Desludging unit

Type 21/50

VERY IMPORTANT:

Read this manual carefully before connecting to the mains supply, filling it with water or operating it.
Failure to comply with these instructions will invalidate the BWT Permo warranty.

www.bwtpermo.fr

Technical manual BWT PERMO 21/50 DESLUDGING code P0011131EN Rev 1 of 12/08/2015

For You and Planet Blue.

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Dear Customer,

Thank you for entrusting BWT Permo - you now own a desludging unit.

The filter fitted to the desludging unit is made of carbon steel and manufactured according to the ASME code. It can withstand an operating pressure of 10 bars and a maximum temperature of 85°C.

The desludging unit can be installed on line on the network to be filtered or mounted in parallel. In the case of mounting in parallel, the flow rate will be adjusted to handle roughly 20 to 25% of the total volume of your water network to be filtered.

We have made every effort to ensure that the product gives you complete satisfaction.

It is simple to use: please read this manual carefully before commissioning the desludging unit.

Also remember that our After Sales Service is available for you.

SAFETY

Descriptions are written in clear text.

The highlighted areas **WARNING, ATTENTION and REMARK** have the following meaning:

REMARK

Indicates a special feature or important piece of information

WARNING

Risk related to the presence of electrical current

ATTENTION

Risk of incorrect operation

WARNING

Risk of injury or accident

REMARK

Recyclable item

ATTENTION: For your own safety and that of the appliance, take care to comply with the elementary operating precautions and the following instructions:

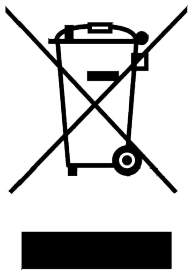
Please read these instructions carefully before using your appliance.

- This manual contains very important remarks about the installation, use and maintenance of your appliance.
- Check that the equipment and its packaging have not been damaged during transport.
- In the event of apparent damage do not use the appliance and contact your dealer immediately.

WARNING: For most electrical appliances, it is recommended to make the connection to a dedicated circuit, i.e. a single socket that only supplies the appliance in question and on which no other socket or branch circuit is added.

KEEP THESE INSTRUCTIONS

Disposing of your old appliance



1. This symbol, representing a crossed wheeled dustbin, means that the product is covered by the European Directive 2002/96/EC.
2. Electrical and electronic components must be disposed of separately in containers provided.
3. Disposal in accordance with these instructions will help to reduce negative consequences and any risks for the environment or human health.

INSTALLATION INSTRUCTIONS

ATTENTION: Any electrical work necessary for the installation of this appliance must be carried out by a qualified electrician or by competent persons.

Any plumbing work necessary for the installation of this appliance must be carried out by a qualified plumber or by competent persons.

WIRING

ATTENTION: For the safety of persons, remove the fuse from the electrical circuit or disconnect the circuit breaker before connecting the installation. Check that the electrical socket is not live.

Do not use an extension or socket adapter with this appliance. Electrical connections and earth connections must comply with national, regional and/or local electrical standards.

This appliance must be supplied with power at the suitable voltage and frequency, as specified in this manual. It must be connected to a correctly earthed individual circuit, protected by a circuit breaker or fuse that is appropriate for the installed appliance.

Hydraulic and electrical connections must comply with good professional practice and standards that are applicable where the appliance is installed.

In addition, as with any electrical equipment, the appliance's electronics may be disturbed by electrical or magnetic interference. If the appliance is close to power switches, transformers or any other source of interference, shielded cable should be used for connections, and an interference suppressor should be fitted.

DESCRIPTION

The desludging unit is a complete kit ready to be installed and connect hydraulically and electrically to your system.

The desludging unit has:

- an inlet with an isolating valve,
- a treated water outlet with an isolating valve,
- an electric circulating pump,
- 2 manometers for monitoring pressure loss in the filter,
- a filter equipped with a filtering support, a magnetic candle and an air vent on the tilting lid.

The clarifier filter body is designed and manufactured according to the ASME code. Its features, such as gaskets, connections and high-resistance bag support, enable easy use and a long service life. The design of the cover enables the bag to be correctly installed. The finish of the bag support avoids the need for a gasket below it. The sliding bolts facilitate handling of the cover when changing bags.

The standard desludging unit filter is fitted with a bag with a 50 micron filtration threshold and a magnetic rod.

