# BACKFLOW PREVENTER MALE TYPE BA 580 CONTROLABLE AND ADJUSTABLE REDUCED PRESSURE

Backflow preventer Scudo controlable and adjustable BA 580 to protect drinking water networks.
NF Certification with 10 years warranty.
With ball valves DN1/4".
To protect water networks up to category 4 ( according to EN1717).

CALEFFI
Hydronic Solutions

**Size :** DN1/2" to DN1"1/4
**Connection :** Male, male BSP
**Min Temperature :** +5°C
**Max Temperature :** +65°C
**Max Pressure :** 10 Bars
**Specifications :** Dezincification-resistant brass body CR
Controlable and adjustable (vertical or horizontal)
With male union

**Materials :** Dezincification-resistant brass body CR 4MS

*the installation defects and wear defects are not covered by the guarantee

Sferaco 90 rue du Ruisseau 38297 St Quentin Fallavier Tel: + 33 (0) 474.94.15.90 Fax: + 33 (0) 474.95.62.08 Internet: www.sferaco.com E-mail : info@sferaco.fr


Information provided as an indication and subject to possible modification

# BACKFLOW PREVENTER MALE TYPE BA 580 CONTROLABLE AND ADJUSTABLE REDUCED PRESSURE

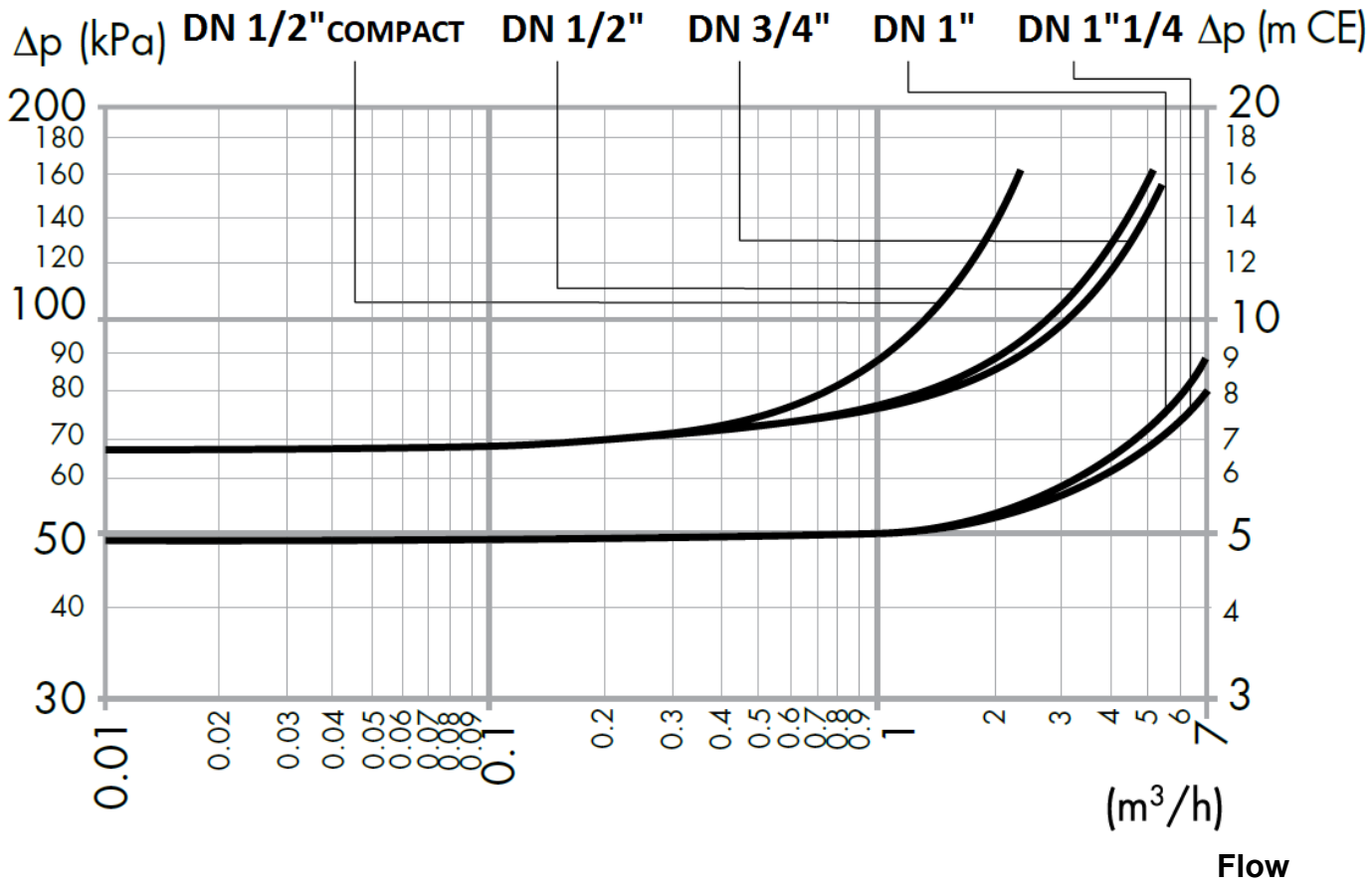
***SPECIFICATIONS :***

- Respect the flow direction indicated by an arrow on the body
- Horizontal or vertical position
- Male / Male BSP
- Controlable
- Low head loss
- With male union
- With ball valves 1/4“ BSP
- 10 years manufacture warranty (the installation defects and wear defects are not covered by the guarantee)
- Simplified maintenance thanks to the removable cartridge
- Inspectable filter upstream and adjustable drain funnel

***USE :***

- Water distribution
- Min Temperature Ts : + 5°C
- Max Temperature Ts :+ 65°C
- Max Pressure Ps : 10 bars

