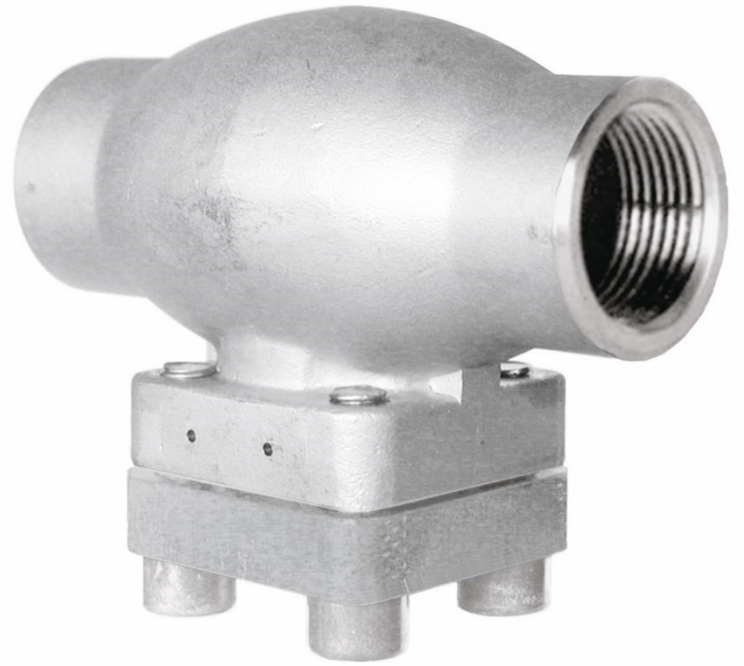
Operating instructions

Cryogenic strainer



READ CAREFULLY BEFORE USE! RETAIN FOR FUTURE REFERENCE!

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Table of contents

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
⚠DANGER	Identifies a hazard with a high risk level that will result in death or serious injury.
⚠WARNING	Identifies a hazard with a moderate risk level that will result in death or serious injury.
⚠CAUTION	Identifies a hazard with a low risk level that will result in a minor or moderate injury.
NOTICE	Identifies a risk to property. Damage to property may occur if this notice is ignored.

2 Safety

2.1 Intended use

Strainers are used to filter contamination out of media. The cleaning effect with this model depends on the mesh size. 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.

Slipping of the valve out of the suspension.

Danger to life from falling parts!

- ▶ Do not suspend the valve 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 sizing.

Condensation in air conditioning, cooling and refrigeration plants.

Icing!

Damage due to corrosion!

- ▶ Insulate valves with diffusion-tight material.

Improper handling.

Leaking valve or damage to the valve!

- ▶ Do not store tools and/or other objects on the valve.

Painting of valves and pipelines.

Functional impairment of the valve / loss of information!

- ▶ Protect plastic parts and type plates from being painted over.

Impermissible stress.

Damage to the valve!

- ▶ 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 working temperatures must be observed.
- ▶ Create the welding/soldering seam stepwise so that the warming in the middle of the body does not exceed the maximum permissible operating temperature.

Welding beads, scale and other contaminants.

Damage to the valve!

- ▶ Take appropriate measures against contamination.
- ▶ Remove contaminants from the pipes.

Incorrect earthing during welding work in the pipeline.

Damage to the valve (burned spots)!

- ▶ Remove bonnet during welding.
- ▶ When carrying out electric welding work, do not use functional parts of the valves for earthing.

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

Component	Design
Body	Straight-type
Bonnet	Flanged, without spindle bushing
Filter	Screen, filter
Body end	with soldering end with welding end with threaded end (G; R; NPT; M) with flanged connection with welded-in/soldered-in pipes

4.2 Valving marking

The valves are provided with an individual marking for identification.

Symbol	Explanation
DN…..	Nominal diameter
PN…..	Rated working pressure (max. permissible operating pressure)
-…..°C +…..°C	Temperature, min. / max.
	Manufacturer’s mark “HEROSE”
01/18	Year of construction MM/YY
12345	Type
01234567	Serial no.
EN1626	Standard
CE 0045	CE-mark and number of the notified body
e.g. CF8 / 1.4308	Material

4.3 Intended use

Strainers are used to filter contamination out of media. The cleaning effect with this model depends on the mesh size.