GENERAL FEATURES

The desludging unit is made from steel pipes.

- Inlet/outlet connection: DN80 (counter-flanges not supplied)
- Filter manufacture according to: ASME code
- Filter material: Carbon steel
- Supply voltage: 3 x 220-240 D/380-415 Y V frequency 50Hz
- Bag support: 304 stainless steel
- Felt bag: grade 50 microns
- Filter gasket quality: Nitrile
- Operating pressure: 10 bar max.
- Temperature: 85°C max
- Low pressure loss: 0.01 bar (clean filter)

SAFETY INSTRUCTIONS

a) General safety instructions

ATTENTION: This technical manual contains essential information that must be observed during the installation, use and maintenance of pressure appliances.

It is imperative that this manual is read and understood prior to installation and start-up by all operators and other managers.

The technical manual must always be available at the place of installation. Any warning and information labels must be clearly visible and legible.

Warning labels are no substitute for reading and understanding the technical manual. Improper use of this appliance may cause serious injury.

Please read the appliance identification plate, warning labels and installation, operation and maintenance manual prior to installation and start-up.

In the event of indoor installation that is close to machines in operation, at high or low temperatures, the appliance's accessible parts must be protected against all contact.

Appropriate action to prevent any dangerous overflow or leakage must be taken to protect personnel and the environment. Local environment-related regulations must be strictly applied.

Normal precautions should be applied in order to avoid dangers associated with power supply. Check with your local supplier to ensure compliance.

The user is responsible for ensuring that the whole installation, maintenance and use are carried out by competent, qualified personnel who have sufficient knowledge of the manual. Make sure that the appliance is turned off prior to any start-up, while carefully observing the instructions described in the manual. All health and safety rules must be followed.

b) Protective clothing

NB: Before handling the equipment, the operator must wear protective clothing, including gloves and face protection. If handling of hot liquids is involved, the operator must be equipped with NOMEX® or other type of heat-resistant clothing to prevent inflammation or burning.

The filter must be used in accordance with the instructions given in the manual. No recourse can be exercised in the event of inappropriate use.

The bag filter is designed for the filtration of liquids only. A fluid is defined as liquid by regulation 97/23/EC on filter pressure, if the steam pressure at maximum temperature is less than or equal to 0.5 bar. The filter is manufactured according to strict safety standards and any modification could be highly dangerous to users, third parties and the environment.

INSTALLATION AND CONNECTIONS

The user must ensure that only authorised, qualified and competent personnel handle, store and carry out installation and connections.

Prior to installation, make sure that the product to be filtered is chemically compatible with the manufacturing material of the filter and gasket. Non-compliance with rules of chemical compatibility may lead to a failure in the filtration system and the user could then be exposed to serious injury.

For safety purposes, use appropriate personal protective equipment (goggles, gloves, clothing, etc.)

Do not confuse inlet and outlet and make sure that there are no objects inside the filter. Handling must be carried out only in accordance with:

- this technical manual,
- safety warnings and instructions,
- the desludging unit requirements and specifications,
- the usual health and safety rules.

The desludging unit should be installed close to the circuit to be treated. Choose a stable and flat, frost-free and dry location with an ambient temperature not exceeding 50°C. It is imperative for safety reasons to secure the filter to the ground with a suitable system for the support.

ATTENTION: The filtration assembly may tip over and cause damage and injury, especially during handling or maintenance of the filter.

