

# BRQ-9000

# SF

## PRESSURE INDEPENDENT CONTROL VALVE

THREADED  
SERIES

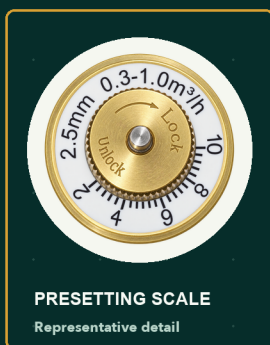
### ENGINEERED FOR

## PRECISE FLOW CONTROL

- 01** MODULATING CONTROL  
Flow regulation at the terminal unit
- 02** AUTOMATIC BALANCING  
Stable hydronic operation
- 03** FLOW PRESETTING  
Adjustable maximum flow setting



DN20 REPRESENTATIVE VALVE SHOWN



### BRQ-9000 SF AT A GLANCE

**DN15–DN50**  
SIZE RANGE

**PN25**  
PRESSURE CLASS

**BSP**  
THREADED CONNECTION

### BUILT FOR HYDRONIC HVAC SYSTEMS

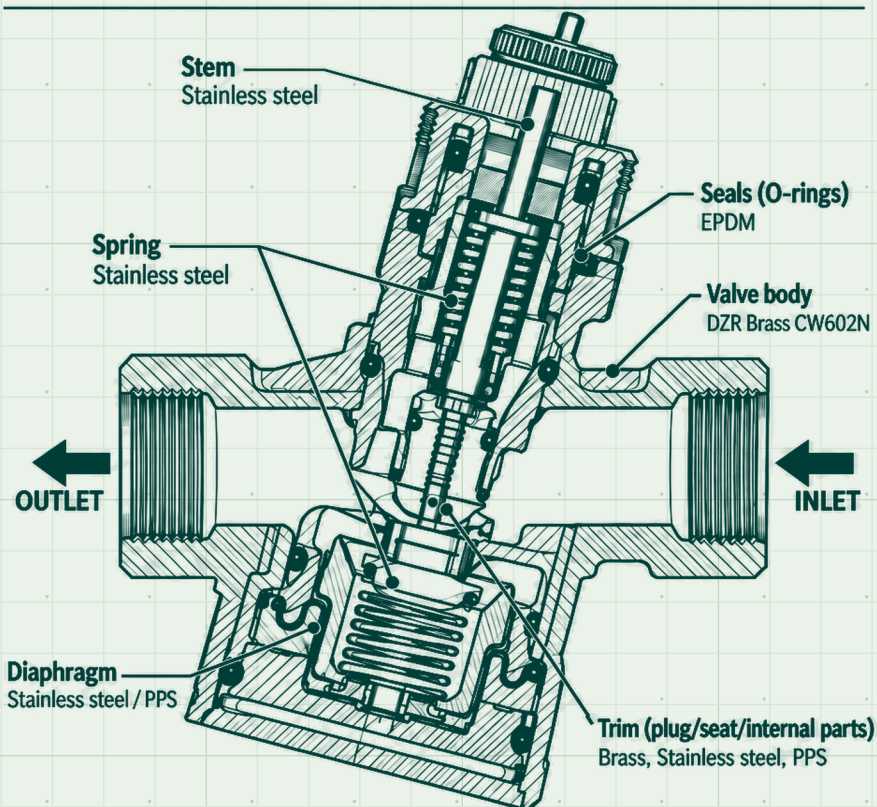
The BRQ-9000 SF integrates modulating control, automatic hydronic balancing and flow presetting in one compact valve for chilled- and hot-water service.

Valve body DZR brass CW602N  
Stem & spring Stainless steel  
Seals EPDM

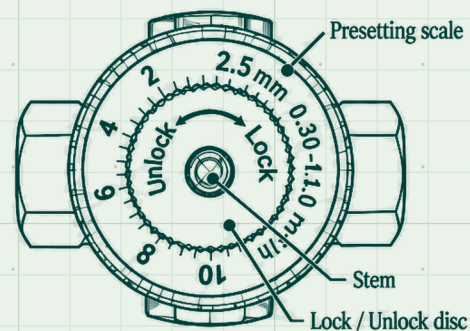
# INTERNAL CONSTRUCTION

BRQ-9000 SF / COMPONENTS & MATERIALS

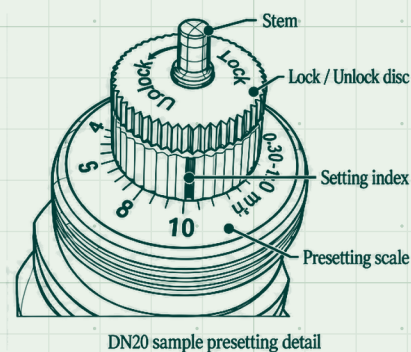
## 01 SECTION



## 02 PRESETTING



## 03 SETTING DETAIL



## MATERIAL SPECIFICATION

### 01 Valve body

DZR Brass CW602N

### 02 Stem

Stainless steel

### 03 Trim (plug / seat / internal parts)

Brass, Stainless steel, PPS

### 04 Seals (O-rings)

EPDM

### 05 Spring

Stainless steel

### 06 Diaphragm

Stainless steel / PPS

### 07 Pressure class

PN25 (per ISO 7268)

### 08 Medium temperature range

1...110 °C

### 09 Pipe connection

Internal thread BSP (ISO 7/1)

