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## Operating instructions

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### Bronze shut-off valves





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**READ CAREFULLY BEFORE USE! RETAIN FOR FUTURE REFERENCE!**

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**Table of contents**

|   |                                 |    |
|---|---------------------------------|----|
| 1 | About these instructions .....  | 1  |
| 2 | Safety .....                    | 1  |
| 3 | Transport and storage .....     | 3  |
| 4 | Description of the valves ..... | 4  |
| 5 | Assembly.....                   | 8  |
| 6 | Operation .....                 | 8  |
| 7 | Maintenance and service.....    | 8  |
| 8 | Disassembly and disposal .....  | 10 |

# 1 About these instructions

## 1.1 Principles

The operating instructions are part of the valve named on the front page.




## 1.2 Applicable documents

| Document       | Contents                  |
|----------------|---------------------------|
| Catalogue page | Description of the valves |

For accessories, refer to the respective manufacturer's documentation.

## 1.3 Hazard levels

The warning notes are marked and classified according to the following hazard levels:

| Symbol   | Explanation   |
|--|---|
|  <b>DANGER</b>  | Identifies a hazard with a high risk level that will result in death or serious injury.     |
|  <b>WARNING</b> | Identifies a hazard with a moderate risk level that will result in death or serious injury. |
|  <b>CAUTION</b> | Identifies a hazard with a low risk level that will result in a minor or moderate injury.   |
| <b>NOTICE</b>  | Identifies a risk to property. Damage to property may occur if this notice is ignored.      |

# 2 Safety

## 2.1 Intended use

The valves are intended for installation in a pipework system in order to block media or allow them to pass through within the permissible operating conditions. The permissible operating conditions are specified in these operating instructions.

The valve is suitable for the media listed in these operating instructions; see section 4.5 "Media".

Operating conditions and applications deviating from these require the approval of the manufacturer.

Only media may be employed to which the materials used for the valve body and seals are resistant.

Contaminated media or usage outside of the pressure and temperature specifications can lead to damage to the valve body and seals.

### Avoidance of foreseeable incorrect use

- ▶ Never exceed the permissible usage limits specified in the data sheet or in the documentation with regard to pressure, temperature, etc.
- ▶ Follow all safety instructions and operating procedures in these operating instructions.

## 2.2 Meaning of the operating instructions

The operating instructions are to be read and followed by the responsible technical personnel before installation and start-up. As part of the valve the operating instructions must always be available close to it. People could be seriously injured or killed if the operating instructions are not followed.

- ▶ Read and observe the operating instructions before using the valve.
- ▶ Retain the operating instructions and make sure they are available.
- ▶ Pass on the operating instructions to subsequent users.

## 2.3 Requirements to people who work with the valves

People could be seriously injured or killed if the valves are used improperly. In order to avoid accidents, all persons who work on the valve must meet the following minimum requirements.

- They are physically capable of controlling the valve.
- They can safely carry out the work with the valve within the scope of these operating instructions.
- They understand the operating principles of the valve within the scope of their work and are able to recognise and avoid the hazards of the work.
- They have understood the operating instructions and are able to implement the information of the operating instructions accordingly.

## 2.4 Personal protective equipment

Missing or unsuitable personal protective equipment increases the risk of damage to health and injuries to people.

- ▶ The following protective equipment is to be provided and worn during work:
  - Protective clothing
  - Safety shoes
- ▶ Define and use additional protective equipment depending on the application and the media:
  - Safety gloves
  - Eye protection
  - Ear protection
- ▶ Wear the specified personal protective equipment for all work on the valve.

## 2.5 Additional equipment and spare parts

Additional equipment and spare parts not conforming to the manufacturer's requirements can negatively affect the operational safety of the valve and cause accidents.

- ▶ In order to ensure operational safety, use original parts or parts that conform to the manufacturer's requirements. If in doubt, have these confirmed by the dealer or manufacturer.

## 2.6 Adhere to the technical thresholds

If the technical thresholds for the valve are not adhered to, the valve may sustain damage, accidents may be caused and people may be seriously injured or killed.

