

Polyphosphates and silicates dispenser

► POLIFEMO® - POLIFEMO® EXTRA - POLIFEMO® 1"

Next-generation polyphosphates and silicone dispenser with triple action: limescale inhibition, protection, and filtration

■ INTRODUCTION



The new IVAR POLIFEMO® polyphosphates and silicates dispenser is a device without moving parts which releases a saturated solution of food-grade polyphosphates and silicates into domestic cold water. The dosage of the substances is proportional to the flow rate of the water through the device, and occurs through the inlet duct, which takes the correct quantity of saturated solution from the socket. The dosing principle is based on the pressure differentials created in the device when a certain flow rate of water crosses it. Thanks to the polyphosphates and silicates, and the presence of the AISI 304 stainless-steel safety filter incorporated in the device, POLIFEMO® has three different functions:

1. Protection against limescale.
2. Protection against corrosion.
3. Filtration of impurities.

POLIFEMO® is equipped with a special bypass valve to allow normal operation of the system to continue when refilling and cleaning the device.

The 1/2" and 1" versions of POLIFEMO® can be installed to protect boilers, water heaters, dishwashers and washing machines. The use of polyphosphates for the prevention of limescale is possible with medium to hard water, up to 30 °f. Beyond this level of hardness, it is advisable to install a softener to protect the entire system. It is advisable to pay attention to the DHW supply temperature: above 60 °C, magnesium and calcium carbonates (limescale) can precipitate out.

■ BENEFITS

- ✓ Limescale protection: dispensing of polyphosphates prevents the precipitation of magnesium and calcium carbonates
- ✓ Proportional action: the calibrated (Venturi) passage ensures the correct quantity of polyphosphates and silicates in the system water
- ✓ Filtration: 500 µm stainless-steel mesh filter
- ✓ Facilitated inspection: thanks to the transparent socket and spheres consumption indicator
- ✓ Robustness and reliability: chrome-plated brass nut and ring nut, socket in Grilamid TR
- ✓ Simplified installation
- ✓ Long refill lifetime: the extra-large socket means POLIFEMO® only requires refilling once a year

■ RANGE

POLIFEMO is available in three versions:

- POLIFEMO[®]: 1/2" F connections and eight polyphosphate and silicate spheres (standard socket);
- POLIFEMO[®] EXTRA: 1/2" F connections and sixteen polyphosphate and silicate spheres (extra-large socket);
- POLIFEMO[®] 1": 1" F connections and sixteen polyphosphate and silicate spheres (extra-large socket).



Figure 1 Item code 520210 - POLIFEMO[®].



Figure 2 Item code 520211 - POLIFEMO[®] EXTRA.



Figure 3 Item code 520212 - POLIFEMO[®] 1".

■ INSULATION

All versions of POLIFEMO[®] can be insulated with a dedicated insulated casing in ARPRO 4135 FR.



Figure 4 Item code 520214 - 1/2" standard socket.



Figure 5 Item code 520215 - 1/2" extra-large socket.



Figure 6 Item code 520216 - 1" extra-large socket.

■ MATERIALS

- Socket: Grilamid[®] TR
- Body and ring nut material: CW 617 N brass, chrome-plated externally
- Sealing gaskets: peroxide EPDM
- Safety filter: stainless steel
- Insulated casing (sold separately): ARPRO 4135 FR - PP flame retardant

■ TECHNICAL DATA

	520210	520211	520212
Fluid temperature	5÷40 °C		
Maximum operating pressure	10 bar		
Flow coefficient (Kv)	2.5 m ³ /h.	2.5 m ³ /h.	14.6 m ³ /h.
Indicative maximum flow rate	30 l/min*	30 l/min*	172 l/min*
Treated water per refill	50 m ³	100 m ³	
Guideline refill lifetime	6 months **	12 months **	
Hydraulic connections	1/2" F		1" F
Safety filter	500 µm, in AISI 304 stainless steel		

*: maximum flow rate calculated with $\Delta P = 0.5$ bar.

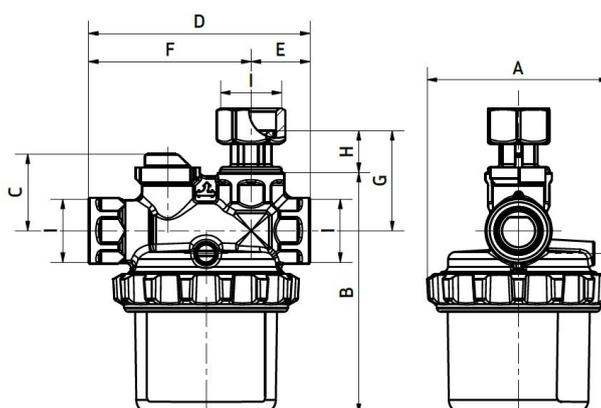
**: Lifetime of refill calculated in the case of connection to boilers (on domestic cold water inlet) and based on an average daily consumption of hot water at 42 °C of a family of four (250 L/day).

