

Universe

DIY air humidification

The first professional air humidification system, which you can install all by yourself without any professional assistance.



Installation sets



About Us

“Universe” is an affiliated brand of the Canadian company «Bühler-AHS» created especially for Northern Europe and Russia. The cold climate of these northern territories makes them one of the biggest prospective markets of air humidification. This is the key-factor why Buhler-AHS has decided to focus on the solutions for cold climate.

Buhler-AHS produces air humidification systems of direct fogging type since 2007. This is the equipment of high quality, which requires professional installation. New engineering solutions embodied in the Universe series have allowed the company to simplify the system, provide operational stability and at the same time high level of hygiene.

The main difference between Universe and basic Buhler-AHS system is the DIY (do it yourself) approach; it does not require any professional installation at all.

Localization of the system’s assembling decreases its price and allows also to meet various local requirements.



Universe is a unique system of direct fogging, which may be installed individually. You receive all the advantages offered by professional equipment of this type at affordable price. Extensive experience of designing, installing and assembling professional humidification equipment was employed during our system's development.

Low humidity level as the main cause of respiratory diseases.

Current scientific studies point out that low temperature outdoors is not the main cause of respiratory diseases, whereas the indoor low humidity is.

Humidity level in premises is below normal level.

First of all, it is really important to understand that humidity in the majority of apartments, houses and offices in the countries with low temperature hardly comes up to 20 % in winter, while the optimum humidity level for living spaces is supposed to be within 35 - 50 %. These recommendations are based on long-time medical and microbiological researches.

Higher dust level in dry air!

There are particles and dust, containing viruses, bacteria and allergens which may persist in the air for a long time. In case of sufficient humidity level they just stick together and go down. Moreover, humid air ruins the structure of viruses, so that they lose their ability to impair human cells.

Dry air may damage people's skin and mucosae.

Another fact is that dry air has bad impact on skin, more specifically, it increases water evaporation from mucosa and skin. Dryness of mucosa causes discomfort, ruins protective barriers of our body, consequently increasing our chances to get sick. Dry skin becomes less elastic, gets cracks and flakes.

Parquet and furniture cracking caused by dry air.

Few are aware that parquet, doors and wooden furniture dries up under the influence of dry air. Human hair and pets' fur are being statically electrified.

Universe is a direct fogging system

Miniature nozzles atomize water into fine fog directly inside rooms. Water is being deeply purified by the multi-stage purification system.

Fogging nozzles with artificial ruby inserts atomize water into droplets some 10-30 microns in diameter. Inevitably, such small drops quickly dissolve in the air leaving no scurf on the floor or on furniture. Before fogging, water passes through a multistage purification system, as a result of which it becomes free from microorganisms, organic compounds, salts.

Here are some advantages of Universe system:

The highest level of hygiene

As you may know, water in Universe system passes through many stages of purification as a result of which disinfection takes place. After purification, water is directed through the hoses to nozzles, which spray it into each room directly. The inner layer of the hoses is made of Teflon®, and it is important because this material is one of the most slippery in the world, nothing sticks to it and it does not allow any bacteria growth. Such property makes the inner surface self-cleaning.

In the structure of Universe there are no places for growing microflora, as opposed to «air washers» and especially ultrasonic humidifiers. The fact is that even purified water in air washers and ultrasonic humidifiers becomes a «growth zone» for pathogenic flora when contacting air. Particular risk may be provoked by ultrasonic humidifiers, which produce fog directly from the vessel containing water.

Efficiency

One spraying nozzle of Universe has a capacity within 0.6 to 1.2 l/h (connection of several nozzles and humidifying of several rooms is provided), whereas in contrast household humidifiers have smaller capacity – 0.25-0.6 l/h, so are supposed to humidify one small room only. Traditional devices (air washers) hardly increase humidity up to 30 %, because their efficiency decreases when humidity rises.

High capacity range

Our system can maintain sufficient humidity both in small apartments and in big offices with hundreds of people.

Alternative to air-conditioner

Air is cooled by water droplets' evaporation, temperature will be decreased by 2-3 degrees that allows using the system for cooling during hot summer season.

May be installed into the finished interior

One more key advantage is that Universe can be installed into the finished interior and it does not require any special engineering fixture. Our system can be installed in standard flats, unlike professional steam systems, which should be mounted into vents.

Dust suppression

Atomizing conditions have been chosen according to the optimum size of water droplets and as consequence for dust suppression and air purification.

Simple maintenance

Universe requires only one or two technical maintenances per year, the rest of time it operates automatically, as opposed to steam humidifiers, which require professional maintenance once per month during cold seasons, or household humidifiers, which should be cleaned every week or even more often to avoid bacteria growth.

No need to add water

You do not need to waste your time for manual filtration, cleaning the system or adding water. Universe is connected to water supply, so that water flow for humidification and washing is provided automatically.

