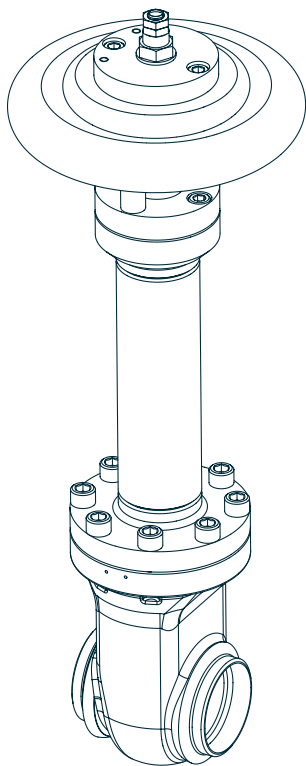
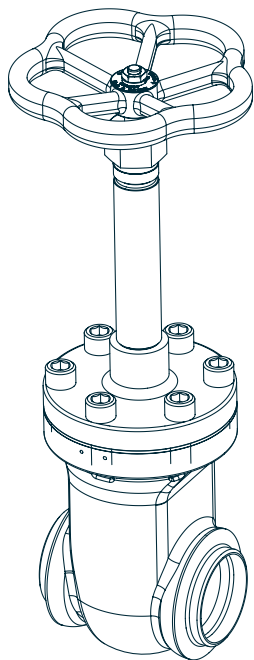




HEROSE



Operating instructions

Art.-No.: 37000.0025.0100

DE

EN

ES

FR

ZH

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Important

Read carefully before use.

Retain for later use.



1st issue 08/2025

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Installation, maintenance and operating instructions

Designation
Cryogenic flanged gate valve

Type numbers
09C01 | 09C02

Table of contents

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Safety EN 04

Transport and storage EN 07

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About these instructions

Principles

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

Applicable documents

Document	Contents
Catalogue page	Description of the valve

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

Hazard levels

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

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.

Safety

Intended application

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 "Media" section. Operating conditions and applications deviating from these require the approval of the manufacturer. Only media may be used 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 misuse

- › Do not exceed the permissible operating limits for pressure and temperature specified in the data sheet or in the documentation.
- › Follow all safety instructions and operating procedures in these operating instructions.

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 valves 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 the operating instructions on to subsequent users.

Requirements 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.

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.

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. 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.

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 chapter "Description of the valve".
- › This product is designed for ≤ 500 loading cycles at pressure differences from zero to PN and any number of loading cycles at pressure differences not exceeding $0.1 \times PN$.

Safety instructions

DANGER

Hazardous medium.

The escaping operating medium can cause poisoning, cauterisation and burns!

- › Wear the prescribed protective equipment.
- › Provide suitable collecting containers.
- › Keep away from sources of ignition.

Slipping of the valve out of the suspension.

Danger to life from falling parts!

- › Do not suspend the valve by the handwheel/rubber bellows actuator.
- › 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.

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 sources of accidents.
- › 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 performed 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 fittings.

Risk of injury due to thermal influences!

- › Insulate fittings.
- › Attach warning signs.

Medium escaping at high speed and high/low temperature.

Risk of injury!

- › Wear the prescribed protective equipment.

⚠ NOTICE

Impermissible stress due to 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 considered as standard and require a separate design.

Condensation in air conditioning, cooling and refrigeration plants.

- Icing!
- Blocking of the actuation mechanism!
- › Damage due to corrosion!
- › Insulate valves with diffusion-tight material.

Incorrect installation.

- Damage to the valve!
- › Remove caps before installation.
- › Clean the sealing surfaces.
- › Protect the body from impacts.

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.

Painting of fittings 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 working pressure must not be exceeded, and the minimum and maximum allowable working temperatures must be observed.

Particles and other contaminants in the conveyed medium.

Damage to the valve/internal leak!

- › Remove particles/contaminants from the conveyed medium.
- › It is recommended to install strainers/dirt filters in the pipework system.