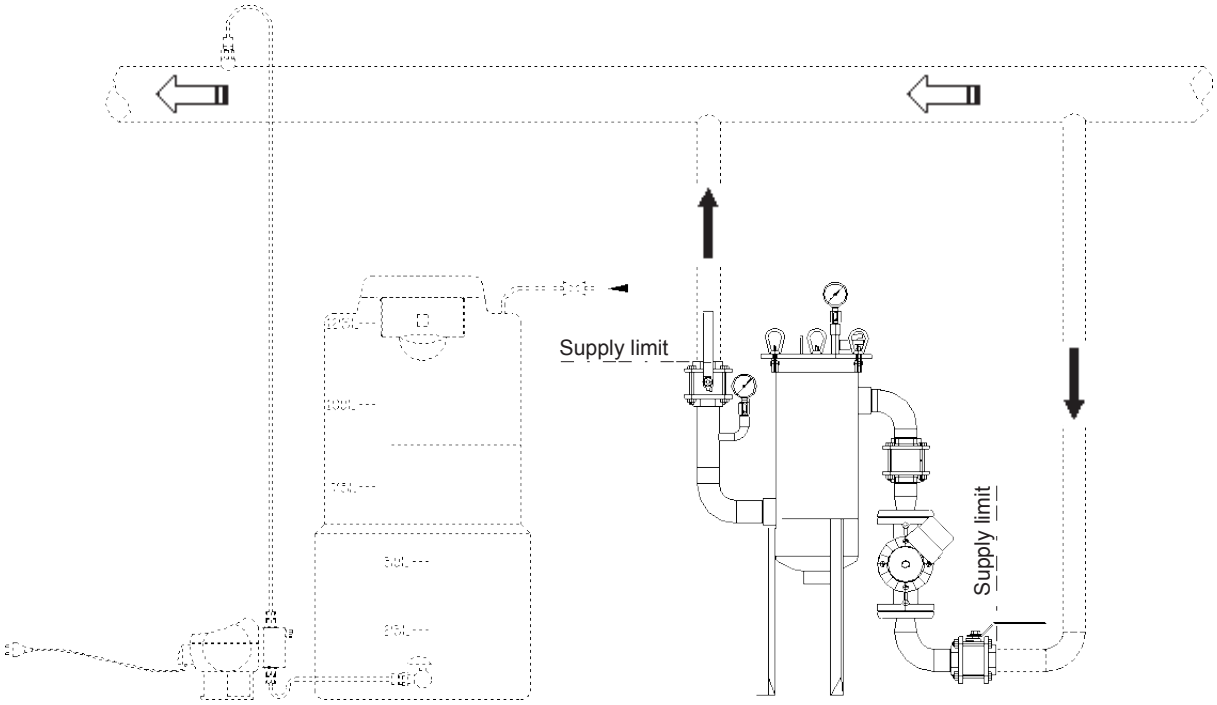
An earthed three-phase power supply should be provided. It should be permanently switched on, protected from possible shocks and splashes (power cable not supplied); see the installed equipment power at the end of the manual. Earthing is required.

Electrical connection and circuit protection must be carried out in accordance with the regulations in force by qualified personnel. Install a circuit breaker for starting and stopping the desludging unit circulating pump.

Check the operating frequency and voltage, as indicated on the circulating pump identification plate. For hydraulic connection, the inlet of the water to be filtered should be connected to the desludging unit stand-by piping upstream of the circulating pump.

The filtered water outlet should be connected to the desludging unit stand-by piping downstream of the bag filter.

SCHEMATIC DIAGRAM



Dosing unit (Option) **Desludging unit**

RECOMMENDATIONS

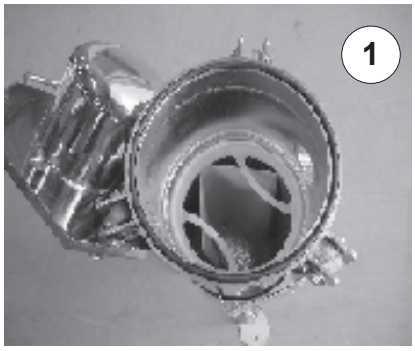
For effective desludging of the installation and depending on the circuit to be cleaned, it is recommended to use 200-micron bags for a first run. The second run with a 100-micron bag, then complete the operation with a 50-micron bag. To do this, the consumables available at the end of this manual should be used.

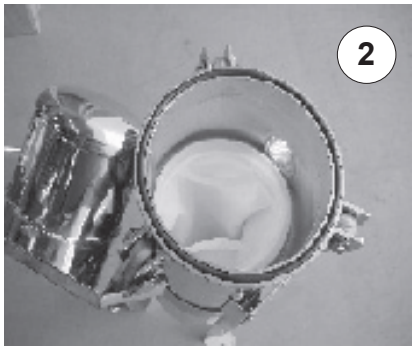
ATTENTION: Gaskets may deteriorate and risk causing serious injury. It is imperative when in doubt as to their condition or when replacing a filter bag to replace the gasket as well.