Energy efficiency

Potential energy accumulated by water during pump's action is used for atomizing. Power consumption ranges from 6 to 30 watts per liter of atomizing water per hour. Just for comparison steam humidifiers require 750 watts per liter of atomizing water per hour.

Comparison of air humidification systems

Main types of humidifiers:

Humidification systems	Ultrasonic		Steam generators		Traditional		Direct fogging	
	Residential	Professional, in-duct type	Electric, in-duct type	Household, floor standing	Disc "Air washers"	Hygroscopic, in-duct type	Professional	Universe
Microbiological safety, hygiene	--	-	+	++	-	--	++	++
Comfort of use								
No need to add water	-	+	+	--	-	+	+	+
Quiet operation	+	+	++	--	-	++	+	+
Effect of adiabatic cooling	+	-	--	--	+	+	++	++
Operation								
Energy efficiency	+	+	--	--	+	+	++	++
Capability to use common tap water (incl. humidifier's filters)	--	--	+	+	+	-	+	+
Efficiency								
Performance	-	+	+	-	--	-	++	++
Humidification of several rooms	-	+	+	-	-	+	+	+
Installation								
No need for professional installation	++	-	--	++	+	--	--	+
Fitting into the finished interior	++	--	--	++	+	--	+	+
Equipment can be hidden	--	+	+	--	--	+	++	+
Possibility of the main equipment's remote location from the fogging areas	--	+	+	--	--	+	++	++
Maintenance								
Service life	-	+	++	+	-	+	++	++
Complex and frequent maintenance is not required	+	+	-	+	+	-	+	+
No need for regular cleaning	--	-	--	--	-	--	++	++
Price	\$	\$\$\$	\$\$	\$	\$	\$\$	\$\$\$	\$\$

Questions & Answers

1. What is the reason of rather high price?

- First of all, all metal elements, contacting water are made of high quality stainless steel. It is necessary, as highly purified water, which is used for humidification, may cause corrosion of carbon steel, copper, brass.
- Moreover, as you might have guessed, many modern technical solutions defined the structure of our system, which required significant engineering inputs from the manufacturer.
- To increase the system's reliability and performance enhancement, some elements are made of high-tech materials.

2. Is it possible to install the system into finished interior?

Our system can be easily installed into any finished interior as against other types of humidifiers. The central unit and filters are supposed to be installed in the storeroom, lavatory or in the kitchen with the possibility of connection to water supply, drainage and power supply. Hoses supplying water to nozzles have 4.5 mm diameter and their minimum bending radius is 2.5 cm. This fact enables designing the pipelines in different ways:

- open laying (possible because the hoses are aesthetically designed)
- in air ducts
- back from furniture and interior features (mouldings, closets, etc)
- behind the ceiling
- hidden installation in structural passes

3. Why is the hose line looped?

Hose line is looped to avoid stagnant zones, which may be comfort for microorganism growth. Water circulates in the system, providing unequalled level of hygiene.

4. Where may I locate the central unit?

It may be installed in any room with connection to water supply, drainage and power supply. For example, it may be a storeroom, kitchen, basement, boiler-room, laundry, lavatory, vent chamber, etc. One thing is important, the temperature should not be less than 0 °C.

We do not recommend to install the central unit at living spaces: bedrooms, drawing rooms, cabinets.

5. What power consumption is required?

Central unit White Energy 6: 170 Watts

Central unit White Energy 18: 200 Watts

Basic filter system Brane Filter: 60 Watts.

6. Where is it better to install nozzles?

- Nozzle installation should be planned taking into account the air flow distribution; in this case humidity will spread evenly around the place. In other words, it is better to locate nozzles close to the supply ventilation and air-condition grills. Nozzles should not be installed very close to the exhaust grills.
- It is not necessary to install nozzles into every room, because humidity may easily spread around the place. It is often the case that nozzles may be installed in corridors or common rooms (if there is no blowing ventilation in rooms).
- Nozzles should not be installed over high furniture and doors (from opening side).
- It is also desirable NOT to place nozzles over beds or sofas - cooling effect may be uncomfortable.

7. What types of ventilation Universe may be combined with?

Universe air humidification is installed independently of ventilation; correspondingly, it may be combined with any type of vent.

If there is a combined extract and fresh air ventilation installed, it is necessary not to install nozzles close to the exhaust grilles. Location of nozzles near to the supply air grills or even their installation inside the grill is recommended.

8. Is there any possibility of dripping from nozzles?

Anti-dripping valve is included in the nozzles' design, it shuts off water supply if the pressure is not enough for effective atomizing. In such a way, it protects nozzles against dripping during transition from atomizing mode to standby mode.

9. Is it possible to stop the system for a night?

There is a control jack installed at the central unit, in case of closing its contacts the system does not spray water even if it receives a request for humidification. This operation could be controlled by general timer. In this way, it is possible to cancel humidification process for the nights.

