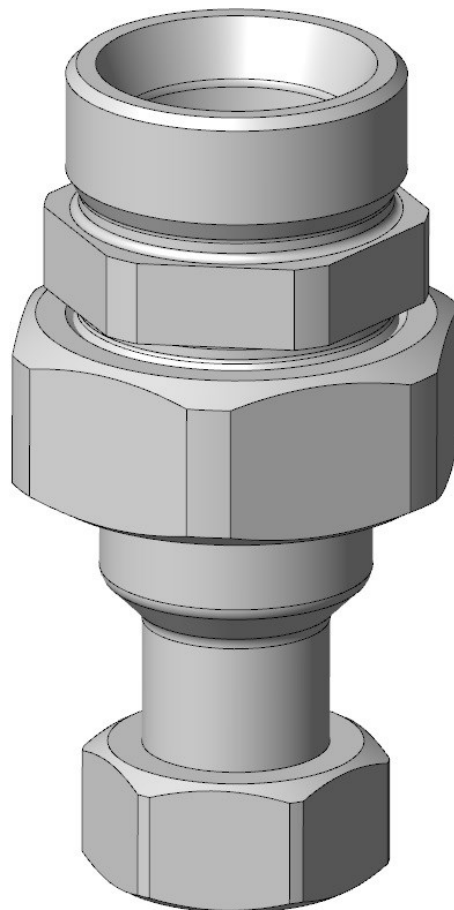


## Operating instructions

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### Shut-off valve with non-return function

**T118**





**IMPORTANT**  
**Read carefully before use.**  
**Keep for future reference.**

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# 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 valve.

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 could result in death or serious injury.
 <b>CAUTION</b>	Identifies a hazard with a low risk level that could 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 valve is intended for installation in a pipeline or pressure tank 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 mounting 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 Instructions for people who work with the valve

People could be seriously injured or killed if the valve is 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.

### **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 sizing.

### **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 mounting.**

Damage to the valve!

- ▶ Remove cover caps before mounting.
- ▶ Clean the sealing surfaces.
- ▶ Protect the body against hammering.

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

Functional impairment of the valve / loss of information!

- ▶ Protect stem, 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 valve!

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

### 3 Transport and storage

#### 3.1 Inspection of condition on delivery

- ▶ Inspect the valve 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 valve is delivered ready to operate with lateral connections 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 valve 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 valve

Refer to the respective catalogue page for further detailed information.

### 4.1 Structure




#### Design

Non-automatic opening and closing shut-off valve executed as a coupling in a pipeline.

Component	Design
Body	Straight type, straight flow direction
Bonnet	bolted on, stem movement through actuation of the union nut
Obturator	Stamp with seal made of non-metallic materials
Body end	with threaded end

### 4.2 Marking

The valves are provided with an individual marking for identification.

Symbol	Explanation
PN.....	Rated working pressure (max. permissible operating pressure)
-..... °C +..... °C	Temperature min. / max.
	Manufacturer's mark "HEROSE"
01/18	Year of construction MM/YY
T 118	Type
01234567	Serial no.
	Actuation arrows
	Flow direction arrow
e.g. CF8 / 1.4308	Material



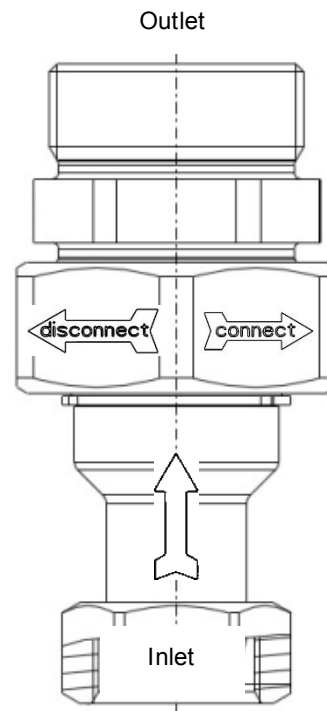
### 4.3 Intended use

The T118 shut-off valve serves as a fitting between combined pressure regulator and tank.

