

BROEN FULL FLOW DN10-50

Technical Manual



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1. Introduction

BROEN Full Flows are a brand new series of shut-off valves created for use in connection with modern HVAC and industrial applications and fulfil all requirements for reliability, efficiency and quality.

We are proud of our leading market position – but know too that this implies certain obligations. Which is why we have gone one step further compared to conventional valve production and created the BROEN Full Flow.

The portfolio already covers the most generally used combinations of press, thread and nut, but the dynamic production set-up for the valve enables countless combinations to fit any system.

With their unique features and characteristic streamlined appearance, the valves are the product of many years' experience of manufacturing quality ball valves at BROEN.

BROEN – New Thinking

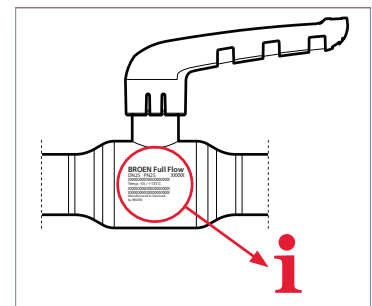
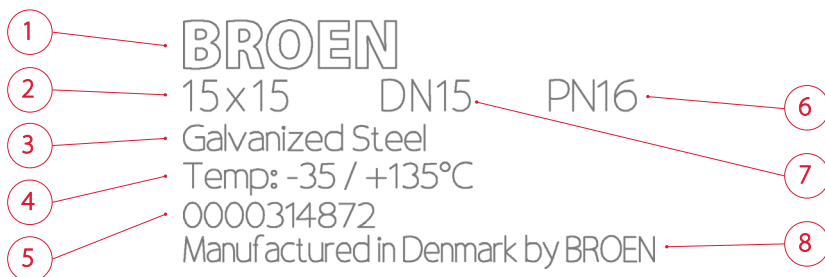


2. Identification and documentation

BROEN Full Flows are generally supplied with unique information to be used during identification and installation. In addition to the obligatory information such as pressure class etc. various other useful information is attached about the valve, depending on the individual project.

Laser marking

All information is available via the laser marking on the side of the valve. The laser marking contains the following information:



1 - Product Brand

2 - Size of connections

3 - Material

4 - Temperature

5 - A unique numerical code

6 - Pressure class, PN

7 - Size, DN

8 - Producer

Note: All stainless steel valves are marked with PN10 in accordance with EN 13828. These valves are also approved for use at pressure class PN16. Stainless steel valves do not contain a temperature range, as some certifications do not approve this. The valves are also equipped with a unique data matrix at the top of the stem, so it can be accessed without removing any insulation. The code can only be read using special equipment by BROEN and can be used for the identification of production data for the individual valve.

The valves are marked on the outside with a thin coloured line around the valve housing – green is the colour code for stainless steel, while red is the code for zinc plated steel.

Approvals and Certificates

The BROEN Full Flow can be used for a wide range of purposes and consequently has a long list of certifications that safeguard its use in various countries. This area is expanding all the time – the latest summary can be obtained upon request from BROEN.



As a natural consequence of our continual striving for improvement, BROEN is certified in accordance with ISO 9001 and thus subject to audits and strict quality requirements. We make active use of the certification, applying the specific requirements for the quality management system in order to constantly improve our ability to deliver products and services that meet our customers' own requirements – as well as those laid down by the authorities and legislation.

The standard promotes the implementation of values that BROEN also prioritises, including need, additional value, process optimisation and efficiency, as well as continuous improvement through objective measurements.

Testing and traceability

In order to achieve a high and consistent quality level, all valves must go through a complete leak test before leaving the factory.

In addition to internal production tests and as part of the approvals procedure to achieve the required certification, the valves are also subjected to a wide range of different tests. This includes among others tests according to the following standards and procedures at recognised test laboratories:

- EN 13828
- EN 1213
- NKB - migration testing
- Worksheet W570-1
- Acoustic testing cf. EN ISO 3822
- Salt spray test cf. EN 248

All valves comply with the Pressure Equipment Directive PED 2014/68/EU and, where necessary, are CE-marked on the basis of pressure class, size and use in accordance with the directive.

All valves are supplied with a unique code that ensures full traceability back to production. The code is expressed as a graphic data matrix at the top of the stem under the handle, but also as a numerical code at the side of the valve, which makes it accessible under all conditions.

All BROEN Full Flows are available as BIM objects and can thus be easily integrated in connection with project design in Autodesk Revit etc.

3. Specifications

Design



BROEN Full Flows are designed as cold-moulded valve housing along with a laser welded stem and connections. This construction results in a unique valve design which has many advantages compared to traditional valve production. We achieve a compact full flow design that ensures optimal flow conditions combined with unique insulation potential.



The patented support rings that encircle and secure the ball have a spring design so the required seal around the ball is always present, in addition to ensuring smooth and functional operation of the ball valve. Correct and uniform torque is ensured via torque measurements during installation of the support rings.



The ball in the stainless steel valve is shaped with a passage out towards the valve's dead space, resulting in the complete flushing out of all areas in the valve, ensuring minimal risk of standing water.



The stem in the valve is "blow-out"-protected via a special design that ensures that under no circumstances is there any risk of the insert in the stem coming loose from its housing.



It is possible to replace the O-ring in the stem if the valve has been subjected to overload, e.g. too high temperatures or incorrect media that has resulted in leaking.