***HEAD LOSS GRAPH :***



# BACKFLOW PREVENTER MALE TYPE BA 580 CONTROLABLE AND ADJUSTABLE REDUCED PRESSURE

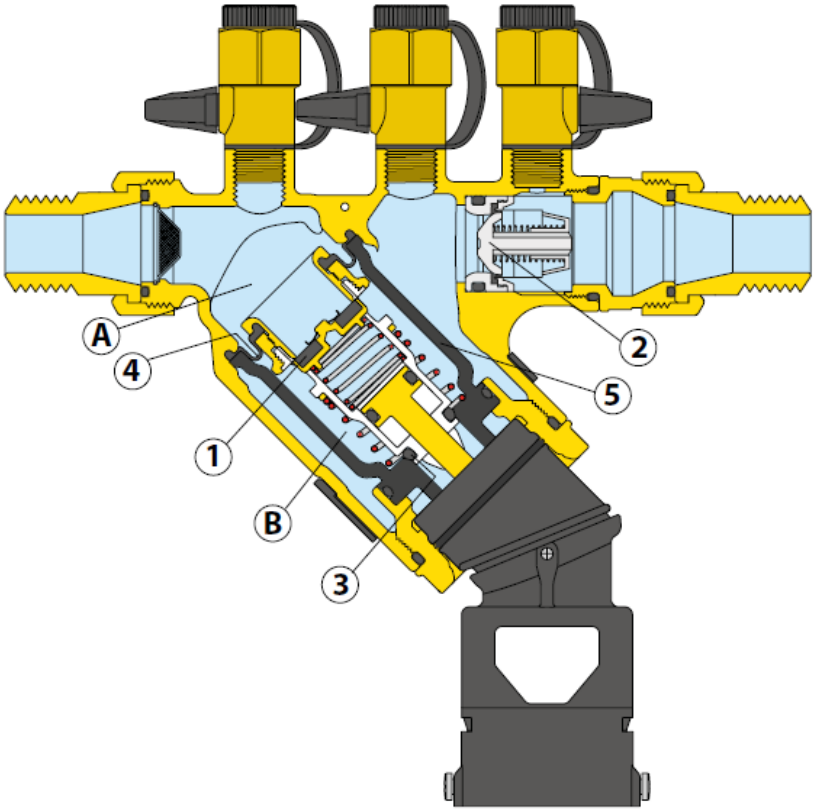
***RANGE :***

- Backflow preventer adjustable Male - Male BSP with fittings from DN 1/2“ to DN 1“1/4 **Ref.955**

- Backflow preventer adjustable kit (with valves and strainer) from DN1/2“ to DN1“1/4 **Ref.955014 to 955017**

# BACKFLOW PREVENTER MALE TYPE BA 580 CONTROLABLE AND ADJUSTABLE REDUCED PRESSURE

***OPERATING PRINCIPLE :***

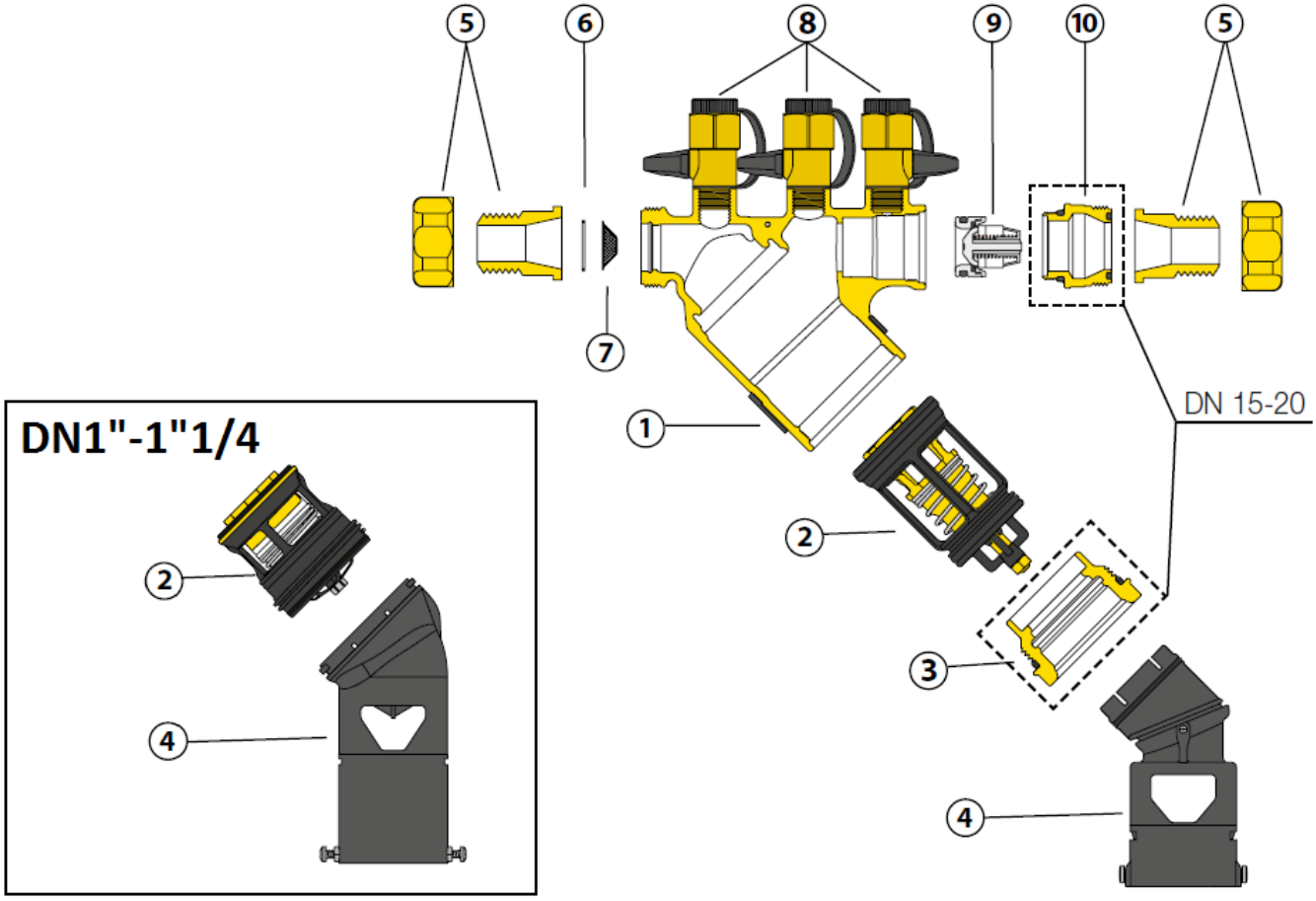



The backflow preventer consists of two check valves (1 and 2), an intermediate chamber known as “reduced pressure zone” (B) and of a discharge valve (3) connected to the latter. The water entering the backflow preventer opens the upstream check valve (1),
Presses against the membrane (4), which closes the discharge valve (3) by means of the self-contained cartridge (5), then finally the water opens the downstream check valve (2). In normal operating conditions the pressure in the intermediate chamber is always at least 14 kPa lower than the upstream pressure due to the effect of the first check valve setting.
This pressure difference Δp between the upstream zone (A) and the intermediate zone (B) ensures safety because, in the event of a fault, upstream pressure loss, back syphonage or downstream overpressure, opening (disconnection) of the discharge valve (3) occurs when the upstream pressure is still at least 14 kPa higher than the pressure in the intermediate zone, thus preventing all backflow of the downstream system medium towards the upstream system.

