

+ Protector.

Alkalization.

Binds / removes oxygen.

Traps Magnetite.

Sludge & particle filtration.

The complete water treater, with many possibilities. Automatic flushing, connection to SD system / internet. Available in analog or digital version.



2020



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+ Protector.

All-in-one Filtration and Water Treatment unit.

WHAT IS IT?

PROTECTOR is a combined water heater and stainless steel filter, designed for closed heating and cooling systems. It will neutralize the water as well as remove sludge and particles to maintain the best efficiency.

Each filter contains Neodymium magnets to retain ferrous particles, Magnesium anodes to consume oxygen and increase the pH value, and a stainless steel filter element (110µm or 55µm) or bag filter (various micron sizes, down to 1 µm) to filtrate the water and remove any suspended solids. The two filter types are entirely interchangeable.

PROTECTOR is completely insulated and cladded to prevent heat loss and condensation.

In closed systems, typical installation will be in partial flow, but it can also be installed in main stream and built up in modules for larger plants. This provides a bottle cap and easy installation for operation and maintenance.

HOW DOES IT WORK?

The water enters from the inlet connection (IN), then passes around and down past magnets and anodes. During this process, Oxygen will be consumed by dissolving the anodes, and excess air (blisters) will rise up and out of the vent valve. The water will now flow through the filter bag / filter element so that particles will physically be stopped by either filter element or filter bag. The result will be a clear van with increased pH, without oxygen or particles and sludge.

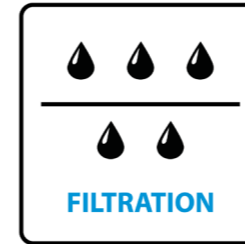
MAINTENANCE

When the progressive build-up of suspended solids retained by the stainless-steel screen causes an excessive increase of the pressure differential between the inlet and outlet connections, the screen must be cleaned (differential pressure of inlet and outlet pressure gauge, can be done by automatic drain)

To perform the cleaning operations, two options a) normal backflush of the filter or for a complete cleaning it is sufficient to isolate the filter, remove the cover by undoing the bolts and remove the filtering element. The filter can be used to remove chemicals and, inhibitors but works well with organic glycol.



+ Features.



+ Particle Filtration

Removes contamination

Protector keeps recirculating systems clean by removing suspended particles.

All in one

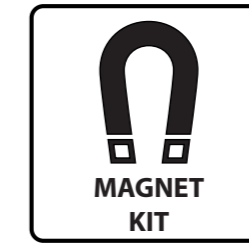
Protector is an "all in one solution" that will replace most other solutions. It combines several different technologies in one single extremely functional and reliable device.

Monitoring

Protector is versatile and forward-looking. It can be connected to SD systems to monitor anode current, water flow, pressure drop, automatic drainage and refilling of system.

Water Quality

The system is ready for the connection of sensors for measuring: pH, conductivity, oxygen and "corrosion coupon".



+ Magnetic Protection

Traps ferrous particles

Protector is equipped with Neodymium Magnets that trap ferrous particles, drastically increasing the time before manual intervention is needed.



+ Corrosion Prevention

Prevents corrosion

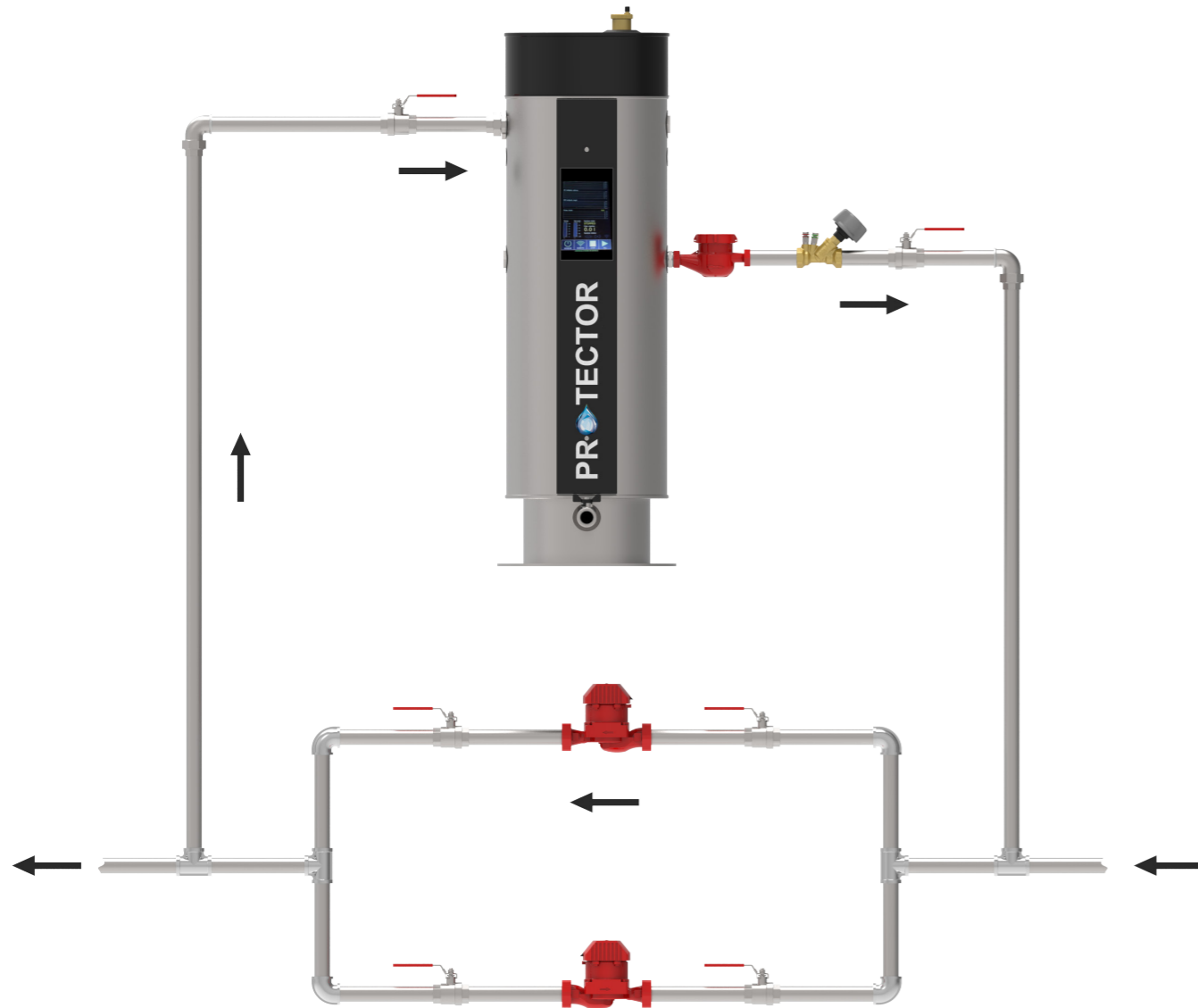
Protector's built-in water treatment features prevent corrosion in the system. This is achieved thanks to Magnesium Anodes that lower oxygen, regulate pH and reduce electrical conductivity.

