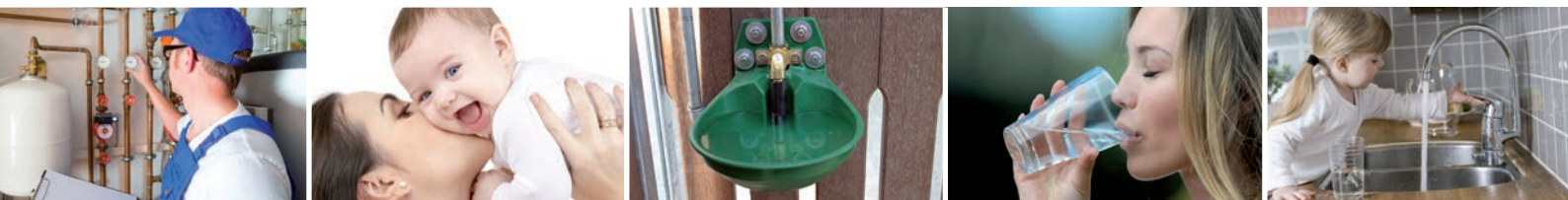


INFORMATION. SOLUTIONS. PRODUCTS. TECHNICAL DATA.



DRINKING WATER PROTECTION IN INSTALLATIONS

**The big SYR guide:
the proper protection of
drinking water installations.**

Practical examples and
product solutions for the
fluid categories defined
in the EN 1717 standard



Innovative solutions for smart people



Hygienically safe drinking water – How to install properly and according to standards.

Clean and hygienically perfect drinking water is a valuable commodity worth protecting. Therefore, numerous standards ensure that our drinking water quality is protected and remains so. But what appears on paper to be „cut-and-dried“ is by no means installation reality in all cellars.



In many places, drinking water installations are not effectively protected against pollution caused by the backflow, back pressure or back-siphonage of water.

This is particularly dangerous wherever water quality is impaired: in cattle troughs and stables, sprinkler systems, car wash and laundry facilities, garden irrigation systems, agriculture, pathology and funeral homes.

On the following pages of this guide, SYR provides you with practical assistance regarding EN 1717 and presents a selection of protective devices. Thus, you can always guarantee your customers safe drinking water.

Great responsibility for the installer

When improperly planned, designed or operated, an installation poses risks - it may impair the quality of drinking water, lead to infectious diseases and result in claims for compensation. Risks that qualified installers avoid by observing the local rules for drinking water installations.

EN 1717

Together with DIN 1988 Part 100, the EN 1717 standard „Protection against pollution of potable water installations and general requirements of devices to prevent pollution by backflow“ regulates- how to ensure drinking water quality. The Drinking Water Ordinance defines the limit values for substances that may be present in our drinking water.

If the substances contained in the water exceed these limits, it is assigned to fluid categories 2 to 5. These categories define how dangerous the various fluids are for humans. The more dangerous the fluid, the higher the category.

The different fluid categories

Category 1

Water to be used for human consumption coming directly from a potable water distribution system.

▶ **protection not required**

Category 2

Fluid presenting no human health hazard. Fluid recognized as being fit for human consumption, including water taken from a potable water distribution system, which can have undergone a change in taste, odour, colour or temperature (heating or cooling).

▶ **at least one verifiable check valve type EA (e.g. domestic point of entry)**

Category 3

Fluid representing some human health hazard due to the presence of one or more harmful substances.

▶ **backflow preventer type CA**

Category 4

Fluid presenting a human health hazard due to the presence of one or more toxic or very toxic substances or one or more radioactive, mutagenic or carcinogenic substances.

▶ **backflow preventer type BA**

Category 5

Fluid presenting a human health hazard due to the presence of microbiological or viral elements.

