

## ORIGINAL OPERATION, MAINTENANCE AND ASSEMBLY INSTRUCTION

### BOTTOM VALVE

**Important!**

Read these instructions carefully  
before initial operation!

## IMPRINT

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BURGMER



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## 1 Introduction

The valves described below are type tested and fulfil the requirements of DIN EN 14433:2006 “Tanks for the transport of dangerous goods. Tank equipment for the transport of dangerous goods. Tank equipment for the transport of liquid bitumen. Foot valves”. The following standards were also applied: DIN EN 10213, DIN EN 10222-5, DIN EN 10028-2 and AD-2000 Regulation.

**Name and address of notified body:**  
TÜV Nord Systems GmbH & Co. KG  
Technikzentrum  
Langemarck Str. 20  
45141 Essen

Testing specifications are detailed in the accompanying manufacturer’s declaration. In case of use outside Germany, the operating company is responsible for ensuring the compliance with all national regulations.

### **ATTENTION!**

The valves are not suitable for use in potentially explosive atmospheres (according to - ATEX-regulation 2014/34/EU!

For the application range of the Pressure Equipment Directive – DGRL 2014/68/EU, only valves which bear a CE marking can be used! (observe category!)

### **ATTENTION!**

When removing and / or disguising our nameplate, all guarantee and liability will expire. If the nameplate is replaced by the customer, it is his responsibility to ensure the traceability of the product!

It is not allowed to remove or replace nameplates of valves provided with CE markings!

The use of these operating instructions requires a proper qualification by the user. Please refer to chapter 4.4 “Qualified staff”

Operating staff is to be instructed according to operating instructions.

These instructions shall help you to install, operate and maintain the bottom valves and provide you with all the necessary information for performing these tasks.

**They should be read and kept very carefully. Hints and warnings must be strictly observed!**

## ATTENTION!

The following symbols are used to indicate warnings and other important notes in these operating instructions:



Gefahr  
Danger

Means that death, severe body injuries or considerable material damage **will** ensue if the corresponding precautions are not taken.



Warnung  
Warning

Means that death, severe body injuries or considerable material damage **may** ensue if the corresponding precautions are not taken.



Vorsicht  
Caution

Means that light body injuries or material damage may ensue if the corresponding precautions are not taken.

**These operating instructions are subject to technical improvements and alterations at any time.**

## 2 Description

Bottom valves can be used solely for shutting off, conduction or adjustment of materials such as UN 1999 Tars, liquid; UN 3256 elevated temperature liquid, flammable, n.o.s.; UN 3257 elevated temperature liquid, n.o.s.. Bottom valves are installed into tanks as described in chapter "1. Introduction"



**ATTENTION! Valves are provided with the predetermined breaking point required by EN 14433:2006 at their outlet flange!**

**The bottom valve is actuated by a disengageable hand wheel. The hand wheel is always to be disengaged once the valve is closed! Used materials are specified in test-examination report and under chapter "8. Annex" of these instructions.**

The applications listed above are grouped below under the term "system".

### 2.1 Validity of these operating instructions

**These operating instructions are valid for all BURGMER bottom valves of type BV-B designed for use in the areas described under chapter "1. Introduction".**

Included are the following different types of design:

Bottom valves

- without actuation provided by manufacturer
- manual actuation
- foreign operated (pneumatic-/ electric driven)

### 2.2 Responding documents

The offer/work order form drawn up for each bottom valve as well as all pertinent documents are an integral part of the internal documentation.