+ PROVIDES	- REPLACES
Sludge and particles removal	Bag Filters,
Magnetite removal	Magnet filters
pH adjustment	Chemicals
Oxygen consumption	Air separators
Cathodic / anodic water treatment	Strainers

NB: all systems need a demineralised water to perform best according to VDI 2035

+ Keep your system clean.

PROTECTOR keeps your system clean by adapting to your needs. Two different filtering elements, completely interchangeable, remove suspended particles from the recirculating system.

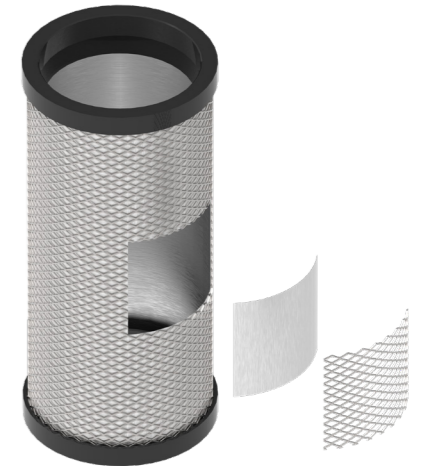


Typical installation in partial flow, note that there is extra inlet and outlet on each side, which provides flexible installation and customization.

+ Filtering Elements.

Particle Filtration

PROTECTOR is available with a robust stainless-steel filter in AISI 316 with 110 μ m or 55 μ m filter element. The filter has a large filter area and surface. This results in less maintenance and better operation, as well as less drainage.