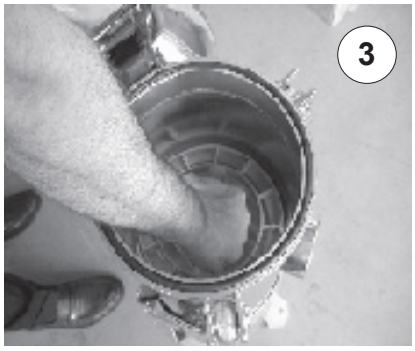
Threads should be clean and well-greased. Threads and welded parts should be regularly checked for cracks or wear. Damaged parts should be replaced by original parts. Parts such as valves or various indicators should be constantly checked to prevent any incorrect operation.

ATTENTION: Do not open a filter under pressure. The filter cover has no lifting mechanism. The tilt bolts unscrew enough so as to release the cover. On reassembly, they enable the cover to be positioned correctly on the gasket.

INSTALLING & REPLACING THE FILTER BAG







1) - Open the filter, retrieve the accessories and instructions; make sure you remove all the protective packing present inside the filter.

2) - Place the bag in the filter.

3) - Exert pressure on the bag until you hear a “click”, confirming that the bag is installed correctly.

Check that the bag is properly secured by gripping the handles and lifting gently.

If the bag remains in place, this means it is correctly positioned.

Replacing the filter bag

Stop the circulating pump and switch off the installation.

First turn off the inlet valve, then the outlet valve. Make sure the filter is switched off with the filter inlet and outlet measurement manometers.

Turn the red “Flexvent®” cap, found on the filter cover, anti-clockwise. Unscrew the tilt bolts to release the cover.

Lift up the cover to open the filter.

ATTENTION: A cover that falls off can cause serious injury.
Never put hands, fingers or limbs between the cover and the filter.

Remove the filter bag from the filter. Check that the bag support and the upper part of the filter have not suffered any damage and are clean. Replace the bag support and install a new bag. Make sure the bag is properly positioned across its entire circumference, thus ensuring perfect watertightness between the bag and the filter body.

Remove the cover gasket and clean the neck. If the gasket is damaged, replace it with an original part only. Insert the gasket and check that it is correctly positioned in the neck.

Slightly tighten each nut 180° so that the cover is correctly positioned on the filter, then retighten them. Gently open the inlet valve. Close it immediately if any leakage is detected and repeat the procedure from the beginning of the paragraph.

After filling, place the red cap in the original position.

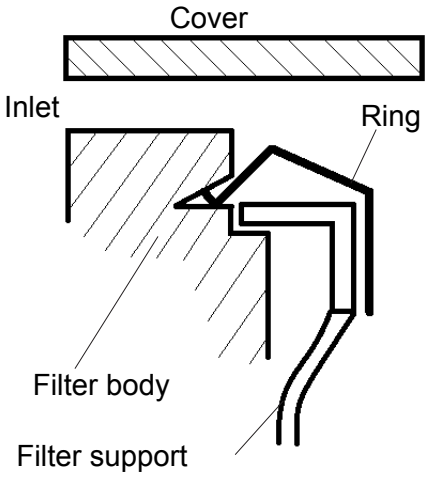
Restart the desludging unit according to the paragraph “Commissioning the installation”.

ATTENTION projections can cause leakages of liquid that may be very hot and can cause serious accidents. It is highly recommended to wear suitable safety equipment. Do not remove the red “Flexvent®” cap during the operation.

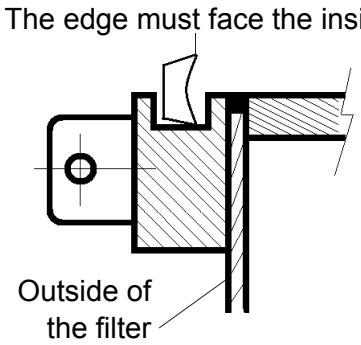
INSTALLING THE FILTER BAG

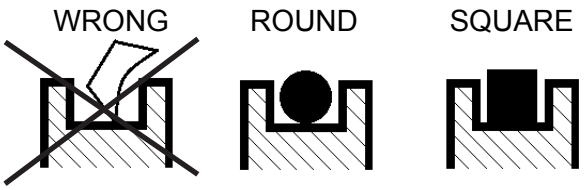
Bags with this semi-rigid polypropylene ring fit naturally into their housing due to the shape shown in the illustration and a slight slope of the housing. The filter cover does not rest on the bag and watertightness is completely guaranteed thanks solely to pressure on the cover o-ring.