It contains the following information:

- medium / pressure / temperature / state of aggregation
- temperature class
- identification no. of operator or facility (if required)
- nameplate(s)
- manufacturer's declaration according to DIN EN 14433:2006
- technical information concerning the bottom valve and its application

Further responding documents are:

- Assembly, operating and maintenance instructions for all specified attached parts
- Declarations of manufacturer and certificates of conformity

### 2.3 Marking of bottom valves

All bottom valves are marked according to DIN EN 19. The information is located on the casing or on a nameplate.

|                          |                                     |  |
|--------------------------|-------------------------------------|--|
| BURGMER Apparatebau GmbH |                                     | Refer to imprint in operating instructions for address                               |
| Type                     | e.g. BV-B                           | Type of bottom valve   |
| Serial-No                | e.g. 218XXXX-1                      | Digits 1-7: Burgmer order no., digits 8-9: item no.                                  |
| Date                     | e.g. 2018                           | Date of manufacture  |
| DN                       | numerical value 100                 | Diameter of the valve  |
| MWP                      | numerical value 2,5 bar             | <b>max. permitted working pressure (in bar). At temperature range -20°C / +250°C</b> |
| TS                       | numerical value e.g. -20°C / +250°C | Upper / lower temperature limit  |
| Body                     | e.g. 1.4301                         | Body material  |
| Disk                     | e.g. 1.4301                         | Valve disk material  |
| Seat                     | e.g. PTFE                           | Material of inner coating / sealing  |
|                          | DIN EN 14433:2006                   | Note on the test basis   |

### 3 Intended use



**The noncompliance with the precautions described in this chapter may endanger the life of the user and cause damage in the system.**

Once incorporated into the system, the bottom valves are to be used only for shutting off, conduction or adjustment.

The bottom valves are exclusively intended for the application range described in the documentation enclosed to order (order/commission number).

It is not permitted to use the bottom valves for other purposes than those described in the specification.

**Don't exceed by any means the permitted pressure and temperature range of the valves!**

**Don't exceed by any means the permitted temperature class.**

**Chapter 4 "Safety hints" is to be strictly observed.**

## 4 Safety hints

### 4.1 General safety hints



Warnung  
Warning

The safety hints applying to the system, into which the bottom valve is incorporated, apply also to the bottom valve itself.

These operating instructions provide only safety hints to be observed additionally for the bottom valves. Please ensure to read and observe also the enclosed operating and maintenance instructions of the attached parts.

### 4.2 Safety hints for operator

Compliance with the safety hints as listed below lies within the sole responsibility of the operator:

- Please take care to observe all safety regulations valid for the country of operation and / or the operating company.
- The bottom valve is to be used solely for the intended purpose as described in chapter 3 “Intended use”.
- The whole system must be installed and checked periodically by qualified staff. (Refer to chapter 4.4 “Qualified staff”)
- **Appropriate measures are to be taken to avoid human extremities being entrapped by moving parts of the system!**
- **Warning signs or barriers must be put up if necessary!**
- **An accidental starting or stopping of the system is strictly to be avoided!**
- Additional pipeline forces or torques acting on the bottom valves are not permitted and must be previously agreed with the manufacturer.
- The correct function of safety appliances provided by the customer (e.g. emergency stopping, safety valves, etc.) is to be verified and ensured prior to start-up!
- The bottom valves are to be started up only when fully incorporated into the system and only by qualified staff of the operating company.
- Abnormal working conditions like vibrations, cavitation, water hammers, etc. are not permitted.
- In case of operating temperatures below -20°C or above +50°C, the valve is to be provided with a protection against accidental contact.



Warnung  
Warning



Warnung  
Warning





- **ATTENTION! Don't exceed by any means the max. permitted torques indicated in item 8.1 "Torques"!**

We point out, that there are still risks for the user of bottom valves, even if they are designed and manufactured with the highest possible care. Nevertheless, damage to persons and parts can only be a result of improper handling.

#### 4.3 Special hazards

- **Please ensure to eliminate completely any pressure existing in the system before removing the bottom valve or unscrewing any bolted connections on the attached parts.**
- Please ensure to evacuate completely any medium to prevent any escapes when removing the bottom valve. Proceed with special care in case of hazardous or harmful substances!

**ATTENTION!**

**Residues may accumulate in any parts of the system and the dead spaces in the valves.**



#### 4.4 Qualified staff

Must be individuals familiarized with transport, assembly, initial operation, operation and maintenance of valves and provided of the proper qualification for their activities and duties.

