

<b>USERS MANUAL</b>		
<b>BACKFLOW PREVENTER</b>	<b>Fig. 406</b>	<b>Edition: 9/2012</b> <b>Data: 17.09.2012</b>

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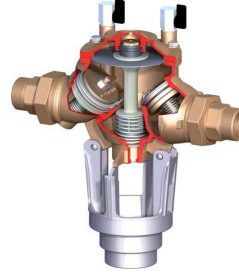


Fig. 406

## 1. PRODUCT DESCRIPTION

The threaded end backflow preventers 406, with controllable reduced pressure zone type BA EN1717 are approved in conformity with EN12729 and are manufactured in accordance with the most severe product norms and in conformity with the quality requirements of EN ISO

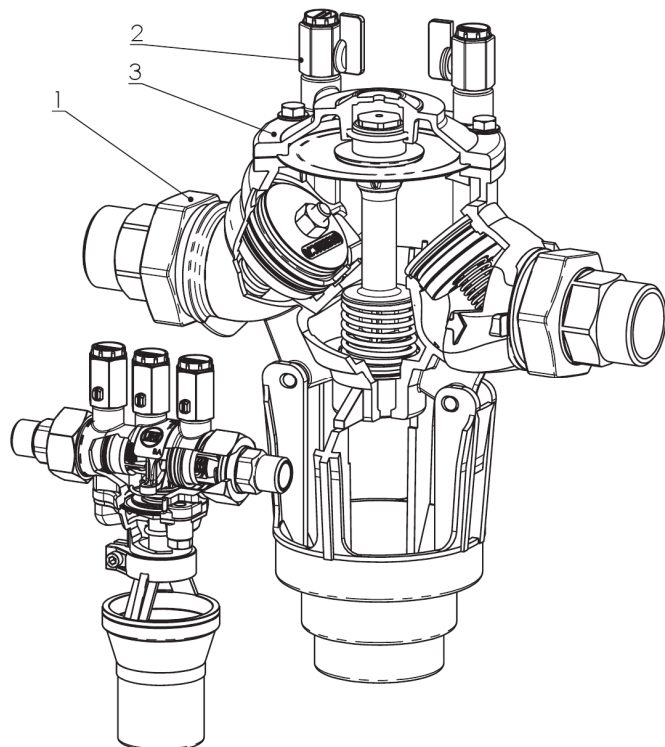
9001. The body of dimension DN 15 is made of brass and the body of dimensions DN 20-50 is made of bronze.

They consist of 2 spring check valves and a chamber situated in between the spring check valves, which contain a security valve, which in the

event of "backflow", isolates the primary network from the user network.

The backflow might be caused by siphoning (the entry pressure decreases

1. Very compact design, one of the shortest backflow preventers, which allows easy installation in limited spaces.
2. Test points fitted with mini-valves, for checking the absolute and the differential pressure in the upstream and intermediate areas. Together with the ECO3 TEST, these allow verifying the function of the backflow preventer
3. DN 20-50: Easy maintenance due to removable cover.



## 2. REQUIREMENTS FOR MAINTENANCE STAFF

The staff assigned to assembly, operating and maintenance tasks should be qualified to carry out such jobs.

## 3. TRANSPORT AND STORAGE

Keep in a closed and dry place. Avoid exposure to direct sunlight. Protect from moisture and mechanical damage. The temperature of the storage should not exceed  $-10^{\circ}\text{C}$  to  $50^{\circ}\text{C}$ .

#### 4. FUNCTION

Backflow preventer protects the network against the pollution.

#### 5. APPLICATION

Drinking water installations

Temperature: min 0° C max 65° C

Pressure: Dn 25 – 50, 10 Bar

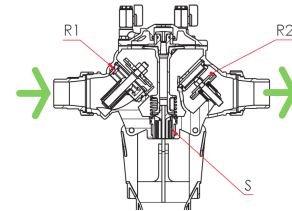
Uwaga: more details in catalogue sheet

#### 6. OPERATING PRINCIPLE

##### NORMAL OPERATION: REGULAR FLOW

Under normal conditions the relief valve is closed and water flows through the 2 check valves (R1 and R2). Due to the head loss of valve 1, the pressure in the intermediate section is at least 140 millibar less than the upstream pressure.

This difference acts upon the membrane and closes the relief valve S.