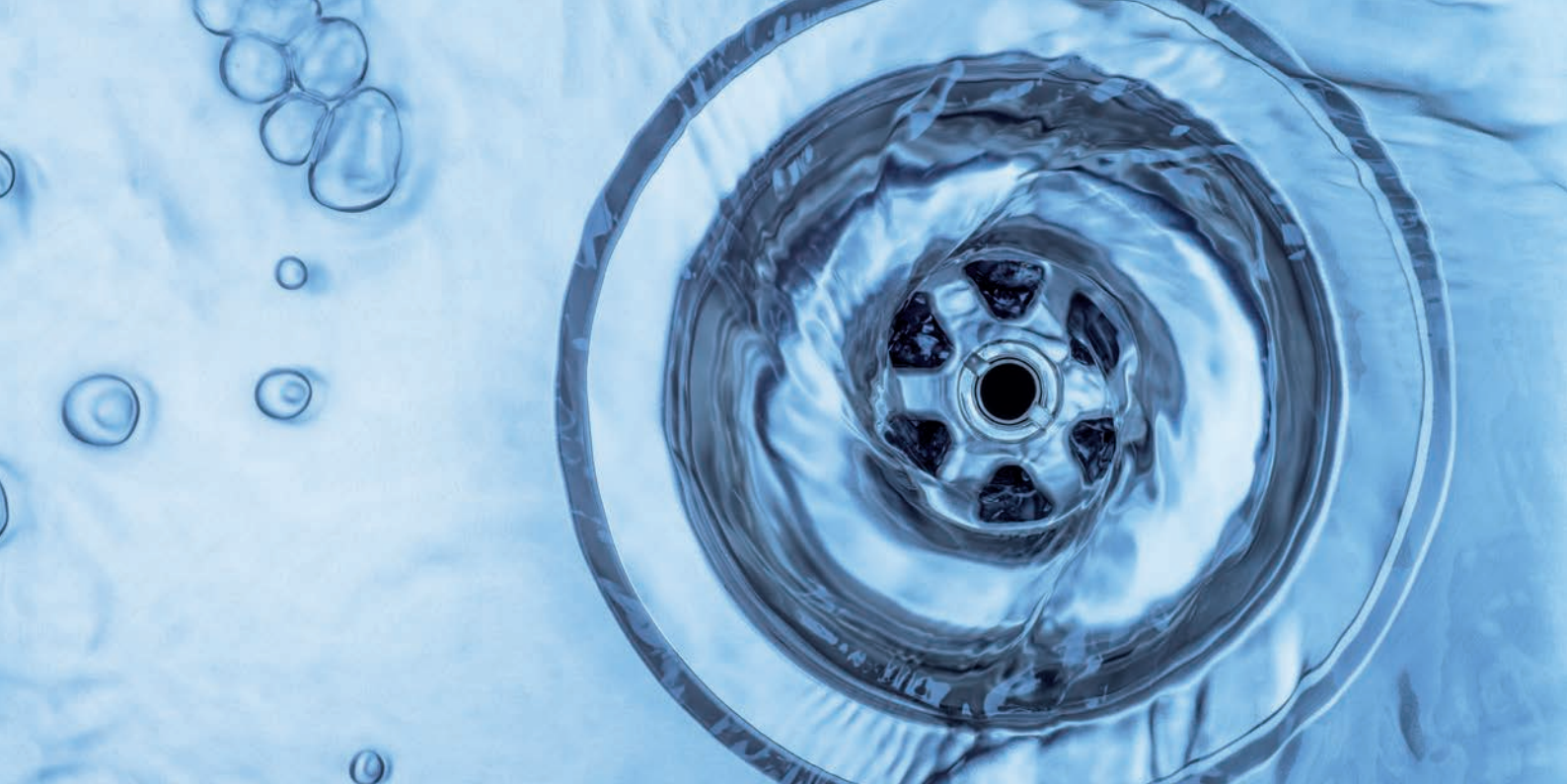
▶ **air gap type AA or type AB**



The fluid categories specified in EN 1717 determine the type of backflow prevention device required.

Protective devices according to EN 1717:

Group A	Air gap
Group B	Controllable disconnection
Group C	Non-controllable disconnection
Group D	Atmospheric venting devices
Group E	Check valves
Group H	Hose union atmospheric venting devices
Group L	Pressurized air inlet valves



Fluid category 3

Category 3 fluids may pose a health hazard due to the presence of one or more toxic and low-toxicity substances. They must be protected by a type CA backflow preventer.