2-Layer S.S Filter

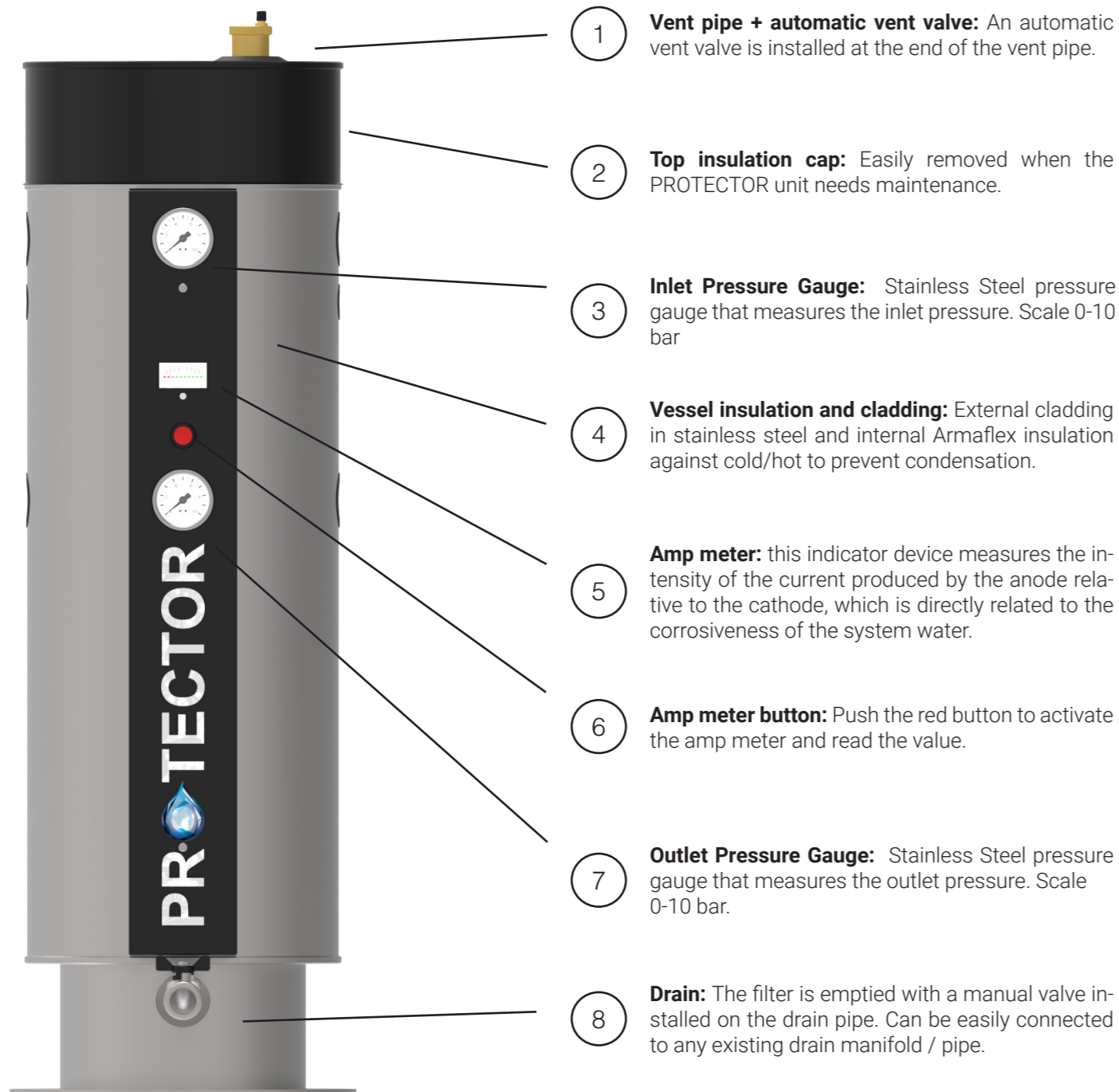


Bag Filter

Fine Filtration

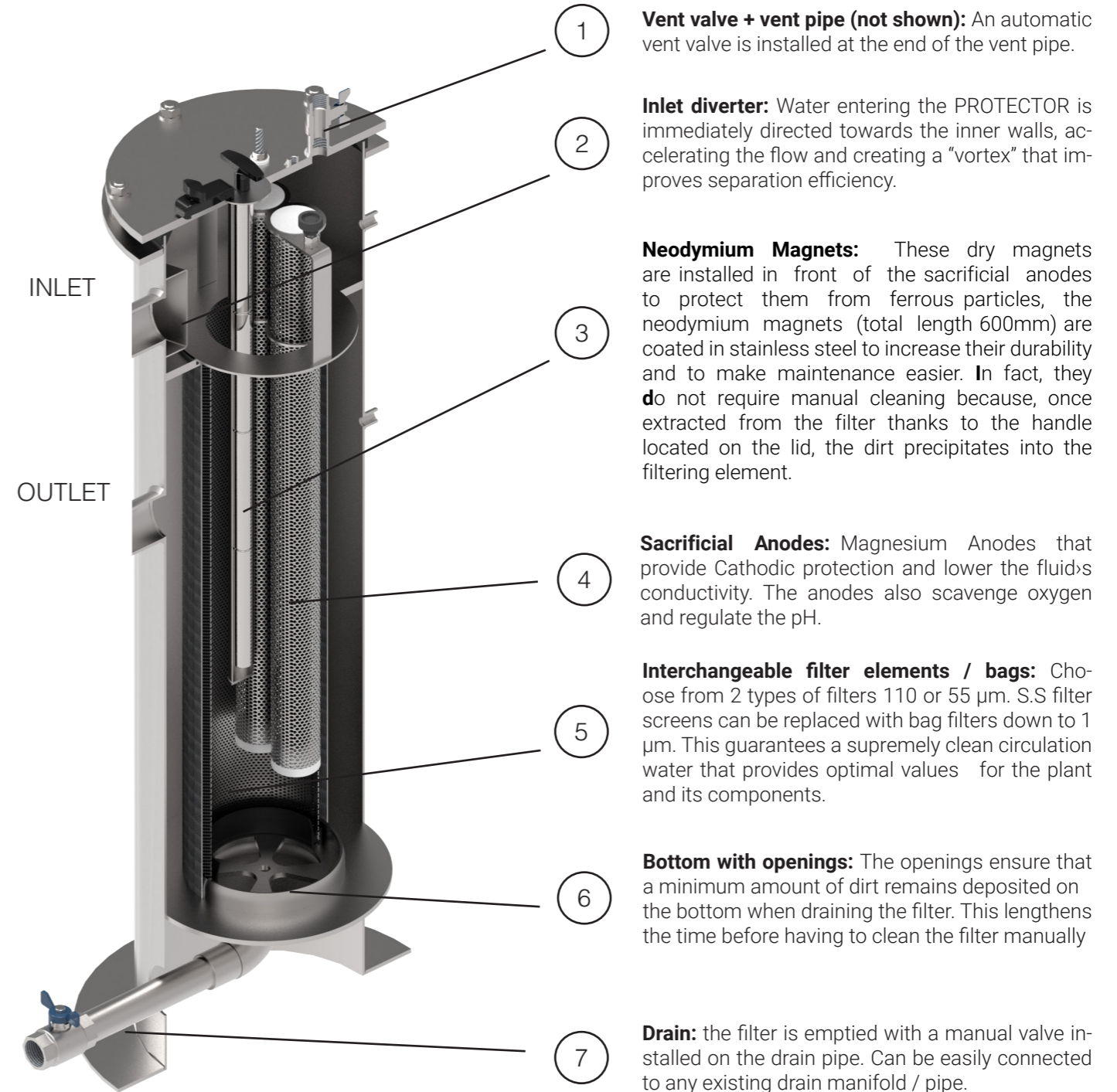
The filter elements can be replaced with filter bags with a filter degree down to 1 μ m.

+ Detailed External View.