***Explanatory video***

# BACKFLOW PREVENTER MALE TYPE BA 580 CONTROLABLE AND ADJUSTABLE REDUCED PRESSURE

***MATERIALS :***




| Item | Designation | Materials |
|---|---|---|
| 1 | Body | Brass CR dezincification-resistant CC770S-4MS according to EN 1982 |
| 2 | Cartridge DN1/2“and 3/4“ | CW724R-4MS Ecobrass® + PPSG40 + POM13 |
| 2 | Cartridge DN1“ and 1“1/4 | POM 25 |
| 2 | Diaphragm (fixed on cartridge) | EPDM |
| 3 | Ring | Brass CW617N-4MS according to EN 12165 |
| 4 | Evacuation support | PP |
| 5 | Fittings | CW724R-4MS Ecobrass® according to EN 12164 and EN 12168 |
| 6 | Circlip | EN 10088-2 (AISI 304) |
| 7 | Strainer | EN 10088-2 (AISI 304), mesh 0.47 mm and 0.4mm from DN1“ to DN1"1/4 |
| 8 | Valves | Brass CW617N-4MS according to EN 12165 |
| 9 | Check valve | POM + NBR + AISI 302 |
| 10 | Check valve ring | CW724R-4MS Ecobrass® according to EN 12164 + EPDM gasket |



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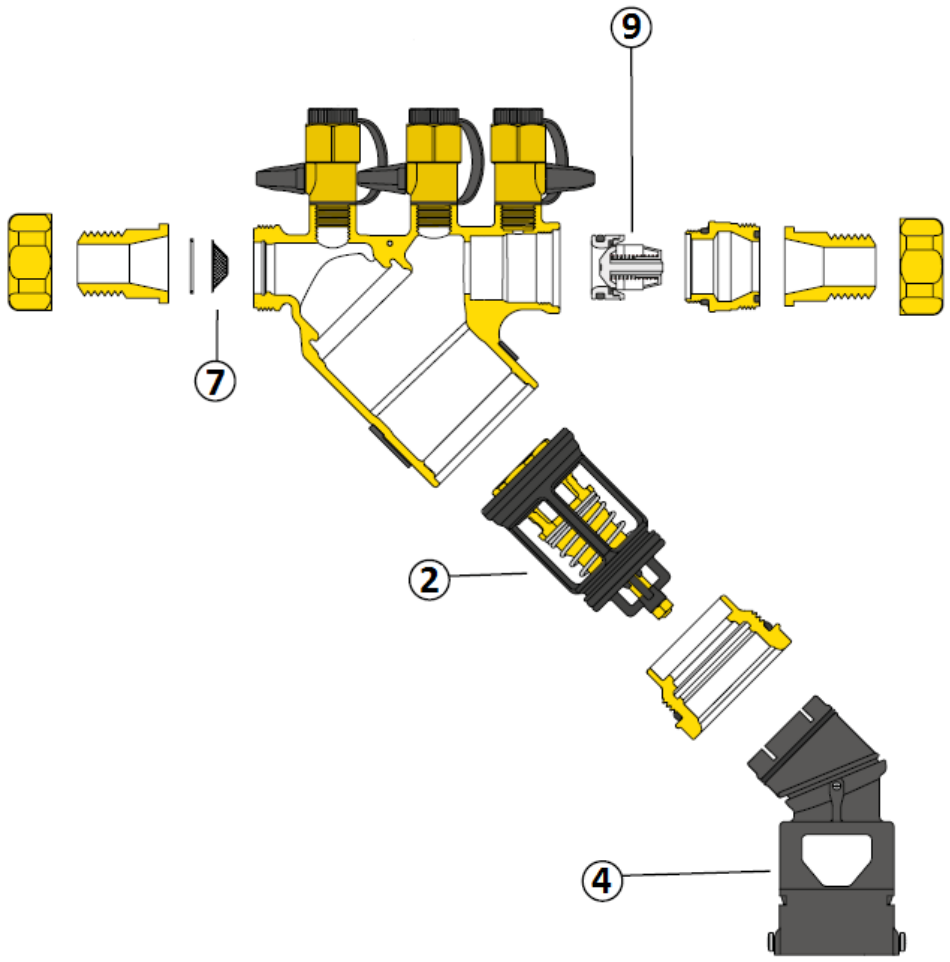
# BACKFLOW PREVENTER MALE TYPE BA 580 CONTROLABLE AND ADJUSTABLE REDUCED PRESSURE

***SPARE PARTS :***




| | | Ref.955004C | Ref.955004 | Ref.955005 | Ref.955006 | Ref.955007 |
|---|---|---|---|---|---|---|
| **Item** | **DN** | **1/2"** | **1/2"** | **3/4"** | **1"** | **1"1/4** |
| 2 | Cartridge | Ref.9850170 | Ref. 9850162 | | Ref. 9850166 | |
| 4 | Evacuation support | - | Ref. 9850163 | | Ref. 9850167 | |
| 7 | Strainer | - | Ref. 9850165 | | Ref. 9850168 | |
| 9 | Check valve | - | Ref. 9850161 | | Ref. 9850169 | |



