ≤ 1.2 A (80°C version) ≤ 50 V AC / DC; ≤ 1 A (200°C version)

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

## 2 Installation

### 2.1 Unpacking



Be carefull during opening the boxes and nylon bag, do not contaminate the valve.  
Also pay attention that valve and flanges are not damaged when the valve is lifting out of the box and handled afterwards.

### 2.2 Installation into the system

Remove protection flanges only prior assembly into the vacuum system!

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

## 2.3 Connections

### 2.3.1 Electrical connections (for valves with position indicator)



Do not touch any electrically charged parts!



Electrical power may only be connected if  
 - valve has been installed into the vacuum system  
 The suitable sockets are supplied with the valve.

Wiring has to be performed according to the following diagrams:

#### Position indicators for max. 80°C — contact rating ≤ 50 V AC / DC; ≤ 1.2 A

<p>Standard position indicator with make contact switch</p> <p>Lo = position indicator «open»              Lg = position indicator «closed»</p>	<p>Double position indicator with make contact switches - two each (option)</p> <p>Lo = position indicator «open»              Lg = position indicator «closed»</p>
<p>Position indicator with double throw switches (option)</p> <p>Lo = position indicator «open»              Lg = position indicator «closed»</p>	<p>Double position indicator with double throw switches - two each (option)</p> <p>Lo = position indicator «open»              Lg = position indicator «closed»</p>

#### Position indicators for max. 200°C — contact rating ≤ 50 V AC / DC; ≤ 1 A

<p>Single position indicator (option)</p> <p>Lo = position indicator «open»              Lg = position indicator «closed»</p>	<p>Double position indicator (option)</p> <p>Lo = position indicator «open»              Lg = position indicator «closed»</p>
---	---



## 3 Operation

### 3.1 Operation under increased temperature

See «1.1 Technical data»

### 3.2 Bake out

Valve:  $\leq 300^{\circ}\text{C}$  in open and closed position

Actuator:  $\leq 140^{\circ}\text{C}$  (option  $\leq 200^{\circ}\text{C}$ )

Position indicator (option):  $\leq 80^{\circ}\text{C}$  or  $\leq 200^{\circ}\text{C}$

Heating and cooling rate:  $50^{\circ}\text{C/h}$

Operate the valve only after the bake-out temperature has been stable for two hours. If actuation during bake-out is required, the heating and cooling rate from  $100^{\circ}\text{C}$  to  $300^{\circ}\text{C}$  must not exceed  $10^{\circ}\text{C/h}$ .

Temperature differences exceeding  $30^{\circ}\text{C}$  throughout the valve are not allowed. They may affect the performance of the valve.

## 4 Trouble shooting

Whistling sound during opening/closing:      When operating at atmosphere (not recommended):  
No reason for concern

When operating at vacuum:  
No reason for concern unless the sound gets extensive

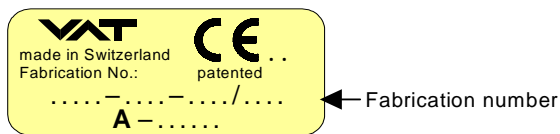
If you need any further information, please contact one of our service centers. You can find the addresses on our website:  
<http://www.vat.ch>