- ▶ Adhere to the thresholds. See section "4 Description of the valve".

## 2.7 Safety instructions

### **DANGER**

#### **Hazardous medium.**

Escaping operating medium can lead to poisoning, burns and caustic burns!

- ▶ Wear the prescribed protective equipment.
- ▶ Provide suitable collecting containers.

#### **Slipping of the valves out of the suspensions.**

Danger to life from falling parts!

- ▶ Do not suspend valves by the handwheel.
- ▶ Note the weight specifications and the centre of gravity.
- ▶ Only use suitable and approved load handling equipment.

### **WARNING**

#### **Harmful and/or hot/cold conveyed media, lubricants and fuels**

Hazardous for persons and the environment!

- ▶ Collect and dispose of rinsing medium and any residual media.
- ▶ Wear protective clothing and a protective mask.
- ▶ Observe legal regulations regarding the disposal of harmful media.

## **⚠️ WARNING**

### **Risk of injury if maintenance work is done incorrectly!**

Incorrect maintenance can lead to serious injury and considerable material damage.

- ▶ Before the start of work, ensure there is sufficient room for doing the work.
- ▶ Ensure the space around the work is tidy and clean! Parts and tools in loose piles or lying around are hazard sources.
- ▶ If parts have been removed, take care to assemble correctly and re-install all attachment items.
- ▶ Before putting back into service, ensure:
  - All maintenance work has been carried out and completed.
  - There are no persons in the hazard area.
  - All covers and safety devices are installed and operating correctly.

## **⚠️ CAUTION**

### **Cold/hot pipelines and/or valves.**

Risk of injury due to thermal influences!

- ▶ Insulate valves.
- ▶ Attach warning signs.

### **Medium escaping at high speed and high/low temperature.**

Risk of injury!

- ▶ Wear the prescribed protective equipment.

## **NOTICE**

### **Impermissible stresses arising from operating conditions and extensions / added structures.**

Leakage or rupture of the valve body!

- ▶ Provide suitable support.
- ▶ Additional loads, such as traffic, wind or earthquakes, are not explicitly taken into account by default and require separate dimensioning.

### **Condensation in air conditioning, cooling and refrigeration plants.**

Icing!

Blocking of the actuation mechanism!

- ▶ Damage due to corrosion!
- ▶ Insulate valves with diffusion-tight material

### **Improper installation.**

Damage to the valves!

- ▶ Remove cover caps before installation.
- ▶ Clean the sealing surfaces.
- ▶ Protect the body against impacts.

### **Painting of valves and pipelines.**

Functional impairment of the valves / loss of information!

- ▶ Protect spindle, plastic parts and type plate against the application of paint.

### **Impermissible stress**

Damage to the control mechanism!

- ▶ Do not use the valve as a foothold.

### **Exceeding the maximum permissible operating conditions.**

Damage to the valves!

- ▶ The maximum permissible operating pressure must not be exceeded, and the minimum and maximum permissible operating temperatures must be observed.

## **3 Transport and storage**

### **3.1 Inspection of condition on delivery**

- ▶ Inspect the valves for damage upon receipt.  
In case of transport damage, determine and document the precise extent of the damage, and report it immediately to the supplying dealer/carrier and the insurer.

## 3.2 Transportation

- ▶ Transport the valve in the packaging supplied.  
The valves are delivered ready to operate with body ends protected by cover caps.
- ▶ Protect the valve against shocks, impacts, vibrations and dirt.
- ▶ Adhere to a transport temperature range of -20 °C to +65 °C.

## 3.3 Storage

- ▶ Store the valves in a clean and dry place.
- ▶ Make use of a desiccant or heating in damp storerooms to prevent the formation of condensation.
- ▶ Adhere to a storage temperature range of -20 °C to +65 °C.

## 4 Description of the valves

Refer to the respective catalogue page for further detailed information.