Transport and storage

Inspect 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.

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 $+65^{\circ}\text{C}$.

Storage

- › Store the valve in a clean and dry place.
- › In damp storage rooms, use desiccants or heating to prevent the formation of condensation.
- › Storage at a temperature range of -20°C to $+65^{\circ}\text{C}$.

Description of the valve

Refer to the respective catalogue page for further detailed information.

Structure

Non-automatic opening and closing gate valve, with handwheel or actuator depending on the model.

Component	Contents
Body	Straight-type
Bonnet	Flanged, internal stem thread, handwheel Flanged, without stem thread, rubber bellows actuator
Operating mechanism	Rising stem
Obturator	Obturator with seal made of non-metallic materials
Stem bushing	Self-sealing, stem seal
Body end	With soldering end With welding end With threaded end (G, R, NPT, M) With welded-in/soldered-in pipes

Marking

The gate valves are provided with an individual marking for identification.

Symbol	Explanation
DNxxx	Nominal diameter
PNxxx	Rated working pressure (max. permissible working pressure)
-xxx °C / +xxx °C	Temperature, min./max.
	Manufacturer's mark "HEROSE"
e.g. 01/24	Year of construction MM/YY
e.g. 12345	Type
e.g. 01234567	Serial no.
EN 1626	Standard
EN 1984	Product standard
 xxxx	CE mark and number of the notified body
 xxxx	PI mark and number of the notified body
 xxxx	Ukrainian conformity marking and number of the certification body
O2	For use with oxygen
e.g. 1.4308	Material

Intended application

The gate valves are one-sided sealing valves that shut off the media in the flow direction.

The gate valve is closed or opened by turning the handwheel.

Gate valves with a rubber bellows actuator are driven by a compressed air supply, e.g. via an 8.0 mm hose, with a recommended working pressure of 6.0 bar, max. 10.0 bar. The gate valve is opened by the supply air and closed by the spring. A reverse mode of operation is not possible. The ambient temperature for the rubber bellows actuator is -50 °C to +70 °C.

Emergency actuation:

- > 24 mm wrench
- > The gate valve is opened by 30.0 mm by turning the adjusting screw directly above the actuator counterclockwise.
- > The gate valve is closed by turning clockwise.



ⓘ NOTICE

Tools for increasing handwheel torque are not allowed.

Operational data

Type	Nominal pressure*		Allowable working temperature
09C01 / 09C02	DN25-80 DN100	PN50 PN40	-196 °C to +120 °C

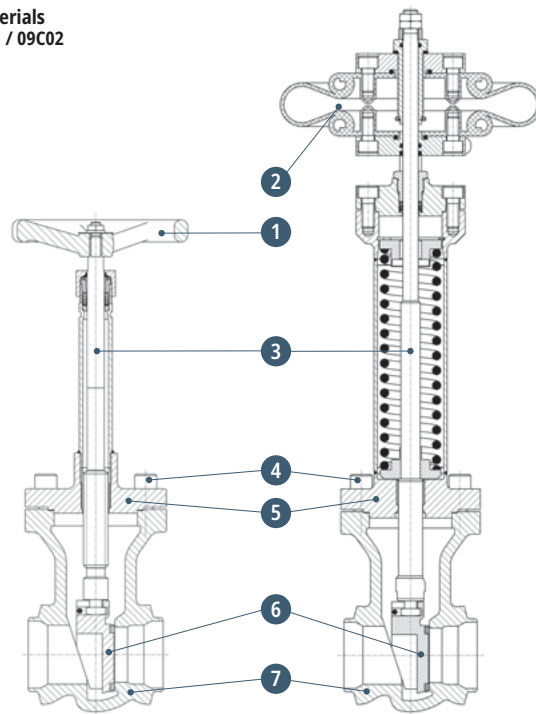
* Reduction of the maximum nominal pressure corresponding to the housing connection.