The T118 shut-off valve is to be installed in such a way that the valve is positioned vertically and the medium flowing through it enters under the main seat.

Loosening ("disconnect") the 50 AF nut causes the main seat to close and the pipeline on the outlet side is shut off. After the closing of the main seat, the pressure on the inlet side is dissipated via two bores in the union nut. Following the pressure relief the inlet part can be dismantled together with the combined pressure regulator.

If the pressure in the pipe on the inlet side exceeds the pressure on the outlet side by 4.5 bar ±1 bar during the disassembly between the shut-off and pressure relief functions, the main seat is opened and the excess pressure is dissipated via the outlet.



### 4.4 Operational data

Valve	Nominal pressure	Temperature	Max. operating pressure
T 118	PN 50	-196 °C to +60 °C	50 bar
			30 bar with use of O <sub>2</sub>

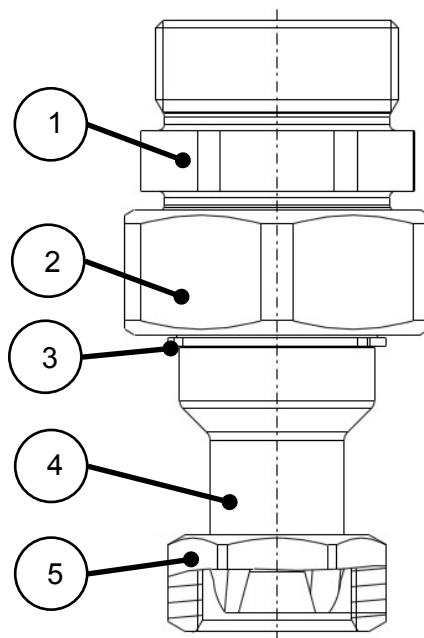
Valve	K <sub>vS</sub> value	C <sub>v</sub> value	Safety function set pressure
T 118	2.0 m <sup>3</sup> /h	2.3 gal/min	4.5 bar ± 1.0 bar

### 4.5 Media

Gases, cryogenic liquefied gases and their gas mixtures, such as:

Name
Argon
Chlorotrifluoromethane
Nitrous oxide
Ethane
Ethylene
Carbon dioxide
Carbon monoxide
Krypton
Methane
Oxygen
Nitrogen
Trifluoromethane

## 4.6 Materials



Part no.	Name	Material
1	Bonnet of body	1.4571
2	Union nut 50 AF	1.4301
3	Circlip	1.4122; 1.4435
4	Lower part of body	1.4571
5	Union nut 32 AF	1.4301

## 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 mounting and use.

## 5 Assembly

### 5.1 Installation position

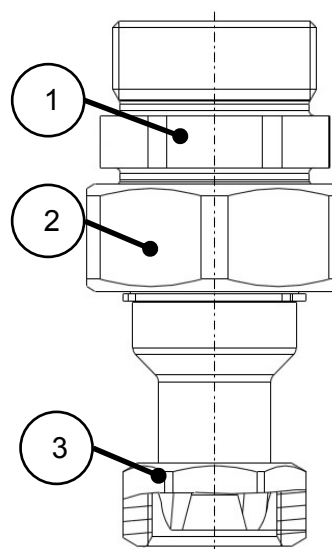
With regard to the installation position, pay attention to the arrow showing the flow direction. Installation of the valve in the vertical position. The outlet side faces vertically upwards.

### 5.2 Notices regarding the mounting

- ▶ Use suitable tools.
  - Open-ended spanners 50 AF, 32 AF and 41 AF
- ▶ Clean tools before the installation!
- ▶ Open the packaging only directly before the mounting. Free from oil and grease for oxygen (O<sub>2</sub>). Valves for oxygen are permanently labelled with "O<sub>2</sub>".
- ▶ 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 mounting.
- ▶ Inspect the valve for dirt and damage. DO NOT install a damaged or dirty valve.
- ▶ Remove any dirt and residues from the pipeline and valve in order to prevent leaks.
- ▶ 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. Respect the suitability for use with O<sub>2</sub>.
- ▶ Connect pipelines in a force-free and torque-free manner. Stress-free mounting.
- ▶ 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.
- ▶ The valve is supported by the pipework system.
- ▶ The valve must be protected against dirt and damage during construction work.
- ▶ Check the leak-tightness.