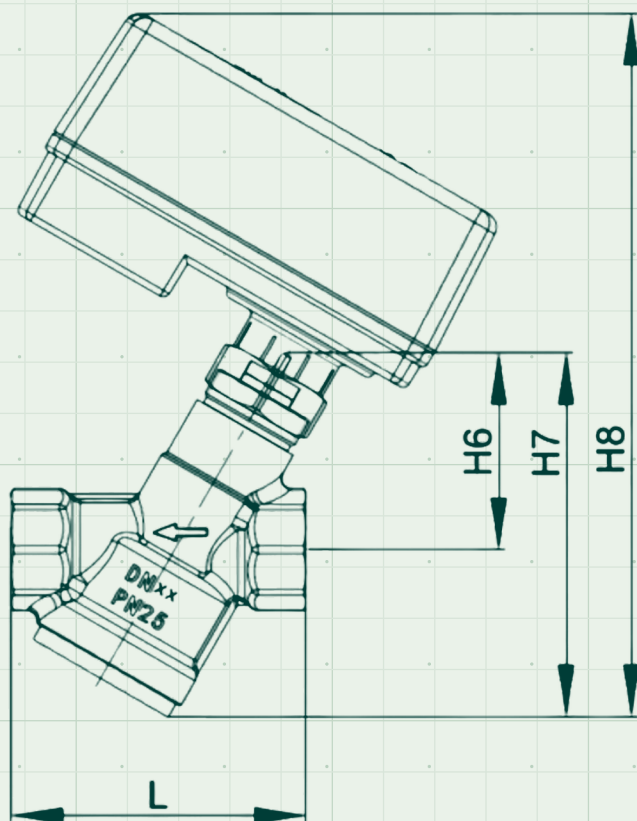
### 10 Pressure test plugs

G 1/4" self-sealing test points

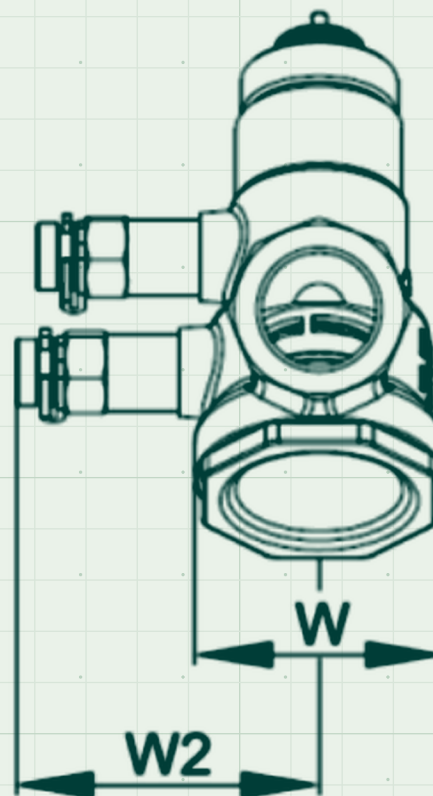
# DIMENSIONAL DATA

BRQ-9000 SF / DIMENSIONS IN mm

01



02



## DIMENSIONS

| DN | L<br>(mm) | W<br>(mm) | W2<br>(mm) | H6<br>(mm) | H7<br>(mm) | H8<br>(mm) | WEIGHT<br>(kg) | STROKE<br>(mm) |
|----|-----------|-----------|------------|------------|------------|------------|----------------|----------------|
| 15 | 75        | 45        | 57         | 52         | 101        | 199        | 0.65           | 2.5            |
| 20 | 85        | 48        | 59         | 57         | 105        | 203        | 0.72           | 2.5            |
| 25 | 90        | 48        | 59         | 62         | 114        | 212        | 0.98           | 5              |
| 32 | 115       | 59        | 65         | 75         | 138        | 236        | 1.35           | 6              |

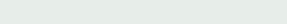
# TECHNICAL PERFORMANCE

BRQ-9000 SF / DN15–DN50

MEDIUM TEMPERATURE

## 1–110 °C

### STROKE BY NOMINAL SIZE

|         |                                                                                     |        |
|---------|-------------------------------------------------------------------------------------|--------|
| DN15–20 |    | 2.5 mm |
| DN25    |    | 5 mm   |
| DN32    |    | 6 mm   |
| DN40    |    | 10 mm  |
| DN50    |  | 15 mm  |

### TECHNICAL INFORMATION

## DESIGN PRESSURE

PN25 / 2,500 kPa

## WORKING PRESSURE

Per PN25 pressure–temperature rating

## PIPE CONNECTION

Internal BSP thread (ISO 7/1)

## LEAKAGE CLASS

Class IV

## COMPLIANCE

EN 12266

## ACTUATION

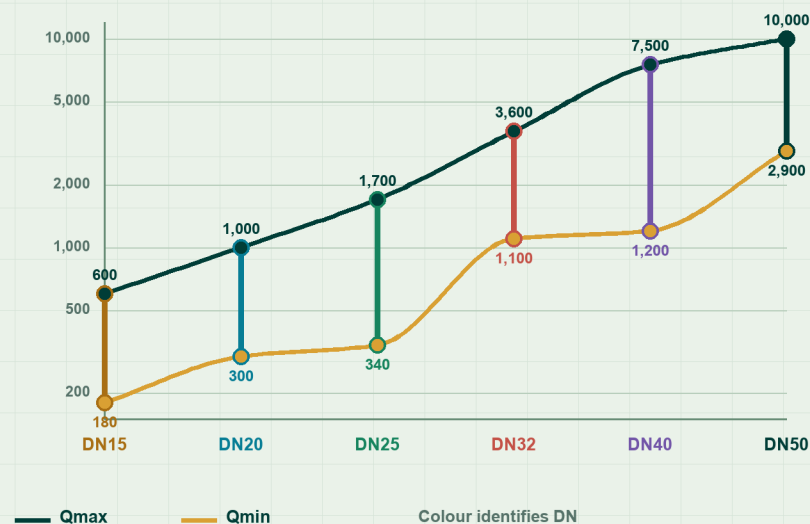
Manual / motorized

DN15–DN32 BRQ-ACT-13-01

DN40–DN50 BRQ-ACT-104

### FLOW RANGE BY SIZE

Qmin and Qmax / L/h • logarithmic flow scale



### FLOW RANGE BY SIZE

| SIZE | FLOW Qmin–Qmax (L/h) |
|------|----------------------|
| DN15 | 180–600              |
| DN20 | 300–1,000            |
| DN25 | 340–1,700            |
| DN32 | 1,100–3,600          |
| DN40 | 1,200–7,500          |
| DN50 | 2,900–10,000         |