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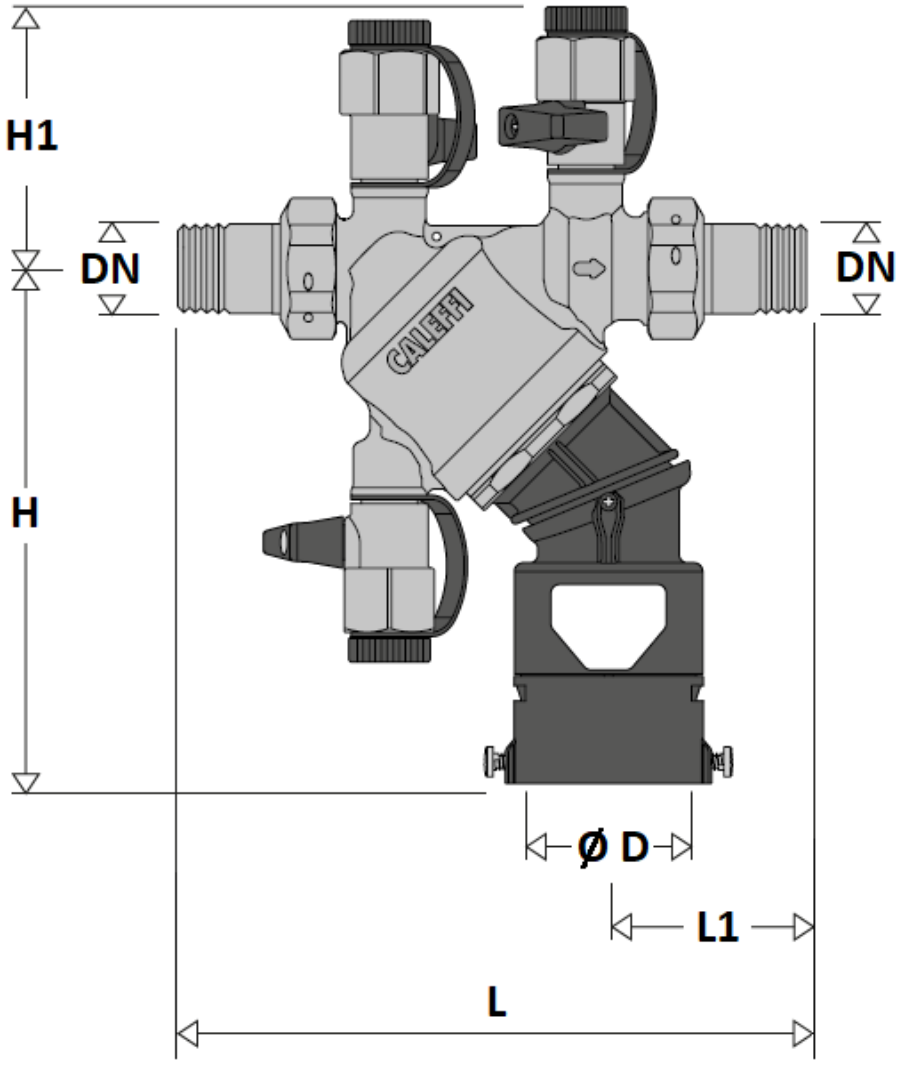
# BACKFLOW PREVENTER MALE TYPE BA 580 CONTROLABLE AND ADJUSTABLE REDUCED PRESSURE

***COMPACT TYPE SIZE ( in mm ) :***




| DN | 1/2" |
|---|---|
| L | 146 |
| L1 | 46 |
| H | 120 |
| H1 | 61 |
| Ø D | 40 |
| Weight (in Kg) | 0.8 |
| Ref. Sferaco | 955004C |
| Code Caleffi | 580004 |



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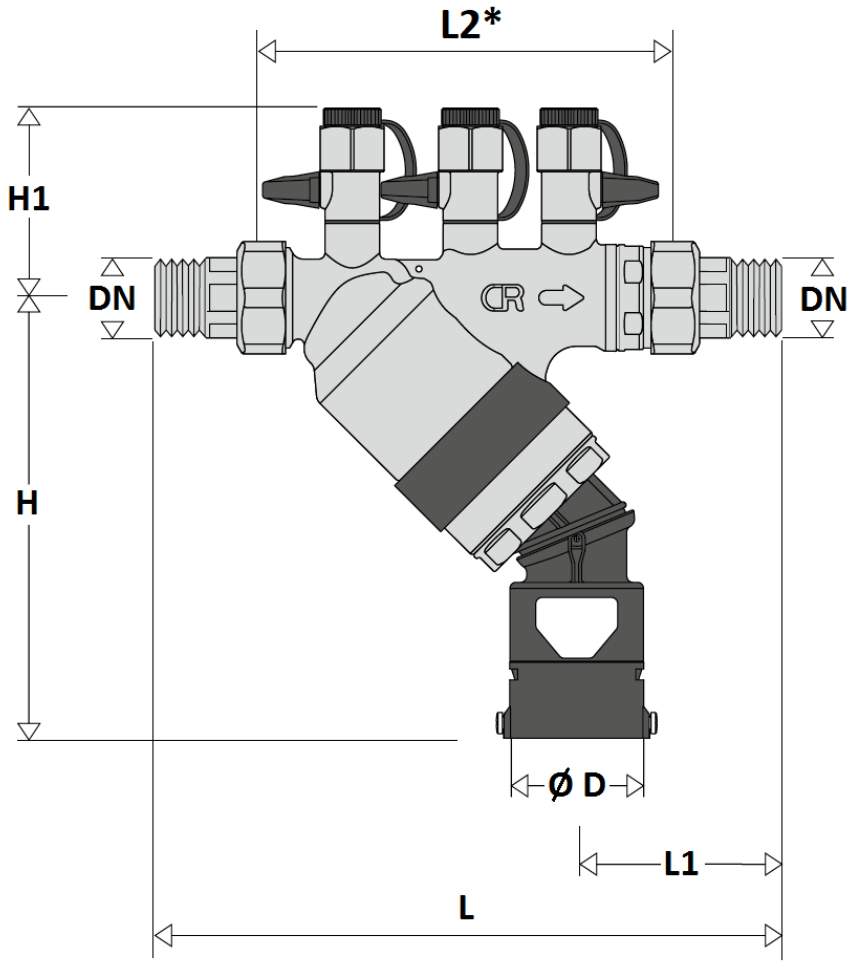
# BACKFLOW PREVENTER MALE TYPE BA 580 CONTROLABLE AND ADJUSTABLE REDUCED PRESSURE