Easy installation

Installation process does not require from you any special expertise or tools.

Nozzles are twisted in manually

No special tool is required for nozzles' installation. They are just screwed in by hand into threaded holes on the splitter.

Instant hose's connection

Splitter may be instantly connected to the hose by QUICK connection. Connection and disconnection is made by hands with slight press.



Splitter with nozzles is fixed on the bracket by magnets

Splitter can be attached to the bracket by magnets to the rear side with one click.

Fast connection to water supply

It is not more complicated than connection of a simple household water filter under a sink in the kitchen.



Fast & manual replacement of filters

Replacement of filter elements is provided manually in three steps.



Operating principle of Universe air humidification system



1. Central unit White Energy

It generates pressure in the hoses and directs water to spraying nozzles. White Energy can be installed in any room with available connection to water supply, drainage and electricity.

2. Brane Filter set

This filter has the following filtration stages:

- Carbon filter removes chloride, organic and inorganic compounds from water (included in Brane Filter and as an option for Brane Extra).
- Ultrafiltration membrane does not let particles more than 0.1 micron in diameter to pass. This protects reverse osmosis membrane from microorganisms.
- Double reverse osmosis filtration purifies water from bacteria, viruses, organic compounds, and further more it's salts rejection is over 99 %, it is higher than the requirements to distilled water.

3. Water storage Brane Tank

Accumulates water purified by Brane Filter, because reverse osmosis filtration goes quite slowly.

4. High precision UltraFilter

This filter is installed into the pipeline before White Energy unit, it traps bacteria and viruses, which remained in the systems' elements after installation or got into water because of unsatisfactory filtration (if standard Brane Filter is not used).

UltraFilter is included in the supply package of central unit, it should be replaced annually or according to the pollution level.

5. Self-cleaning White Ray SS Hoses

White Ray consists of two layers. Inner one is made of Teflon®, this material is one of the most slippery materials in the world, and nothing can stick to it. This property makes the hoses self-cleaning, biofilms do not appear at all. Even after long system's downtime, microorganisms will be washed out during standard washing process. This property is unobtainable for other types of inner layers. Armour & covering layers are made of AISI304 stainless steel. Due to high tensile strength, it can withstand 4 times bigger nominal pressure and 15 times bigger burst pressure. At the same time, it is flexible and elastic. This hose gives high resistance to fractures and external mechanical damages.

6. Gravity (+) splitter with Nova nozzles

It atomizes water directly into room. Up to 3 nozzles may be installed into one Gravity splitter, which corresponds to the following capacity: 1.2, 2.4 or 3.6 l/h at maximum pressure in the hose. Nozzle's head contains ruby - one of the most hard crystals. That provides the highest durability of nozzles and forming optimum diameter of droplets - 15 ... 40 micron.

7. Binary Sat (+) with Nova nozzle

At the lateral side of the tee there is an UNC connection, in which the fogging nozzle or Tunnel extender may be installed. Therefore, the one nozzle may be installed into the tee, which is corresponding to the following fogging capacity: 1.2 l/h under maximum pressure at the hoseline.

8. Main zone control unit Boson

It is a room electronic air humidity controller. It allows to set required humidity and to switch humidification modes.

9. Additional zone control unit Shadow

It is an electronic humidity restrictor (maximum humidistat). It allows to restrict maximum humidity level at minor rooms.

White Energy 6 (18)

Central unit, 6 (18) l/h with QUICK / CEL-DKOL connections



Dimensions with cover:	480 x 260 x 220 mm (LxWxH)
Dimensions without cover:	410 x 175 x 180 mm (LxWxH)
Weight with cover (w/o water):	13 000 g (13 600)
Weight w/o cover (w/o water):	10 700 g (11 200)
Input pressure:	2.5-6 bar
Nominal capacity:	6 l/h (18)
Output pressure:	30 - 70 bar (controlled manually or automatically)
Electric supply (adapter):	100-240VAC, 50/60Hz
Power consumption:	170 W (200)
Material:	plastic
Material of inner constructions:	high quality aluminum, stainless steel
Low pressure connection:	2 x 1/4" John Guest® female (quick connect fittings)
White Ray SS Hoses' connections:	2 x QUICK female or 2 x CEL 12x1.5 (with QUICK-M-CEL adapter)
Electronic connectors:	X1 - Power X2 - Stop / Forced washing X3 - Request for humidification X4 - High pressure adjustment X5 - Error output / Ready output X6 - Interface

Description:

White Energy 6 (18) – a central unit of the Universe humidification system, it's nominal capacity is 6 (18) liters of atomized water per hour. The unit also has controlled pump with damping hoses, set of control valves, controlling electronics and sensors.