### 4.1 Structure

#### Design 09320/09420

Non-automatically opening and closing, straight pattern gate valves with flange connection.

| Component       | Design  |
|-----------------|---|
| Body            | Straight pattern  |
| Bonnet          | Flanged, without spindle thread<br>Bolted, without spindle thread |
| Actuator        | Non-rising stem   |
| Obturator       | Wedge, metallic sealing   |
| Spindle bushing | Non self-sealing, gland   |
| Body end        | With flange connection conforming to DIN EN 1092-3                |


#### Design 03021

Non-automatically opening and closing, straight pattern globe valves with flange connection.

| Component       | Design   |
|-----------------|--|
| Body            | Straight pattern                                   |
| Bonnet          | Bolted, with spindle thread                        |
| Actuator        | Rising stem  |
| Obturator       | Disc with seal made of non-metallic materials      |
| Spindle bushing | Non self-sealing, gland                            |
| Body end        | With flange connection conforming to DIN EN 1092-3 |

### 4.2 Marking

The valves are provided with an individual marking for identification.

| Symbol  | Explanation  |
|---|--|
| PN.....   | Nominal pressure (max. permissible operating pressure) |
| DN.....   | Nominal size   |
|  | Manufacturer's mark "HEROSE"                           |
| e.g. EN 12288   | Standard   |
| e.g. CC491K   | Material   |

### 4.3 Mode of operation

Flanged gate valves are used to completely open or close the entire cross-sectional area of flow. They are not suitable for the precise regulation of the quantity of fluid flowing through. In the fully opened state they provide virtually no flow resistance.

Globe valves are used for the controlled opening or closing of flow apertures or pipelines. They regulate the flow of fluids in fluid and gas installations.

These valves are preferably used for media such as transformer oil at max. 6 bar and max. 120 °C and non-flammable, non-toxic fluids.



#### 4.4 Operating data

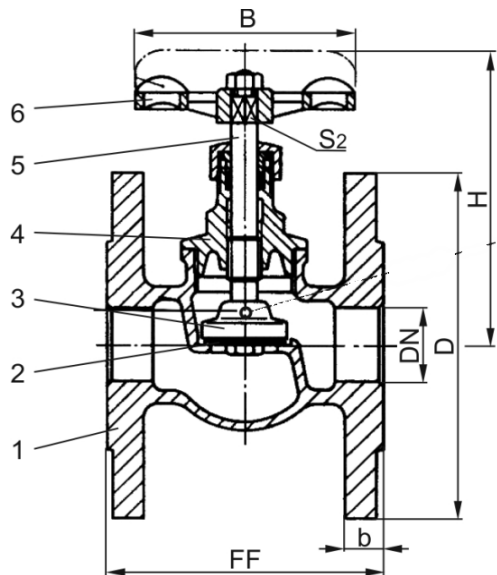
| Valve | Nominal size | Temperature       | Max. perm. operating pressure        |
|-------|--------------|-------------------|--------------------------------------|
| 03021 | DN20 - 50    | -10 °C to +80 °C  | 16 bar                               |
|       |              | -10 °C to +120 °C | 10 bar                               |
|       |              | -10 °C to +160 °C | 6 bar                                |
| 09061 | DN20 - 80    | -10 °C to +120 °C | 16 bar                               |
|       |              | -10 °C to +150 °C | 10 bar                               |
|       |              | -10 °C to +200 °C | 6 bar                                |
| 09320 | DN100 - 150  | -50 °C to +120 °C | 16 bar<br>6 bar with transformer oil |
|       | DN200 - 250  |                   | 10 bar<br>6 bar with transformer oil |
| 09420 | DN25 - 100   | -50 °C to +120 °C | 16 bar<br>6 bar with transformer oil |

#### 4.5 Media

| Name                             |
|----------------------------------|
| Transformer oil                  |
| Non-toxic, incombustible liquids |
| Gases                            |
| Vapours                          |