Speed check

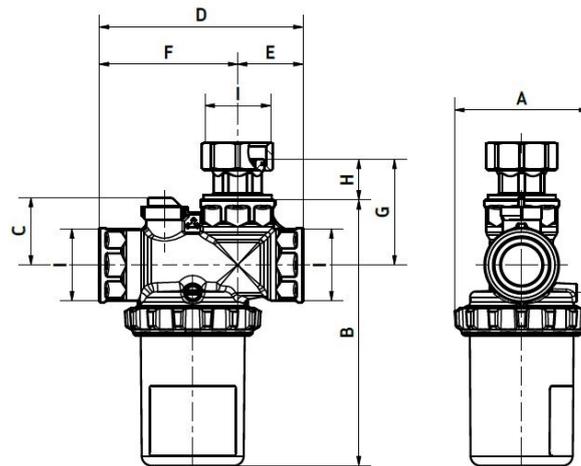
Regardless of the indicative maximum flow rate, calculated on the basis of a given pressure drop, it is important to remember to check the speed of the water at the device inlet depending on the installation location. For example, in heating plants higher speeds are permissible, as any noise which might be created by the higher flow rates would not disturb the end users. On the contrary, in an installation below the boiler within a home, it is advisable to maintain significantly lower speeds. Some indicative flow rates and corresponding speeds are given below for the POLIFEMO® 1" model.

Inlet speed	Indicative flow rate
2 m/s	85 l/min
3 m/s	127 l/min
4 m/s	172 l/min

■ DIMENSIONS

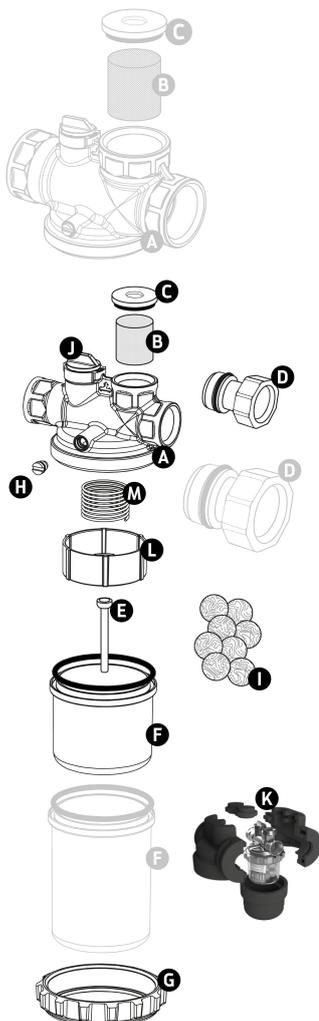


Cod.	A	B	C	D	E	F	G	H	I
520210	72	95	30	86,5	23	63,5	39,5	16,5	G1/2"
520211	72	125,5	30	86,5	23	63,5	39,5	16,5	G1/2"



Cod.	A	B	C	D	E	F	G	H	I
520212	72	143	36	109	35	74	57	22	G1"

■ COMPONENTS



- A. Threaded body with 1/2" F fittings (x3) (codes 520210, 520211) - Threaded body with 1" F fittings (x3) (codes 520212).
- B. Safety filter, 500 µm.
- C. 1/2" M cap (codes 520210, 520211) - 1" F M cap (code 520212).
- D. 1/2" F swivel fitting (codes 520210, 520211) - 1" F swivel fitting (code 520212).
- E. Inlet duct.
- F. Socket in Grilamid® TR with sealing gasket (standard socket - code 520210, or extra-large socket - codes 520212, 520211).
- G. Lock nut.
- H. Bleed screw.
- I. Polyphosphate spheres.
- J. Selector.
- K. Insulation (optional).
- L. Indicator.
- M. Spring.

■ INDICATOR



POLIFEMO® further simplifies monitoring of the consumption of the polyphosphate spheres in the socket: if the eye “closes”, i.e. if the level indicator has reached the base of the socket, it is time to refill.

■ REFILLS



The polyphosphate and silicate sphere refills for POLIFEMO® are available in two versions.

Item code	Refill	Compatibility
520213	8 spheres	POLIFEMO®
520218	16 spheres	POLIFEMO® 1"

For the POLIFEMO® EXTRA version, use two no. item code 520213 to refill.

Each refill package includes a 500 µm safety filter and a replacement inlet duct.