# FLOW vs DIFFERENTIAL PRESSURE

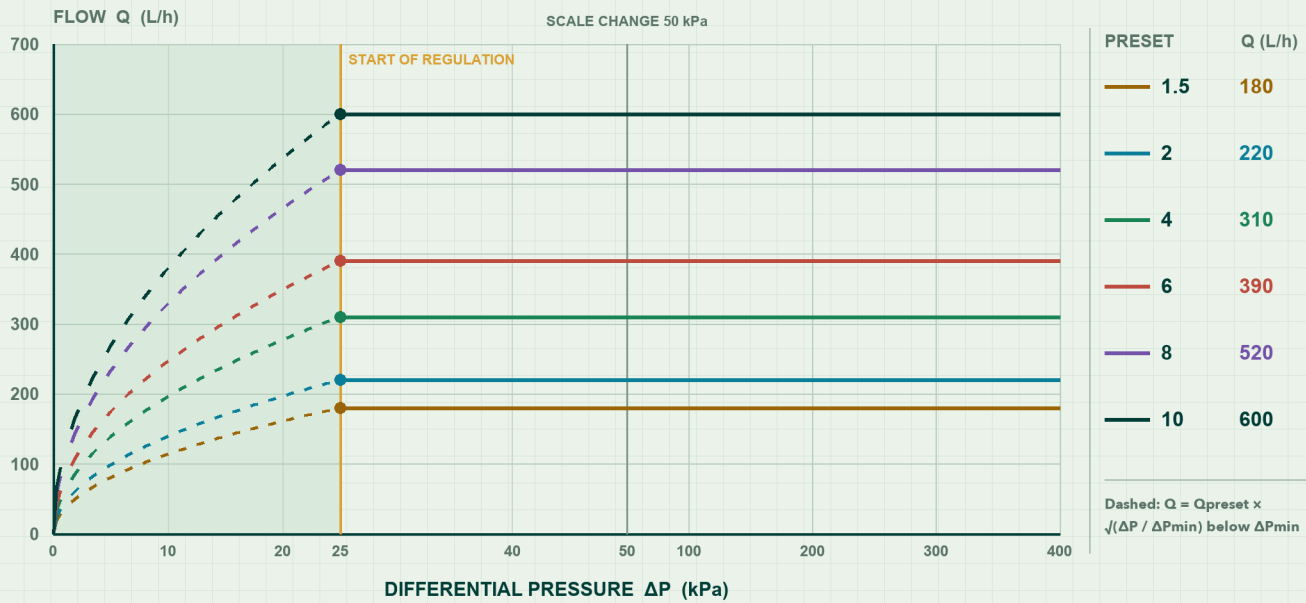
FLOW vs DIFFERENTIAL PRESSURE / DN15 & DN20