#### Tightening torques

Item no.	Union nut	Tightening torque [Nm]
1	Bonnet of body M40 x 2	100
2	50 AF - M40 x 2	100
3	32 AF - M26 x 1.5	80



## 6 Operation

The T118 shut-off valve serves as a fitting between combined pressure regulator and tank. With the help of this valve the combined pressure regulator can be replaced without having to empty the tank.

The following steps are necessary for this.

- ▶ Depressurise the combined pressure regulator with the shut-off valves.
- ▶ Cool down/heat up to ambient temperature, -40 °C to +65 °C.
- ▶ Loosen (“disconnect”) the 50 AF union nut until the main seat is closed.
  - The pipeline on the outlet side is shut off.
  - After the closing of the main seat, the pressure on the inlet side is dissipated via bores in the union nut.
- ▶ After pressure relief, dismantle the inlet part together with the combined pressure regulator.
  - If the pressure in the pipe on the inlet side exceeds the pressure on the outlet side by 4.5 bar  $\pm$ 1 bar during the disassembly between the shut-off and pressure relief functions, the main seat is opened and the excess pressure is dissipated via the outlet.
- ▶ Protect the outlet part against ingress of dirt and moisture.
- ▶ After dismantling, separate the inlet part from the combined pressure regulator.
- ▶ Clean, free from oil and grease for O<sub>2</sub> application.
- ▶ Inspect for damage.
  - NOTICE! Damage to the system possible! DO NOT install a damaged or dirty inlet part!
- ▶ Mount on the replacement regulator, tightening torque 80 Nm.
- ▶ Replace the O-ring every time the outlet part is dismantled.
- ▶ Clean the outlet part, free from oil and grease for O<sub>2</sub> application.
- ▶ Inspect for damage.
  - NOTICE! Damage to the system possible! DO NOT install a damaged or dirty outlet part!
- ▶ Mount the inlet part with the combined pressure regulator.
- ▶ Tighten the union nut (“connect”) until the main seat opens, tightening torque 100 Nm.
- ▶ Install the combined pressure regulator in the system.
- ▶ Open the shut-off valves.
  - System is ready for operation.

## 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, unions 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		
Inspection	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 valve for damage;</li> <li><input type="checkbox"/> of the valve marking for legibility;</li> </ul> </li> <li>■ Leak-tightness                             <ul style="list-style-type: none"> <li><input type="checkbox"/> between bonnet and lower part;</li> <li><input type="checkbox"/> of the valve seat;</li> </ul> </li> <li>■ Test the opening and closing functions of the valve.</li> </ul>
Functional testing	▶ annually	<ul style="list-style-type: none"> <li>■ Test the opening and closing functions of the valve including a visual inspection.</li> </ul>
External inspection	▶ Every 2 years	<ul style="list-style-type: none"> <li>■ Function and tightness test including visual check.</li> </ul>
Internal inspection	▶ Every 5 years	<ul style="list-style-type: none"> <li>■ Replacement of all sealing elements, including a function and tightness 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, including a function, leak and pressure test as well as an inspection.</li> </ul>

### 7.3 Fault table

Fault	Cause	Remedial action
<ul style="list-style-type: none"> <li>■ Leak between bonnet and lower part</li> </ul>	Bonnet loose	▶ Tighten bonnet
	O-ring damaged	▶ Replace O-ring
<ul style="list-style-type: none"> <li>■ Leak in the seating</li> </ul>	Foreign body between stem and seat	▶ Remove foreign body / flush the system
	Seating damaged	▶ Replace bonnet
	Stem sealing surface damaged	▶ Replace bonnet

### 7.4 Spare parts

Repairs to the T118 valve may be carried out only by HEROSE or by specialist workshops authorised by HEROSE and monitored by the regulatory authorities, using only original spare parts.

### 7.5 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 Notices regarding the disassembly**

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

### **8.2 Disposal**

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