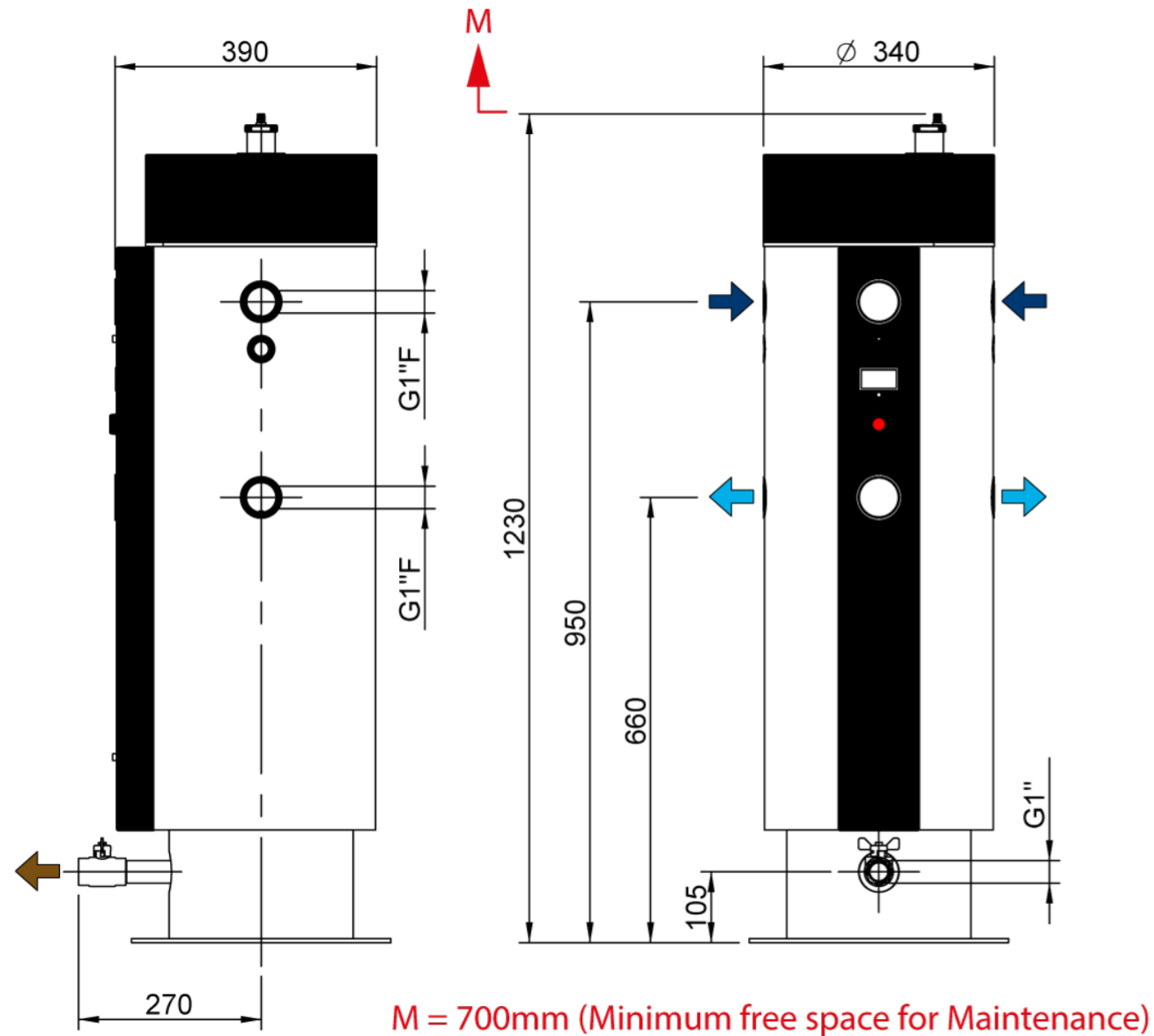
- 1 **Vent pipe + automatic vent valve:** An automatic vent valve is installed at the end of the vent pipe.
- 2 **Top insulation cap:** Easily removed when the PROTECTOR unit needs maintenance.
- 3 **Inlet Pressure Gauge:** Stainless Steel pressure gauge that measures the inlet pressure. Scale 0-10 bar
- 4 **Vessel insulation and cladding:** External cladding in stainless steel and internal Armaflex insulation against cold/hot to prevent condensation.
- 5 **Amp meter:** this indicator device measures the intensity of the current produced by the anode relative to the cathode, which is directly related to the corrosiveness of the system water.
- 6 **Amp meter button:** Push the red button to activate the amp meter and read the value.
- 7 **Outlet Pressure Gauge:** Stainless Steel pressure gauge that measures the outlet pressure. Scale 0-10 bar.
- 8 **Drain:** The filter is emptied with a manual valve installed on the drain pipe. Can be easily connected to any existing drain manifold / pipe.

+ Detailed Internal View.



- 1 **Vent valve + vent pipe (not shown):** An automatic vent valve is installed at the end of the vent pipe.
- 2 **Inlet diverter:** Water entering the PROTECTOR is immediately directed towards the inner walls, accelerating the flow and creating a "vortex" that improves separation efficiency.
- 3 **Neodymium Magnets:** These dry magnets are installed in front of the sacrificial anodes to protect them from ferrous particles, the neodymium magnets (total length 600mm) are coated in stainless steel to increase their durability and to make maintenance easier. In fact, they do not require manual cleaning because, once extracted from the filter thanks to the handle located on the lid, the dirt precipitates into the filtering element.
- 4 **Sacrificial Anodes:** Magnesium Anodes that provide Cathodic protection and lower the fluid's conductivity. The anodes also scavenge oxygen and regulate the pH.
- 5 **Interchangeable filter elements / bags:** Choose from 2 types of filters 110 or 55 µm. S.S filter screens can be replaced with bag filters down to 1 µm. This guarantees a supremely clean circulation water that provides optimal values for the plant and its components.
- 6 **Bottom with openings:** The openings ensure that a minimum amount of dirt remains deposited on the bottom when draining the filter. This lengthens the time before having to clean the filter manually
- 7 **Drain:** the filter is emptied with a manual valve installed on the drain pipe. Can be easily connected to any existing drain manifold / pipe.

+ Dimensions.



+ Materials.