#### 4.6 Materials

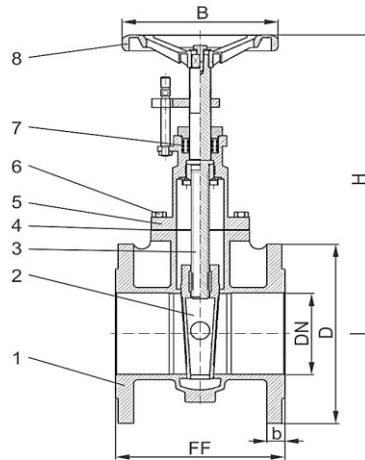
##### 03021



PN16  
DN 20 - 50

| Part no. | Name         | Material           |
|----------|--------------|--------------------|
| 1        | Body         | CC491K             |
| 2        | Seal         | PTFE               |
| 3        | Closing body | CW614N             |
| 4        | Bonnet       | CW614N             |
| 5        | Spindle      | CW614N             |
| 6        | Handwheel    | Die-cast aluminium |

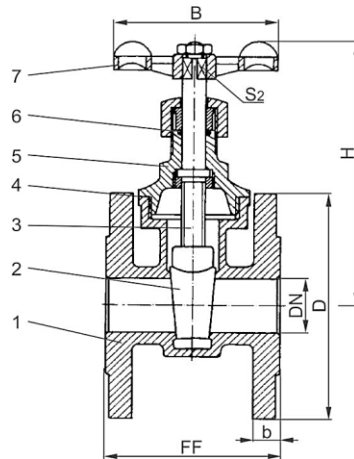
09320



PN 10 – 16  
DN 100 - 250

| Part no. | Name          | Material                   |
|----------|---------------|----------------------------|
| 1        | Body          | CC491K / CC480K            |
| 2        | Closing body  | CC491k / CC480K            |
| 3        | Spindle       | CW614N / CC483K            |
| 4        | Seal          | Klingersil C-4400          |
| 5        | Bonnet        | CC491K / CC480K            |
| 6        | Bonnet screws | 1.4571                     |
| 7        | O-rings       | FPM (Viton)/fluorosilicone |
| 8        | Handwheel     | Stahl / CC491K             |

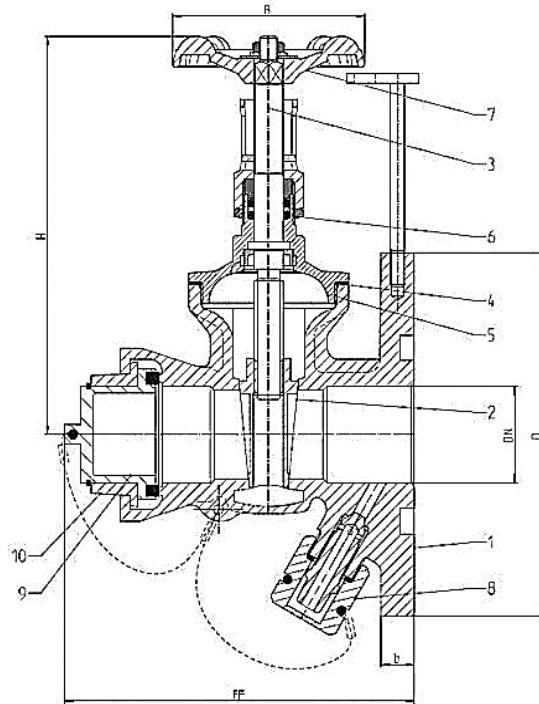
09420



PN 16  
DN 25 – 100

| Part no. | Name         | Material                    |
|----------|--------------|-----------------------------|
| 1        | Body         | CC491K / CC480K             |
| 2        | Closing body | CC491K / CC480K             |
| 3        | Spindle      | CW614N / CC483K             |
| 4        | Seal         | Klingersil C-4400           |
| 5        | Bonnet       | CW614N / CC480K             |
| 6        | O-rings      | FPM (Viton)/fluorosilicone  |
| 7        | Handwheel    | Die-cast aluminium / CC491K |

09420 "Guillemin"



PN 16  
DN 20 – 80

| Part no. | Name               | Material           |
|----------|--------------------|--------------------|
| 1        | Body               | CC491K             |
| 2        | Closing body       | CC491K             |
| 3        | Spindle            | CW614N             |
| 4        | Seal               | Klingsil C-4400    |
| 5        | Bonnet             | CW614N             |
| 6        | O-rings            | FPM (Viton)        |
| 7        | Handwheel          | Die-cast aluminium |
| 8        | Sealing cap        | CW614N             |
| 9        | Sealing cap part A | CW614N             |
| 10       | Sealing cap part B | CC491K             |

**4.7 Scope of delivery**

- Valve
- Operating instructions

**4.8 Dimensions and weights**

- ▶ See catalogue page.