Purified water enters the central unit after Brane filter or from another one. White Energy maintains constant pressure in the pipeline, directing water to fogging nozzles. Operating pressure can be set within 30 to 70 bar at the electronic module located on the central unit or by an external regulator. The central unit receives requests for start/stop from wireless controllers or external automation. Electronics is protected against inner water leakages and hose's burst. Electric power supplies by a 230VAC adapter.

A synchronous DC motor maintains low-noise and smooth pump's operation.

An external UltraFilter included in a supply package guarantees sterility of income water.

White Energy unit has an input for water, an output for a connection to drainage, also connections for pipeline going to nozzles. Connections for water supply and drainage are instantly connectable/disconnectable. Inner elements contacting water are made of high quality stainless steel or special plastic, that is why the central unit may operate using deeply purified water, without risk of corrosion.

The central unit's cover is fixed by magnets and can be easily removed by hands. The White Energy unit is supposed to be installed at any horizontal surface.

The difference between White Energy 6 and 18:

The difference between two units, White Energy 6 and White Energy 18 is in nominal capacity which is 6 and 18 liters per hour respectively. These water flows are provided by two different pumps, which are installed in units.

Advantages:

- Very low noise operation, installation is acceptable near living spaces
- Very low power consumption
- All elements contacting water are made of high quality stainless steel
- Leakage control inside the unit and control of the pipeline's burst
- Instant connection of input and output tubes without using any instrument
- Wide range of supported pressure - from 30 to 70 bar
- Automatic support of pressure
- Operation with both wired and wireless humidity sensors
- Possibility to be connected to automation or timer



Gravity +

Passive splitter with QUICK connections

Dimensions: 86 x 45 x 44 mm (LxWxH)

Weight: 350 g

Max. pressure: 10 MPa

Material: stainless steel AISI316L

Connections: 2 x QUICK female
(rear side),
2 x UNC10/24 female
(front side),
1 x UNC10/24 female
(lateral face)



rear side view



top side view,
with QUICK connections,
two NOVA nozzles
and DOT plug

Description:

Gravity + is a splitter of high pressure, made of high quality AISI316L stainless steel.

It has 3 threaded UNC connections for screwing of fogging nozzles or plugs. You may screw nozzles manually, without using any tools. Two nozzle connections are located at the front side, one at the lateral side. Unused connections should be screwed by plugs, thereby the splitter may be installed with 1, 2 or 3 nozzles, which is corresponding to the fogging capacity: 1.2, 2.4 or 3.6 l/h under maximum pressure. Instead of nozzles, one may install intermediate Tunnel extenders and turning Lens joint.

At the back side of Gravity + instant QUICK connections (2 pcs) are located, they provide durable connection for feeding and outfeeding White Ray SS Hoses. Feed and outfeed hoses may be connected to any connector. Connection and disconnection is made by hands with slight pressure without using tools.

Gravity + splitter can be easily mounted by two magnets located at the rear side. These magnets hold Gravity + with the installed nozzles on a special mounting plate made of magnetic stainless steel, included in a standard supply package. A mounting bracket which is designed for open type of installation to the wall or ceiling, is made of magnetic stainless steel and is also included in the supply package.

Attention! Disconnection of QUICK connector should be done without water pressure.

Advantages:

Instant QUICK connection

Fast mount by neodymium magnets

Passable construction without stagnant zones

High-quality stainless steel

Seals made of corrosion resistant Viton® fluoroelastomer

Types of mounting for Gravity + splitter

1. Hidden mounting of feeding hoses

In case of hidden mounting of feeding hoses magnet plate from supply package of Gravity + is used. It should be mounted to the wall by self-tapping screw and standard wall plug. Hoses are placed in the wall through a hole. The splitter installed vertically or horizontally reposes on the plate by magnets located at the rear side.