Component	Component Material
Filter housing	Stainless Steel AISI 304
Filter screen	Stainless Steel AISI 316L
Gaskets EPDM *	EPDM *
Insulation / cladding	Armaflex / Stainless Steel
Pressure Gauges	Stainless Steel AISI 304
Anodes	Magnesium
Magnets	Neodymium
Surface Finishing	Shot Peening and Passivation

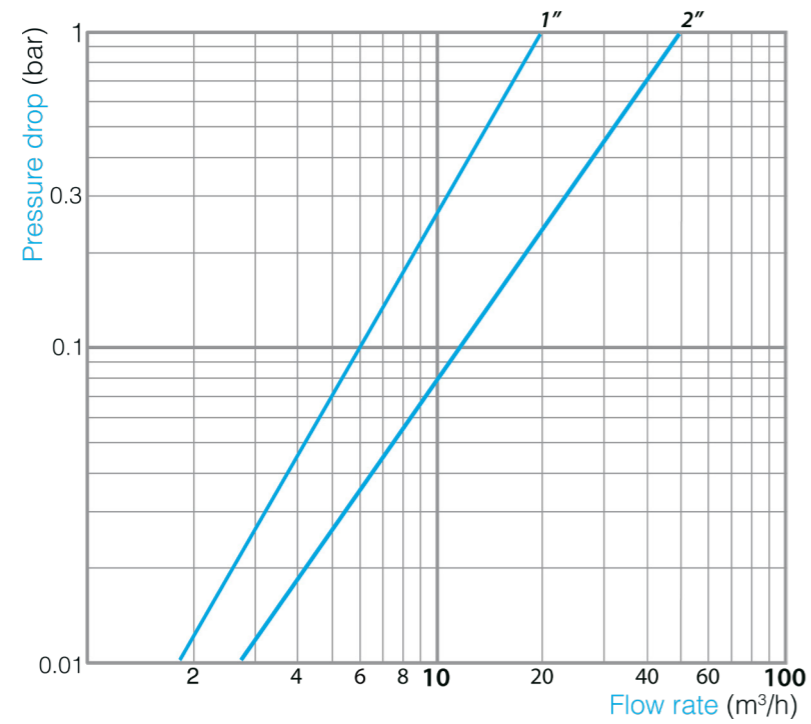
*Certified for the following European Drinking Water regulations: UBA, DVGW standard W-270, WRAS and ACS.

+ Technical Specifications.

Parameter	Value
System volume	max 30 m ³
Water Flow	0-40 l/min
Design Pressure (bar)	PN 10
Max. Temperature(°C)	95
Tank volume	57L
Design code	PED 2014/68/EU
Connections	Threaded BSPP

*Flow rate referred to clean water at 110µm filtration degree.

+ Head loss.



Head loss is calculated with 110µm stainless steel filter and "clean water.

+ Multi-unit skids.

Compact multi-unit solution for higher volumes.

For systems with higher volumes, PROTECTOR can be supplied in compact multi-unit skids ready to be assembled and installed, studied to be compact and space saving.

The SKIDS include the PROTECTOR units, manifolds, isolation valves and all accessories. The skids are modular and can be tailored to suit existing systems.



No more cumbersome big units.

Bigger volumes are usually treated with large volume units that not only take a huge amount of space, but also a huge amount of time to be maintained.

PROTECTOR **modules** take up less space and make the installation and handling easier than one large unit where access may be a problem.

During operation, they work as a big all-in-one system, but when maintenance is needed, they are easy and quick to clean as a single unit would be.

Filtering and cleaning continue during maintenance.

When the filtering element needs to be cleaned, and maintenance is necessary, there is no need to stop the entire system.

Each PROTECTOR unit can be isolated, cleaned and re-started while the others keep working. This ensures that regular maintenance operations do not affect the quality of the protection and prevention offered by PROTECTOR.

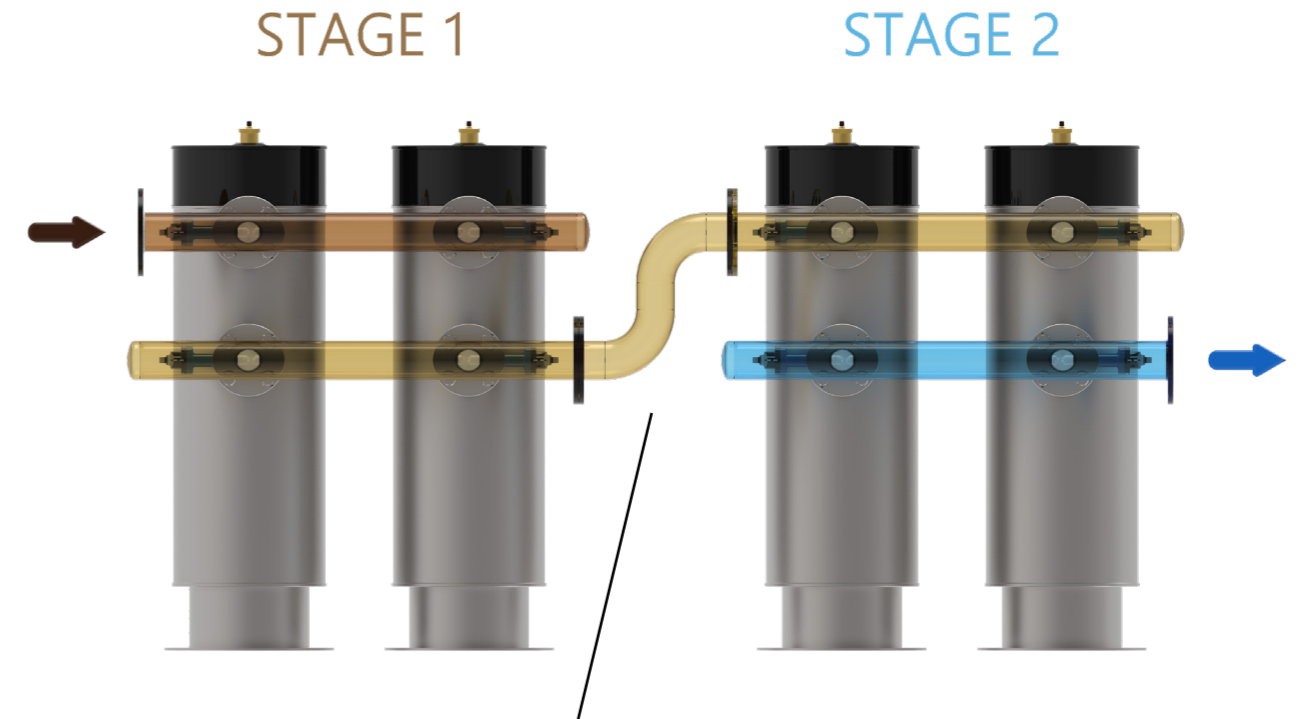
Ready to go.