***SIZE ( in mm ) :***




| DN | 1/2" | 3/4" | 1" | 1"1/4 |
|---|---|---|---|---|
| L | 207.5 | 203.5 | 250 | 254 |
| L1 | 68 | 66 | 100 | 102 |
| L2* | 137.5 | 137.5 | 161.5 | 161.5 |
| H | 145 | 145 | 209 | 209 |
| H1 | 61.5 | 61.5 | 71.5 | 71.5 |
| Ø D | 40 | 40 | 40-60 | 40-60 |
| Weight (in Kg) | 1.5 | 1.5 | 2.6 | 2.7 |
| Ref. Sferaco | 955004 | 955005 | 955006 | 955007 |
| Code Caleffi | 580040 | 580050 | 580060 | 580070 |

**L2* : Length without fittings**



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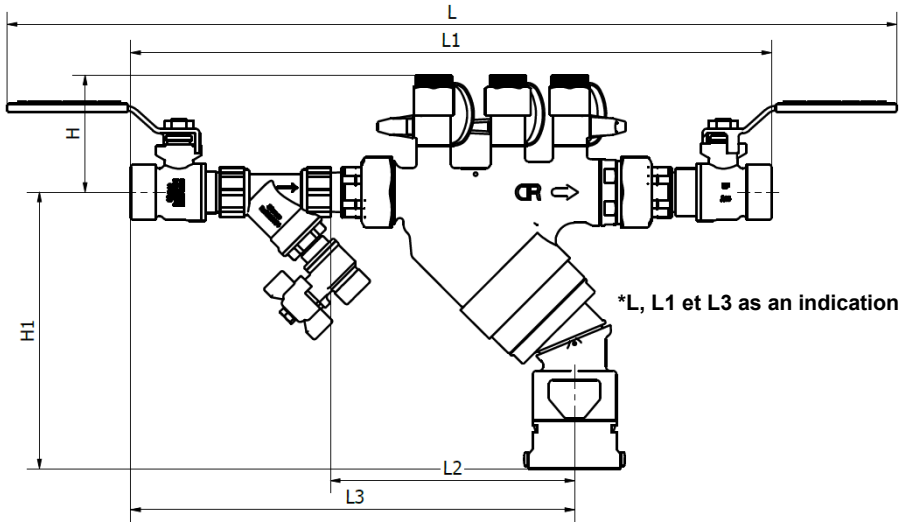
# BACKFLOW PREVENTER MALE TYPE BA 580 CONTROLABLE AND ADJUSTABLE REDUCED PRESSURE

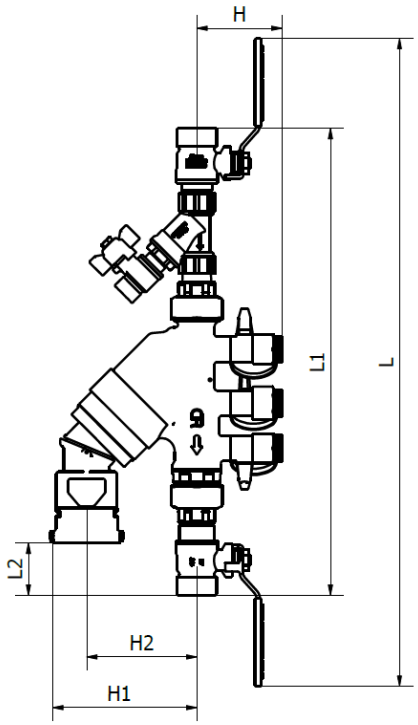
## *SIZE COMPLETE KIT WITH VALVES AND STRAINER FOR HORIZONTAL POSITION :*




*L, L1 et L3 as an indication because screwed assembly

| Ref. | DN | L* | L1* | L2 | L3* | H | H1 |
|---|---|---|---|---|---|---|---|
| 955014 | 1/2" | 467 | 337 | 128 | 233 | 62 | 145 |
| 955015 | 3/4" | 485 | 367 | 128 | 252 | 62 | 145 |
| 955016 | 1" | 592 | 432 | 136 | 275 | 68 | 209 |
| 955017 | 1"1/4 | 649 | 472 | 136 | 303 | 68 | 209 |

## *SIZE COMPLETE KIT WITH VALVES AND STRAINER FOR VERTICAL POSITION :*




| Ref. | DN | L* | L1* | L2* | H | H1 | H2 |
|---|---|---|---|---|---|---|---|
| 955014 | 1/2" | 467 | 337 | 38 | 62 | 104 | 79.5 |
| 955015 | 3/4" | 485 | 367 | 50 | 62 | 104 | 79.5 |
| 955016 | 1" | 592 | 432 | 28.5 | 68 | 116 | 80 |
| 955017 | 1"1/4 | 649 | 472 | 40 | 68 | 116 | 80 |

*L, L1 et L2 as an indication because screwed assembly

# BACKFLOW PREVENTER MALE TYPE BA 580 CONTROLABLE AND ADJUSTABLE REDUCED PRESSURE

***STANDARDS :***

- Manufacturer certified ISO 9001 : 2015 and ISO 14001 : 2015
- DIRECTIVE 2014/68/UE: Products excluded from directive ( Article 1. § 2b )
- Protection for fluids up to category 4 according to **EN1717**
- Safety device according to **NF EN 12729**
- French water agreement **A.C.S. N° 20 ACC LY 563**
- Approval Belgian certificate **BELGAQUA N° 16/216/BA**
- Approval German certificate **DVGW N° NW-6305CQ0487**
- Approval English certificate **KIWA Regulation 4 (KUKreg4)**
- Safety device according to **NF045 doc 1 and 3**
- Threaded male BSP cylindrical ends according to **EN 10226-1**

**ADVICE :** Our opinion and our advice are not guaranteed and SFERACO shall not be liable for the consequences of damages.
The customer must check the right choice of the products with the real service conditions.

# BACKFLOW PREVENTER MALE TYPE BA 580 CONTROLABLE AND ADJUSTABLE REDUCED PRESSURE

***BACKFLOW :***

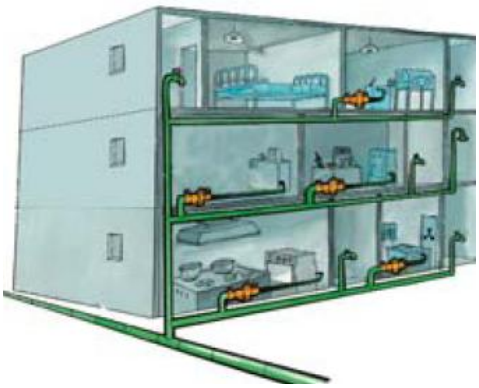
Potable water fed from the mains supply may suffer from hazardous pollution caused mainly by contaminated fluids from plumbing systems flowing back directly into the mains supply. This phenomenon, termed “backflow” occurs when:

- a) the pressure in the mains system is less that in the plumbing circuit receiving the supply (back syphonage). This situation may occur when there is a pipe breaking in the mains system or when demand on the mains supply from consumers is very heavy.
- b) the pressure in the plumbing circuit receiving the supply rises (back pressure) due, for example, to water being pumped from a well.