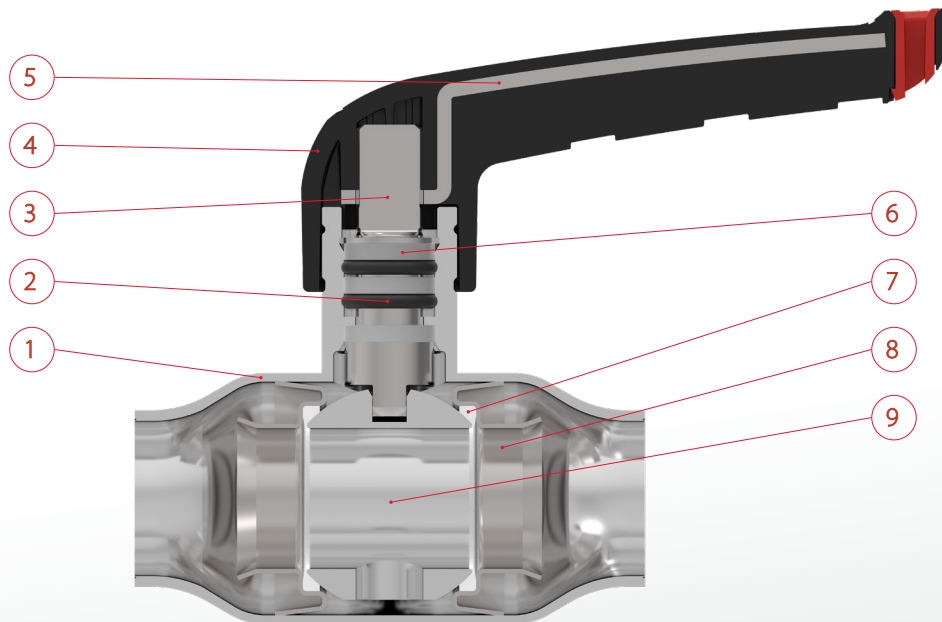
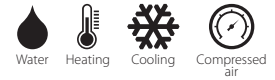
All valves are equipped with a detachable handle that can be removed without the use of tools and refitted freely in the direction best suited to the individual installation. This function can also be used in places where it is not desirable for unauthorized persons to be able to open or close the installation.

BROEN FULL FLOW DN10-50 | STAINLESS STEEL

Technical data

| | |
|-----------------------------|--|
| Material, valve housing: | Stainless steel EN 1.4404 |
| Material, handle: | PA66 - fiberglass-reinforced nylon with metal insert |
| Sizes: | DN10-50 |
| Seals: | PTFE* |
| O-rings: | EPDM** |
| Connections: | Press, female, male and swivel nut |
| Leakage protection: | LBP - Leak Before Press |
| Medium: | Water |
| Operating Pressure: | Max. 16 bar (marked with PN10, cf. EN 13828) |
| Operating temperature: | -35°C to +135°C |
| Press tools: | Only approved Press machines with M-jaws or slings, in accordance with published tool list |
| Heat expansion coefficient: | 0.0160 mm per mtr. $\Delta T = 1k$ |

* Ethylene Propylene Diene Monomer ** Polytetrafluorethylene



| No. | Component | Material | Standard |
|-----|---------------------|-----------------------------|-----------|
| 1 | Valve housing | Stainless steel | EN 1.4404 |
| 2 | O-ring | EPDM | |
| 3 | Stem | Stainless steel | EN 1.4401 |
| 4 | Handle | Fiberglass-reinforced nylon | PA66 |
| 5 | Metal reinforcement | Stainless steel | EN 1.4401 |

| No. | Component | Material | Standard |
|-----|---------------------|-----------------|-----------|
| 6 | Friction ring | PTFE | |
| 7 | Seal | PTFE | |
| 8 | Spring support ring | Stainless steel | EN 1.4401 |
| 9 | Ball | Stainless steel | EN 1.4401 |

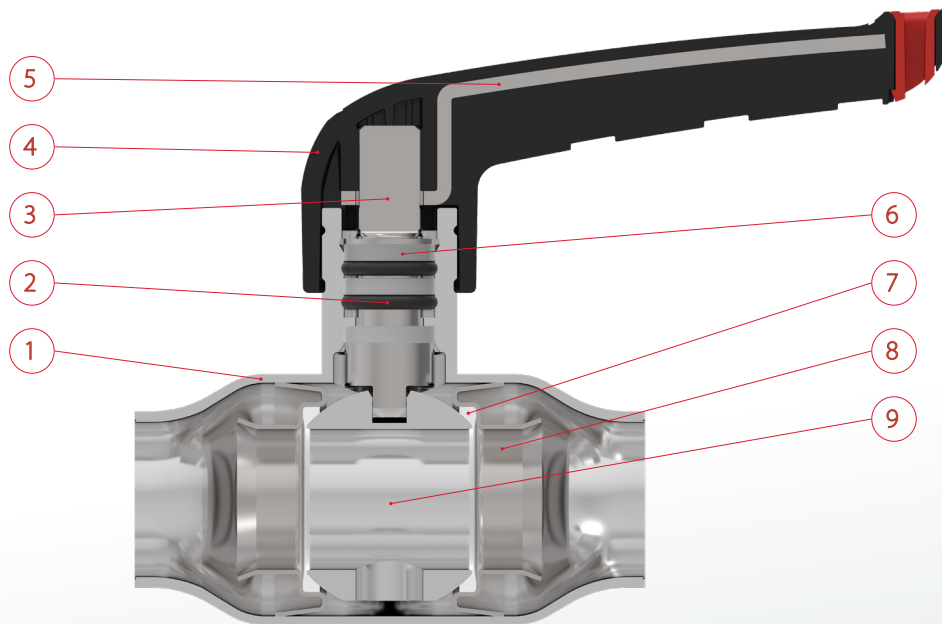
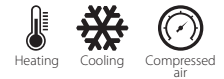
Note: Threads in accordance with ISO 228/1