This qualification includes, among others:

- Indoctrination and commitment to comply with all national, local and internal requirements and provisions.
- Indoctrination or training, in accordance to safety standards, in the proper use and care of the reasonable safety and personal protective equipment.

## 5 Transport and storage



**Bottom valves are to be handled, transported and stored with absolute care (protected against shocks, impacts and vibrations)!**

Storage and transport temperature must be within the range of  $-20^{\circ}\text{C}$  to  $+40^{\circ}\text{C}$ .

**ATTENTION! Don't store the valves in aggressive atmosphere.**

The bottom valves should be transported in their protective packaging to the place of incorporation.

## 6 Assembly, initial operation, handling, disassembly

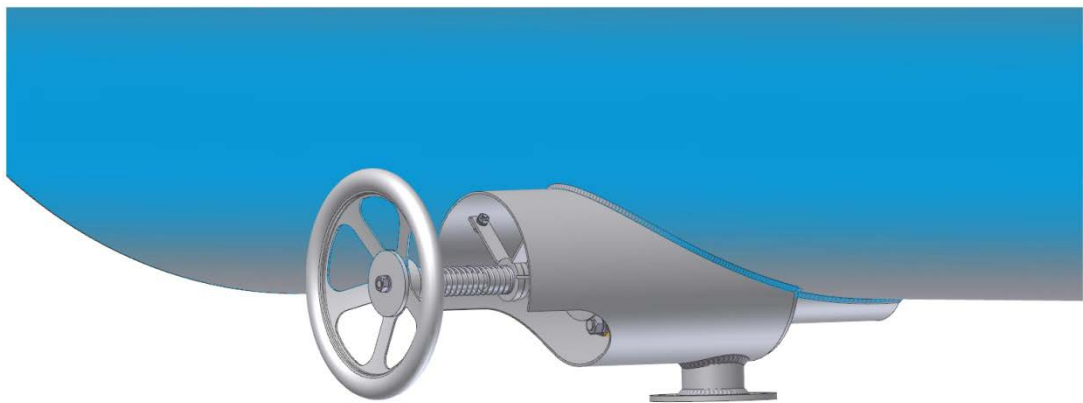


### SAFETY HINTS!

**Read chapters 3 "Intended use" and 4 "Safety hints" before starting to assemble and/or disassemble the bottom valve.**

### 6.1 Assembly

BURGMER bottom valves are to be installed in tanks. To that end, the valve's casing is to be welded into the tank as shown in the following image. Position of installation must be the container's lowest spot.



### INSTALLATION INSTRUCTIONS!



- Check the bottom valves for transportation damages. Don't install the valves if it's damaged.
- **Make sure to install only bottom valves, which technical specifications (permitted pressure, temperature class, etc.) fulfil the installation requirements.**
- **Adopt suitable measures to ensure the valve's casing is not deformed during welding.**

## 6.2 Initial operation phase

**ATTENTION! Prior to commissioning, it must be ensured that the system contains no foreign objects!**



Warnung  
Warning

A test run without product must be always performed first!

Refer to item 6.5 “Troubleshooting” in case of leaks on the bottom valve!

The bottom valve may only be used after a successful test run has been performed.

