

Rev. 03/2023

## **SERIES 3928**

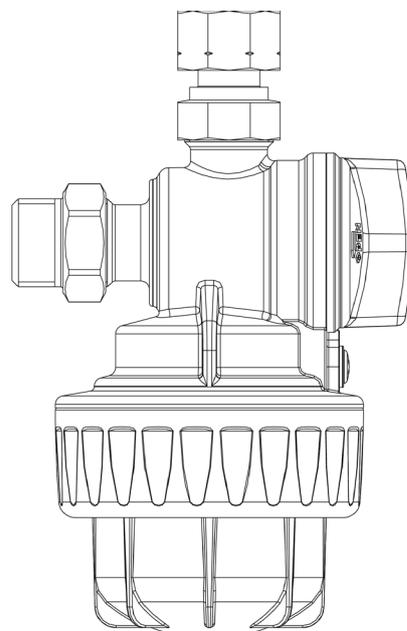
### **DP1**

Polyphosphate Doser

# SERIES 3928 DP1

## Polyphosphate Doser

- +** Supercompact
- High efficiency
- Eliminates impurities
- Fights corrosion
- Increases the lifespan of the boiler
- Maintains optimum system efficiency



### PRODUCTION RANGE

	Code	Size
	3928.04.00	G 1/2" with By-Pass

### ACCESSORIES

	Code	Description
	4051.00.00	Polyphosphate dosing filter DP1
	4050.00.00	Dosing filter DP1 bottom replacement

\*The purity of the polyphosphates used for drinking water treatment is in accordance with existing EC Standards (EN 1208) as well as FAO/WHO Expert regulations Committee on Food Additives (7 and 19 Report). Polyphosphate is NSF certified according to NSF/ANSI Standard 60.

### DESCRIPTION OF OPERATING PRINCIPLE

The DP1 polyphosphate doser provides the water with a suitable anti-scale and anti-corrosive treatment, leaving its potability characteristics unchanged.

It is mainly applied upstream of domestic hot water supply systems, directly at the cold domestic water inlet to the boiler. The DP1 polyphosphate doser has a small footprint, simple and quick installation, low product consumption and low maintenance costs.

Equipped with a 1/2" swivel brass shank, it adapts to all types of boilers; the built-in shut-off system allows maintenance without the need for other shut-off devices.

A polyphosphate charge is included in the package. The use of polyphosphate silicates guarantees:

- Scaling inhibition: helps reduce the formation of adherent deposits of insoluble carbonates on heat exchange surfaces
- Attenuation of previous scales (restorative effect): progressive reduction of the layer of deposits formed in the installations in the absence of suitable chemical conditioning.
- Corrosion inhibition: hinders corrosive phenomena by facilitating the formation of a protective film on parts in contact with water.

**ATTENTION:** Installation of the doser is prescribed by standard UNI-CTI 8065, by Presidential Decree 59/2009 and by Ministerial Decree 26 June 2015. It complies with the requirements of Ministerial Decree 174/2004 relative to installations used for water intended for human consumption.

## CONSTRUCTION FEATURES

<b>Body:</b>	Technopolymer with high mechanical performance
<b>Hydraulic seals:</b>	EPDM PEROX
<b>Load product:</b>	Brilliant blue crystals of food grade polyphosphate in a glassy state. Grams: 70 g
<b>Connection fitting:</b>	Brass