**4.9 Lifetime**

The user is obligated to use Herose products only for their intended purpose.

In this case, a technical service life may be assumed in accordance with the underlying product standards (e.g. EN1626 for shut-off valves and EN ISO 4126-1 for safety valves).

The technical service life can be restarted several times through the exchange of wearing parts within the context of the maintenance intervals, and lifetimes of more than 10 years can be achieved.

If products are stored for a period exceeding 3 years, then the plastic components and elastomer sealing elements fitted to the product should be replaced as a precautionary measure before installation and use.

## 5 Assembly

### 5.1 Installation position

The installation position of flanged gate valves (09320/09420) is arbitrary with respect to the flow. When installing the flanged gate valve in a horizontal pipeline, we recommend a vertical position of the spindle (handwheel facing upwards).

The installation position of flanged gate valves with "Guillemin"-outlet is arbitrary with respect to the flow. When installing the valves in a horizontal pipeline, we recommend a vertical position of the spindle (handwheel facing upwards).

With regard to the installation position with respect to the flow, pay attention to the flow direction arrow. When installing the valves in a horizontal pipeline, we recommend a vertical position of the spindle (handwheel facing upwards).

### 5.2 Notes regarding the installation

- ▶ Use suitable tools.
  - Open-ended spanners
  - Torque wrench
- ▶ Clean tools before the installation
- ▶ Open the packaging only directly before the installation.
- ▶ Only install the valve if the maximum operating pressure and operating conditions correspond to the marking on the valve.
- ▶ Remove protective caps or covers before assembly.
- ▶ Inspect the valve for dirt and damage.  
DO NOT install damaged or dirty valves.
- ▶ Avoid damaging the connections.  
The sealing surfaces must remain clean and intact.
- ▶ Seal the valve with suitable seals.  
No sealant (sealing tape, liquid sealing tape) may enter the valve.  
Transformer oil – check suitability.
- ▶ Connect pipelines in a force-free and torque-free manner.  
Stress-free installation.
- ▶ In order to ensure trouble-free operation, no impermissible static, thermal or dynamic stresses may be transmitted to the valve. Observe reaction forces.
- ▶ Temperature-dependent changes in length in the pipework system must be compensated with expansion joints.
- ▶ Valves are supported by the pipework system.
- ▶ The valves must be protected against dirt and damage during construction work.
- ▶ Check the leak-tightness.

## 6 Operation

- ▶ Check the following points prior to start-up:
  - All assembly and installation work are completed.
  - The safety guards are in place.
  - Compare the material, pressure, temperature and installation position with the layout plan for the pipework system.
  - Remove any dirt and residues from the pipeline and valve in order to prevent leaks.

## 7 Maintenance and service

### 7.1 Safety during cleaning

- ▶ Take note of the specifications in the safety data sheet and the general occupational health and safety rules if degreasers are used for process-related reasons for the cleaning of bearing parts, fittings and other precision parts.

### 7.2 Maintenance

The maintenance intervals must be defined by the user according to the operating conditions.

The recommendations for the functional checking of the valves are to be taken from section 7.2.1 "Inspection and maintenance intervals" in these operating instructions.