## DN 15

$\Delta P_{min} = 25 \text{ kPa}$

$\Delta P_{max} = 400 \text{ kPa}$

$Q_{max} = 600 \text{ L/h}$

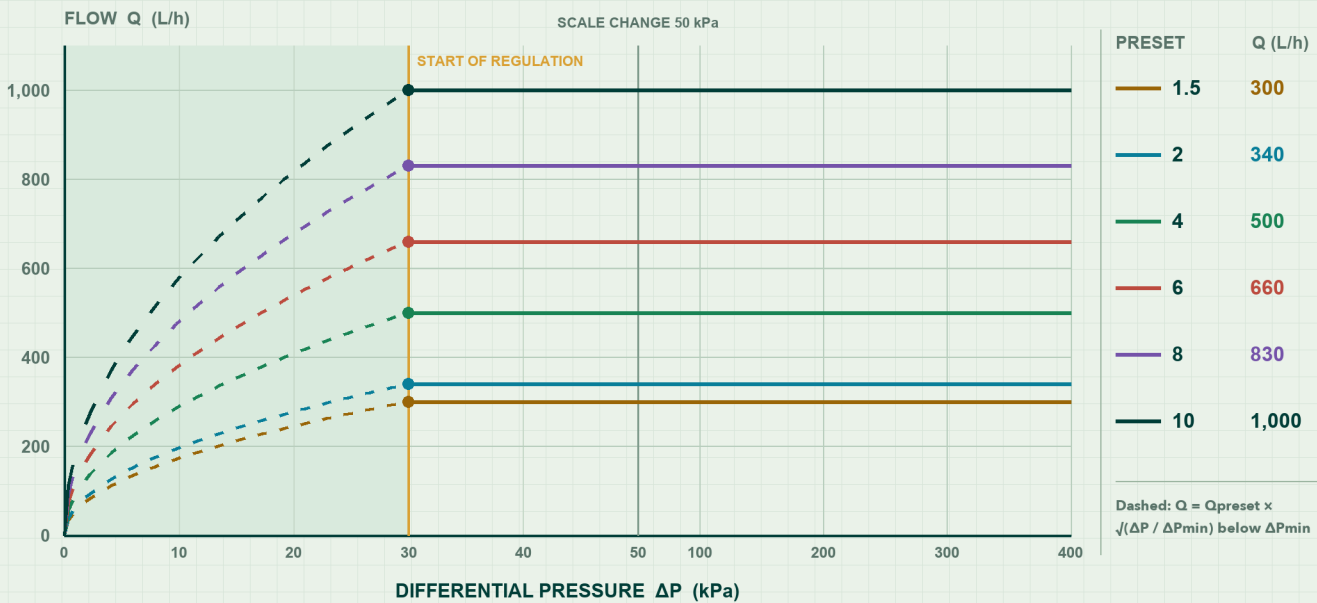


## DN 20

$\Delta P_{min} = 30 \text{ kPa}$

$\Delta P_{max} = 400 \text{ kPa}$

$Q_{max} = 1,000 \text{ L/h}$



— Specified regulated flow

- - - Calculated start-up

Below  $\Delta P_{min}$

# FLOW vs DIFFERENTIAL PRESSURE

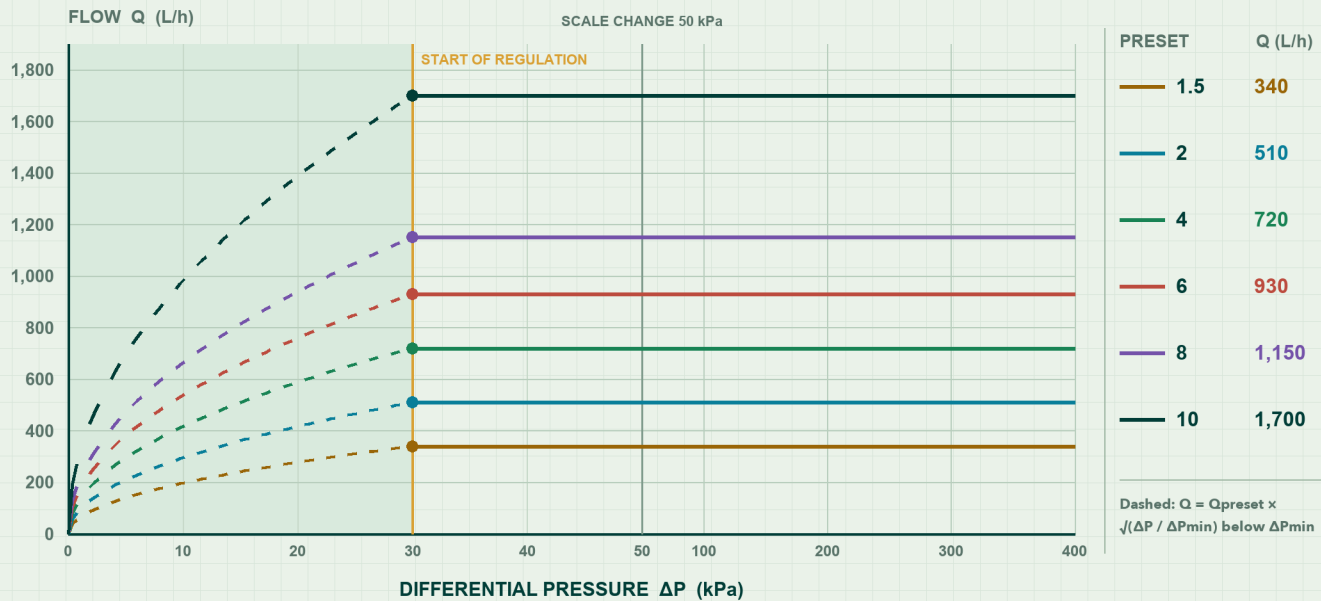
FLOW vs DIFFERENTIAL PRESSURE / DN25 & DN32