Media

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

Name			
Argon	Chlorotrifluoromethane	Dinitrogen monoxide	Ethane
Ethylene	Helium	Carbon dioxide	Carbon monoxide
Krypton	LNG	LPG	Air
Methane	Neon	Oxygen	Nitrogen
Trifluoromethane	Xenon		

The use of other media is only permitted after consultation with the manufacturer.



No.	Name	Material
1	Handwheel	Aluminium alloy
2	Rubber bellows actuator	Rubber
3	Stem	1.4301
4	Bolts	A2-70
5	Bonnet	1.4308 1.4541 1.4301 1.4306
6	Obturator	CW614N PTFE/carbon
7	Body	1.4308

Scope of delivery

- › Valve
- › Operating instructions
- › Seals

Dimensions and weights

Refer to the respective catalogue page for further detailed information.

Lifetime

The user is obliged to use HEROSE products exclusively for their intended purpose.

In this case, a technical service life may be assumed in accordance with the underlying product standards (e.g. EN 1626 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.

Installation

Installation position

With regard to the installation position, pay attention to the arrow showing the flow direction.

When installing the gate valve in a horizontal pipeline, a vertical position of the stem is recommended with the handwheel at the top or an inclination of up to 45° from the vertical.

Installation notice

- › Use suitable tools:
 - › Allen keys of sizes 6, 8, 10, 14, 19
 - › Open-ended spanners
 - › Torque wrench
 - › Pipe wrench
 - › TIG welding machine
 - › Oxy-fuel welding kit
- › Clean tools before installation
- › Open the packaging immediately before installation. Free of oil and grease for oxygen (O2).
- › Valves for oxygen are permanently marked with "O2".
- › Take note of the HEROSE information sheet "O2 instructions".
- › Only install the valve if the maximum working pressure and operating conditions of the plant correspond to the marking on the valve.
- › Plant must be designed for the maximum set pressure of the valve's safety function.
- › Remove protective caps or covers before installation.
- › Inspect the valve for contamination 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) may enter the valve.
- › Respect the suitability for use with O2.
- › 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 gate valve. Observe reaction forces.

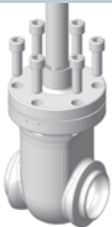
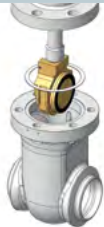
- › Temperature-dependent changes in length in the pipework system must be compensated with expansion joints.
- › The valve is supported by the pipework system.
- › The valve must be protected against dirt and damage during construction work.
- › Remove any transport locks such as blocking bushings.
- › Check the leak-tightness.

Welding/soldering

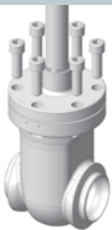
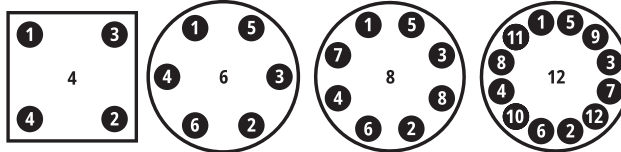
Welding/soldering of the gate valves and any heat treatment that may be required are the responsibility of the contracting construction company or operating company. In the case of valves with pipes that are already soldered into/onto the inlet and outlet, the bonnet can remain in the body. It is necessary here for the valve to be in the open position and that the forming gas flows through in the flow direction.

During this procedure, make sure that no dirt gets into the interior.