## 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.



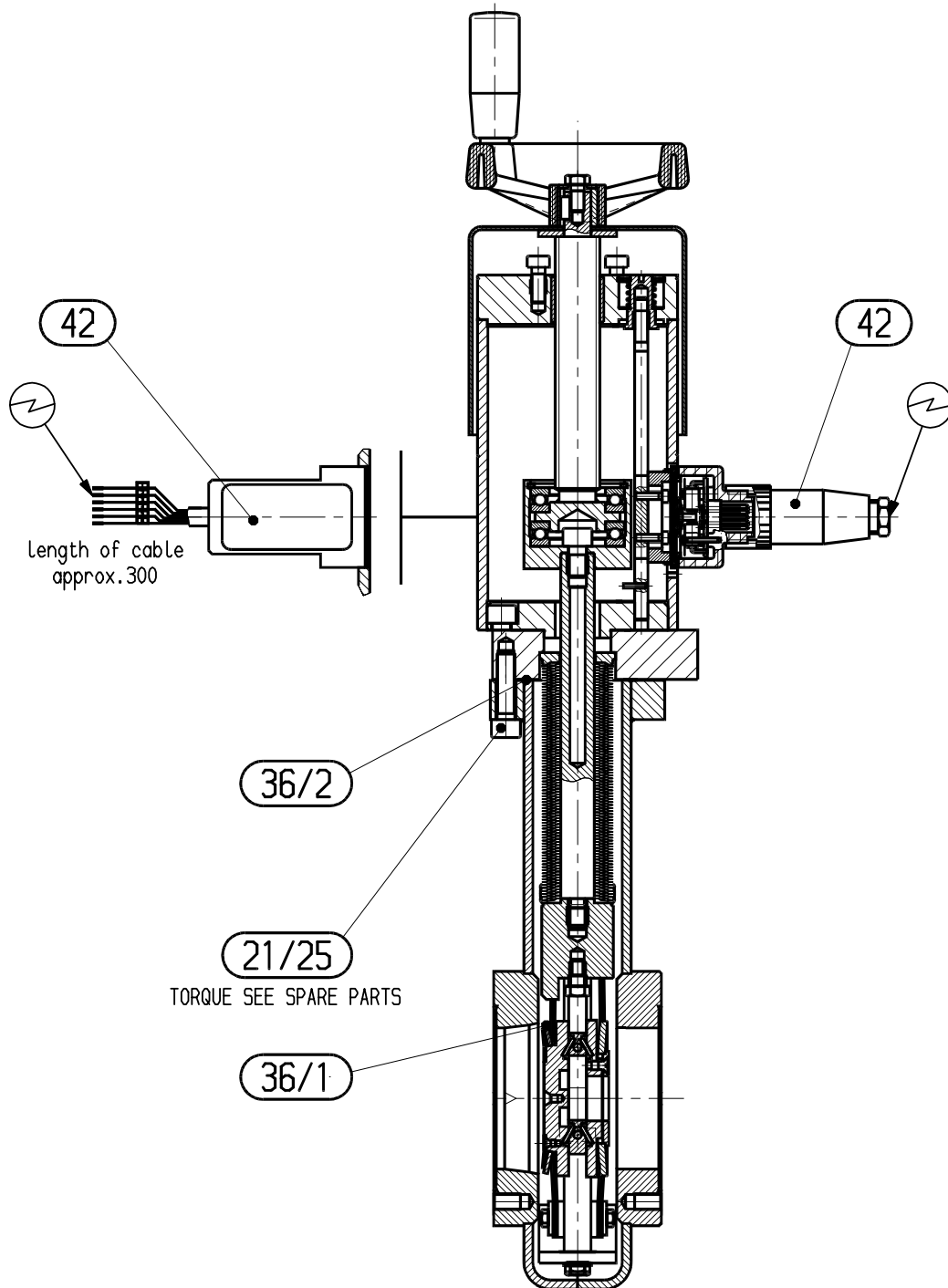
Even with disconnected supply, loaded springs and/or air cushions in cylinders can be potential hazards.



Keep fingers and objects away from the valve opening!