BROEN FULL FLOW DN10-50 | GALVANIZED STEEL

Technical data

| | |
|-----------------------------|--|
| Material, valve housing: | P235GH in accordance with EN 10217-2 |
| Material, handle: | PA66 - fiberglass-reinforced nylon with metal insert |
| Sizes: | DN10-50 |
| Seals: | PTFE* |
| O-rings: | EPDM** |
| Connections: | Press, female, male and swivel nut |
| Leakage protection: | LBP - Leak Before Press |
| Medium: | Water |
| Operating Pressure: | Max. 16 bars |
| Operating temperature: | -35°C to +135°C |
| Press tools: | Only approved Press machines with M-jaws or slings, in accordance with published tool list |
| Heat expansion coefficient: | 0.0108 mm per mtr. $\Delta T = 1k$ |

* Ethylene Propylene Diene Monomer ** Polytetrafluorethylene



| No. | Component | Material | Standard |
|-----|---------------------|-----------------------------|------------|
| 1 | Valve housing | Galvanized steel - P235GH | EN 10217-2 |
| 2 | O-ring | EPDM | |
| 3 | Stem | Stainless steel | EN 1.4401 |
| 4 | Handle | Fiberglass-reinforced nylon | PA66 |
| 5 | Metal reinforcement | Galvanized steel | |

| No. | Component | Material | Standard |
|-----|---------------------|---------------------|-----------|
| 6 | Friction ring | PTFE | |
| 7 | Seal | PTFE | |
| 8 | Spring support ring | Stainless steel | EN 1.4401 |
| 9 | Ball | Nickel plated brass | CW617N |

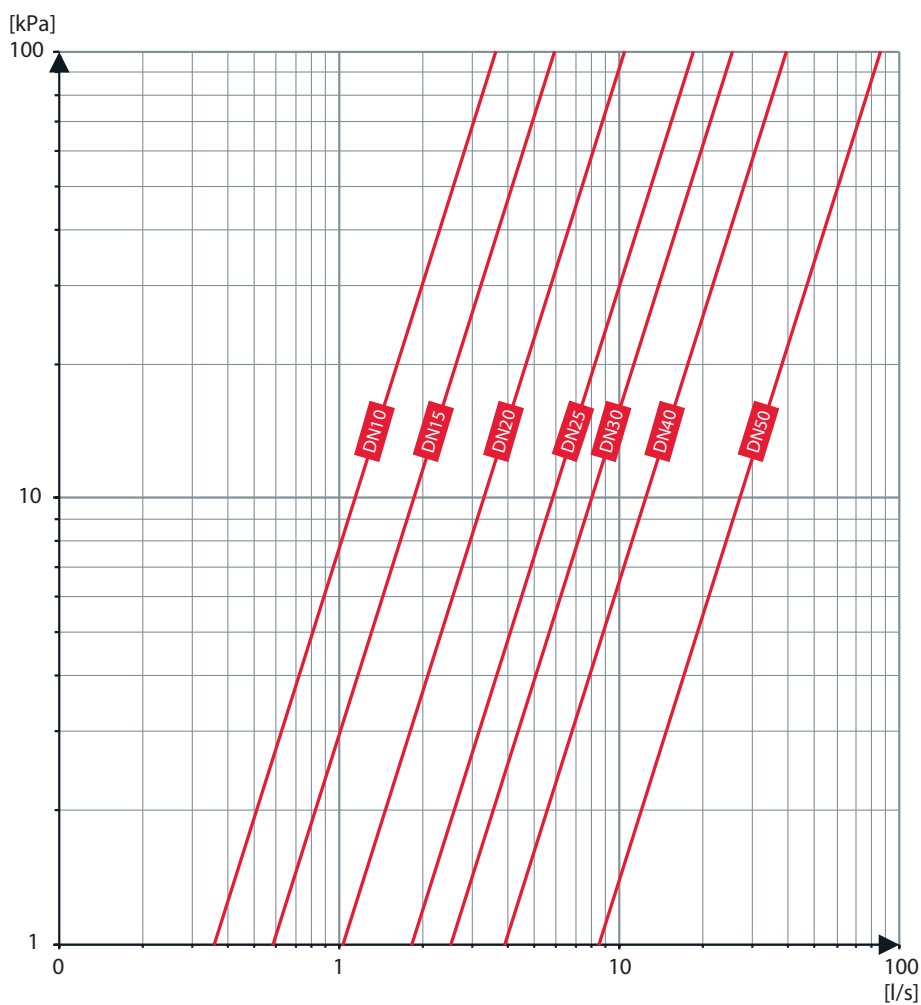
Note: Threads in accordance with ISO 228/1

Pressure loss tables

All flow and pressure loss measurements are taken in accordance with EN 1267.

Kv-values

| Valve size | DN10 | DN15 | DN20 | DN25 | DN32 | DN40 | DN50 |
|---------------------------|------|------|------|------|------|-------|-------|
| Pressure loss coefficient | 0.09 | 0.18 | 0.19 | 0.15 | 0.2 | 0.2 | 0.11 |
| Kvs value | 13 | 21.1 | 37.1 | 65.5 | 90.7 | 141.5 | 308.4 |



4. Applications

General

BROEN Full Flows can be used for a wide range of purposes. The valves are well-suited to installation in water, heating, cooling and district heating installations in combination with media compatible with the materials the valves are made from, including O-rings and seals.