## TECHNICAL FEATURES - DP1

<b>Max. operating pressure:</b>	6 Bar
<b>Operating temperature:</b>	0-30°C

**Induced noise:** (according to EN13443 and UNI 3822).DP1 induced noise in pipes is 0 dB(A).

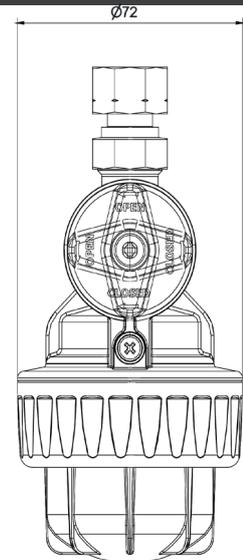
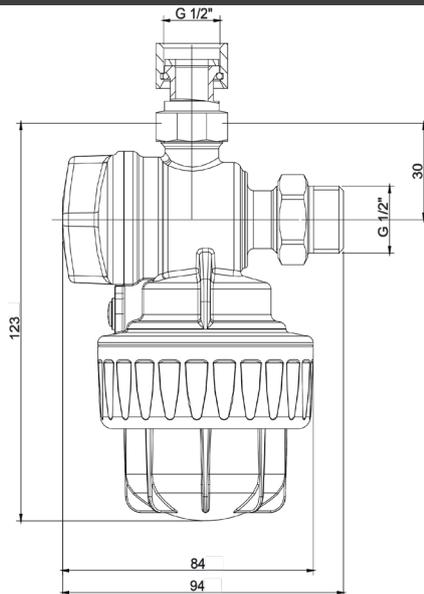
As specified in EN 13443 regulation, DP1 belongs to the I group, as well as all other products having noise levels < 20 dB(A).

## TECHNICAL FEATURES - POLIFOSFATI

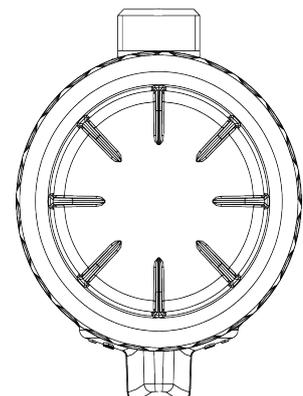
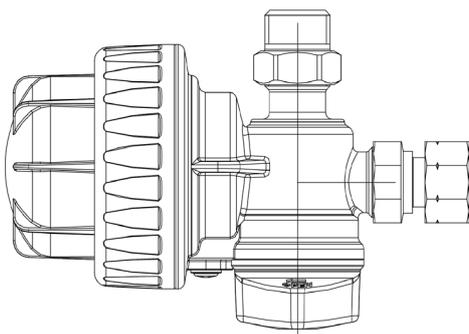
<b>Type of product:</b>	Sodium metaphosphate with antiscaling action and sodium silicate with anticorrosive action
<b>Product Dosage:</b>	Max. 5mg/l P2O5
<b>Compatible fluid:</b>	Drinking Water
<b>T°max for antiscaling actions:</b>	100°C
<b>T°max for anti-corrosive actions:</b>	180°C
<b>Charge duration:</b>	35000 l (approx. 6 months)