4.4 Operational data

Valve	Nominal pressure	Temperature	Mesh size*
08411	PN50	-196 °C to +120 °C	≤ 0.25 mm
08412	PN50	-196 °C to +120 °C	≤ 0.25 mm
08413	PN50	-196 °C to +120 °C	≤ 0.25 mm
08414	PN50 (DN100=PN40 DN150=PN40)	-196 °C to +120 °C	≤ 0.25 mm
08415	PN50	-196 °C to +120 °C	≤ 0.25 mm
08416	PN50	-196 °C to +120 °C	≤ 0.25 mm
08417	PN50 (DN100 = PN40/50 DN150 = PN25/40 DN200 = PN25)	-196 °C to +120 °C	≤ 0.25 mm
08431	PN40 Class 150 Class 300	-196 °C to +120 °C	≤ 0.25 mm
08432	PN40 Class 150 Class 300	-196 °C to +120 °C	≤ 0.25 mm
08716	PN50	-255 °C to +120 °C	≤ 0.25 mm
08717	PN50	-255 °C to +120 °C	≤ 0.25 mm

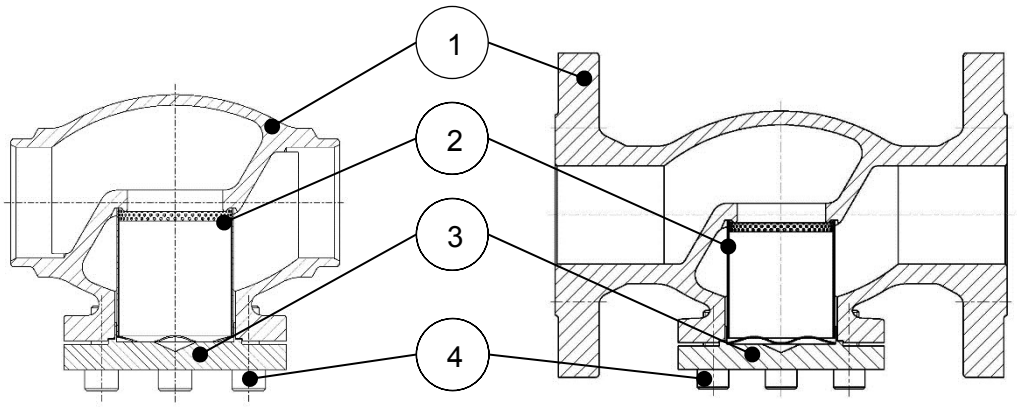
*other mesh sizes are possible depending on the version.

4.5 Media

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

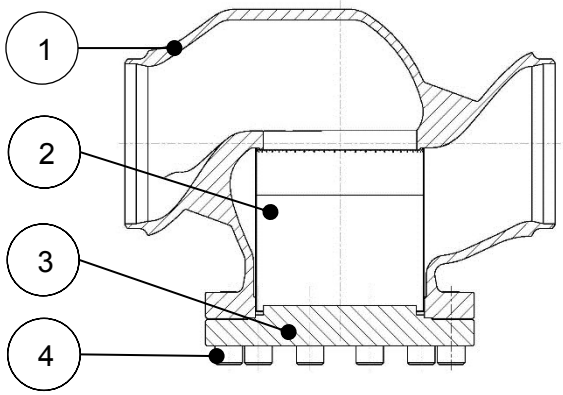
Name
Argon,
Chlorotrifluoromethane,
Nitrous oxide,
Ethane,
Ethylene,
Carbon dioxide,
Carbon monoxide,
Krypton,
Methane,
Oxygen,
Nitrogen,
Trifluoromethane,

4.6 Materials



DN10 - 150

Part no.	Name	Material
1	Body	CC491K; 1.4308; 1.4409
2	Screen	1.4301; 1.4404; 2.4360; CW483K
3	Cover	CC493K; 1.4301; 1.4404
4	Bolts	A2-70; A4-70



DN200

Part no.	Name	Material
1	Body	1.4308
2	Screen	1.4301
3	Cover	1.4301
4	Bolts	A2-70

4.7 Scope of delivery

- Valve
- Operating instructions
- Seals

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 synthetic material 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

≤ DN150

With regard to the installation position, pay attention to the arrow showing the flow direction. If the valve is installed in a horizontal pipeline, a vertical position of the screen is recommended (cover facing downwards).