## DN 25

$\Delta P_{min} = 30 \text{ kPa}$

$\Delta P_{max} = 400 \text{ kPa}$

$Q_{max} = 1,700 \text{ L/h}$

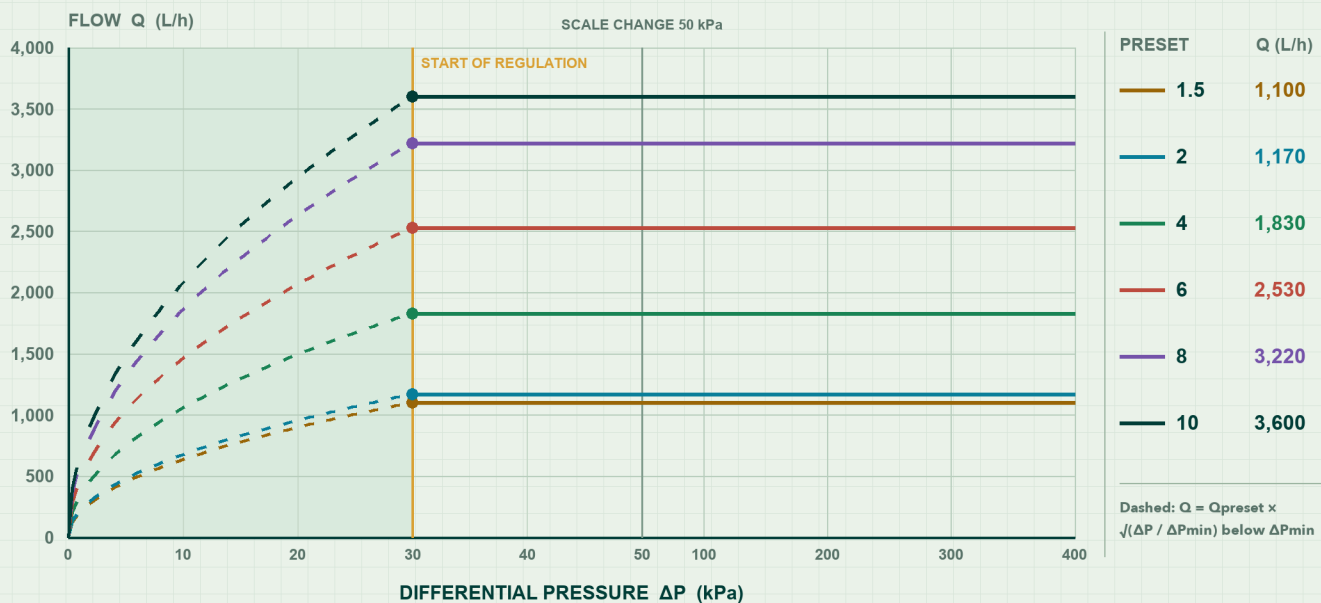


## DN 32

$\Delta P_{min} = 30 \text{ kPa}$

$\Delta P_{max} = 400 \text{ kPa}$

$Q_{max} = 3,600 \text{ L/h}$



— Specified regulated flow

- - - Calculated start-up

Below  $\Delta P_{min}$

# FLOW vs DIFFERENTIAL PRESSURE

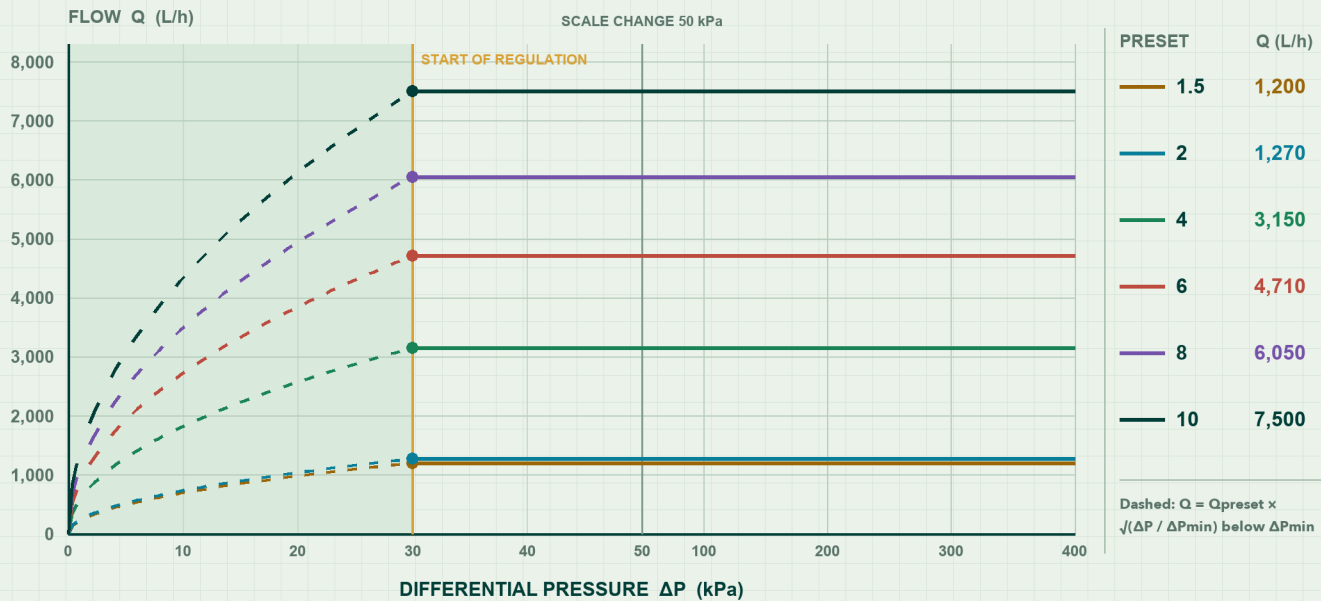
FLOW vs DIFFERENTIAL PRESSURE / DN40 & DN50

## DN 40

$\Delta P_{min} = 30 \text{ kPa}$

$\Delta P_{max} = 400 \text{ kPa}$

$Q_{max} = 7,500 \text{ L/h}$

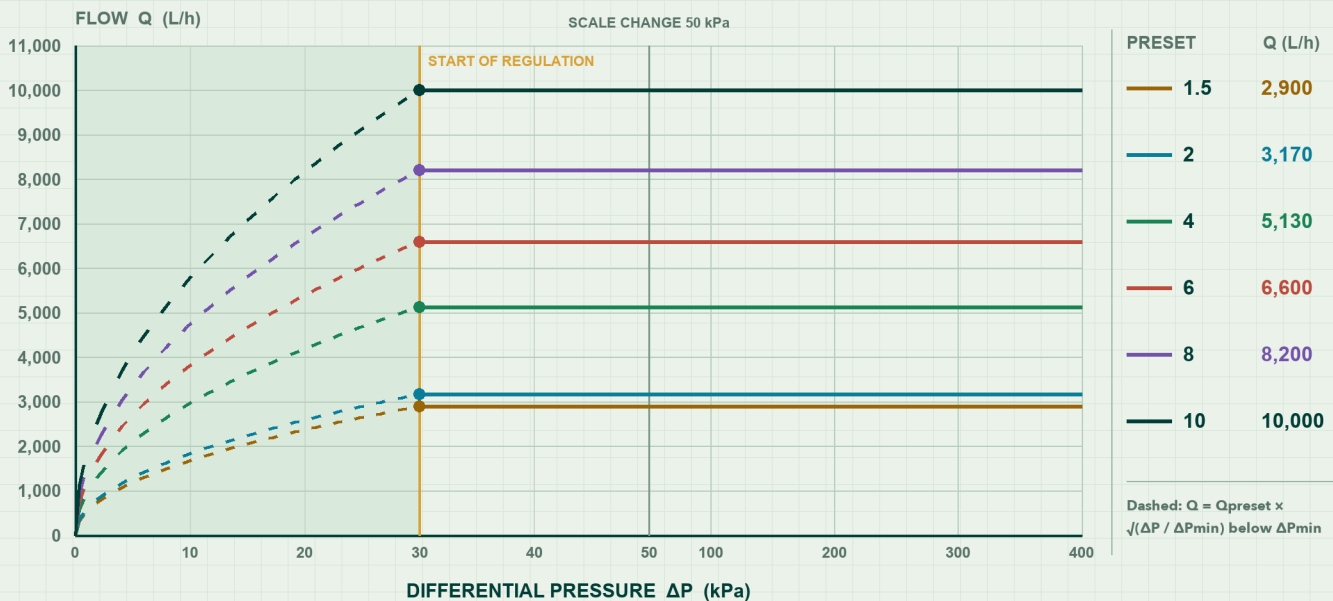


## DN 50

$\Delta P_{min} = 30 \text{ kPa}$

$\Delta P_{max} = 400 \text{ kPa}$

$Q_{max} = 10,000 \text{ L/h}$



— Specified regulated flow

- - - Calculated start-up

Below  $\Delta P_{min}$



## PRESETTING & FLOW DATA

BRQ-9000 SF / DN15–DN50

### SMALL SIZES / DN15–DN25

FLOW Q (L/h)

| PRESET | DN15<br>$\Delta P_{\min} = 25 \text{ kPa}$ | DN20<br>$\Delta P_{\min} = 30 \text{ kPa}$ | DN25<br>$\Delta P_{\min} = 30 \text{ kPa}$ |
|--------|--------------------------------------------|--------------------------------------------|--------------------------------------------|
| 1.5    | 180                                        | 300                                        | 340                                        |
| 2      | 220                                        | 340                                        | 510                                        |
| 4      | 310                                        | 500                                        | 720                                        |
| 6      | 390                                        | 660                                        | 930                                        |
| 8      | 520                                        | 830                                        | 1,150                                      |
| 10     | 600                                        | 1,000                                      | 1,700                                      |