If you have any questions or are in doubt about anything, always contact BROEN.

Potable water installations

BROEN Full Flow - stainless steel

| | |
|------------------------|-----------------|
| O-ring: | EPDM* (black) |
| Operating temperature: | -35°C to +135°C |
| Operating pressure: | Max. 16 bars |

In installations with BROEN Full Flow stainless steel valves, the content of water-soluble chloride ions may not exceed 250 mg/l.

Treated water*

BROEN Full Flow - stainless steel

| | |
|------------------------|-----------------|
| O-ring: | EPDM (black) |
| Operating temperature: | -35°C to +135°C |
| Operating pressure: | Max. 16 bars |

* Conditioned water, such as decalcinated/softened water, partially and completely desalinated water, distilled water, water with glycol.

In installations with BROEN Full Flow stainless steel valves, the content of water-soluble chloride ions may not exceed 250 mg/l.

Heating installations

BROEN Full Flow - stainless steel

| | |
|------------------------|-----------------|
| O-ring: | EPDM (black) |
| Operating temperature: | -35°C to +135°C |
| Operating pressure: | Max. 16 bars |

BROEN Full Flow - galvanized steel

| | |
|------------------------|-----------------|
| O-ring: | EPDM (black) |
| Operating temperature: | -35°C to +135°C |
| Operating pressure: | Max. 16 bars |

In installations with BROEN Full Flow stainless steel valves, the content of water-soluble chloride ions may not exceed 250 mg/l.

Cooling installations

BROEN Full Flow - stainless steel

| | |
|------------------------|-----------------|
| O-ring: | EPDM (black) |
| Operating temperature: | -35°C to +135°C |
| Operating pressure: | Max. 16 bars |

BROEN Full Flow - galvanized steel

| | |
|------------------------|-----------------|
| O-ring: | EPDM (black) |
| Operating temperature: | -35°C to +135°C |
| Operating pressure: | Max. 16 bars |

In installations with BROEN Full Flow stainless steel valves, the content of water-soluble chloride ions may not exceed 250 mg/l.

Compressed air

BROEN Full Flow stainless steel valves and BROEN Full Flow galvanized steel valves can be used for compressed air under the following conditions:

| | |
|----------------|---|
| Water content: | Max. 880 mg/m ³ , class 3, ISO 8573 - Part 1 |
| Oil content: | Max. 25 mg/m ³ , class 5, ISO 8573 - Part 1 |

| Class | Water content [mg/m ³] | Oil content (mg/m ³) | O-ring |
|-------|------------------------------------|----------------------------------|--------|
| 1 | 3 | 0.01 | EPDM |
| 2 | 120 | 0.1 | EPDM |
| 3 | 880 | 1 | EPDM |
| 4 | 6,000 | 5 | EPDM |
| 5 | 7,800 | 25 | EPDM |

BROEN Full Flows may only be used for dry compressed air or compressed air that contains a maximum of 25 mg/m³ synthetic oil.

BROEN Full Flow - stainless steel

| | |
|------------------------|-----------------|
| O-ring: | EPDM (black) |
| Operating temperature: | -35°C to +135°C |
| Operating pressure: | Max. 16 bars |

BROEN Full Flow - galvanized steel

| | |
|------------------------|-----------------|
| O-ring: | EPDM (black) |
| Operating temperature: | -35°C to +135°C |
| Operating pressure: | Max. 16 bars |

Industrial installations

BROEN Full Flow - stainless steel

| | |
|------------------------|-----------------|
| O-ring: | EPDM (black) |
| Operating temperature: | -35°C to +135°C |
| Operating pressure: | Max. 16 bars |

BROEN Full Flow - galvanized steel

| | |
|------------------------|-----------------|
| O-ring: | EPDM (black) |
| Operating temperature: | -35°C to +135°C |
| Operating pressure: | Max. 16 bars |

In installations with BROEN Full Flow stainless steel valves, the content of water-soluble chloride ions may not exceed 250 mg/l.

It is possible to obtain special permission to use the BROEN Full Flow - galvanized steel for applications where the requirement is PN25. The license includes the use of special tools and the BROEN must always be contacted before execution.

Vacuum installations

BROEN Full Flows in stainless and galvanized steel are well-suited for use in vacuum installations with a relative pressure down to 0.85 bar (0.15 bar absolute).

Other installations

BROEN Full Flow - stainless steel

| | |
|------------------------|-----------------|
| O-ring: | EPDM (black) |
| Operating temperature: | -35°C to +135°C |
| Operating pressure: | Max. 16 bars |

BROEN Full Flow - galvanized steel

| | |
|------------------------|-----------------|
| O-ring: | EPDM (black) |
| Operating temperature: | -35°C to +135°C |
| Operating pressure: | Max. 16 bars |

In installations with BROEN Full Flow stainless steel valves, the content of water-soluble chloride ions may not exceed 250 mg/l.

BROEN Full Flows can be used for a wide range of other purposes. It is always recommended that you contact BROEN for advice in connection with use in applications other than those listed above.

Corrosion

BROEN Full Flows can be used for the applications mentioned in the section "Applications". With any kind of use, there must be consideration for the correct choice of product in relation to the application, in order to prevent corrosion. Always look up information regarding any restrictions on the use of chemical additives.