DN200

With regard to the installation position, pay attention to the arrow showing the flow direction. If the valve is installed in a horizontal pipeline, a vertical position of the screen is recommended (cover facing downwards).

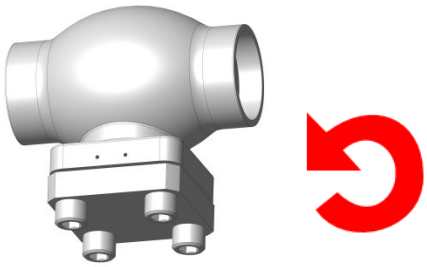
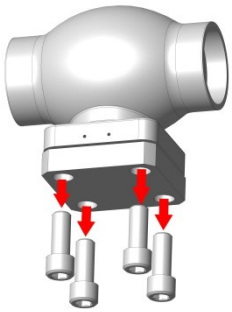
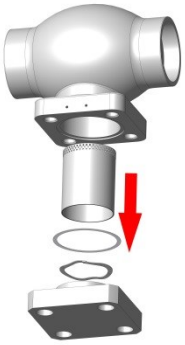
5.2 Notices regarding the mounting

- Use suitable tools.
  - ☐ Allen keys of sizes 6, 8, 10, 14, 19;
  - ☐ Open-ended spanners;
  - ☐ Torque wrench;
  - ☐ TIG welding machine;
  - ☐ Oxy-fuel welding machine;
- Clean tools before the mounting.
- Use suitable transport and lifting equipment for the mounting.
- Open the packaging only directly before the mounting. Freedom from oil and grease for oxygen (O_2).
  Valves for oxygen are permanently marked with “O_2”.
- Only install the valve if the maximum operating pressure and operating conditions of the plant 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.
- 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_2.
- 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.

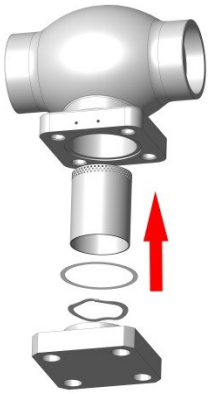
5.3 Welding / soldering

Welding / soldering of the valves and any heat treatment that may be required are the responsibility of the contracting construction company or operating company.

■ Before welding / soldering

	▶ Loosen the bolts Direction of rotation: counter clockwise
	▶ Remove the bolts
	▶ Remove the cover, spring washer, seal and screen ⚠**WARNING** **Risk of injury due to heavy cover!** Improper handling can lead to injuries. ▶ Before the start of work, ensure there is sufficient room for doing the work. ▶ Use suitable transport and lifting equipment for the disassembly.
	▶ Dispose of the seal
	▶ Weld / solder in the body

■ After welding / soldering



- Mount the screen, seal, spring washer and cover

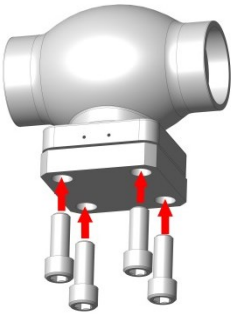
  ⚠ Do not damage the seal

⚠WARNING

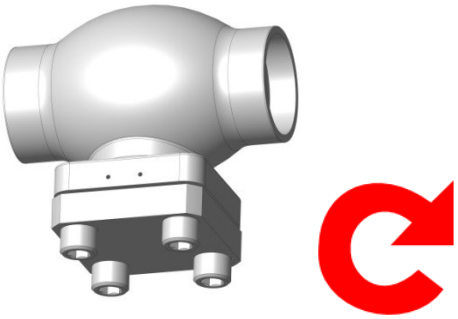
Risk of injury due to heavy cover!