### 7.2.1 Inspection and maintenance intervals

| Recommended intervals                           |                   |   |
|---|-------------------|---|
| Description                                     | Interval          | Scope   |
| Inspection                                      | ▶ During start-up | <ul style="list-style-type: none"> <li>■ Visual inspection                             <ul style="list-style-type: none"> <li><input type="checkbox"/> of the valves for damage;</li> <li><input type="checkbox"/> of the marking for legibility;</li> <li><input type="checkbox"/> Installation position;</li> </ul> </li> <li>■ Leak-tightness                             <ul style="list-style-type: none"> <li><input type="checkbox"/> at the gland packing;</li> <li><input type="checkbox"/> between bonnet and body;</li> <li><input type="checkbox"/> of the valve seat;</li> </ul> </li> <li>■ Test of the opening and closing function of the valve.</li> </ul> |
| Functional testing                              | ▶ annually        | <ul style="list-style-type: none"> <li>■ Test of the opening and closing function of the valve(s), including visual inspection.</li> </ul>  |
| External inspection                             | ▶ Every 2 years   | <ul style="list-style-type: none"> <li>■ Check of function and leak-tightness including visual check.</li> </ul>  |
| Internal inspection                             | ▶ Every 5 years   | <ul style="list-style-type: none"> <li>■ Replacement of all sealing elements<sup>1</sup>, including a function and leak test as well as a visual inspection.</li> </ul>   |
| Hydraulic testing                               | ▶ Every 10 years  | <ul style="list-style-type: none"> <li>■ Replacement of all sealing elements<sup>1</sup>, including a function, leak and pressure test as well as an inspection.</li> </ul>   |
| <sup>1</sup> Applies only to industrial valves. |                   |   |

### 7.3 Fault table

| Fault  | Cause   | Remedial action  |
|--|---|--|
| <ul style="list-style-type: none"> <li>■ Leak at the spindle</li> </ul>          | <ul style="list-style-type: none"> <li>Gland nut loose</li> <li>Gland packing defective</li> <li>Fit on the spindle damaged<sup>1</sup></li> </ul>  | <ul style="list-style-type: none"> <li>▶ Retighten the gland nut</li> <li>▶ Replace the gland packing</li> <li>▶ Replace the spindle<sup>1</sup></li> </ul>                                    |
| <ul style="list-style-type: none"> <li>■ Leak between bonnet and body</li> </ul> | <ul style="list-style-type: none"> <li>Bonnet loose</li> <li>Seal damaged<sup>1</sup></li> </ul>  | <ul style="list-style-type: none"> <li>▶ Retighten the bonnet screws</li> <li>▶ Replace the seal<sup>1</sup></li> </ul>  |
| <ul style="list-style-type: none"> <li>■ Leak in the seat</li> </ul>             | <ul style="list-style-type: none"> <li>Foreign bodies between closing body and seat</li> <li>Seat damaged<sup>1</sup></li> <li>Sealing surface of closing body damaged<sup>1</sup></li> </ul> | <ul style="list-style-type: none"> <li>▶ Remove foreign body / flush the system</li> <li>▶ Replace the body<sup>1</sup></li> <li>▶ Replace closing body<sup>1</sup></li> </ul>                 |
| <ul style="list-style-type: none"> <li>■ Valve does not open / close</li> </ul>  | <ul style="list-style-type: none"> <li>Gland nut overtightened</li> <li>Thread seized<sup>1</sup></li> </ul>  | <ul style="list-style-type: none"> <li>▶ Loosen the gland nut<br/>Tightness must still be ensured</li> <li>▶ Replace bonnet<sup>1</sup></li> <li>▶ Replace closing body<sup>1</sup></li> </ul> |
| <sup>1</sup> Applies only to industrial valves.                                  |   |  |

## 7.4 Returns / complaints

Use the Service form in case of returns/complaints.



Contact in case of service:  
Herose.com › Service › Product service › Complaints  
E-mail: [service@herose.com](mailto:service@herose.com)  
Fax: +49 4531 509 – 9285

## 8 Disassembly and disposal

### 8.1 Notes regarding the disassembly

- ▶ Take note of all national and local safety requirements.
- ▶ The pipework system must be depressurised.
- ▶ The medium and valves must be at ambient temperature.
- ▶ Aerate / flush the pipework system in the case of corrosive and aggressive media.

### 8.2 Disposal

1. Dismount the valves.
  - ▶ Collect greases and lubricating fluids during dismantling.
2. Separate the materials:
  - Metal
  - Plastic
  - Electronic scrap
  - Greases and lubricating fluids
3. Carry out a sorted disposal of the materials.