BROEN Full Flow - stainless steel

BROEN Full Flow stainless steel valves are produced in acid resistant stainless steel (in accordance with EN 1.4404), which is a material that does not react with ordinary domestic hot water. This means the valve is passive in relation to effects from and to the water, and the risk of corrosion is therefore eliminated in domestic hot water installations that are supplied in accordance with legislation. The chloride concentration of the water must not be greater than 250 mg/L.

Under normal circumstances, there is no need to surface protect BROEN Full Flow stainless steel valves, but it is important to be aware of chloride-rich environments and insulation, which could cause corrosion (see more in the section "Insulation").

Stainless steel (in accordance with EN 1.4404) has a minimum PREN value of 23.1. The PREN value is an expression of corrosion resistance and is defined as the relationship between chrome, molybdenum and nitrogen in the finished material.

NOTE!

It is not allowed to replace o-rings with other materials, such as FPM / FKM in press ends on the BROEN Full Flow, as o-rings are also used in the spindle (EPDM).

When BROEN Full Flow - stainless steel is used in combination with hot galvanized steel pipes, an insulation piece must be used on any direct transition between the hot galvanized pipe and the ball valve. This should be carried out with the help of a non-conductive material, e.g. plastic. The length of the insulation piece must correspond to the requirements in DIN1988 (min. 50 mm).

BROEN Full Flow - galvanized steel

BROEN Full Flow galvanized steel valves are made from the carbon steel P235GH, which is characterized by its low carbon content and has been used for many years for the manufacture of ball valves for the district heating industry. The valves are intended for use in installations that do not contain oxygen, i.e. installations that can be defined as a closed circuit, without the continuous addition of oxygen.

The valve housing is made of carbon steel and as such not corrosion resistant. To avoid corrosion coming from outside, the valve will either have to be installed in dry surroundings or it must be protected by watertight insulation or other surface protection.

BROEN Full Flow galvanized steel valves are surface treated with a thin layer of zinc, which ensures an attractive finish on visible installations. The zinc coating is susceptible to continuous moisture and must therefore always be protected against condensation, damp environments and bad weather. The valves must not be used for cooling installations that are not properly secured against surface condensation.

5. Installation

General

The valves are supplied in an open position in order to protect the valve against impurities and should remain so during installation. The valves can be mounted in all directions and there is no requirement regarding direction of flow. All valves should be function tested before commissioning the installation.

Always be aware of the length expansion of the individual pipe system. Ignoring this can result in damage to the valve and the entire installation. The expansion coefficient for the valves can be found under the section "Specifications".

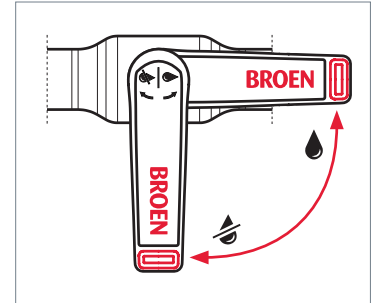
Always observe the limits laid down for pressure and temperature for the individual valve and check there is agreement between the medium and the selected valve. If you have any questions or are in any doubt, contact BROEN.

The packaging should be properly disposed of in accordance with area guidelines and local legislation.

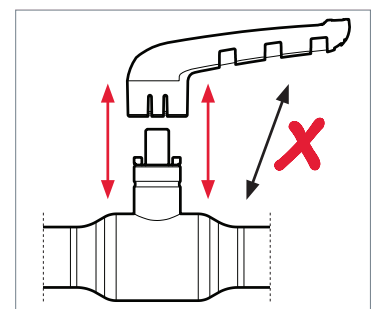
Operating and labelling

BROEN Full Flows are operated via the ergonomic metal-reinforced nylon handle. Full operation is achieved by rotating the handle 90 degrees. A longitudinal position corresponds to a fully open valve, while a transversal position results in a fully closed valve.

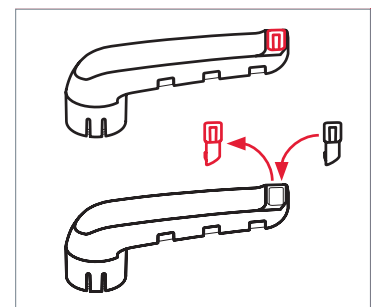
The valves are designed to be either fully open or fully closed and should be used in this way. Positioning the ball in intermediate positions for long periods can result in a loss of tightness between the ball and the seals.



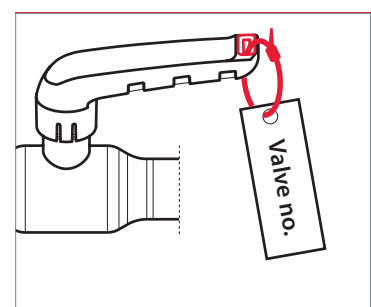
The handle on the valve is easily removed with a controlled, moderate pull away from the valve housing. It is recommended that you secure the valve while doing this. After removing the handle, it can be mounted freely in the desired direction. Do not use any kind of tools in connection with operation, mounting or removal of the handle.



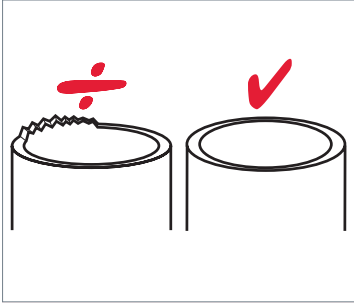
It is possible to mark each valve with different coloured clips in order to enable identification of hot and cold water or return and non-return, for example. Clips in red and blue respectively included when buying valve.