Practical examples:

- Domestic bath and rinse water
- Filling and refilling heating systems with water without adding inhibitors



SYR solutions up to and including fluid category 3

FillingCombi CA 6828 Plus

- Protects drinking water from non-drinking water up to and including fluid category 3
- For automatic filling of closed heating systems with non-treated heating water
- Inlet and outlet shut-off valves (ball valves)
- CA backflow preventer according to EN 1717
- Adjustable pressure reducing valve
- Pressure gauge
- Thermal insulation cover



max. operating pressure	10 bar
max. operating temperature	30 °C (inlet) / 65 °C (outlet)
medium	drinking water
filling capacity	1,2 m ³ /h at Δp 1,5 bar
outlet pressure, pressure reducer	1 - 5 bar (factory setting 1.5 bar)
mounting position	horizontal, tundish connection facing downwards
connection size	DN 15
serial number	6828.15.005

Backflow Preventer CA 6800

- for installation upstream of apparatuses and tapping points
- ideal for filling self-contained central heating systems with non-treated heating water



min. operating pressure	2 bar
max. operating pressure	10 bar
max. operating temperature	65 °C
medium	drinking water
flow rate	
DN 15	2,0 m ³ /h at Δp 1,7 bar
DN 20	3,2 m ³ /h at Δp 1,7 bar
serial number	
DN 15	6800.15.000
DN 20	6800.20.000

All SYR products for drinking water protection up to and including fluid category 3 can be found in our price list.



Fluid category 4

Category 4 fluids can cause serious damage to health due to the presence of toxic, radioactive, mutagenic or carcinogenic substances. They must be protected by a backflow preventer of type BA.

Practical examples:

- Swimming and bathing pools in the domestic area with automatic water treatment and disinfection
- High-pressure cleaner with water containing additives
- Protection of dosing systems for industrial dishwashers and washing machines
- Temporary water connection via standpipe (e.g. at festivals, trade fairs, construction sites)
- Backfeeding devices as in heating systems with inhibitors or in cooling systems
- Water supply for chemical and photographic laboratories (laboratory benches)
- Backfeeding devices in industry (e.g. cooling systems)



SYR solutions up to and including fluid category 4

Backflow preventer STBA 200 for mounting on outlet valves

- To be mounted upstream of apparatuses and tapping points
- For non-permanent installations such as trade fairs, festivals, construction sites, emergency supplies, etc.



min. operating pressure	2 bar
max. operating pressure	10 bar
max. operating temperature	65 °C (outlet)
ambient temperature	5 – 40 °C
medium	drinking water
mounting position	any position, if tundish faces downwards
flow rate	1,27 m ³ /h at Δp 1,5 bar
serial number	6625.15.002

Backflow preventer STBA 400 with integrated outlet valve

- To be mounted upstream of apparatuses and tapping points



min. operating pressure	2 bar
max. operating pressure	10 bar
max. operating temperature	30 °C (inlet) / 65 °C (outlet)
ambient temperature	5 – 40 °C
medium	drinking water
mounting position	any position, if drain funnel faces downwards
flow rate	1,27 m ³ /h at Δp 1,5 bar
serial number	6625.15.004

All SYR products for drinking water protection up to and including fluid category 4 can be found in our price list.

SYR solutions up to and including fluid category 4

Backflow preventer BA 6600 ST

- Protection of standpipes for temporary water withdrawal (events, construction measures)
- For indoor and outdoor use
- Simple and quick mounting
- Sealing to protect against manipulation



min. operating pressure	2 bar
max. operating pressure	10 bar
max. operating temperature	30 °C (inlet) / 65 °C (outlet)
ambient temperature	5 – 40 °C
medium	drinking water
mounting position	vertical, tundish facing downwards
flow rate	1,8 m ³ /h at Δp 1,5 bar
serial number	
DN 15 (G ¾")	6600.15.015
DN 15 (G 1")	6600.15.016

Backflow Preventer BA 6610 in-line LF

- Compact installation size
- High flow rate due to in-line system
- Service-friendly cartridge system for on-site maintenance without removing the device from the pipe
- 3-zone-system (RPZ) with controllable upstream, intermediate and downstream pressure zone
- no dead space
- lead-free housing
- for worldwide use (LF)
- available from DN 15 to DN 50



min. operating pressure	2 bar
max. operating pressure	10 bar
max. operating temperature	65 °C
medium	drinking water
flow rate	
DN 15	2,9 m ³ /h at Δp 1,5 bar
DN 20	5,1 m ³ /h at Δp 1,5 bar
DN 25	7,9 m ³ /h at Δp 1,5 bar
DN 32	13,0 m ³ /h at Δp 1,5 bar
DN 40	20,3 m ³ /h at Δp 1,5 bar
DN 50	31,8 m ³ /h at Δp 1,5 bar
serial number	
DN 15	6610.15.000
DN 20	6610.20.000
DN 25	6610.25.000
DN 32	6610.32.000
DN 40	6610.40.000
DN 50	6610.50.000