## DIMENSIONAL FEATURES

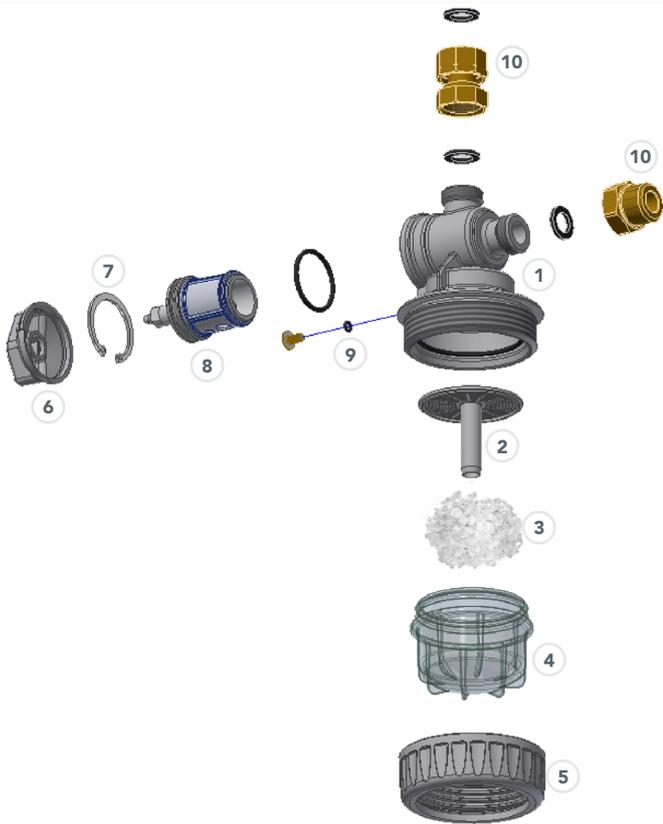
### VERTICAL Configuration



### HORIZONTAL configuration



## COMPONENTS DESCRIPTION



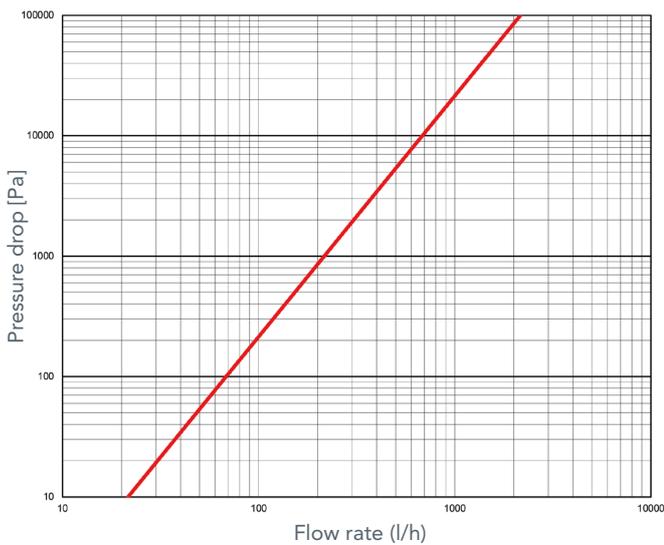
- 1 Doser Body
- 2 Cartridge Disc
- 3 Polyphosphate load
- 4 Doser bottom
- 5 Tightening ring nut
- 6 Closure
- 7 Indoor Seeger ring UNI7437
- 8 ByPass shut-off cylinder
- 9 O.R seal + screw M4 x 8
- 10 Double Swivel Fittings G1/2" flat seat + gasket

### Note:

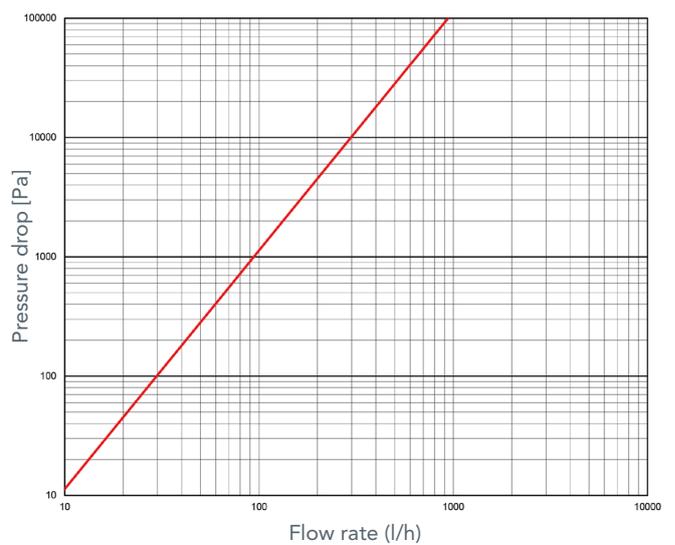
It is advised that the boiler is off and the system is allowed to cool at room temperature before carrying out any maintenance intervention, in order to avoid burns.

## HYDRAULIC CHARACTERISTICS

Standard flow pressure drop:

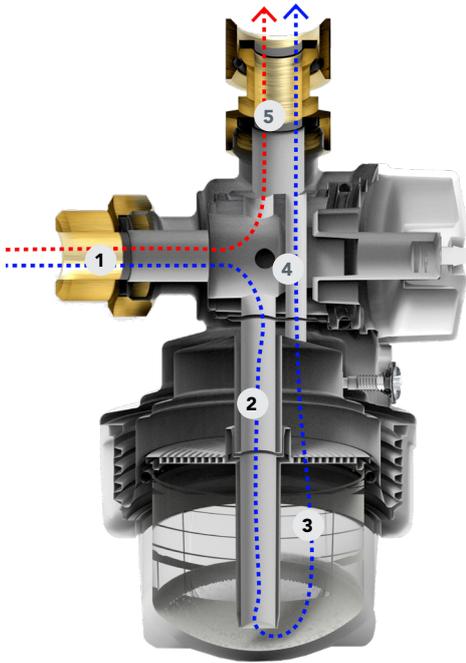


By-pass flow pressure drop:



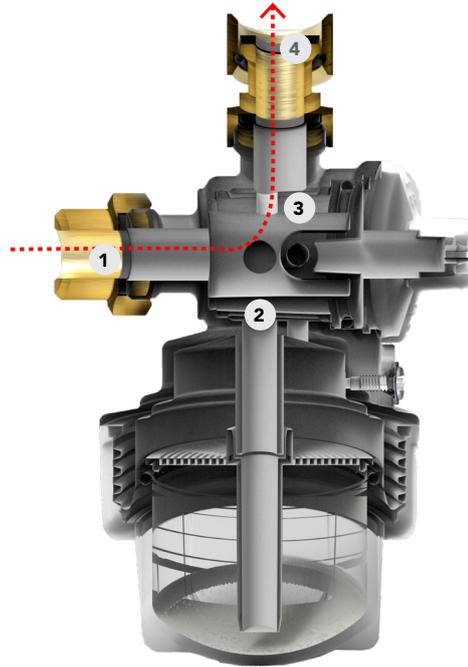
Size	Kv (standard) [l/h]	Kv By-Pass [l/h]
G 1/2"	2163	937

## OPERATING PRINCIPLE



### OPEN BYPASS MODE:

- 1 Input flow
- 2 Passage through the filter cartridge
- 3 Passage through the polyphosphate doser
- 4 Treated water passage and subsequent entry into the system
- 5 Flow entry into the system



### CLOSED BYPASS MODE:

- 1 Input flow
- 2 Closed filtering chamber
- 3 Open by-pass
- 4 Flow entry into the system

### PRINCIPLE OF FILTRATION:

Scaling is the result of calcium and magnesium deposits (salts that determine hardness) on pipe walls, exchange surfaces and control and regulating parts.

The amount of deposit depends on:

- the temperature of the water.
- water hardness.
- the volume of water used.

Unlike other salts, calcium and magnesium salts become less soluble as the temperature rises, which is why all systems in which water is heated, especially those for domestic hot water production, are at risk of scaling.

The parameter to be monitored is total hardness, the sum of calcium and magnesium ion concentrations and responsible for scaling.

Calcium and magnesium bicarbonates are chemically in equilibrium with carbonates (of calcium and magnesium), water and carbon dioxide.

As the temperature increases, soluble bicarbonates turn into insoluble carbonates, forming lime deposits and releasing carbon dioxide.

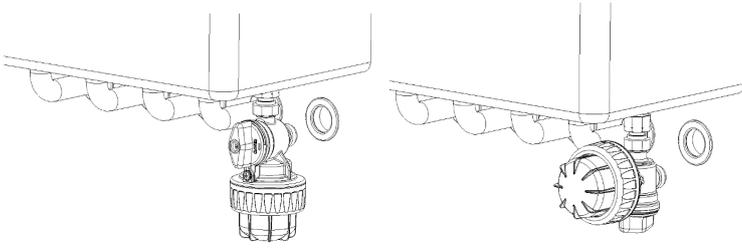
The sodium and potassium polyphosphates inside the container combine with calcium and magnesium ions to form a chemical compound similar to limescale but which cannot adhere to pipe surfaces.

The precipitation of calcium and magnesium and the consequent formation of lime deposits is prevented.

In addition, polyphosphates are deposited on the surface of the pipes, forming a protective film to protect them from fouling and remove already deposited limescale.

The use of polyphosphates is part of chemical conditioning treatments (as expressed by UNI 8065) which are based on the necessary dosage of salts in relation to the amount of cold water flowing through the device, without changing the hardness of the water.

## INSTALLATION:



The polyphosphate doser is to be installed on the domestic cold water line at the boiler inlet.

It can be installed vertically or horizontally.

Use the supplied ½" rotary nut shank to connect directly to the boiler. Screw the fixed part onto DP1 and the rotary nut onto the boiler side, use EPDM+PEROX gaskets for sealing.