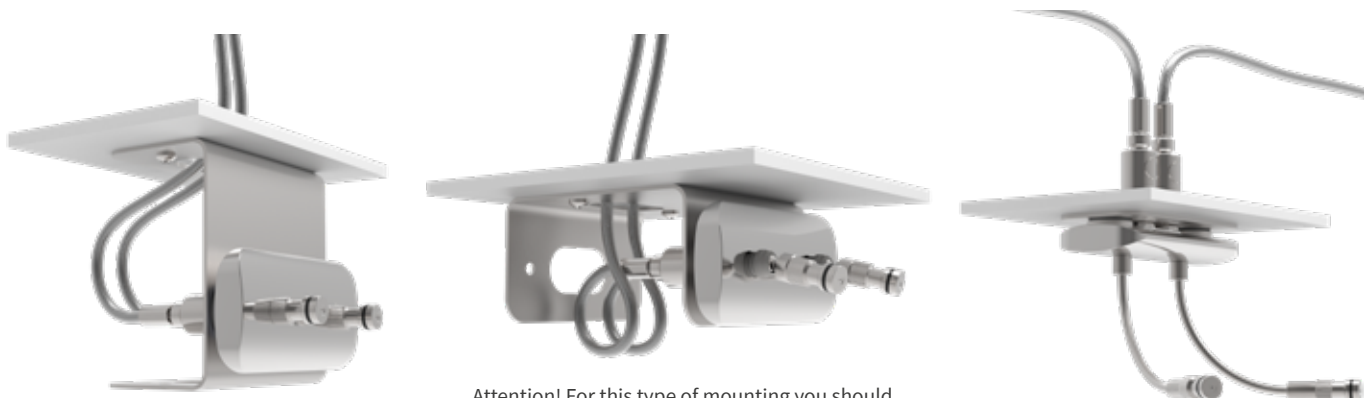
2. Open mounting of feeding hoses

For this type of mounting of feeding hoses a magnet bracket from Gravity's supply package should be used.



3. Mounting to the ceiling

When it is necessary to install the splitter to the ceiling, one may use the magnet bracket, fixing it in one of the two possible ways. In the first case, a narrow side of the bracket may be fixed to a ceiling providing sufficient distance from nozzles to the ceiling's surface. In the second case, the extended side may be fixed, this method provides for mounting it closer to the ceiling, in this case Lens swivel joints should be used to avoid ingestion of fog on the ceiling. In case of hidden installation of feeding hoses firstly you should mount the magnet plate and then install intermediate Tunnel 10 extender for correct positioning of the nozzles outwards the ceiling surface.



Attention! For this type of mounting you should use Lens turning joints to avoid spraying water contacting the ceiling's surface and additionally connect a hose convolving it into a circle to avoid overbending.

Types of nozzle's connection to the Gravity + splitter

Body of Gravity + using three types of UNC connection allows to create different types of fogging: two at the front side and one at the lateral side. The following components are used for this purpose:

Dot
Plug for nozzle's connection



Lens
Turning nozzle's joint



Nova
Nozzle with ruby insert



Tunnel 10
Flexible nozzle extender, 10 cm



Tunnel 50
Flexible nozzle extender, 50 cm



One Nova nozzle at the front side and Dot plugs at the lateral and front sides is a minimum operation variant.



Two Nova nozzles at the front side and Dot plug at the lateral side - an optimum variant for simple mounting on the wall.



Two Nova nozzles with swivel Lens joints and Dot plug at the lateral side is a variant for directed fogging.



Nova nozzle on the flexible Tunnel 10 extender and two Dot plugs at the front side is for side mounting.



Nova nozzle on the flexible Tunnel 50 extender and two Dot plugs at the front side for complete hidden installation.



Nova

Nozzle with ruby insert



Dimensions:	10 mm x 24 mm (ØxL)
Weight:	8 g
Max. pressure:	8 MPa
Capacity under 7MPa pressure:	1.2 l/h
Replacement filter, stainless steel:	pores 40 micron
Diameter of spraying hole in a ruby:	85 micron
Drop's size:	10-30 micron
Anti-dripping valve:	Viton® seal
Material:	stainless steel AISI316L and AISI302, Viton®, ruby
Connections:	UNC10/24 male

Description:

Nova nozzle performs the main function of humidification system - formation of discharge pattern consists of micro drops. It may be screwed into Gravity (+) splitter or Binary Sat (+) tee by hand. Fogging is made by pressure of incoming water. Spraying conditions are selected according to the size of droplets, within 10-30 microns. This fact provides that microdroplets quickly dissolve in the air.

A nozzle's body and all metal elements of the systems operating with deeply purified water are strictly made of stainless steel because demineralized water is corrosive to many types of metals.

Advantages:

- Manual screwing and unscrewing because of UNC connection
- Low noise operation
- Optimum size of micro droplets for fast diffusion
- Anti-dripping valve
- Long life because of ruby insert
- High quality stainless steel
- Seals made of resistant to corrosion Viton® fluoroelastomer

Lens

Swivel nozzle's joint



Dimensions:	10 mm x 22 mm (ØxL)
Weight:	7.5 g
Max. pressure:	8 MPa
Material:	stainless steel AISI316L
Connections:	1 x UNC10/24 male, 1 x UNC10/24 female

Description:

Swivel nozzle's joint Lens consists of two parts, connected by leak-proof joint, this option allows changing the direction of nozzles aside within 25 degrees. It is very important in case if there is installed more than one nozzle and it is necessary to direct atomizing in different sides for even spread. Lens is screwed into UNC connection at the splitter, and only then, Nova nozzle is screwed into Lens.

Change of joint's angle is made manually, when Lens has been screwed in Gravity (+) splitter or Binary Sat (+) tee and Nova nozzle has been already installed.