Improper handling can lead to injuries.

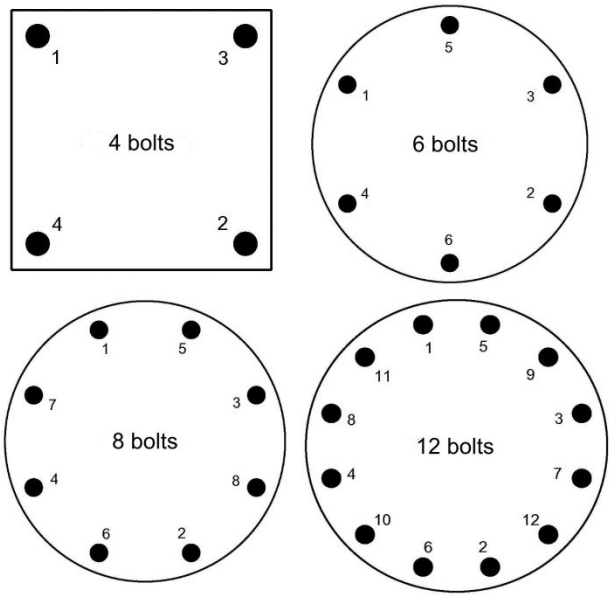
- Before the start of work, ensure there is sufficient room for doing the work.
- Use suitable transport and lifting equipment for the mounting.



- Assemble the bolts



- Tighten the bolts to the specified tightening torque in a criss-cross pattern
  Direction of rotation: clockwise



- Assembly sequence for the bolts

Nominal diameter	RB-bonnet/ RB-body [Nm]	SS-bonnet/ SS-body [Nm]		SS-bonnet/ SS-body [Nm]	Cheesehead screw
DN 10	19	19	25	30	M8
DN 15	19	19	25	30	M8
DN 20	37	44		50	M10
DN 25	37	44		50	M10
DN 32	41	45		50	M10
DN 40	51	60		70	M12
DN 50	49	50		50	M10
DN 65	-	80		90	M12
DN 80	-	90		110	M16
DN 100	-	110		130	M16
DN 150	-	130		130	M16
DN 200	-	-		130	M24

▶ Tightening torque for bonnet / body

RB-bonnet ≙ Red brass bonnet
RB-body ≙ Red brass body
SS-bonnet ≙ Stainless steel bonnet
SS-body ≙ Stainless steel body

▶ Check the leak-tightness

6 Operation

- ▶ Check the following points prior to start-up:
  - ☐ All mounting 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.
  - ☐ Dirt and residues have been removed 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, 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		
Description	**Interval**	**Scope**
Inspection	▶ During start-up	■ Visual inspection ☐ of the valve for damage; ☐ of the valving marking for legibility; ☐ Installation position; ■ Leak-tightness ☐ Between cover and body.
Cleaning	▶ According to level of soiling	■ Cleaning of filter element and cover
Maintenance	▶ Annually	■ Cleaning of all individual parts including visual inspection.
External inspection	▶ Every 2 years	■ Maintenance and tightness test;
Internal inspection	▶ Every 5 years	■ Replacement of all sealing and filter elements, including maintenance and tightness test.
Hydraulic test	▶ Every 10 years	■ Replacement of all sealing and filter elements, including cleaning of all individual parts, leak and pressure test, and inspection.

7.3 Fault table

Fault	Cause	Remedial action
■ Low flow rate	Strainer dirty	▶ Clean / replace screen
	Blockage in the pipework system	▶ Check pipework system
■ Leak between cover and body	Cover loose	▶ Retighten bolts
	Seal damaged	▶ Replace seal
■ Body leaking	Discontinuity/gas cavity open	▶ Replace the body

7.4 Spare parts

We require the following details for your spare part orders:

- ☐ article no. of the spare part package,
- ☐ desired delivery quantity,
- ☐ dispatch and delivery address,
- ☐ desired method of dispatch.

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
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 valves must be at ambient temperature.
- Aerate / flush the pipework system in the case of corrosive and aggressive media.

8.2 Disposal

1. Dismantle 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.