Before welding/soldering

1  › Lifting screw, 24 AF, loosen to the stop › Direction of rotation: counterclockwise	2  › Loosen the bolts › Direction of rotation: counterclockwise
3  › Remove the bolts	4  › Remove bonnet and seal
5 › Dispose of the seal	6 › Weld/solder in the body

After welding/soldering

1  › Insert a new seal	2  › Assemble the bonnet › Do not damage the seal
3  › Tighten the bolts	4  › Cross tighten the bolts to the specified torque › Direction of rotation: clockwise
5  › Assembly sequence for the bolts	

Nominal diameter	DN25	DN40	DN50	DN65	DN80	DN100
Tightening torque	50 Nm	70 Nm	90 Nm	90 Nm	110 Nm	130 Nm
Cylinder screws	M10	M12	M12	M12	M16	M16

Bonnet/body tightening torques



- › Lifting screw, 24 AF, screw in to the stop.
- › Direction of rotation: clockwise



- › Check the leak-tightness

Operation

Prior to start-up

- › Check the following points prior to start-up:
 - › All assembly and installation work has been completed.
 - › If fitted: The blocking bushing was removed prior to start-up.
 - › The safety guards are in place.
 - › Compare the material, pressure, temperature and installation position with the layout plan for the pipework system.
 - › Remove dirt and residues from the pipeline and gate valve in order to prevent leaks.

Maintenance and service

Safety during cleaning

- › Take note of the specifications in the safety data sheet, the general occupational health and safety rules and the HEROSE information sheet "Use with oxygen" if degreasers are used for process-related reasons for the cleaning of bearing parts, unions and other precision parts.
- › Maintenance or cleaning work must not be carried out when the valve is in operation.
- › Only external cleaning is permitted.

Maintenance

The maintenance and inspection intervals must be defined by the operating company according to the operating conditions and the national regulations. The manufacturer's general recommendations for the maintenance and inspection of the valves are given in the table below and are based on the national standards of the country of manufacture.

Inspection and maintenance intervals

Description	Interval	Scope
Inspection	During start-up	› Visual inspection › of the valve for damage › of the marking for legibility › of the installation position › Leak-tightness › at the stem seal › between bonnet and body › at the seat (internal leak-tightness) › Test the opening and closing functions of the valve
Functional testing	Inspection and maintenance in accordance with the respective legal regulations. In Germany, for example, according to the Operational Safety Ordinance	› Test of the opening and closing function of the valve, including visual inspection
External inspection	Inspection and maintenance in accordance with the respective legal regulations. In Germany, for example, according to the Operational Safety Ordinance	› Function and tightness test including visual inspection
Internal inspection	Every 5 years or ≥ 500 loading cycles	› Replacement of all sealing elements if the tightness test, functional test and visual inspection yield negative results
Hydraulic test	Every 10 years	› Replacement of all sealing elements, including a function, leak and pressure test as well as an inspection

Maintenance instructions

Stem seal

In accordance with DIN EN 1626 the leakage rate must be less than 14 mm³/s (in the case of combustible fluids less than 10 mm³/s). The stem seal is maintenance-free and does not need to be retightened.

Fault table

Fault	Cause	Remedy
Leak at the stem	Stem seal defective	› Replace stem seal
	Fit on the stem damaged	› Replace the stem
Leak between cover and body	Bonnet loose	› Tighten the bolts to the specified torque
	Seal damaged	› Replace seal
Leak in the seating	Foreign bodies between obturator and seating	› Remove foreign bodies
	Seating damaged	› Flush the system
	Seal of obturator damaged	› Replace the body
Body leaking	› Replace the obturator	
	Discontinuity/gas cavity open	› Replace the body
Gate valve does not open or close	Thread seized	› Replace bonnet
	Rubber bellows actuator not working	› Check energy supply to the rubber bellows actuator

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

Returns/complaints

Use the Service form in case of returns/complaints.



Contact in case of service:

herose.com → Service → Complaints

E-mail: service@herose.com

Disassembly and disposal

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.
- › Vent/flush the pipework system in the case of corrosive and aggressive media.

Disposal

- › Dismantle the valves.
- › Collect greases and lubricating fluids during dismantling.
- › Separate the materials:
 - › Metal
 - › Synthetic material
 - › Electronic scrap
 - › Greases and lubricating fluids
- › Carry out a sorted disposal of the materials.

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