### LARGE SIZES / DN32–DN50

FLOW Q (L/h)

| PRESET | DN32<br>$\Delta P_{\min} = 30 \text{ kPa}$ | DN40<br>$\Delta P_{\min} = 30 \text{ kPa}$ | DN50<br>$\Delta P_{\min} = 30 \text{ kPa}$ |
|--------|--------------------------------------------|--------------------------------------------|--------------------------------------------|
| 1.5    | 1,100                                      | 1,200                                      | 2,900                                      |
| 2      | 1,170                                      | 1,270                                      | 3,170                                      |
| 4      | 1,830                                      | 3,150                                      | 5,130                                      |
| 6      | 2,530                                      | 4,710                                      | 6,600                                      |
| 8      | 3,220                                      | 6,050                                      | 8,200                                      |
| 10     | 3,600                                      | 7,500                                      | 10,000                                     |



# SIZING & OPERATING LIMITS

BRQ-9000 SF / SELECTION REFERENCE

## SIZING METHOD

01 Determine the heat demand  
 $R_v$  [kW]

02 Determine supply-to-return  
temperature difference  $\Delta T$  [°C]

03 Calculate volumetric flow  
 $Q$  [m³/h]

$$Q = R_v / (1.16 \times \Delta T)$$

$Q$  in m³/h •  $R_v$  in kW •  $\Delta T$  in °C

1.16 = water conversion factor

## SELECTION GUIDELINE

Select the valve at approximately  
80% of its maximum flow capacity  
to allow spare capacity for  
variations in system load.

## OPERATING LIMITS

BRQ-9000 SF / DN15–DN50

PRESSURE CLASS

**PN25**

Internal BSP threaded connection

MEDIUM TEMPERATURE

**1–110 °C**

Specified medium range

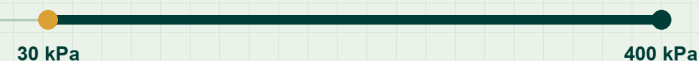
## REGULATING DIFFERENTIAL PRESSURE

Across the valve control path

DN15



DN20–DN50



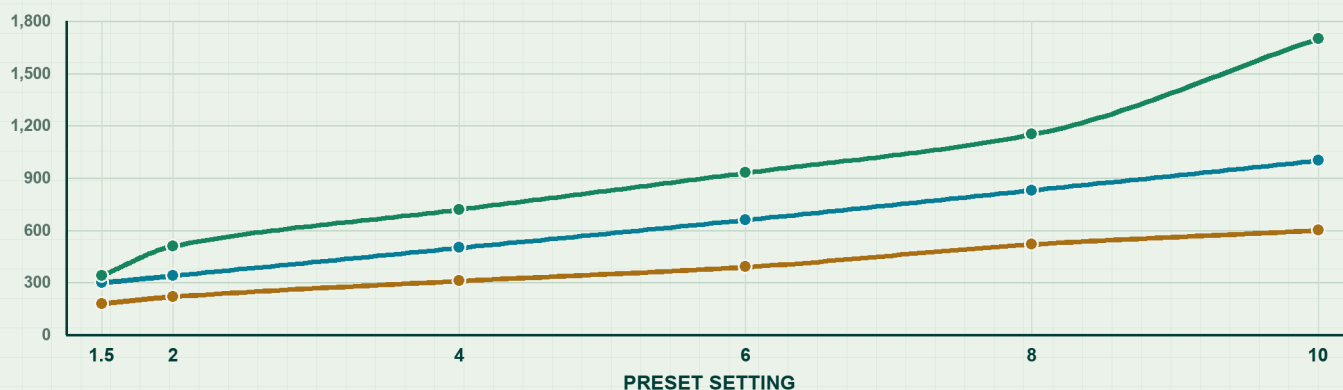
# PRESET FLOW CHARACTERISTICS

BRQ-9000 SF / DN15–DN50 / SIX PUBLISHED PRESET VALUES

## SMALL SIZES / DN15–DN25

FLOW Q (L/h)

DN15 DN20 DN25

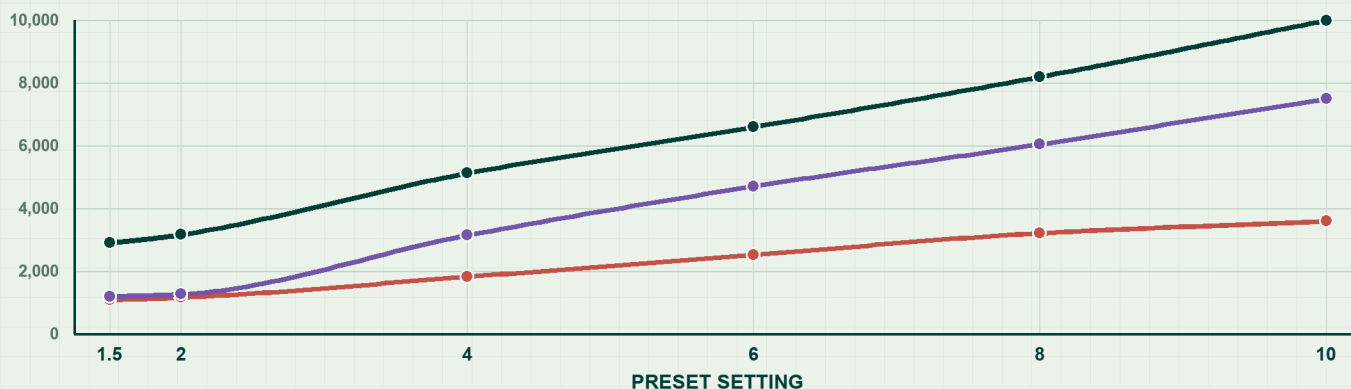


| FLOW L/h | 1.5 | 2   | 4   | 6   | 8     | 10    |
|----------|-----|-----|-----|-----|-------|-------|
| DN15     | 180 | 220 | 310 | 390 | 520   | 600   |
| DN20     | 300 | 340 | 500 | 660 | 830   | 1,000 |
| DN25     | 340 | 510 | 720 | 930 | 1,150 | 1,700 |

## LARGE SIZES / DN32–DN50

FLOW Q (L/h)

DN32 DN40 DN50



| FLOW L/h | 1.5   | 2     | 4     | 6     | 8     | 10     |
|----------|-------|-------|-------|-------|-------|--------|
| DN32     | 1,100 | 1,170 | 1,830 | 2,530 | 3,220 | 3,600  |
| DN40     | 1,200 | 1,270 | 3,150 | 4,710 | 6,050 | 7,500  |
| DN50     | 2,900 | 3,170 | 5,130 | 6,600 | 8,200 | 10,000 |

REGULATING  $\Delta P$ : DN15 25–400 kPa • DN20–DN50 30–400 kPa

Marked points are the published preset flows; connecting curves show their progression.