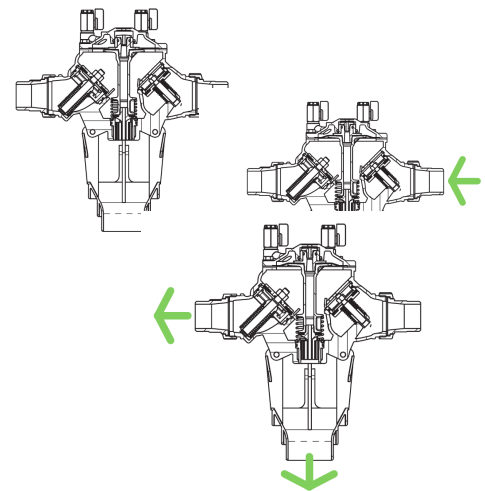


##### NO FLOW: NORMAL PRESSURE

The check valves (1 and 2) are closed and the relief valve remains closed.

##### BACK PRESSURE: DOWNSTREAM OVERPRESSURE

The downstream check valve (R2) closes, preventing potentially contaminated water from flowing into the supply pipe. If the downstream check valve is not perfectly watertight, the polluted water can seep into the central chamber. As the pressure in the central chamber increases, the relief valve opens and the polluted fluid discharges.



##### BACK-SIPHONAGE: UPSTREAM DEPRESSION

If the upstream pressure accidentally decreases, the check valves (1 and 2) automatically close; so the pressure difference between the upstream section and the central section is reduced; the spring opens the relief valve and the central chamber empties.

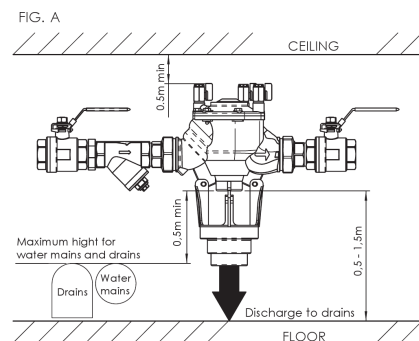
Consequently, the flow between the upstream area and the downstream area is interrupted, making it completely safe.

The emptying of the central chamber causes a fall in pressure and brings the valve back to the initial safety conditions.

#### IMPORTANT: PRIOR TO INSTALLATION

A correct example of how to install the backflow preventer is shown in Fig. A.

1. The device must be located in a common, easily accessible area of the building, it must be ventilated and not subject to flooding. (The preventer should preferably be placed outside the building works and above the soil).
2. The backflow preventer must be located away from every area that may be flooded, always considering the highest level that water may reach in adjacent areas, in case of frequent flooding.
3. Around the device, there must be enough room to enable easy installation or removal. It must be easily accessible for repair work and working tests.
4. When the device is placed in an installation which may pollute the drinking water supply network, all networks supplying sanitary or food processing systems must be installed upstream with respect to the backflow preventer and the downstream network must be marked with the conventional safety signs and colours, in accordance with UNI 5634P regulations.
5. The opening of relief valve must enable the water to drain off as a result of gravity.
6. When running a test with the ECO3TEST device, pressure gauges must be at the same height as the backflow, to ensure correct measurement by the differential pressure gauge.
7. The discharge device must not give off toxic fumes into the room. The discharged waters must not be harmful to the environment: the health authorities should be consulted in the cases established by the current regulations.
8. The leakage recovery system, located under the bleed valve outlet, and the discharge water recovery works, must have a minimum section, corresponding to the following values:



DN	½"	¾"	1"	1" ¼	1" ½	2"
<b>Internal diameter of drain pipe</b>	50	63	75/90/120			

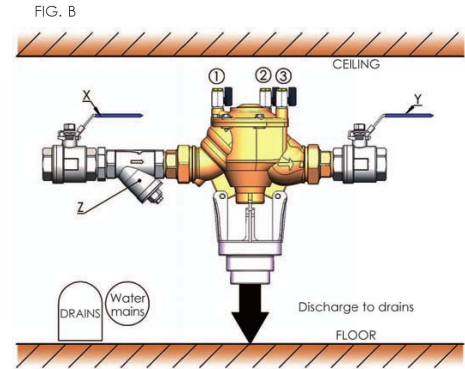
## 7. ASSEMBLY

Follow the directions as shown in Fig B.

