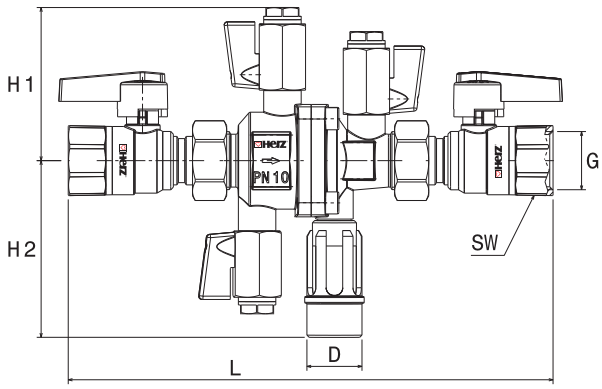
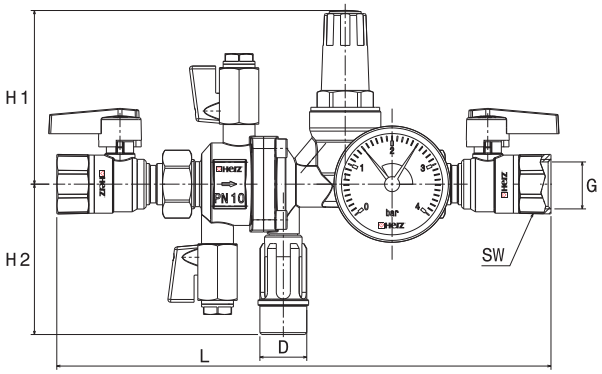
HERZ - Back flow preventor with reduced pressure zone I 0303 / I 0305

Data sheet **I 0303 / I 0305**, Issue 0215

Installation dimensions in mm



I **0303** 01
I **0303** 02



I **0305** 01
I **0305** 02

Article no.	G	L [mm]	D [mm]	H1 [mm]	H2 [mm]	SW
I **0303** 01	1/2"	214	25	70	80	26
I **0303** 02	3/4"	220	25	70	80	32
I **0305** 01	1/2"	258	25	93	80	26
I **0305** 02	3/4"	264	25	93	80	32

Technical data

Nominal pressure	PN 10
Operating temperature	65 °C
max. permissible operating temperature	85 °C (short-term)
Output pressure	adjustable, from 0.5 to 3 bar
Factory pre-setting	1.5 bar
Installation position	horizontal
Medium	water

Materials

Housing	brass (CW617N)
Seals	EPDM per KTW

Application area

RPZ back flow preventers prevent the back-pressuring, back-flowing or back-suction of contaminated water into the drinking water network in accordance with EN 1717. Application areas are all areas in which a connection is established between the drinking water network and industrial water through fixed or flexible lines.

Preferred application fields are softening, de-acidification and de-carbonisation plants. Furthermore, the RPZ valves can also be used in disinfection plants or upstream of chemical cleaning apparatus, in order to prevent the back-flowing of chemically contaminated water.

Functional description I 0303

The RPZ valve operates according to the three-chamber system, whereby a venting middle chamber is separated by a back-flow preventer between the intake and outlet chamber respectively. Under normal operating conditions, a pressure drop exists in the flow direction from one chamber to the next, which prevents a back-flow. When the pressure drop between the intake and middle chamber has dropped to 0.14 bar, the middle chamber will vent to a tundish. Any contaminated drinking water that is forced back at the back-flow preventer on the outlet side is then safely transported away via the differential pressure-controlled discharge valve and the tundish fitted on the outlet of the ventilation hole.

Functional description I 0305

Refilling combination for the filling and top-up of heating systems. Expands the functions of the RPZ valve I **0303** xx additionally with a pressure regulator and a manometer. Furthermore, automation of the filling process is also possible.

Operation, maintenance

In order to obtain the desired back flow prevention, the function should be checked and tested every 6 months. It is additionally important that the individual parts of the system separator can be replaced under pressure at any time. In order guarantee this, it is possible to shut off and then maintain the RPZ valve with the help of the shut-off valves.

Use of the RPZ valve - reference to EN 1717

EN 1717 is referred to for correct use of the system separator and selection of the suitable backflow preventer. This stipulates which medium must be present, in order to use the system separator in accordance with the standard.