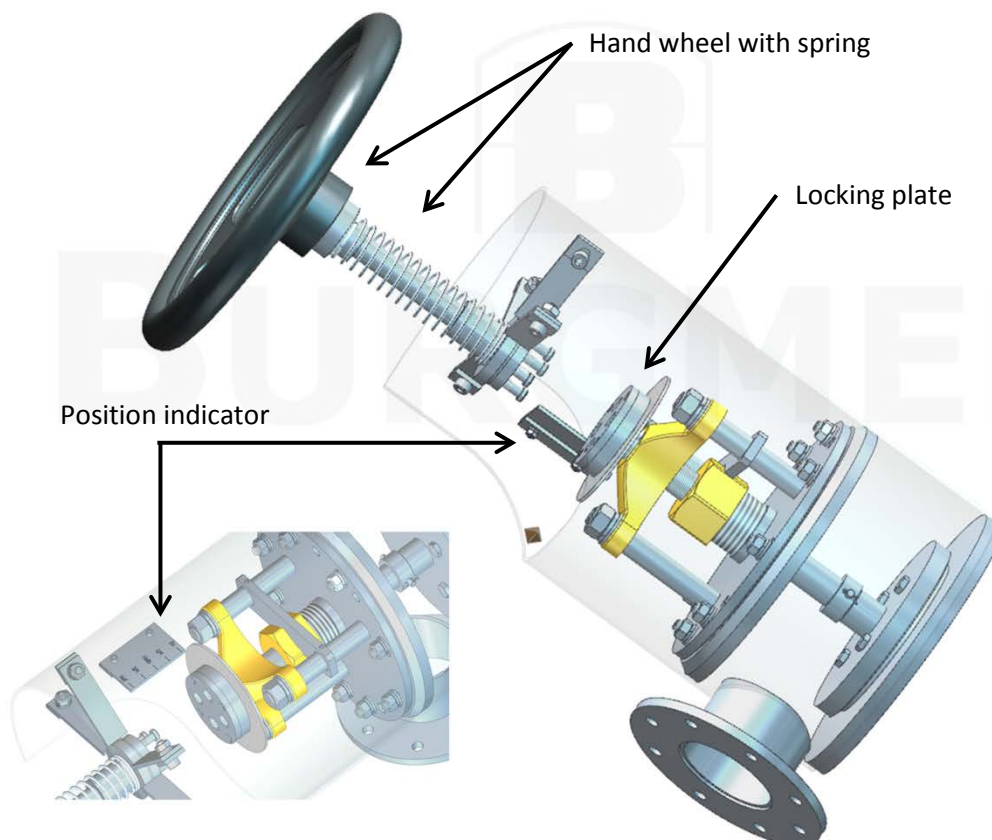
## 6.3 Handling



Vorsicht  
Caution

In order to open or close the valve, hand wheel has to be pushed previously approximately 10 cm against the spring load and locked into the locking plate (following image). The valve can be opened or closed now by turning the hand wheel depending on the position of the sealing plate (check to that end position indicator under hand wheel). Normal hand force is sufficient for manual operation. The functioning of the valve can be monitored through an optical position indicator.

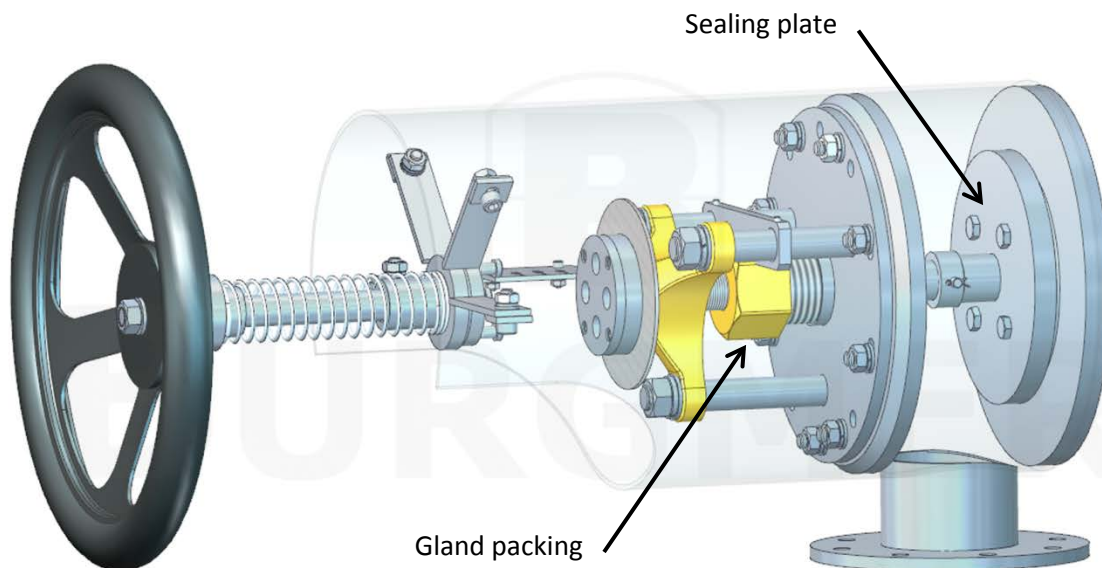
**ATTENTION! It is not permitted to use extensions to increase actuation torque!**