1. Install an interception valve x upstream with respect to the backflow preventer.
2. Install an interception valve y downstream with respect to the backflow preventer.
3. When the valves are closed, install a strainer with a bleed plug upstream with respect to the preventer, making sure that water flows in the direction indicated on the body.

**WARNING. The strainer is essential if the preventer is to work properly. Make sure that, during the installation, there are no residual parts in the pipes that could seriously damage the device.**

4. Install the backflow preventer between the strainer and the downstream valve, always following the direction displayed on the product.
5. Close valves 1-2-3
6. Remove the plastic protection cap located under the bleed valve.
7. Fix the bleed pipe.
8. Slowly open the upstream valve X.
9. Slowly open the preventer valves following the 3-2-1 order, from downstream to up upstream, let them bleed and close.
10. Slowly open the downstream valve Y.
11. The backflow preventer is now working. Make sure that the relief valve does not leak. In case of leakage, check if there are pressure decreases in the upstream section.

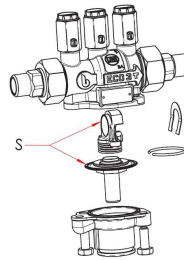


## 8. SERVICE AND REPAIR

### MAINTENANCE DN 15

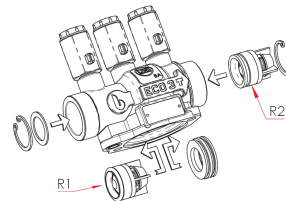
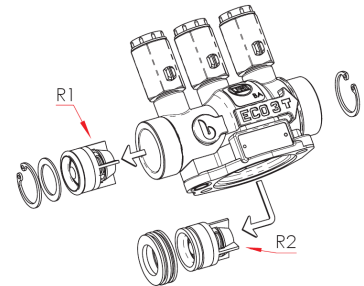
#### MAINTENANCE OF THE BLEED VALVE

- Unscrew the bonnet bolts
- Take out and replace the CLOSING DEVICE S



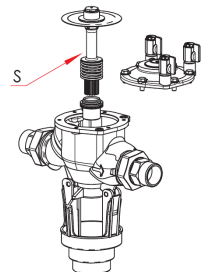
#### EXTRACTION OF THE CHECK VALVES

- Remove end connections
- Remove the circlips
- Remove the bonnet and the closing device
- Acting in the directions shown by arrows, remove the upstream check valve R1 and the downstream check valve R2



#### ASSEMBLING THE VALVES

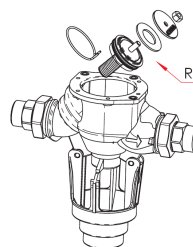
- Acting in the directions shown by arrows, replace the upstream check valve R1 and downstream check valve R2
- Put the circlips in place
- Put the closing DEVICE S in place and mount the bonnet
- Reassemble the end connections



### MAINTENANCE DN 20÷50

#### MAINTENANCE OF THE BLEED VALVE

- Unscrew the bonnet bolts
- Take out and replace the CLOSING DEVICE S



#### MAINTENANCE OF THE UPSTREAM CHECK VALVE

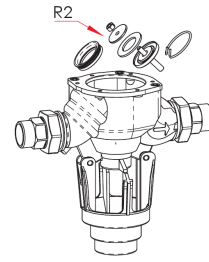
- Remove the retaining ring and take out the shutter of

upstream valve R1

- Unscrew the nut
- Replace the seal

#### **MAINTENANCE OF THE DOWNSTREAM CHECK VALVE**

- Remove the retaining ring and take out the upstream valve R2
- Unscrew the nut
- Replace the seal



#### **9. VALVE SERVICE DISCONTINUITY**

All obsolete and dismantled valves must not be disposed with household waste. ZETKAMA valves are made of materials which can be re-used and should be delivered to designated recycling centres.

#### **10. WARRANTY TERMS**

- ZETKAMA grants quality warranty with assurance for proper operation of its products, providing that assembly of them is done according to the users manual and they are operated according to technical conditions and parameters described in ZETKAMA's catalogue cards. Warranty period is 18 months starting from assembly date, however not longer than 24 months from the sales date.

- warranty claim does not cover assembly of foreign parts and design changes done by user as well as natural wear.

- immediately after detection the user should inform ZETKAMA about hidden defects of the product

- a claim should be prepared in written form.

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