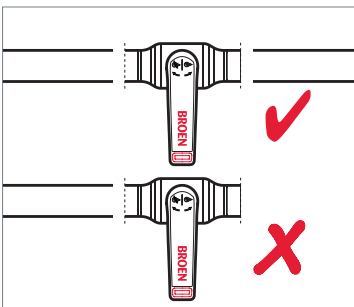
The clips also make it possible to label the individual valve. This labelling can be advantageous as regards sectional building.



Assembly



All types of pipes used in connection with the valves must be properly deburred to reduce the risk of damaging the valve and the risk of turbulence as well as the build-up of foreign bodies.



Due to the risk of injury or damage to the building, it is recommended that the installation is always fully assembled with pipes or installation objects on both sides of the valve. Alternatively, the valve must be properly plugged until assembly can be resumed.

BROEN Full Flows can be supplied with a variety of connections. The individual methods of assembly will now be reviewed for the purposes of correct installation.

PRESS:

BROEN Full Flows with press-to-connect end connections are used as an integrated part of press systems. Use only M-profile jaws and slings, see the published tool list.

Use only galvanized steel pipes in accordance with EN 10305-3 and stainless steel pipes in accordance with EN10312, DVGW worksheet W534 - GW541 and, for Switzerland, SVGW W/TPW 132 (10/04).

Cutting tube to length

After measuring, the tubes can be cut to length using a tube cutter, a fine-toothed handsaw or a mechanical saw with electrical motor suitable for the tube material. The tube must always be cut completely through. Never partially cut the tube and break it off as this increases the risk of corrosion. Cutting tools for use on stainless steel must not previously have been used on other materials. When using an electric pipe cutter, apply only very low torque as the tube may otherwise become deformed.



Do not use an oil-cooled saw, angle grinder or blowtorch.

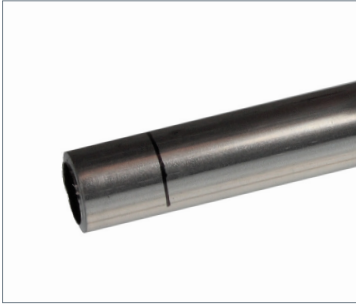
Deburring the tube

The tube ends must be carefully and thoroughly deburred inside and out after being cut to length. This is in order to avoid any damage to the O-ring when inserting the tube into the valve. Deburring the inside of tubes prevents pitting and corrosion. A hand deburrer suitable for the material or an electrical tube deburrer may be used to deburr both the inside and outside of the tube. Burrs sticking to the tube must be removed.



Calibration

Always check that the pipe ends are radial and evenly rounded before mounting the valve. This minimizes the risk of incorrect mounting and changing the o-ring location.



Marking insertion depth

In order to ensure a good, secure joint, the required insertion depth (see the table on page 23) must be marked on the tube. Reliable pressing with the corresponding tensile strengths can only be achieved if the elements are correctly installed. The pressing operation behind the bead is of crucial importance for the tensile strength.

The marking on the tube must remain visible (but close to the valve) after the connection is pressed to identify any movement before or after pressing. The mark must be made with an ink marker that does not contain chloride.



Checking the valve and pipe

Before assembly, the valve must be checked to ensure that the O-rings are present and correctly positioned. The tube, valve and O-ring must be examined for any foreign objects (e.g. dirt, burrs), which must be removed, if present.



Assembly of valve and tube

Insert the tube carefully into the press valve until it reaches the insertion depth marking, while at the same time rotating and pushing it in the direction of the axis. The insertion depth marking must remain visible. Heavy-handed and careless insertion of the tube into the press valve may damage the O-ring and should therefore be avoided.

If assembly is difficult because of the tight tolerances involved, a little water or soap may be used.

Under no circumstances may oils, fats or grease be used as lubricants.

Also make sure that you are using the correct press jaws and slings for the application. In order to create a correctly pressed connection, the groove of the press tool must enclose the O-ring bead on the valve. Once the pressing has started, always complete the press cycle and under no circumstances interrupt the process. For approved press tools, see www.broen.dk.

It is not permitted to press a connection more than once.

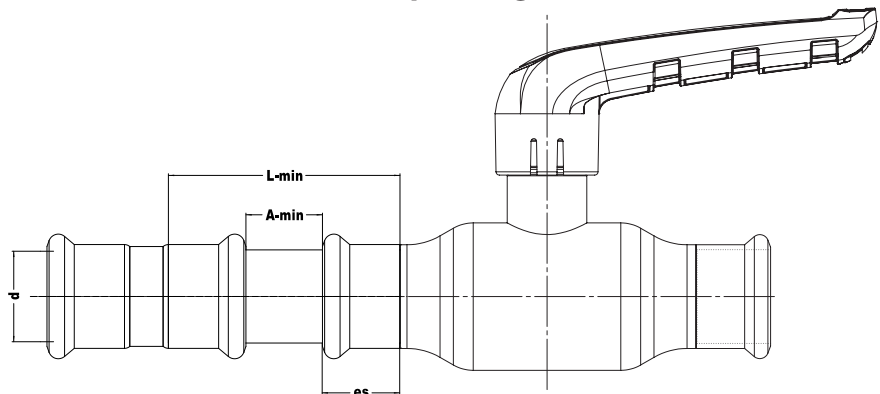


Pressing

Before starting to press, the press jaws and slings must be checked for dirt, which must be removed if present. Furthermore, the press machine must be in good condition and the instructions for operating the device, maintenance and the manufacturer's instructions must be observed.