FillingCombi BA 6628 Plus with double pressure gauge

- For automatic filling of closed heating systems
- Innovative, patented double pressure gauge
- Inlet and outlet shut-off valves, pressure reducing valve, BA backflow preventer according to EN 1717
- Thermal insulation cover



max. operating pressure	10 bar
max. operating temperature	30 °C (inlet) / 65 °C (outlet)
medium	drinking water
filling capacity	1,5 m³/h at Δp 1,5 bar
outlet pressure	1,5 - 6 bar (factory setting 1,5 bar)
mounting position	horizontal, tundish connection facing downwards
serial number	6628.20.008

Flange-type backflow preventer BA

- safe drinking water protection for large-scale installations in DN 65
- In accordance with the EN 12729 requirements for backflow preventers
- 3-zone-system with controllable upstream, intermediate and downstream pressure zone
- Integrated pre-filter for the control unit
- Easy-to-service cartridge system
- Available in DN 65, 80 and DN 100



max. operating temperature	65 °C
max. inlet pressure	10 bar
medium	drinking water
body material	gunmetal
flange connection	DN 65, 80, 100
mounting position	main axis vertical, tundish facing downwards
flow rate	85 m³/h at Δp 1,5 bar
serial number	
DN 65	6600.65.000
DN 80	6600.80.000
DN 100	6600.100.000

All SYR products for drinking water protection up to and including fluid category 4 can be found in our price list.



Fluid category 5

At this point, standard protective devices are no longer sufficient, because the fluids of category 5 can cause serious damage to health. Microbial or viral pathogens contained in the water may transmit diseases. In this case, protection must be provided by an air gap or a safety disconnection unit.

Practical examples:

- cattle troughs
- barn facilities
- car wash facilities
- supply lines in sewage treatment plants
- rainwater systems
- agriculture
- laundry facilities
- swimming and bathing pools in public areas
- pathology and funeral homes



SYR solutions up to and including fluid category 5

Safety Disconnection Unit STS 5

- Storage tank with drinking water connection
- Integrated pressure booster starting to run depending on the pressure and stopping depending on the volumetric flow rate
- with potable water filter
- with wall bracket



max. operating pressure	10 bar
operating temperature	min. 5 °C; max. 35 °C
ambient temperature	min. 15 °C; max. 35 °C
max. flow rate	2,8 m ³ /h
supply voltage	230 V / 50 Hz
type of protection	IP 42
potable water connection	¾" AG
pressure connection	1" AG
acoustic pressure level	69 db at 1 m
serial number	6500.00.000

Owing to the ready-to-install, compact design of the STS 5, parts of a drinking water installation can be easily retrofitted with this device, for instance if there is a change of use of the tapping points.

A float valve in the disconnection unit monitors the filling level in the drinking water tank and starts the drinking water feed if necessary. The integrated centrifugal pump of SYR's Safety Disconnection Unit STS 5 operates fully automatically: it starts running depending on the pressure and stops depending on the volumetric flow rate.

All SYR products for drinking water protection up to and including fluid category 5 can be found in our price list.



SYR CONNECT. The system for smart comfort.

SYR CONNECT makes for safe and smart domestic installations. In the areas of leakage protection, water treatment, hygiene control and heating system monitoring, the respective valves will be controlled via the SYR App on the smartphone and tablet or on the computer by browser. Owing to the Internet-based swarm intelligence (ISI), they can even be interconnected and centrally controlled.



YOUR SYR PLUS
 Winner of the Smart Home Award:
 SYR CONNECT

Leakage protection as individual solution or as an interconnected system

Reliable protection against expensive water damage, frost damage and the consequences of excessively high or low humidity. Determines the water hardness.

Hygiene control for large-scale objects

The flushing station detects stagnation or temperatures that promote the formation of bacteria. It triggers a hygiene cleansing that thoroughly flushes the pipes with clean water.



Water softeners for noticeably soft water without lime

Compact comfort systems with semi-automatic commissioning, optionally with flanged connection for the DRUFI drinking water filter and additional leakage protection.

Heating system monitoring, automatic filling and leakage protection

Meets the manufacturer's specifications for the filling water in heating systems and the VDI 2035 requirements. Ready for SYR's heating water conditioning cartridges.