Advantages:

- Manual screwing and unscrewing because of UNC connection
- Manual joint's angle change
- High quality stainless steel
- UNC seals made of resistant to corrosion Viton® fluoroelastomer

White Ray SS Hose

Self-cleaning hose, Teflon®-Stainless Steel
AISI304

Hose's diameter: 4.5 mm

Max. pressure: 30 MPa

Min. bending radius: 25 mm

Hose's material: PTFE (Teflon®) -
AISI304 stainless steel



Description:

PTFE (Teflon®) is a polymeric material, that is used in self-cleaning the White Ray SS Hose. PTFE is one of the most slippery materials in the world, offering the lowest adhesion (nothing can stick to this material).

In contrast to other materials, biofilms do not accumulate on the inner PTFE surface at all. PTFE cannot be digested by microorganisms because of its complete chemical resistance, and biofilms do not stick to the surface because of very low adhesiveness.

Armor and covering layer is made of AISI304 stainless steel. The extreme strength of this layer creates a nominal pressure margin of 4 times and a burst pressure of 15 times. At the same time, it is quite flexible and elastic. It also shows high resistance to breakings and to mechanical damages.

There is no marking made on the surface of the steel braiding for a possibility of open installation.

Supply kit:

1. Hose, Teflon®-Stainless steel AISI304, length is ordered on an individual basis, max. 100 m, 0.5 m step

Attention! Fittings should be purchased separately.

Advantages:

Self-cleaning inner surface

Microorganisms and biofilms are not accumulated

High level of durability and breaking's resistance

Nominal pressure margin is 4 times higher, burst pressure - 15 times

Flexibility and elasticity

Very thin

QUICK fittings for White Ray SS Hose:

Article

QUICK Fit



QUICK fitting for White Ray SS Hose
Dimensions: 10 mm x 42 mm (ØxL)
Material: AISI316L stainless steel

Article

White Ray SS Fer



Ferrule for White Ray SS Hose
Dimensions: 8 mm x 15 mm (ØxL)
Material: AISI316L stainless steel



QUICK Fit



White Ray SS Fer



White Ray SS Hose

DKOL fittings for White Ray SS Hose:

Article

DKOL Fit



DKOL fitting for White Ray SS Hose
Dimensions: 10 mm x 33 mm (ØxL)
Material: AISI316L stainless steel

Article

White Ray SS Fer



Ferrule for White Ray SS Hose
Dimensions: 8 mm x 15 mm (ØxL)
Material: AISI316L stainless steel



ORING-4.5-1.5-V

DKOL-FITTING



DKOL-NUT



White Ray SS Fer



White Ray SS Hose

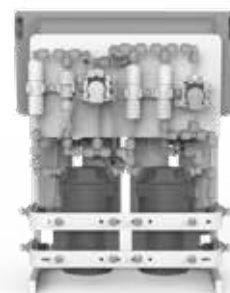
Brane Filter

Double Reverse Osmosis filter, 6 l/h

Dimensions:	340 mm x 190 mm x 400 mm (LxWxH)
Weight (w/o water):	5200 g
Connections:	4 x 1/4" John Guest® female
Power adapter:	100-240VAC, 50/60Hz
Energy input:	60 W
Input pressure:	2.5-4 bar
Nominal water rate:	6 l/h
Microfiltration:	1-5 micron
Ultrafiltration:	0.1 micron
Adsorption of chlorine, output water resource:	32 000 liters or 6 months, under 0.3 ppm Cl in output water
Material:	painted steel, plastic



side view



rear view

Description:

Brane Filter – a complex filter for water purification with a **two-step** reverse osmosis system.

The main unit of RO water purification system – a semi-permeable membrane, that allows only water molecules to pass. While supplying of polluted water to membrane purified water passes it under pressure, and polluter is holded.

The second membrane of Brane Filter purifies water once again after the first one. Each membrane is equipped with an individual noiseless pump. The two stage filtration purifies water to the level, which is unobtainable for traditional RO systems. It is especially important to purify water from silicic acids, as they hardly removed from water and form white scurf on the surfaces.

As RO membranes are contamination-sensitive, therefore water goes through two treatment stages:

- Modified absorbent carbon in the form of filaments purifies water from mechanical pollution of 1-5 micron size, chlorine and different organic contaminants.
- Ultrafiltration membrane does not let particles of more than 0.1 micron size pass. This protects RO membrane from micro-organisms.

Tubes can be connected manually without using any instruments with a slight press by John Guest® type fittings. Connection sets for drainage and water-supply come standard with supply package. Brane Filter should be installed on the horizontal and stable surface.

Advantages:

- Unique two-stage reverse osmosis cleaning circuit
- Water purification level is more higher than household analogs
- Fast & easy connection of water tubes by John Guest® fittings
- Fast replacement of cartridges without using any instruments
- Long life of adsorbitive microcarbon cartridge
- Traps more than 99.999 % of micro-organisms
- Food grade filter's material





Brane Tank

Transparent water tank

Dimensions: 200 mm x 440 mm (ØxH)

Weight: 900 g

Connections: 1/4" John Guest® female

Volume: 5.8 l

Air inlet pressure: 0.6 bar

Material: food grade plastic

Description:

Brane Tank - an accumulator for water, purified by Brane Filter. Reverse osmosis filtration is processed slowly, that is why the system collects water for correct operation.