**Risk assessment.**

Given the potential dangers of the phenomenon and the requirements of current regulations, the risk of pollution from backflow must be assessed on the basis of the type of system and the characteristic of the fluid that flows in it. An appropriate backflow prevention device must be selected on the basis of that assessment performed by the system designer and the mains supplier. The device must be located along the supply line at those points at risk of backflow which would be hazardous to human health. The protection can be provided by inserting a backflow preventer at critical points in the circuit at the inlet from the mains supply or in the internal plumbing system. This will prevent polluted water from flowing back in all systems for which direct connection to the mains or an internal supply is considered hazardous.

**Installation in a building with multiple outlets**



**Installation in a fire fighting system**

# BACKFLOW PREVENTER MALE TYPE BA 580 CONTROLABLE AND ADJUSTABLE REDUCED PRESSURE

## ***BACKFLOW PREVENTER USE, BA TYPE ( According to EN 1717 and EN 12729 ) :***

**Use of backflow preventers (BA type) according to European standards EN 1717 and EN 12729**

Proper use of the BA type backflow preventer is regulated by the new European standards on the prevention of pollution from backflow.
The relevant standard is *EN 1717: 2000 "Protection against pollution of potable water in water installations and general requirements of devices to prevent pollution by backflow".*
The types of water contained in water systems are classified in this standard according to the degree of risk to health.

**Category 1:**
Water used for human consumption provided by a water company.

**Category 2:**
Fluid which does not present health hazard, as in category 1, whose quality has been compromised as a result in changes to its temperature, taste, odour or appearance.

**Category 3:**
Fluid which presents a slight health hazard due to concentrations of "low toxic" substances.

**Category 4:**
Fluid that presents a significant health hazard due to concentrations of "toxic substances".

**Category 5:**
Fluid that presents a serious health hazard due to concentrations of "pathogenic organisms, radioactive or very toxic substances".

Appropriate backflow prevention devices must be fitted in water supply systems on the basis of this classification.

**Backflow preventers (BA type) can be used to protect against the risk of pollution from backflow for types of water up to category 4.**
**For category 5 types of water an air gap separation must be used.**

The table on the right, entitled "Protection matrix", relates the categories of water to different types of system. It has been compiled on the basis of indications given by the European regulations.

The new European standard EN 12729 - *"Devices to prevent pollution by backflow of potable water. Controllable backflow preventer with reduced pressure zone. Family B - Type A"* - stipulate the functional, dimensional and mechanical requirements that must be met for controllable reduced pressure zone backflow preventers (BA type).

*Protection matrix*

| Type of system | Fluid cat. 5 | Fluid cat. 4 |
|---|---|---|
| **General** | | |
| Sprinkler fire fighting systems using anti freeze solutions | | * |
| Industrial cisterns | * | |
| Non-domestic hose union taps | * | |
| Permeable hoses in others than domestic gardens, laid below or at ground level, with or without chemical additives | * | |
| Primary circuits and central heating circuits in other than a house | | * |
| Reclaimed water systems | * | |
| Urinals, WC's and bidets | * | |
| | | |
| **Domestic or residential gardens** | | |
| Mini-irrigation systems without fertilisers or insecticides applications, such as pop-up sprinklers or porous hoses | | * |
| | | |
| **Food processing** | | |
| Bottle washing apparatus | | * |
| Butchery and meat trade | * | |
| Dairies | | * |
| Food preparation | | * |
| Slaughterhouse equipment | * | |
| Vegetable washing | * | |
| | | |
| **Medical** | | |
| Medical or dental equipment with submerged inlets | * | |
| Bed-pans washers | * | |
| Commercial clothes washing in health care premises | * | |
| Domestic appliances such as sinks, baths and wash basins | * | |
| Dialysing machines | * | |
| Laboratories | * | |
| Mortuary equipment | * | |
| | | |
| **Catering** | | |
| Bottle washing apparatus | | * |
| Dish washing machines in commercial buildings | | * |
| Dish washing machines in health care premises | * | |
| Drink vending machines in which ingredients or $CO_2$ are injected into the supply or distribution pipe | | * |
| Refrigerating equipment | | * |
| Vegetable washing | * | |
| | | |
| **Industrial and commercial applications** | | |
| Brewery and distillation | | * |
| Car washing and degreasing plants | | * |
| Commercial clothes washing plants | | * |
| Drain cleaning plant | * | |
| Dyeing equipment | | * |
| Industrial and chemical plants | * | |
| Industrial disinfection equipment | | * |
| Laboratories | * | |
| Mobile plant, tankers and gully emptiers | * | |
| Printing and photographic equipment | | * |
| Water storage for agricultural purposes | * | |
| Animals drinking systems | * | |
| Water treatment plant or water softeners using products other than salt | | * |
| Pressurised water fire fighting systems | | * |
| Water storage for fire fighting purposes | * | |
| | | |
| **Agricultural** | | |
| Commercial irrigation with outlets below or at ground level and/or permeable pipes, with or without chemical additives | * | |
| Commercial hydroponic systems | * | |
| Insecticide of fertiliser applications | * | |
| | | |