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

## 6 Drawing







## 7 Spare parts

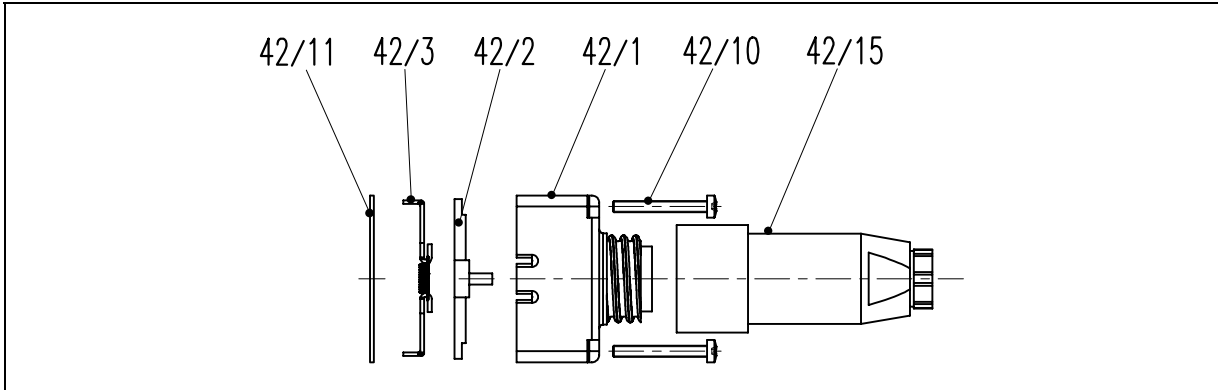


Please specify the **fabrication number of the valve** (see yellow label on valve) when ordering spare parts. This is to ensure that the appropriate spare parts are supplied.

The item numbers refer to the drawing on page 8.

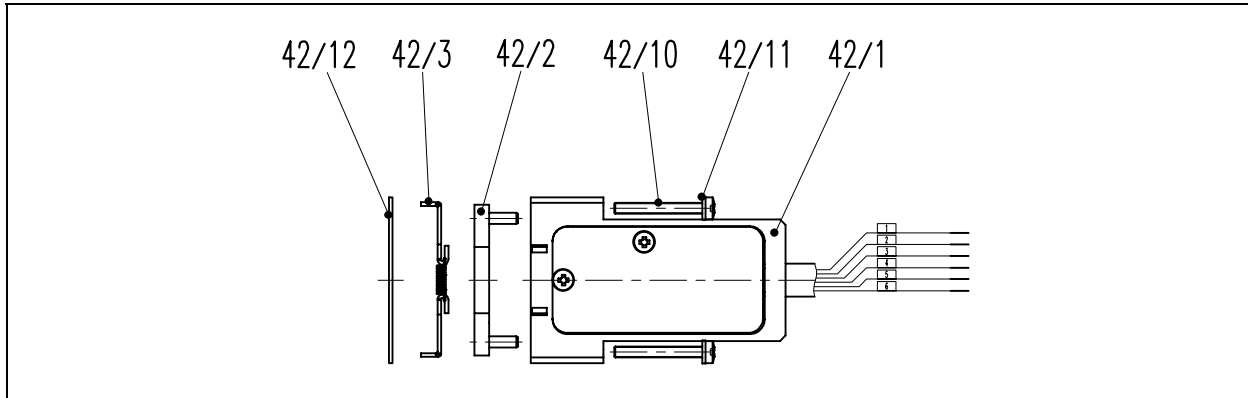
Item	Description	Qty	Part / Ordering number		
			DN 63	DN 100	DN 160
21/25	Treated hexagon socket head cap screw	10	224837		
		14		224837	224837
	required torque of bonnet screw		20 Nm	24 Nm	24 Nm
36/1	VATRING	1	39615-01	39986-01	35774-01
36/2	VATSEAL	1	247767	247768	247769
	Vacuum seal kit, consisting of VATRING (36/1) and VATSEAL (36/2)		D-48236-.... (80989-R1)	D-48240-.... (81458-R1)	D-48244-.... (83884-R1)

**Position indicators 80°C (single) in various versions**



Item	Description	Version	Qty.	Part No.
			single	
42	BS Mini position indicator	make contact switches	1	204103
		double throw switches	1	204241
		make contact radiation resistant	1	204246
		double throw radiation resistant	1	204247
42/1	Position indicator	make contact switches	1	71852-R1
		double throw switches	1	70606-R1
		make contact radiation resistant	1	80075-R1
		double throw radiation resistant	1	83954-R1
42/2	Slider		1	69846-01
42/3	Driving piece		1	69428-R1
42/10	Screw		4	N-6024-531
42/11	Plate		1	74803-01
42/15	Socket		1	N-8504-002

**Position indicators 200°C (single)**



Item	Description	Version	Qty.	Part No.
			single	
42	BS Mini position indicator	double throw switches	1	327966
42/1	Position indicator		1	241824
42/2	Slider		1	241825
42/3	Driving piece		1	69428-R1
42/10	Screw		4	N-6024-532
42/11	Spring ring		4	N-6160-406
42/12	Plate		1	74803-01



## 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.