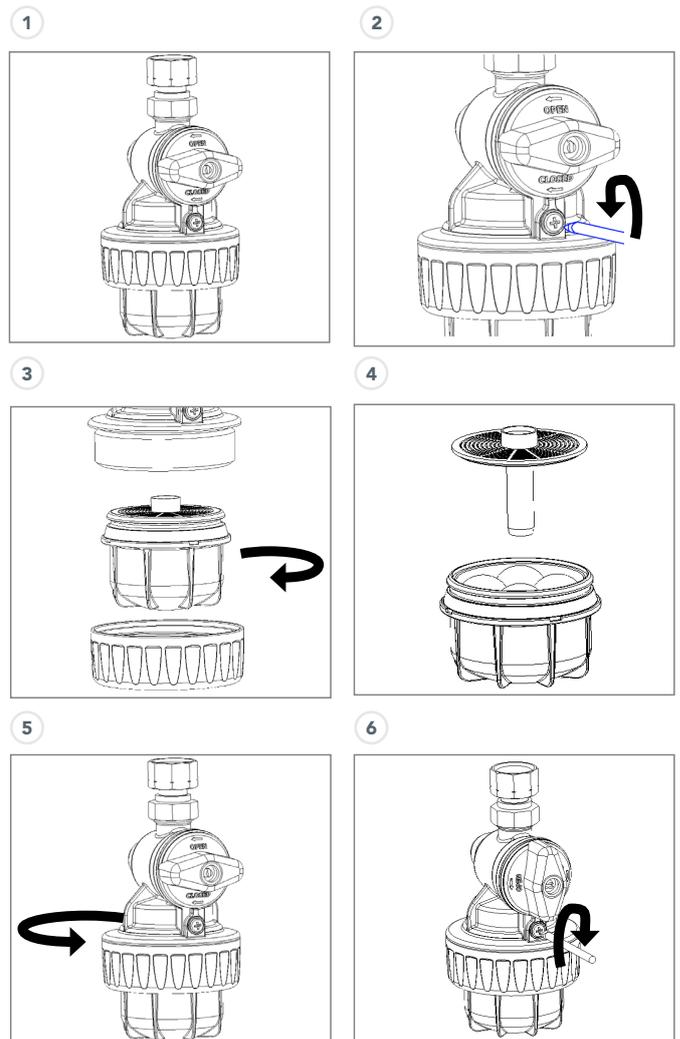
At the end of the installation, de-aerate the device by means of the vent screw; once the air in the vessel has escaped, close the vent screw, carefully checking that it is tight and that there are no leaks.

Do not install the DP1 in conditions of direct exposure to the weather, and installation in environments where the temperature may fall below 5°C (**Frost Danger**) is not recommended.

## MAINTENANCE INTERVENTIONS

The transparent bottom allows the status of polyphosphate consumption to be checked. When the polyphosphates inside the transparent glass are no longer present, they must be replenished by performing the following steps:

1. Intercept the device by turning the knob (By pass activation).
2. Unscrew vent valve to depressurise before opening.
3. Unscrew the ring nut and remove beaker.
4. Remove the disc filter, wash well and place the polyphosphates in the beaker (**no powder**).
5. Refit beaker (more difficult in the case of horizontal mounting).
6. Screw vent valve and reopen circuits.



## TIPS FOR USE:

- If domestic hot water is to be used for food purposes after a period of non-use of more than 5 days, it is advisable to provide a short initial flushing with disposable water to promote dilution of the dissolved polyphosphates;
- Regardless of the degree of consumption of the polyphosphate charge, we recommend replacing the entire charge after about 6 months of use. The residues produced must be disposed of in accordance with the Waste Directive 2008/98/EC as well as national and regional regulations.
- DP1 is suitable for use with any solid polyphosphate crystals. In any case, RBM accepts no liability for the use of other than original polyphosphates.
- For the correct use of the product, we recommend the use of original refills sold under code 4051.00.00;

## SPECIFICATIONS

### SERIES 3928

Hydrodynamic polyphosphate doser type RBM for under-water installations, series 3928, for automatic proportional dosing of up to 5 mg/l sodium polyphosphates, suitable for use of universal solid polyphosphate refills.

Consisting of technopolymer head body with high mechanical performance, shank with brass rotary nut, transparent PA12 container vessel, EPDM+PEROX seals.

Device conforming with Ministerial Decree 174/2004 and with Ministerial Decree 25/2012.

Technical features:

- Operating pressure: 6.0 bar
- Max. water temperature: 30°C
- Dosage: max. 5 mg/l.

Available in the following versions:

- Ø1/2" doser
- Ø1/2" doser with bypass.

*RBM spa reserves the right to improve and change the products described and relevant technical data at any moment and without prior notice. The information and images contained in this document are intended for information purposes only, are not binding and in any case do not exempt the user from strictly following the regulations in force and good practice standards.*

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