Transparency makes it easier to control operation and purity visually. In spite of traditional accumulators biofilms do not appear at the inner surface because of an anti-bacterial coverage.

Brane Tank is connected with feeding hose manually by instant John Guest® type fittings with a slight effort without using instruments.

Advantages:

Transparency makes it easier of visual control for operation and purity

Anti-bacterial coverage of surface contacting water

Easy replacement of tinner bag (if necessary)

Boson

Main zone control unit

Dimensions: 72 mm x 18 mm x 82 mm (LxWxH)

Weight: 130 g

Frequency range: 433 MHz

Effective range: up to 1000 m

Charging port: micro-USB

Accumulator runtime: 6-7 months



side view
with the connected external antenna
(for maximum distance)



front view
with the connected external antenna
(for maximum distance)

Description:

Boson - a room electronic air humidity controller. It allows to set required humidity and to switch humidification modes: automatic, off, testing. Boson displays actual humidity level and room's temperature. It has a touch display, which blinks off while downtime and is activated by touch.

Boson is a wireless controller, transmitting control signal on a 433 MHz frequency. The unique algorithms of control signal processing provide to enlarge operating area in several times avoiding power increase. It's radio signal easily passes concrete walls, what allows to use it at modern buildings. In case if a signal receiver (White Energy central unit) is remote, the miniature antenna should be installed, it is included in the supply package.

Boson has an built-in rechargeable battery, which should be charged by the supplied adapter once per half of a year or even rarely (it depends on conditions of use).

To avoid significant decrease of operation signal range one should not install Boson at metal surface or on the walls with near location of massive metal elements.

Boson is mounted on any surfaces by the use of a supplied fastener.

Advantages:

- High signal range, in concrete buildings also
- High measurement accuracy
- Battery service life is up to half of a year
- Touch-screen display
- Fast mounting to walls

Binary Sat +

Straight tee with QUICK connection and UNC side connection



Dimensions: 17 mm x 98 mm (ØxL)

Weight: 120 g

Max. pressure: 10 MPa

Material: AISI316L stainless steel

Connections: 2 x QUICK female,
1 x UNC10/24 female



front view
with Nova nozzle connected

Description:

Binary Sat + is a high pressure tee made of AISI316L stainless steel.

At the lateral side of the tee there is an UNC connection, in which the fogging nozzle or Tunnel extender may be installed. Therefore, the one nozzle may be installed into the tee, which is corresponding to the following fogging capacity: 1.2 l/h under maximum pressure at the hoseline.

At the ends of Binary Sat + instant QUICK connections (2 pcs) are located, they provide durable connection for feeding and outfeeding White Ray SS Hoses. Feed and outfeed hoses may be connected to any connector. Connection and disconnection is made by hands with a slight press without using special tools.

Binary Sat + may be opened or hidden installed behind the wall or the ceiling, in the latter case Tunnel extender is required for placing the nozzle into the room. In case of hidden installation it is recommended to pay attention to the tightness of the Tunnel extender's screwing into UNC connection at the surface of Binary Sat +. That's why, this tee is recommended for professional installation. Mounting clip is included into the supply package.

Attention! Disconnection of QUICK connector should be done without water pressure.

Advantages:

Instant QUICK connections

High quality stainless steel

Seals made of corrosion resistant Viton® fluoroelastomer

Possibility of both, opened and hidden installation

Low-cost alternative to Gravity +

Price-list

Attention! It is NOT necessary to install nozzles in every room. It is often the case that nozzles may be installed in halls where doors are opened for a long time.

"Apartment & office 60" Set, 10-60 m², 1 humidification zone

6 813.40 EUR

Supply package:

Article:	Name	Price	Pieces per set
White Energy 6	Central unit 6 l/h with QUICK connection	4099.00 EUR	1
Gravity +	Splitter with QUICK connection	384.00 EUR	1
Nova	Nozzle with ruby insert	42.50 EUR	1
Lens	Swivel nozzle's joint	35.10 EUR	1
White Ray SS Hose	Self-cleaning hose, 40 m, Teflon®-Stainless Steel AISI304	524.00 EUR	1
QUICK Fit	QUICK fitting for hose	20.20 EUR	4
White Ray SS Fer	Ferrule for Teflon®-Stainless Steel hose	6.70 EUR	4
	Hose ferrule crimping	6.80 EUR	4
Boson	Main zone control unit	333.00 EUR	1
Brane Filter	Double Reverse Osmosis Filter, 6 l/h	1 121.00 EUR	1
Brane Tank	Transparent water tank	140.00 EUR	1