■ POLYPHOSPHATE AND SILICATE SPHERES

The polyphosphates and silicates used for the POLIFEMO® spheres are corrosion and precipitation inhibitors used for the treatment of drinking water. The spherical crystal dissolves slowly in water, and has sequestering, stabilising and dispersant properties.

Dosing of polyphosphates and silicates into the system prevents corrosion and the formation of red/brown water, since:

- It forms a protective layer;
- It removes any scale present;
- It stabilises the water hardness;
- It reduces the content of heavy metals such as Fe, Cu, Zn.

■ OPERATION

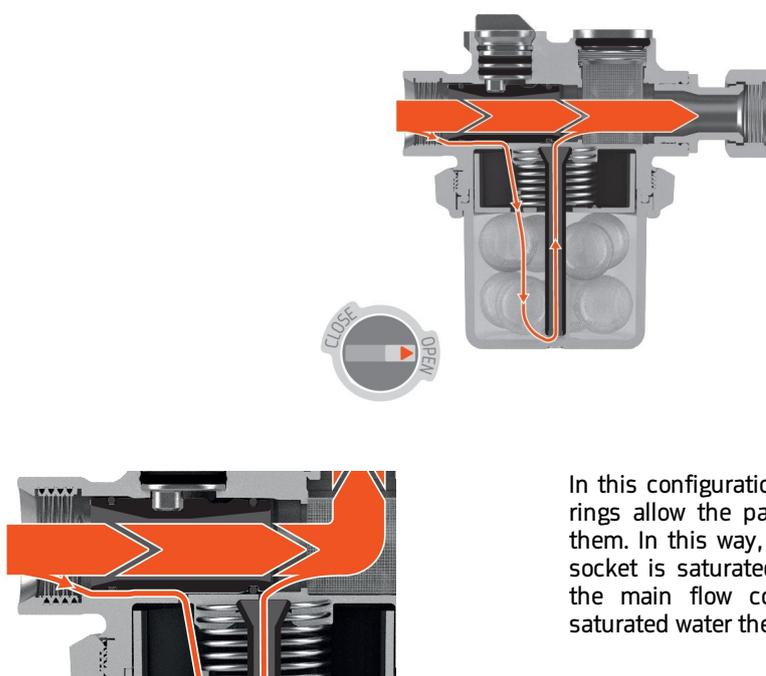
The POLIFEMO® water treatment device releases a percentage of polyphosphates and silicates into the water passing through it.

The portion of system water flowing in the socket is saturated with polyphosphates and silicates. It then rejoins the main flow via a Venturi-effect passage of a preset size which thereby regulates the quantity of polyphosphates and silicates in a manner proportional to the circulating flow rate.

A selector allows the flow through the socket to be shut off in order to refill the polyphosphate/silicate spheres without interrupting normal operation of the system.

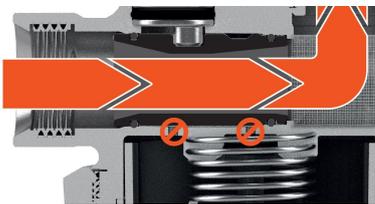
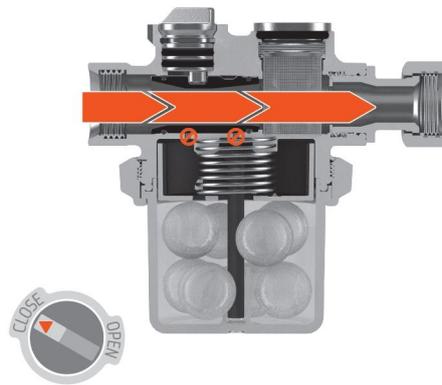
In the following images, remember that the flow in the device is bidirectional, i.e. the inlet/outlet positions can be switched as required.

Straight flow - selector open



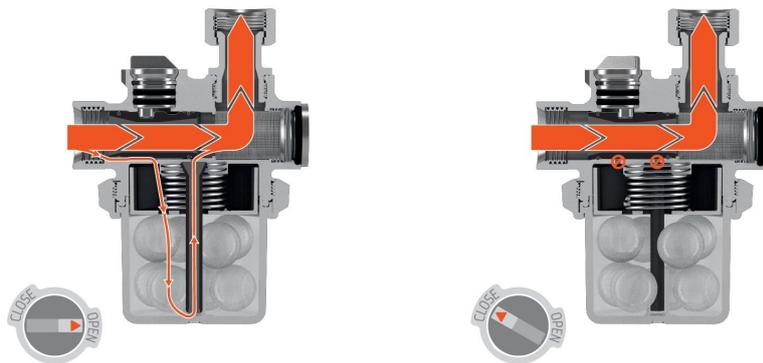
In this configuration, the selector is positioned so that the o-rings allow the passage of a small quantity of water below them. In this way, the portion of system water flowing in the socket is saturated with polyphosphates and silicates while the main flow continues straight on. The small flow of saturated water then rejoins the main flow.