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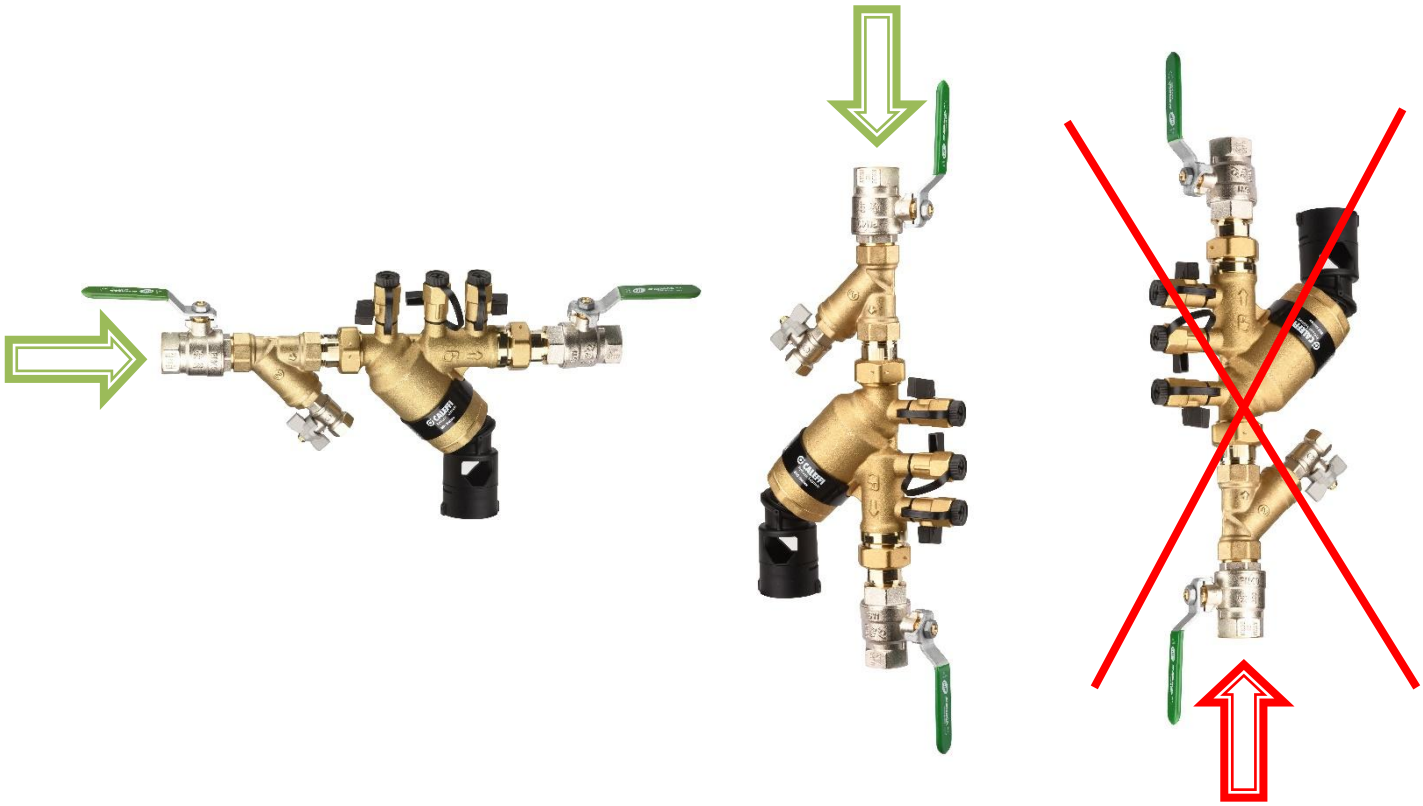
# BACKFLOW PREVENTER MALE TYPE BA 580 CONTROLABLE AND ADJUSTABLE REDUCED PRESSURE

## ***INSTALLATION :***

In line backflow preventer, must be installed by qualified personnel in accordance with current regulations. The backflow preventer must be installed with one shut-off valve upstream and one downstream (not included in the package). In compliance with EN 1717, the backflow preventer is equipped with an inspectable strainer
located on the upstream connection of the body and easily accessible for maintenance purposes, and with an adjustable discharge tundish. The unit must be installed in an accessible position having dimensions such as to prevent it from becoming submerged due to accidental flooding (see installation diagram on page 8), and that is not at risk of freezing. The device should be installed horizontally, in accordance with the flow direction indicated by the arrow on the valve body. The device can also be installed on a vertical pipe with downward flow (top to bottom), in accordance with the flow direction shown by the arrow on the valve body. The EN 1717 discharge tundish must be oriented downward and connected to the sewer conveyance pipe. Rotation of the tundish can be locked by means of the two self-tapping screws supplied in the package. Before installing the backflow preventer flush the pipe with a high capacity flow rate. For highly dirty media, assess the opportunity of installing an additional inspectable strainer upstream.

**CSTB installation guide :**
http://evaluation.cstb.fr/certifications-produits-services/produit/antipollution-des-installations-d-eau/