Always observe the tool manufacturer's recommendations in regard to use and servicing of the press tool.

Minimum distance between pressings



Stainless steel

| DN | d | Tube length L-min | Min distance between fit- tings A-min | Insertion depth es |
|----|----|----------------------|---|-----------------------|
| 10 | 15 | 50 | 10 | 20 |
| 15 | 18 | 50 | 10 | 20 |
| 20 | 22 | 52 | 10 | 21 |
| 25 | 28 | 56 | 10 | 23 |
| 32 | 35 | 62 | 10 | 26 |
| 40 | 42 | 80 | 20 | 30 |
| 50 | 54 | 90 | 20 | 35 |

Galvanized Steel

| DN | d | Tube length L-min | Min distance between fit- tings A-min | Insertion depth es |
|----|----|----------------------|---|-----------------------|
| 10 | 15 | 50 | 10 | 20 |
| 15 | 18 | 50 | 10 | 20 |
| 20 | 22 | 52 | 10 | 21 |
| 25 | 28 | 56 | 10 | 23 |
| 32 | 35 | 62 | 10 | 26 |
| 40 | 42 | 80 | 20 | 30 |
| 50 | 54 | 90 | 20 | 35 |

SWIVEL NUT:

BROEN Full Flows with swivel nut are used in conjunction with water meters, pumps, motor operated valves etc. and these components are fully interchangeable without having to drain the entire system.

When mounting, the swivel nut is pulled back to the valve, avoiding unnecessary twisting in the installation. Then ensure that the flat surfaces are clean before mounting the gasket supplied and screwing the swivel nut together with the other installation object by hand. Once an even resistance has been met, use the spanner or wrench to ensure it is completely tight between the valve and installation. Do not use any kind of packing material on the swivel nut's thread.

| Valve size | Width across flats |
|------------|--------------------|
| DN10 | 27/32 mm |
| DN15 | 32 mm |
| DN20 | 32 mm |
| DN25 | 46 mm |
| DN32 | 52 mm |
| DN40 | 58 mm |
| DN50 | 72 mm |

THREAD:

BROEN Full Flows with thread connections can be used for a great many purposes where flexibility at a thread joint is desired.

Before mounting the valve, ensure that its counterpart is free of burrs and the thread is complete and unbroken. Apply the preferred packing material – be aware that it is not permitted to use PTFE tape containing harmful substances that affect the valve material.

The valve is mounted by screwing it onto its counterpart, being careful not to screw it too tightly. Always apply counter support with a suitable tool to avoid unnecessary tension in the valve and installation.

Always use the end of the valve that faces towards the tube to secure to the remaining part of the installation. Never use the stem for screwing the installation together.

| Valve size | Width across flats |
|------------|--------------------|
| DN10 | 27 mm |
| DN15 | 32 mm |
| DN20 | 36 mm |
| DN25 | 41 mm |
| DN32 | 50 mm |
| DN40 | 56 mm |
| DN50 | 69 mm |

Insulation

All BROEN Full Flows are available with either a high or low stem. Versions with high stems can be insulated in accordance with the most stringent standards. The valve's slim design ensures correct insulation without the use of unnecessary insulation caps, thereby avoiding joins in the insulation around the valve.

The tall, fixed stem of the valve also allows the option of attaching diffusion tight insulation to the stem, which must always be carried out for cooling installations where there is a risk of condensation.

Only those insulation materials that have a chloride ion content lower than 0.05% can be used, which corresponds to AS quality.

Insulating systems that are constructed in such a way that moisture can collect on the surface of the valves are likewise not permitted. In general, regulatory requirements must always be complied when performing insulation work.



6. Flushing and pressure testing

All pipe systems must be flushed through before commissioning so that any foreign bodies can be washed out. This reduces the risk of corrosion damage, hygiene problems and functional errors in the system. Domestic hot water installations must be flushed as soon as possible after installing the pipelines and after the pressure test. The cold and hot water pipelines should be flushed separately, intermittently and under pressure in accordance with EN 806, Part 4. Installation instructions and legislation regarding drinking water must be observed at all times.

Failure to flush the system can result in damage to the valve's gaskets when using the open/close function.

Always ensure that the system is fully ventilated and free of a harmful build-up of oxygen.

7. Service and maintenance

The valves do not need extra service under normal conditions, but to guarantee the good working of the valves, opening and closing the valve regularly is highly recommended, depending on medium and use. The table below can be used as a guideline in relation to operation and maintenance. BROEN is not liable in any way for any consequences of failing to perform a function test, nor if these are not carried out according to the table below.

| Medium | Interval for function testing |
|---------------------------------|-------------------------------|
| Domestic hot water | Twice annually |
| Domestic hot water (calcereous) | 4-6 times annually |
| Heating | Twice annually |
| Refrigeration | Twice annually |
| Compressed air | Once annually |

It is possible to replace the O-ring in the stem if this has been slightly overloaded as a consequence of incorrect use.

8. FAQ

I can't shut off the valve – what do I do?

Try to slowly increase the torque until the handle begins to turn. The valve has a metal handle with a top mould of reinforced nylon and can thus resist high torques. Never use tools etc. in an attempt to shut off the valve.

The valve is closed and cannot be opened – what do I do?

First check whether you are turning it in the right direction. Follow the instructions on the handle. The valve is guided towards an open position by turning the handle clockwise; correspondingly, the valve is closed by turning the handle anticlockwise.

I want to use the valve as the end piece on an installation – is there anything I should be aware of?