"House, apartment and office 120" Set, 40-120 m², 2 humidification zones

7 473.40 EUR

Supply package:

Article:	Name	Price	Pieces per set
White Energy 6	Central unit 6 l/h with QUICK connection	4099.00 EUR	1
Gravity +	Splitter with QUICK connection	384.00 EUR	2
Nova	Nozzle with ruby insert	42.50 EUR	2
Lens	Swivel nozzle's joint	35.10 EUR	2
White Ray SS Hose	Self-cleaning hose, 50 m, Teflon®-Stainless Steel AISI304	655.00 EUR	1
QUICK Fit	QUICK fitting for hose	20.20 EUR	6
White Ray SS Fer	Ferrule for Teflon®-Stainless Steel hose	6.70 EUR	6
	Hose ferrule crimping	6.80 EUR	6
Boson	Main zone control unit	333.00 EUR	1
Brane Filter	Double Reverse Osmosis Filter, 6 l/h	1 121.00 EUR	1
Brane Tank	Transparent water tank	140.00 EUR	1

"House, apartment and office 180" Set, 100-180 m², 3 humidification zones

8 564.40 EUR

Supply package:

Article:	Name	Price	Pieces per set
White Energy 6	Central unit 6 l/h with QUICK connection	4099.00 EUR	1
Gravity +	Splitter with QUICK connection	384.00 EUR	3
Nova	Nozzle with ruby insert	42.50 EUR	3
Lens	Swivel nozzle's joint	35.10 EUR	3
White Ray SS Hose	Self-cleaning hose, 70 m, Teflon®-Stainless Steel AISI304	917.00 EUR	1
QUICK Fit	QUICK fitting for hose	20.20 EUR	8
White Ray SS Fer	Ferrule for Teflon®-Stainless Steel hose	6.70 EUR	8
	Hose ferrule crimping	6.80 EUR	8
Boson	Main zone control unit	333.00 EUR	1
Brane Filter	Double Reverse Osmosis Filter, 6 l/h	1 121.00 EUR	1
Brane Tank	Transparent water tank	140.00 EUR	1

These are EXW prices. VAT is not included. Prices are subjected to change without prior notice.

Attention! It is NOT necessary to install nozzles in every room. It is often the case that nozzles may be installed in halls where doors are opened for a long time.

"House, apartment and office 240" Set, 150-240 m², 4 humidification zones 9 055.40 EUR

Supply package:

Article:	Name	Price	Pieces per set
White Energy 6	Central unit 6 l/h with QUICK connection	4099.00 EUR	1
Gravity +	Splitter with QUICK connection	384.00 EUR	4
Nova	Nozzle with ruby insert	42.50 EUR	4
Lens	Swivel nozzle's joint	35.10 EUR	4
White Ray SS Hose	Self-cleaning hose, 90 m, Teflon®-Stainless Steel AISI304	1179.00 EUR	1
QUICK Fit	QUICK fitting for hose	20.20 EUR	10
White Ray SS Fer	Ferrule for Teflon®-Stainless Steel hose	6.70 EUR	10
	Hose ferrule crimping	6.80 EUR	10
Boson	Main zone control unit	333.00 EUR	1
Brane Filter	Double Reverse Osmosis Filter, 6 l/h	1 121.00 EUR	1
Brane Tank	Transparent water tank	140.00 EUR	1

"House, apartment and office 300" Set, 200-300 m², 5 humidification zones 9 780.50 EUR

Supply package:

Article:	Name	Price	Pieces per set
White Energy 6	Central unit 6 l/h with QUICK connection	4099.00 EUR	1
Gravity +	Splitter with QUICK connection	384.00 EUR	5
Nova	Nozzle with ruby insert	42.50 EUR	5
Lens	Swivel nozzle's joint	35.10 EUR	5
White Ray SS Hose	Self-cleaning hose, 105 m, Teflon®-Stainless Steel AISI304	1375.10 EUR	1
QUICK Fit	QUICK fitting for hose	20.20 EUR	12
White Ray SS Fer	Ferrule for Teflon®-Stainless Steel hose	6.70 EUR	12
	Hose ferrule crimping	6.80 EUR	12
Boson	Main zone control unit	333.00 EUR	1
Brane Filter	Double Reverse Osmosis Filter, 6 l/h	1 121.00 EUR	1
Brane Tank	Transparent water tank	140.00 EUR	1

Additional set "Dirty water supply" 211.20 EUR

Supply package:

Article:	Name	Price	Pieces per set
Brane Extra	Additional filter unit, 6 l/h	153.00 EUR	1
Brane Sedi	Cartridge for preliminary mechanical water purification	27.20 EUR	1
Brane Carb	Cartridge for a preliminary mechanical and adsorption water purification	31.00 EUR	1

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