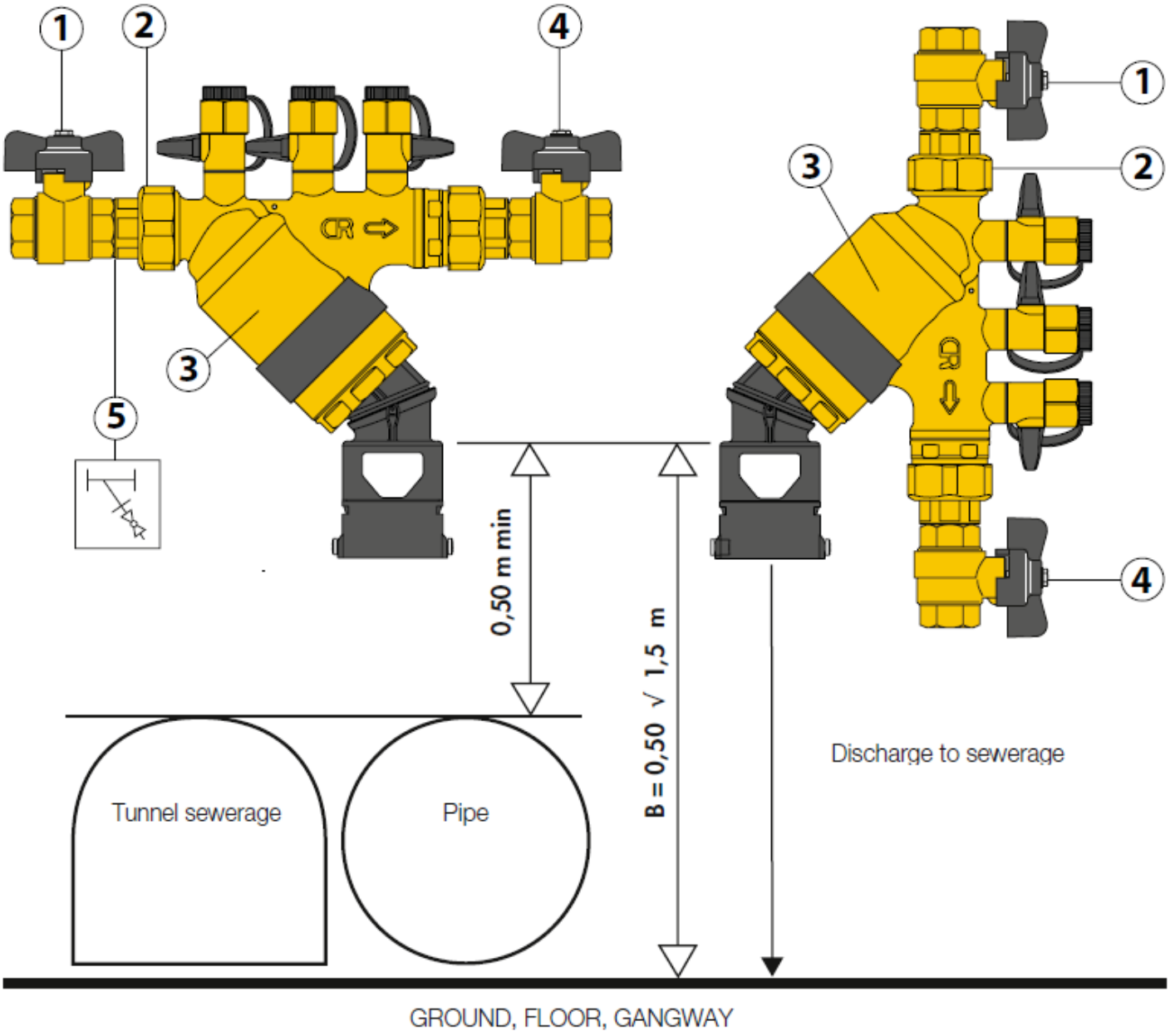


**Annual maintenance must be done once per year by a professional**
http://evaluation.cstb.fr/certifications-produits-services/produit/antipollution-des-installations-d-eau/

**If these operations are not done, the product can't be guaranteed.**

# BACKFLOW PREVENTER MALE TYPE BA 580 CONTROLABLE AND ADJUSTABLE REDUCED PRESSURE

***INSTALLATION (SUITE) :***




| 1 | 2 | 3 | 4 | 5 |
|---|---|---|---|---|
| Stop valve (not included) | Strainer | Backflow preventer | Stop valve (not included) | Strainer (not included) |

# BACKFLOW PREVENTER MALE TYPE BA 580 CONTROLABLE AND ADJUSTABLE REDUCED PRESSURE

### Inspection and maintenance

The backflow preventer is a safety device and requires periodical inspection.
The first sign of poor functioning, generally caused by the presence of foreign bodies (sand or other impurities), is seen with a constant discharge from the discharge valve. This discharge is only a first alarm and does not mean in any way that the backflow preventer is not safe but the device and the strainer upstream from it requires dismantling and cleaning. A quick method of inspection (requires less than 15 minutes) is described in the table below.
N.B. If water is discharged from the discharge valve, a strong flow of water is recommended by turning on one or more taps since this is often sufficient to expel foreign bodies and return everything to normal.

### Control instrumentation (code 575000)

The periodical (annual) control instrumentation consists of the following:

- Upstream pressure gauge
- Downstream pressure gauge
- Differential pressure gauge

The flexible tubes and necessary connections are included as well as accessories useful for dismantling the unit.
The instrumentation comes in its own case.

### QUICK INSPECTION METHOD

Check that the system is under pressure before each operation and watch the discharge valve located on the lower part of the device (use a mirror if necessary).

| OPERATION | FINDINGS | PROBABLE CAUSE | DECISION |
|---|---|---|---|
| 1 Close the downstream shut-off valve | Constant discharge | Upstream check valve or discharge valve do not seal | Dismantle and check |
| | No constant discharge | | Move to step 2 |
| 2 Close the upstream shut-off valve and open the test cock for checking the upstream pressure (on the front flange) | The discharge valve does not open or better there is a minor discharge and lasts more than one minute | Discharge valve is blocked | Dismantle and check |
| | The discharge valve opens suddenly and the unit empties in less than one minute | | Move to step 3 |
| 3 Open the downstream shut-off valve. | Continuous discharge | Downstream check valve is leaking | Dismantle and check |
| | No discharge | | Put back into operation |

N.B. : During normal operation there should be no constant discharge.
If there is a constant discharge dismantle and inspect the device.



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# BACKFLOW PREVENTER MALE TYPE BA 580 CONTROLABLE AND ADJUSTABLE REDUCED PRESSURE

## INSTALLATION INSTRUCTIONS

### GENERAL GUIDELINES :

- Ensure that the check valves to be used are appropriate for the conditions of the installation (type of fluid,pressure and temperature).
- Be sure to have enough valves to be able to isolate the sections of piping as well as the appropriate equipment for maintenance and repair.
- Ensure that the valves to be installed are of correct strenght to be able to support the capacity of their usage.

### INSTALLATION INSTRUCTIONS :

- **Before installing the check valves, clean and remove any objects from the pipes** (in particular bits of sealing and metal) which could obstruct and block the valves.

- **Ensure that both connecting pipes either side of the check valve (upstream and downstream) are aligned (if they're not,the valves may not work correctly).**

- **Make sure that the two sections of the pipe (upstream and downstream) match, the check valve unit will not absorb any gaps.Any distortions in the pipes may affect the thightness of the connection,the working of the check valve and can even cause a rupture.**To be sure,place the kit in position to ensure the assembling will work.

- Before starting the fitting, ensure that the threads and tapping are clean.

- **If sections of piping do not have their final support in place,they should be temporarily fixed.This is to avoid unnecessary strain on the check valve.**
- The theoretical lenghts given by ISO/R7 for the tapping are typically longer than required,the lenght of the thread should be limited, and **check that the end of the tube does not press right up to the head of the thread.**
- For the sealing assembly check valve piping, it is essential to use products that are compatible with the requirements of the French water agreement ACS : **plumbers hemp proscribed**.
- Make sure discharge connection is connected to the drainage network
- Respect installation dimension
- Complete standard installation notice (see page 12)



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