If the valves are used as the end of an installation (either temporarily or permanently), it is always recommended that the closure is carried out with proper plugging. This reduces the risk of injury and damage to the materials.

It is dripping out of the top of the stem on the valve – is this due to incorrect use of the medium?

Always check that the medium, pressure and temperature of the installation match overall with the version of BROEN Full Flow used. Should it be the case that these conditions do not match, it is possible to replace the O-rings in the stem so that a seal is again achieved.

Is it possible to change to other types of O-ring in the valve so that the valve can be used for other purposes/with other media?

No, it is only permitted to change O-rings in both spindel and pos. press ends for the same type and quality as the valve is manufactured with.

9. Tender specifications

Technical tender description **– BROEN Full Flows | stainless steel**

General:

The system's shut-off valve is for shutting off various types of media in residential as well as commercial and industrial buildings. The valves must be produced with a full flow design without reduced flow.

Temperature: -35°C to 135°C

Pressure class: PN16

Test:

Shut-off valves must be tested and classified in accordance with European standards, including EN 13828 and comply with the currently applicable national legislation.

Material:

Valve housing must be produced in the same material as the installation in which the valve is installed. All metal parts that come into contact with water must be produced in stainless steel.

Insulation:

In order to avoid energy loss, shut-off valves designed so that over-insulation with pipe insulation is possible must be used. Do not use shut-off valves with independent insulation sheath. Shut-off valves must be constructed with a fixed spindle so that cell isolation can be secured to the stem to achieve diffusion density.

Shut-off function:

It must be ensured that tightness around the ball is maintained upon constant dynamic impact beyond that provided by the seals. The function must also ensure optimal ball movement throughout the valve's entire lifetime.

Connections:

It must be possible in system solutions to use the system shut-off valve with a variety of connections in the same system, so that the use of unnecessary transition pieces is reduced as far as possible.

Handle:

Handles must be produced in stainless steel covered in a non-heat conducting material such as UV-resistant plastic so that energy transfer is minimized and any condensation avoided. It must be possible to remove the handle without the need for tools. The changing colour indicator on the handle enables the user to distinguish between different media. Furthermore, there must be the possibility of attaching additional identification of media or function.

Stem:

The shut-off valve in the same series must be available with both a short and long stem, so that these can be freely selected according to the current situation. Shut-off valves must be constructed with a fixed stem so that cell isolation can be secured to the spindle to achieve diffusion density. The stem must be of a length that ensures insulation in accordance with the current standards in this area.

Technical tender description

– BROEN Full Flows | galvanized steel

General:

The system's shut-off valve is for shutting off various types of media in residential as well as commercial and industrial buildings. The valves must be produced with a full flow design without reduced flow.

Temperature: -35°C to 135°C

Pressure class: PN16

Test:

Shut-off valves must be tested and classified in accordance with European standards, including EN 13828 and comply with the currently applicable national legislation.

Material:

Valve housing must be produced in the same material as the installation in which the valve is installed.

Insulation:

In order to avoid energy loss, shut-off valves designed so that over-insulation with pipe insulation is possible must be used. Do not use shut-off valves with independent insulation sheath. Shut-off valves must be constructed with a fixed spindle so that cell isolation can be secured to the stem to achieve diffusion density.

Shut-off function:

It must be ensured that tightness around the ball is maintained upon constant dynamic impact beyond that provided by the seals. The function must also ensure optimal ball movement throughout the valve's entire lifetime.

Connections:

It must be possible in system solutions to use the system shut-off valve with a variety of connections in the same system, so that the use of unnecessary transition pieces is reduced as far as possible. In consideration for the required tools, press-to-connect end connections must be produced to match the rest of the pipe system in all dimensions.

Handle:

Handles must be produced in metal covered in a non-heat conducting material such as UV-resistant plastic so that energy transfer is minimized and any condensation avoided. It must be possible to remove the handle without the need for tools. The changing colour indicator on the handle enables the user to distinguish between different media. Furthermore, there must be the possibility of attaching additional identification of media or function.

Stem:

The shut-off valve in the same series must be available with both a short and long stem, so that these can be freely selected according to the current situation. Shut-off valves must be constructed with a fixed stem so that cell isolation can be secured to the spindle to achieve diffusion density.. The stem must be of a length that ensures insulation in accordance with the current standards in this area.

10. Guarantee and reservations

The Buyer must check the products upon receipt. Any omissions that are discovered or that should have been discovered in connection with this check or that are not discovered until later must immediately, and no later than seven days after the omission has been or should have been detected, be reported in writing to BROEN. Under no circumstances can the Buyer find BROEN liable for any omissions later than one year after delivery of the goods.

BROEN is solely responsible for any injuries or damage to property as a consequence of omissions or defects in supplied products (product liability) to the extent that responsibility is due to mandatory legislation. BROEN is not liable for damage to a Buyer's property or other property that intended for commercial use (commercial damage).

BROEN is under no circumstances responsible for improper use of the product, including improper use in relation to applications, media, pressure, temperature or tools for use in assembly.





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VALVE TECHNOLOGIES

BROEN VALVE TECHNOLOGIES

BROEN is a leading international manufacturer of valve technology and we operate on three continents across the world with key markets in Europe, China and USA.

For more than 70 years BROEN has been the global leader in the development and production of valve technology for the control of water, air and gas. BROEN delivers complete solutions for HVAC building installations and is a leading supplier of district energy valves and valve technology for natural gas.

We know application and valve technology in depth and in close dialogue with our customers and partners all over the world we create value and reliability with proven valves offering full quality assurance.

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