# FUNCTIONAL PRINCIPLE

## THREE FUNCTIONS / ONE INTEGRATED VALVE

### 01 PRESETTING

Sets the maximum volumetric flow.  
The preset dial limits the flow to the selected value across the operating range.

### 02 DIFFERENTIAL PRESSURE

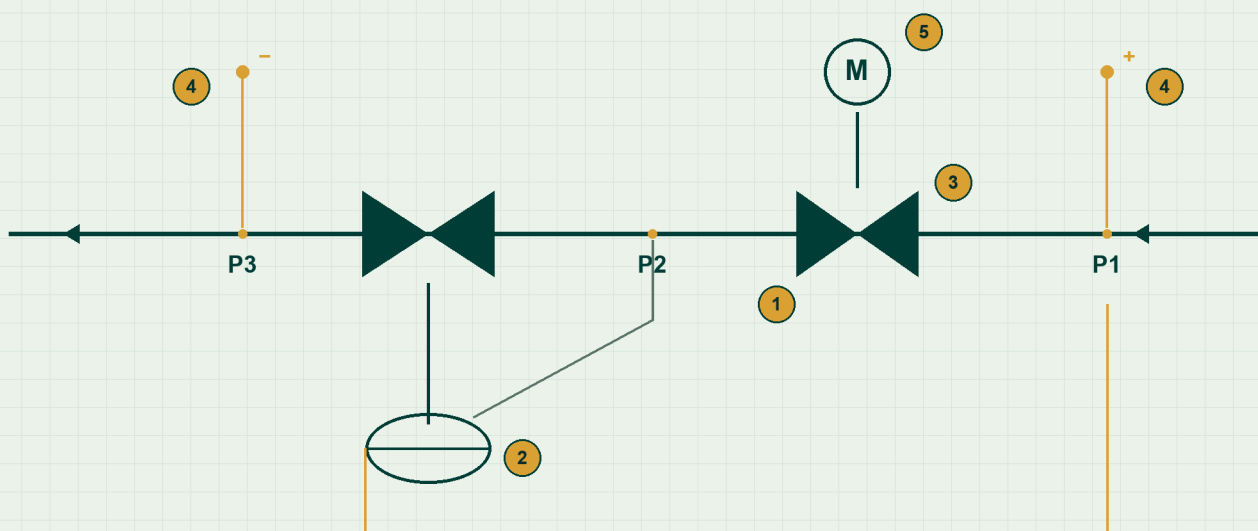
Maintains a stable pressure difference across the control valve (P1-P2) as system pressure changes.

### 03 MODULATING CONTROL

Adjusts the valve opening to regulate the volumetric flow in response to the actuator control signal.

## VALVE FUNCTIONAL SCHEMATIC

Flow direction • pressure sensing • control components



P3 downstream / outlet

P2 control-valve outlet

P1 upstream / inlet

## MEASUREMENT, ACTUATION & PERFORMANCE

### 04 PRESSURE TEST PLUGS

Provide direct pressure and temperature measurement at the valve.

### 05 ACTUATOR

Receives the control signal and adjusts the valve opening to the required flow.

### 06 ENERGY EFFICIENCY

Stable flow under varying system pressure reduces pumping energy.

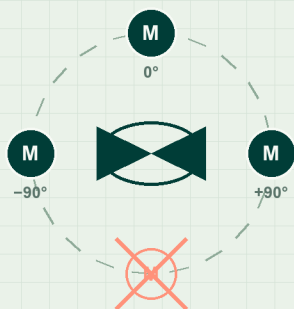
# INSTALLATION & COMMISSIONING

BRQ-9000 SF / INSTALLATION POSITIONS, PRESSURE DUTY & VALVE ACTION

## INSTALLATION

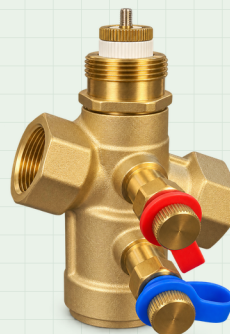
- 1 Prefer return-line installation to reduce temperature load on the stem seal.
- 2 Install an upstream dirt filter; remove debris and welding residue before operation.
- 3 Keep the actuator bracket free of insulation to maintain air circulation.
- 4 Protect from impact, vibration, steam and water jets; ambient range 2–50°C.

## MOUNTING POSITIONS



Actuator may be upright or rotated  $\pm 90^\circ$ ; inverted mounting is excluded.

## FLOW DIRECTION



### DIRECTION CHECK

Align the cast body arrow with pipeline flow.

Confirm flow direction from the arrow cast on the valve body.

## COMMISSIONING

- Fit and secure the actuator before **operating the valve.**
- Keep the valve open while flushing or **pressure testing the system.**
- Confirm actuator and valve stems **remain firmly connected.**
- Verify full open and closed travel **after installation.**

## PRESSURE DUTIES

### FLOW REGULATION

DN15: 0.25–4 bar

DN20–DN50: 0.30–4 bar

### CLOSE-OFF DIFFERENTIAL PRESSURE

**UP TO 16 BAR**

Special BARIQ valve–actuator configuration

The assembly closes against this differential.