The systems are supplied with pre-assembled components ready for final assembly on site and ready to go in little to no-time. As soon as they are installed in the circuit, they start protecting the plant.

+ Parallel or in Series.

Modular system + Different layout options.

The systems are modular and can be manufactured depending on the number of units required (2, 4, 6, 12, etc.) to match the required flow rate. In addition to the number of desired units, they can be designed to work in parallel or in series.



2 + filtration degrees (in series).

The units installed in series, **with a connection pipe between each module's IN/OUT manifolds**, allow the customer to have two or more (depending on the number of modules) filtration levels in the same system. For example, the customer can start with the standard 110 or 55µm (with the stainless-steel mesh) and finish with a 1µm bag filter.



Higher flow rate

2 or more degrees of filtration

+ Protector Mini.

All-in-one small and compact Filtration and Water Treatment unit.

WHAT IS IT?

PROTECTOR MINI is a combined water heater and stainless steel filter, designed for closed heating and cooling systems. It will neutralize the water as well as remove sludge and particles to maintain the best efficiency.

Each filter contains Neodymium magnets to retain ferrous particles, Magnesium anodes to consume oxygen and increase the pH value, and a stainless steel filter element (110µm or 55µm) or bag filter (various micron sizes, down to 1 µm) to filtrate the water and remove any suspended solids. The two filter types are entirely interchangeable.

PROTECTOR MINI is completely insulated and cladded to prevent heat loss and condensation.

In closed systems, typical installation will be in partial flow, but it can also be installed in main stream and built up in modules for larger plants. This provides a bottle cap and easy installation for operation and maintenance.

HOW DOES IT WORK?

The water enters from the inlet connection (IN), then passes around and down past magnets and anodes. During this process, Oxygen will be consumed by dissolving the anodes, and excess air (blisters) will rise up and out of the vent valve. The water will now flow through the filter bag / filter element so that particles will physically be stopped by either filter element or filter bag. The result will be a clear van with increased pH, without oxygen or particles and sludge.

MAINTENANCE

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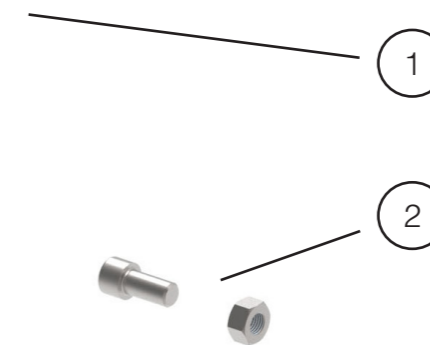


+ Wall Fixing system.

Easily install the PROTECTOR MINI on the wall.

Thanks to its compact Wall Fixing system, the unit can be fixed on the wall to save space in situations where space is important and limited. The system is included as a standard feature in the PROTECTOR MINI.

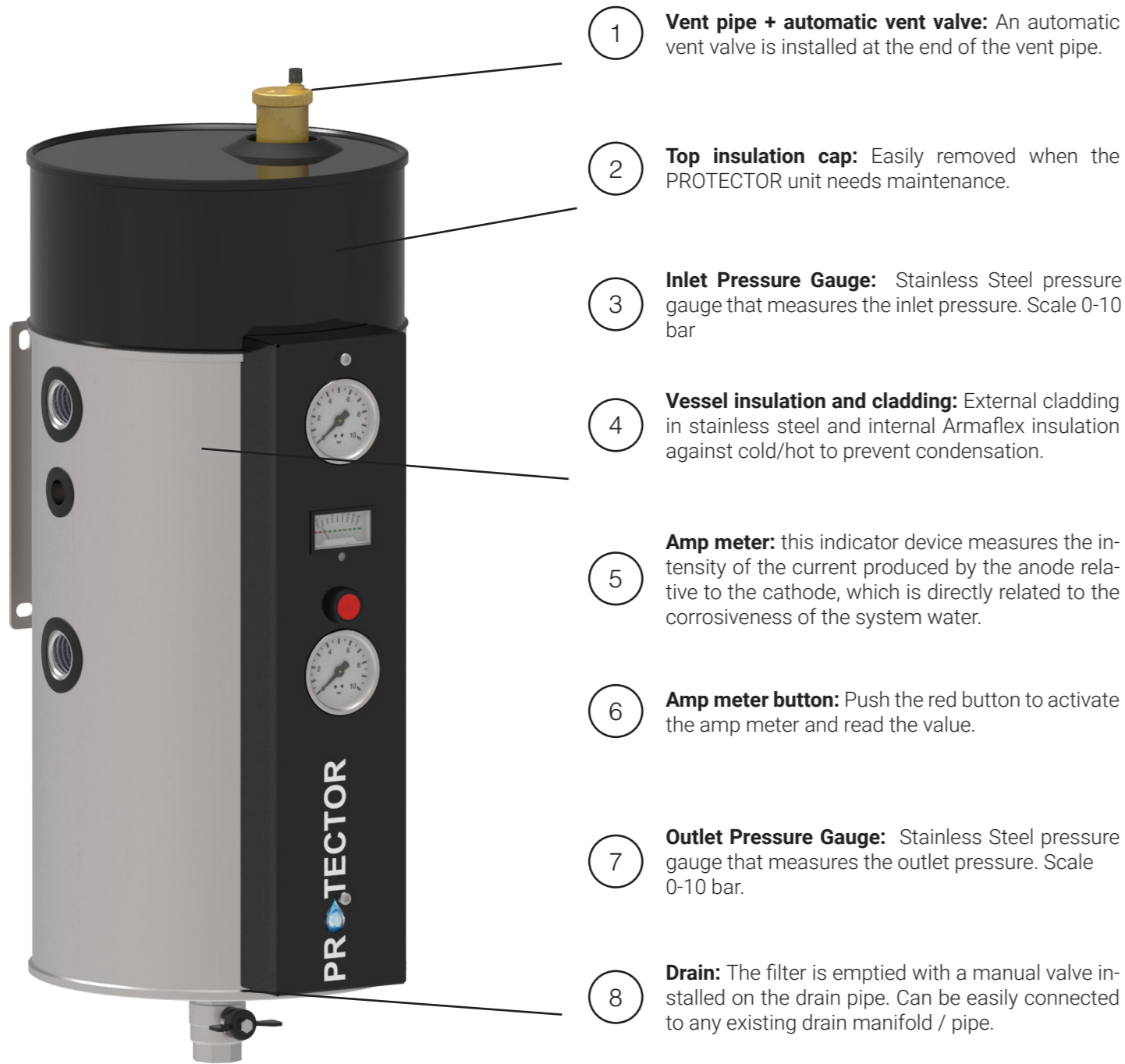
The wall fixing bracket and nuts are completely in stainless steel, very robust and resistant.