#### 6.4 Servicing of valve's inner parts



**IMPORTANT! BURGMER Bottom valves require special servicing of gland packing and sealing plate (refer to the following image). Gland seal of arbor is to be retorqued at periodic intervals. A special wrench can be ordered for that purpose from BURGMER. Exchange packing if post-tensioning of packing is no longer possible. Exchange also seal in sealing plate if sealing plate does not seal any longer.**



##### 6.4.1 Switching off the system

The following points are to be observed mandatorily in addition to the measures indicated in item 6.1 "Assembly":

- Relieve pressure in pipeline
- Let the medium cool-off
- Empty plant completely
- Ventilate the pipeline in case of corrosive, aggressive, toxic or inflammable media.

**Bottom valves must be duly shut down by "qualified staff" in accordance to the valid occupational safety regulations of country of operation before disassembly.**



## 6.5 Troubleshooting

| Failure                  | Reason                                       | Elimination   |
|--------------------------|--|---|
| Leakage at gland packing | Gland packing does not have required tension | <ul style="list-style-type: none"> <li>• Post tension packing using special wrench</li> </ul> |
| Leakage at gland packing | Gland packing is worn out                    | <ul style="list-style-type: none"> <li>• Replace gland packing</li> </ul>                     |
| Sealing plate is leaky   | PTFE seal is damaged                         | <ul style="list-style-type: none"> <li>• Replace PTFE seal</li> </ul>                         |

**ATTENTION!** Observe the safety hints listed in chapter 4 when performing works of any kind on the bottom valve!

## 7 Maintenance

**RECOMMENDATION!** Extensive maintenance and repair should be done by the manufacturer in order to avoid costs of stand-still

A grease nipple is located on the spindle nut. Relubricate once a month with approximately 1 stroke of the grease gun.



**ATTENTION!** When detecting a defect on a valve or its attachments, the system is to be shut down immediately and restarted only after elimination of defect!

### 7.1 Safety hints



**Any kind of work on the bottom valves should be done only by "qualified staff" (refer to chapter 4.4)!**

**Before starting to work, inform the safety officer.**

- **Protect bottom valves against inadvertent operation! Hand wheel must be always disengaged once bottom valve is closed.**
- **Do not grasp into the open bottom valve!**
- **Before doing extensive maintenance works on the bottom valves the tank must be discharged.**
- **Avoid after-running of product by closing stop valves or taking other convenient actions.**



## 7.2 Inspection list and maintenance works

| Action                              | weekly | monthly (every 4-5 weeks) |
|-------------------------------------|--------|---------------------------|
| Visual control of gland packing     | ●      |                           |
| Checking sealing plate for leakages | ●      |                           |
| Relubricate spindle nut             |        | ●                         |
| Check hand wheel lock               |        | ●                         |

## 8 Annex

### 8.1 Permitted internal working pressure "MWP" of bottom valves

Amounts to 2,5 bar at temperature range -20°C / +250°C



**ATTENTION! Do not use valve under a higher pressure!**

### 8.2 Material compatibility of valve

| Diameter DN | casing | disk   | sealing |
|-------------|--------|--------|---------|
| 100         | 1.4301 | 1.4301 | PTFE    |