The standard serves to ensure "the protection of drinking water against contaminants in drinking water installations and general requirements applicable to safety devices for the prevention of drinking water contamination through back-flow". It specifies the following categories:

Category 1:
Water for human consumption, which is taken directly from a drinking water installation, e.g.: water pipes. As such, no hazard zones can arise and the drinking water is completely harmless.

Category 2:
Liquid that must not pose any danger to human health. This means liquids that are suitable for human consumption, including water from a drinking water installation, which may exhibit a change in flavour, odour, colour or temperature (heating/cooling). The back flow preventer is therefore installed, in order to protect the liquid from "non"-drinking water. Otherwise, the drinking water network will be mixed with substances that may pose a danger to human health.

Category 3:
Water that may pose a risk to human health due to a few low-toxicity substances that may be present in the "non"-drinking water. However, this does not result in a risk of death because the proportion of toxins in the liquid is too low.

Category 4:
Liquid that poses a risk to human health due to the presence of one or more toxic or highly toxic substances, or one or more radioactive, mutagenic or carcinogenic substances.

Category 5:
Medium that poses a risk to human health. These liquids may contain viral or microbial pathogens. This may result in persons suffering life-endangering illnesses.

This classification constitutes grounds for the installation of a suitable back-flow preventer in the water circuits. BA-type RPZ valves serve to protect against contaminants through water in categories 1 - 4.

The following sections of EN 1717 are important when selecting a suitable safety device:

- Point 5: Determination of the risks for take-off points
- Point 6: Safety device for take-off points - in domestic areas
- Point 7: Safety device for take-off points - in non-domestic areas
- Point 8: Safeguarding the transition point of the public drinking water supply

Application table for safety devices

Safety device			Usable according to DIN EN 1717 for safeguarding the liquid category				
Group	Type	Description	1	2	3	4	5
A[1]	A	Free outlet	O	O	O	O	O
	B	Free outlet with overflow	O	O	O	O	O
	C	Free outlet with vented overflow	O	O	O	-	-
	D	Free outlet with injector	O	O	O	O	O
B	A	Separator with reduced middle pressure zone	O	O	O	O	-
C	A	Separator with various uncontrollable pressure zones	O	O	O	-	-
D	A	Pipe ventilator in flow form	Δ	Δ	Δ	-	-
	B	Pipe interrupter with moving parts	Δ	Δ	Δ	Δ	-
	C	Pipe interrupter with constant connection with the atmosphere	Δ	Δ	Δ	Δ	Δ
E	A	Controllable back-flow preventer	O	O	-	-	-
	B	Uncontrollable back-flow preventer	Only for intended domestic use				
	C	Controllable double back-flow preventer	O	O	O	-	-
	D	Uncontrollable double back-flow preventer	Only for intended domestic use				
G	A	Pipe separator, not flow-controlled	O	O	O	-	-
	B	Pipe separator, flow-controlled	O	O	O	O	-
H	A	Hose connection with back-flow preventer	O	O	Δ	-	-
	B	Pipe ventilator for hose connections	Δ	Δ	-	-	-
	C	Automatic diverter	Only for intended domestic use				
	D	Pipe ventilator for hose connections, combined with back-flow preventer (fitting combination)	O	O	Δ	-	-
L	A	Pressurised ventilator	Δ	Δ	-	-	-
	B	Pressurised ventilator, combined with downstream back-flow preventer	O	O	Δ	-	-

[1] = Selection

O = Protection against back-suction and back-pressure

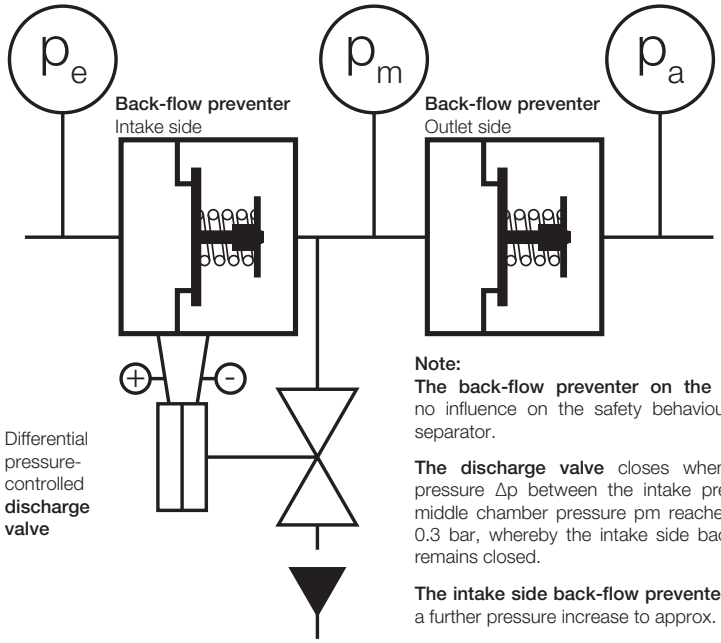
Δ = Protection against back-suction, no protection or insufficient protection against back-pressure