Straight flow - selector closed



In this configuration, the selector is in the position whereby the o-rings are sealed along the walls of the threaded body. The water continues along its path without any flowing into the socket.

Flow at 90°



■ INSTRUCTIONS AND WARNINGS

- ✓ Complies with Italian Ministerial Decrees 174/2004 and 25/2012 with a dosage of P_2O_5 from 2 ppm to 5 ppm
- ✓ It requires periodic replacement of the spheres to guarantee the stated protection of the system against the build-up of limescale and corrosion
- ✓ Only IVAR polyphosphate and silicone spheres, item code 520213-520218, are approved for use.
- ✓ EN 1208-compliant polyphosphates and silicates for the treatment of water for human consumption

■ SPECIFICATION SUMMARY

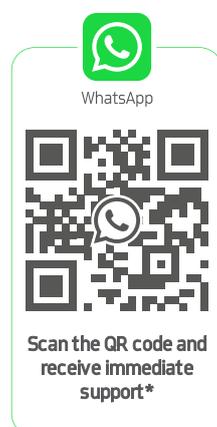
	<p>520210</p> <p>Polyphosphate and silicates spherical crystal dispenser with integrated safety filter to protect the system from limescale and corrosion. For horizontal or vertical installation on the cold water pipeline upline of the domestic hot water supply system (boiler, water heater, etc.) or upline of the washing appliance to be protected (washing machine, dishwasher). Compounds dosed proportionally thanks to the calibrated passage (Venturi). Incorporated refill indicator. Threaded body and ring nut in chrome-plated CW617N brass, socket in Grilamid® TR, sealing elements in peroxide-cured EPDM. Flow coefficient Kv= 2.5 m³/h, maximum flow rate 30 l/min (with ΔP = 0.5 bar). Steel safety filter mesh size: 500 μm. Temperature: 5 - 40°C. Maximum operating pressure: 10 bar. Volume of water treated per refill: approx. 50 m³. Connections: 1/2" F. Socket: standard.</p>
	<p>520211</p> <p>Polyphosphate and silicates spherical crystal dispenser with integrated safety filter to protect the system from limescale and corrosion. For horizontal or vertical installation on the cold water pipeline upline of the domestic hot water supply system (boiler, water heater, etc.) or upline of the washing appliance to be protected (washing machine, dishwasher). Compounds dosed proportionally thanks to the calibrated passage (Venturi). Incorporated refill indicator. Threaded body and ring nut in chrome-plated CW617N brass, socket in Grilamid® TR, sealing elements in peroxide-cured EPDM. Flow coefficient Kv= 2.5 m³/h, maximum flow rate 30 l/min (with ΔP = 0.5 bar). Steel safety filter mesh size: 500 μm. Temperature: 5 - 40°C. Maximum operating pressure: 10 bar. Volume of water treated per refill: approx. 100 m³. Connections: 1/2" F. Socket: extra-large.</p>
	<p>520212</p> <p>Polyphosphate and silicates spherical crystal dispenser with integrated safety filter to protect the system from limescale and corrosion. For horizontal or vertical installation on the cold water pipeline upline of the domestic hot water supply system (boiler, water heater, etc.) or upline of the washing appliance to be protected (washing machine, dishwasher). Compounds dosed proportionally thanks to the calibrated passage (Venturi). Incorporated refill indicator. Threaded body and ring nut in chrome-plated CW617N brass, socket in Grilamid® TR, sealing elements in peroxide-cured EPDM. Flow coefficient Kv= 14.6 m³/h, maximum flow rate 172 l/min (with ΔP = 0.5 bar). Steel safety filter mesh size: 100 μm. Temperature: 5 - 40°C. Maximum operating pressure: 10 bar. Volume of water treated per refill: approx. 100 m³. Connections: 1" F. Socket: extra-large.</p>

■ CODES

Line	Code	Main connections	Socket
POLIFEMO ®	520210	1/2" F	Standard
POLIFEMO ® EXTRA	520211	1/2" F	Extra-large
POLIFEMO ® 1"	520212	1"	Extra-large



LINEA ARANCIO
TECHNICAL SUPPORT
linea.arancio@ivar.it



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from Italy,
in Italian or English**

I.V.A.R. S.p.A.
Via IV Novembre, 181
25080 Prevalle (BS) - Italy
T. +39 030 68028 - F. +39 030 6801329
www.ivar-group.com - info@ivar-group.com