1 Wall mounting bracket: PROTECTOR MINI can be installed on the wall thanks to this stainless steel wall bracket.

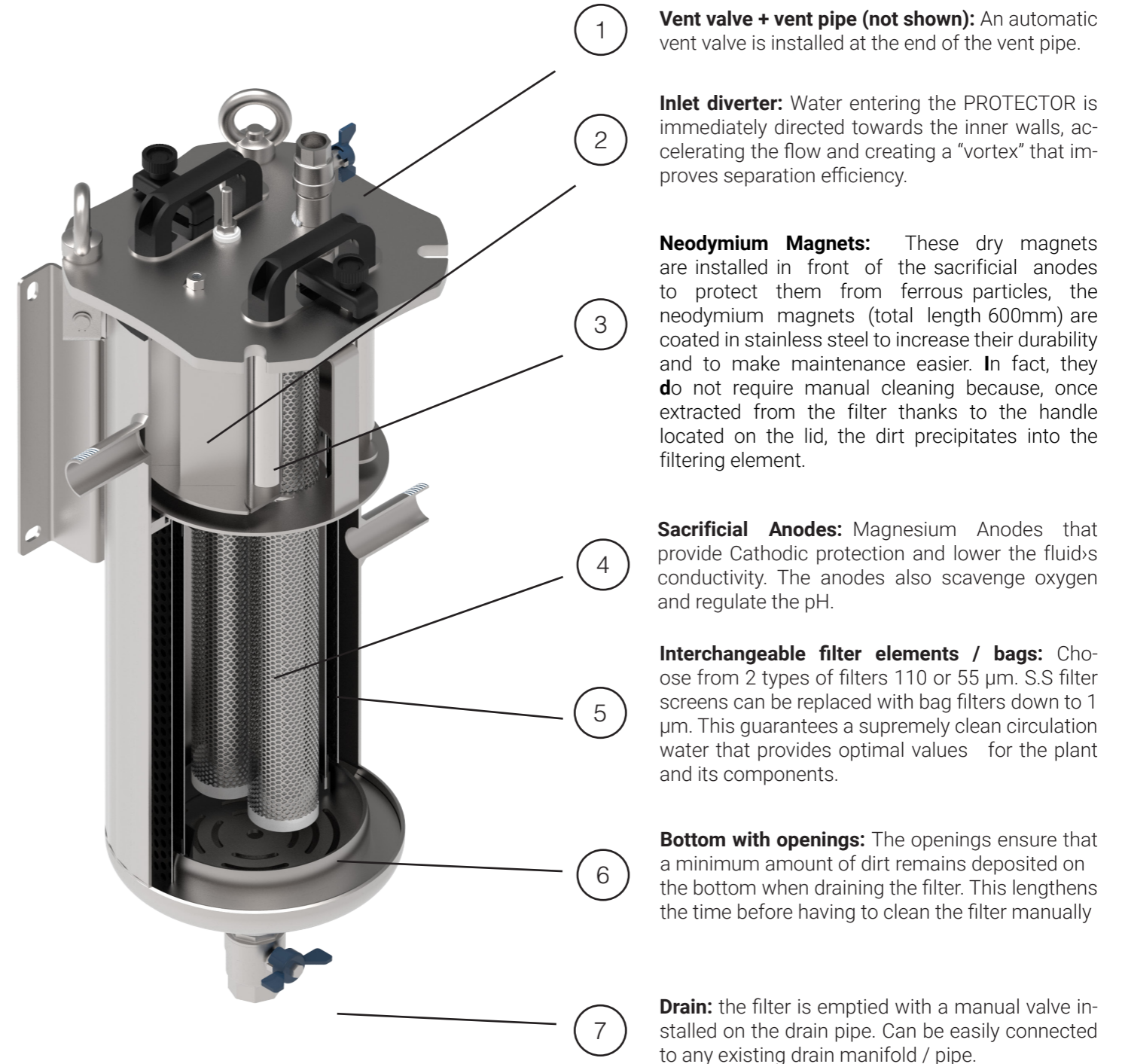
2 Cylindrical -head screws + nuts: Used to fix the PROTECTOR MINI

+ Detailed External View.