- = Not suitable

The application table presents a selection of safety devices, depending on the hazard classes of drinking water. Corresponding liquid categories are defined according to EN 1717. HERZ RPZ valves I 0303 or I 0305 belong to safety device type "BA" and are therefore only suitable for use with liquid media up to category 4.

Simplified schematic drawing

The diagram below is a simplified illustration of a RPZ valve. It provides a schematic explanation of the function of the safety fitting. The RPZ valve functions over three pressure zones. The discharge valve is connected on the intake side with the middle chamber and on the outlet side with the atmosphere. It is controlled by the pressure drop at the intake side back-flow preventer.

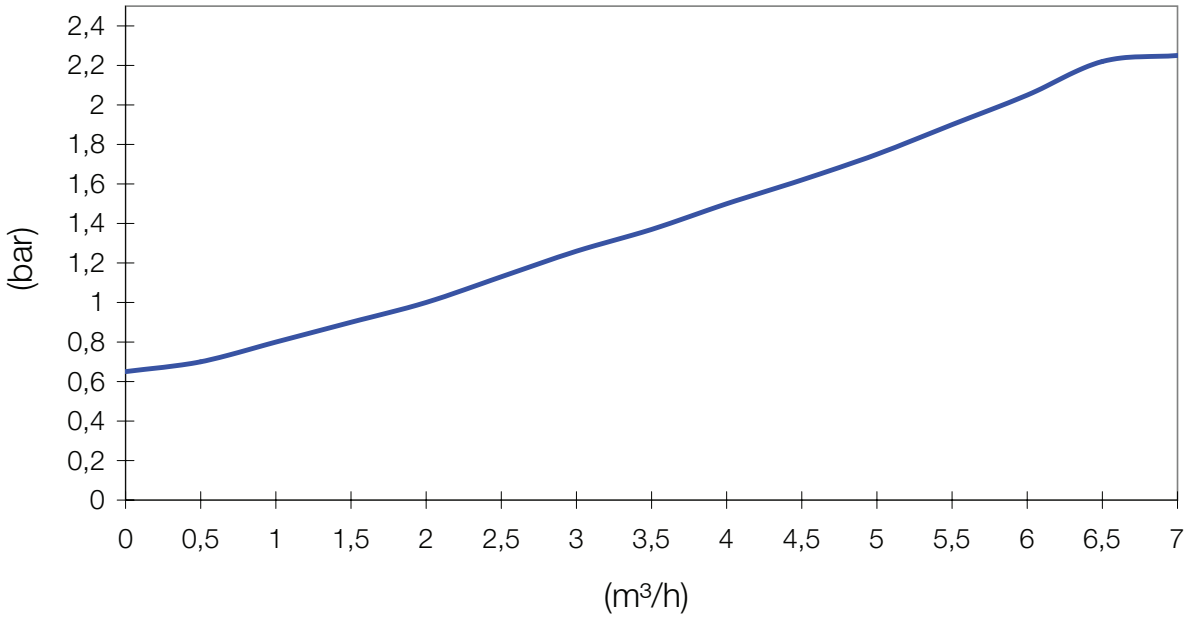


Note:
The back-flow preventer on the outlet side has no influence on the safety behaviour of the system separator.

The discharge valve closes when the differential pressure Δp between the intake pressure pe minus middle chamber pressure pm reaches approx. 0.2 to 0.3 bar, whereby the intake side back-flow preventer remains closed.

The intake side back-flow preventer only opens with a further pressure increase to approx. 0.5 to 0.6 bar.

Flow diagram



Note: All schematics are purely symbolic in nature and do not claim to be complete.
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