## VALVE STEM ACTION

01

STEM RETRACTS

VALVE CLOSES

02

STEM EXTENDS

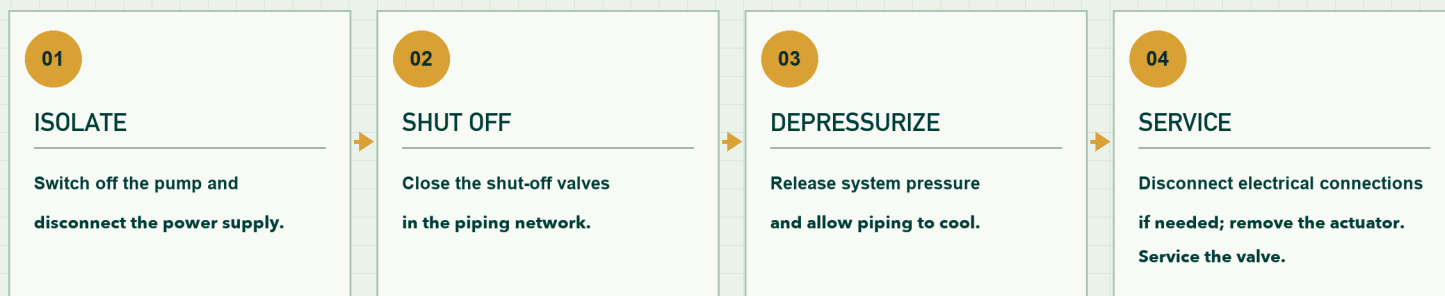
VALVE OPENS

# MAINTENANCE & SERVICE

BRQ-9000 SF / SERVICE SEQUENCE, PRECAUTIONS & SPARE PARTS

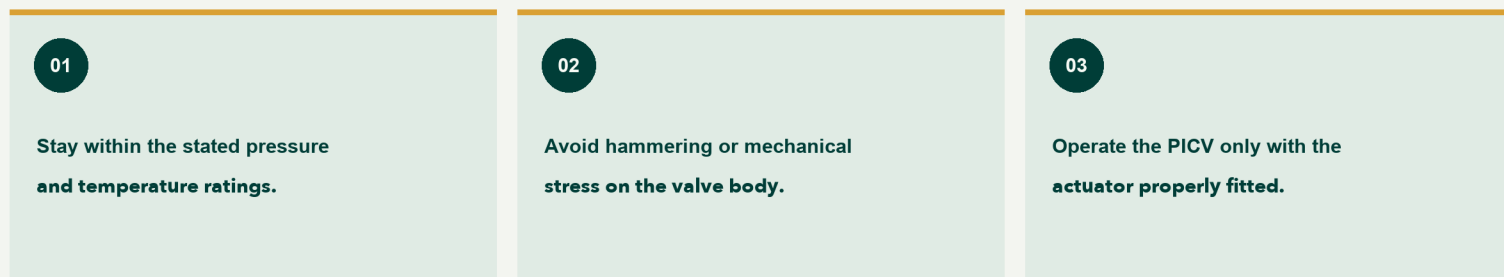
## SERVICE SEQUENCE

Before work on the valve or actuator



After service, reinstall the actuator correctly before commissioning the system.

## SAFETY PRECAUTIONS



## SEALING GLAND & SPARES

- Stem seals can be replaced without removing the valve body when the stem surface is free from damage or wear.
- If the stem is damaged, replace the complete valve.
- Stem seals and compatible actuators are available as spare parts upon request.

## DISPOSAL

- Disassemble the valve by material before disposal.
- Handle components that require special environmental treatment.
- Dispose of all parts in accordance with local requirements.

Use original spare parts to maintain the valve's performance and warranty.

# MODEL SELECTION

BRQ-9000 SF / THREADED PICV ASSEMBLIES DN15–DN50

## VALVE & ACTUATOR SCHEDULE

| VALVE<br>DN | THREAD<br>BSP | FLOW RANGE<br>L/h | STROKE<br>mm | MATCHED ACTUATOR<br>BARIQ | REGULATING ΔP<br>kPa |
|-------------|---------------|-------------------|--------------|---------------------------|----------------------|
| 15          | 1/2"          | 180–600           | 2.5          | BRQ-ACT-13-01             | 25–400               |
| 20          | 3/4"          | 300–1,000         | 2.5          | BRQ-ACT-13-01             | 30–400               |
| 25          | 1"            | 340–1,700         | 5            | BRQ-ACT-13-01             | 30–400               |
| 32          | 1 1/4"        | 1,100–3,600       | 6            | BRQ-ACT-13-01             | 30–400               |
| 40          | 1 1/2"        | 1,200–7,500       | 10           | BRQ-ACT-104               | 30–400               |
| 50          | 2"            | 2,900–10,000      | 15           | BRQ-ACT-104               | 30–400               |

## MATCHED ACTUATOR GROUPS

DN15–DN32

**BRQ-ACT-13-01**

ACTUATOR FORCE 200 N

VALVE STROKES 2.5 / 5 / 6 mm

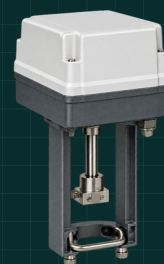


DN40–DN50

**BRQ-ACT-104**

ACTUATOR FORCE 2,000 N

VALVE STROKES 10 / 15 mm



CLOSE-OFF ASSEMBLY

**UP TO 16 BAR**

 Differential pressure during powered closing  
 with the special BARIQ valve–actuator configuration.

Flow regulation remains within the size-specific ranges above.

# PICV SELECTION

ENGINEERING SOFTWARE / BRQ-9000 SF & HF

BARIQ DIGITAL TOOLS

## SELECT THE RIGHT PICV.

For valve sizing and flow selection,  
visit the BARIQ PICV Selection Tool.

Enter the required flow and available design  
differential pressure to review valve selection.

OPEN THE SELECTION TOOL

[bariigroup.com/software/  
picv-selection/](https://bariigroup.com/software/picv-selection/)

SCAN TO SELECT



BARIQ PICV SELECTION

BRQ-9000 SF / HF

## ENGINEERING SELECTION WORKFLOW