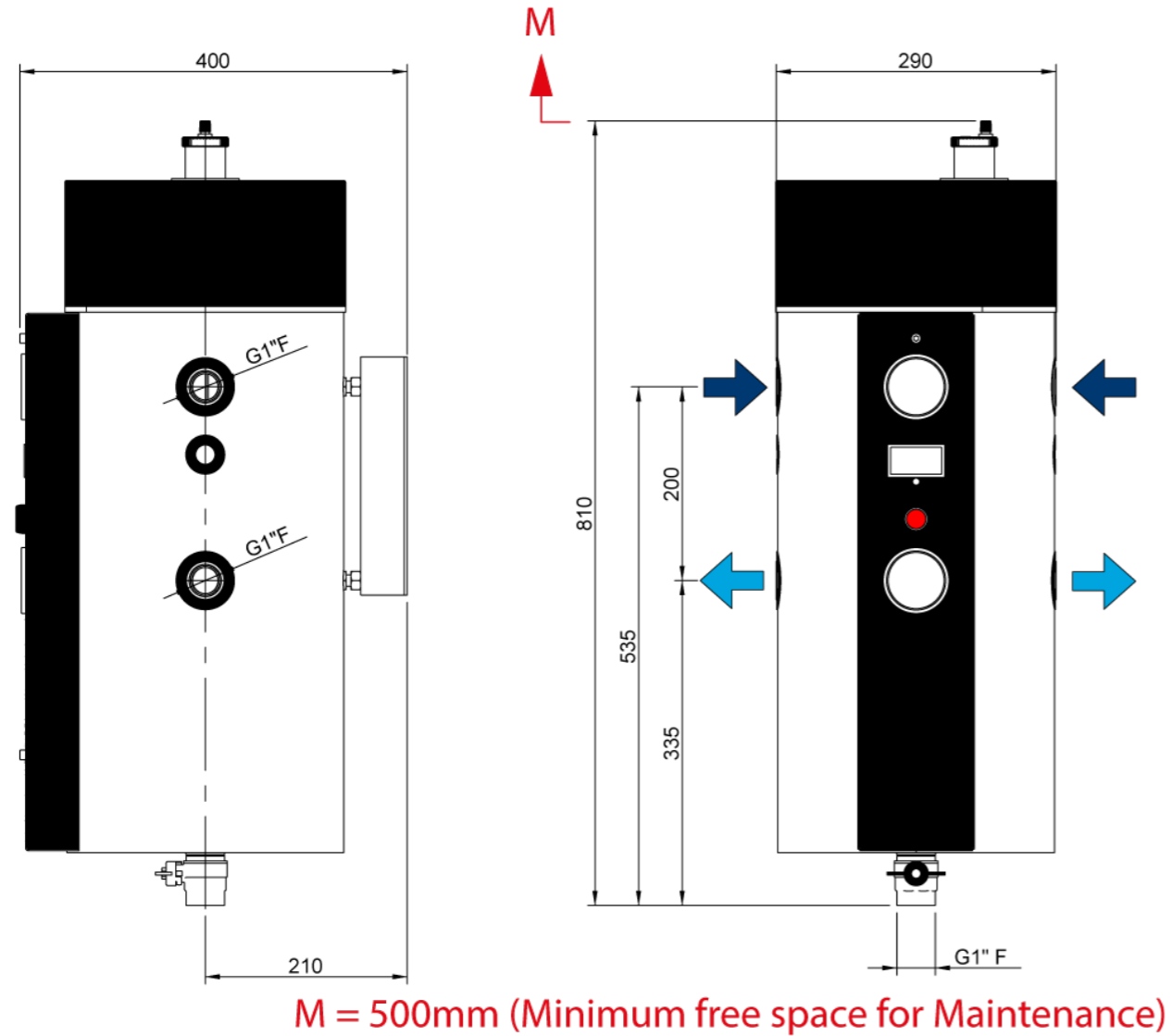
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+ Detailed Internal View.



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+ Dimensions.



+ Materials.

Component	Component Material
Filter housing	Stainless Steel AISI 304
Filter screen	Stainless Steel AISI 316L
Gaskets	EPDM*
Insulation / cladding	Armaflex / Stainless Steel
Pressure Gauges	Stainless Steel AISI 304
Anodes	Magnesium
Magnets	Neodymium
Surface Finishing	Shot Peening and Passivation

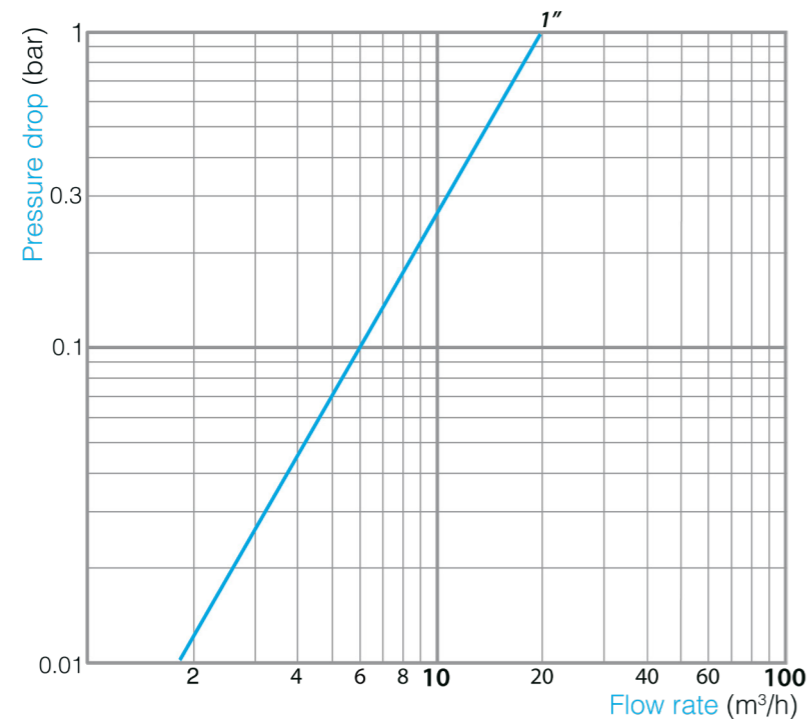
*Certified for the following European Drinking Water regulations: UBA, DVGW standard W-270, WRAS and ACS.

+ Technical Specifications.

Parameter	Value
System volume	max 10 m ³
Water Flow	max 0-15 l/min
Design Pressure (bar)	PN 10
Max. Temperature(°C)	95
Tank volume	20L
Design code	PED 68/2014/EU
Connections	1 " inv. BSPP

*Flow rate referred to clean water at 110µm filtration degree.

+ Head loss.



Head loss is calculated with 110µm stainless steel filter and "clean water.