In the case of a conventional bag, it is necessary to press on the bag in order to crush the bulge caused by the seam on the one hand, and the fabric enclosing the metallic o-ring on the other hand. Consequently, the pressure on the cover o-ring may be insufficient.



Installing the gasket





MISCELLANEOUS GASKETS

If the gasket is not correctly positioned in the throat, inspect the throat and replace it properly.

COMMISSIONING THE INSTALLATION

ATTENTION: Hot or chemically active liquids can cause serious injury and damage. Observe the predefined parameters; improper use can cause serious injury. NEVER OPEN A FILTER UNDER PRESSURE.

The appliance is equipped with a magnetic sensor that is part of the cover.

Open the valves upstream of the circulating pump and the one located downstream of the filter.

Open the “Flexvent®” found on the filter cover. After filling, place the red cap in the original position.

Check the watertightness of all connections. The expansion of materials may cause leakage on the desludging unit, caused by a difference in temperature.

Retighten the connections if necessary, gently and gradually, if a leak is found in the installation.

Prior to commissioning, the installation must be filled with liquid and properly bled.
It is imperative to also check the minimum pressure available at the circulating pump inlet.
The installation cannot be bled by the circulating pump.

Before switching on, check the technical and operating characteristics of the installed circulating pump. Check the minimum pressure at the circulating pump inlet, which often depends on the temperature of the liquid.

To avoid condensation inside the terminal box and the stator, the temperature of the pumped liquid should always be higher than the ambient temperature.

- ambient temperature 30°C
- minimum liquid temperature 30°C
- maximum liquid temperature 120°C

Close the isolating valves upstream and downstream of the installation.

Remove the bleed screw (be careful of the hot liquid that escapes).

Gently open the isolating valve on the suction side until a trickle of water escapes through the hole in the screw. Bleed properly, then close the isolating valve.

Replace the bleed screw and slowly open the isolating valves upstream and downstream of the desludging unit to properly fill the installation with water.

To bleed the circulating pump effectively, switch on the installation, loosen the circulating pump bleed screw by 1/2 to 3/4 of a turn for 5 seconds, then retighten the screw.

Repeat the operation several times if necessary until the air has been evacuated.

ATTENTION: When first switched on, the circulating pump may be noisy, due to traces of air remaining in the chamber. This noise should stop after a few minutes of operation.

CIRCULATING PUMP FEATURES

a) Electrical connection

The electrical connection must be carried out in accordance with local regulations.

WARNING: Before dismounting the terminal box and before dismounting/remounting the pump, make sure that the electricity supply has been cut. The pump must be connected to an external main switch with a minimum 3 mm insulation gap between each terminal.

The frequency and operating voltage are shown on the identification plate of the motor. Make sure the motor is designed for the voltage at which it is used. Standard single-phase motors have built-in thermal protection and require no additional protection. Electrical connection should be carried out as shown in the diagram inside the terminal box cover.

Do not start the pump until it has been filled with liquid and bled.

b) Start-up

Before starting the pump, fully open the isolating valve on the pump suction piping and leave the isolating valve on the discharge piping almost closed.

Start the pump.

Bleed the pump during start-up by loosening the bleed screw on the vent pipe, until a trickle of liquid emerges from the bleed hole.

WARNING: Make sure the escaping liquid does not injure the person or damage the motor or other components. Pay careful attention, particularly in the installations using hot water.

When the installation has been filled with liquid, slowly open the isolating valve on the discharge piping until it is completely open.

c) Circulating maintenance and operation

WARNING: Before starting any work on the pump, make sure the pump has not been switched on and that it cannot accidentally start.

The pump does not require maintenance. If the pump is drained for a fairly long stoppage period, inject two or three drops of silicone oil on the shaft between the vent pipe and the coupling. This will prevent the mechanical gasket watertight surfaces from sticking together. The motor should be checked at regular intervals. It is important to keep the motor clean to ensure a good ventilation. If the pump is installed in a dusty environment, it should be checked and cleaned regularly.

d) Type TP 80-140 Circulating Pump

Liquid:

Liquid temperature range: 0 /120°C

Technical data:

Calculated flow: 52.2 m³/h

Pressure supplied by pump: 10 m

Maximum operating pressure: 16 bars

Installation:

Maximum ambient temperature: 60°C

Maximum operating pressure: 16 bars

Piping connection: DN80 DIN PN16

Centre distance: 360 mm

Electrical data:

Nominal power - P2: 2.2 kW

Power supply frequency: 50 Hz

Nominal voltage: 3 x 220-240 D/380-415 Y V

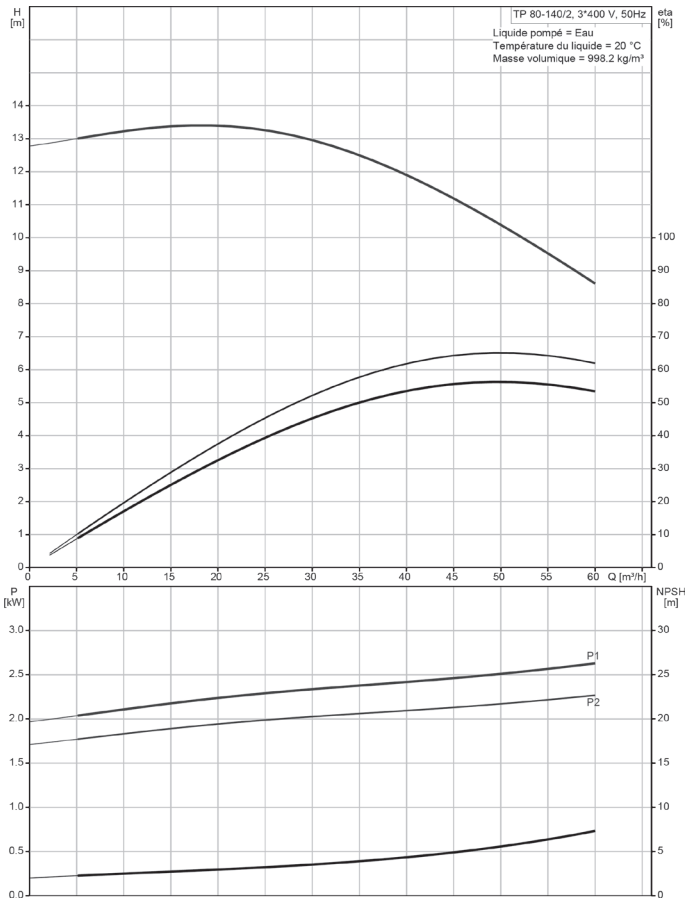
Nominal current: 7.70/4.45 A

Start intensity: 850-950%

Phi Cos - power factor: 0.89-0.87

Protection index (IEC 34-5): 55

Insulation class (IEC 85): F



Do not remove the circulating pump terminal box cover; make sure the electrical power is turned off and cannot be accidentally turned on again.

Pumped liquid may be hot and under pressure. Fully drain the installation before dismantling the circulating pump and close the isolating valves upstream and downstream of the installation.

FILTER MAINTENANCE

Prior to any intervention on the desludging unit, it is imperative to observe the safety precautions mentioned in the paragraph “Safety” and carefully follow the rules established at the site where the appliance is installed.

For your own safety, use suitable individual protective equipment.

Filtration is carried out from the inside towards the outside of the bag fitted in the basket (bag support). The cover is fitted with a watertight gasket. If however the filter needs to be dismantled, make sure the gasket is correctly seated and tighten the bolts properly (tightening torque: 5.9 m/kg).

Record the pressures shown on the inlet and outlet measurement manometers at start-up and/or after cleaning or replacing the filtering element.

The filter bag fitted on our filters will gradually clog, at a varying rate, depending on the nature of the liquid conveyed. Beware: do not exceed a 1 bar pressure loss between filter inlet and outlet.

When this pressure loss is reached, the filter bags should be changed. To do this, follow the procedure described in the paragraph “Replacing the filter bag”.

If one or more magnetic elements are fitted inside the filter bag, it is necessary to wipe the magnetic bar with a dry cloth to eliminate any metal particles.

Bags are consumable items and they should not be washed.

Bag supports may be rinsed with water or solvent. They should only be replaced in the event of distortion or corrosion.

The inside and outside of the filter body may be cleaned with water or even by brushing. Avoid any detergent that could damage the surface condition or coating of the filters.

FAILURES, CAUSES & REMEDIES

FAILURES	CAUSES	REMEDIES
The circulating pump does not work	Installation fuses	Replace the fuse
	Differential relay triggered	Restore the contact
	Faulty circulating pump	Repair or replace the circulating pump
Noise in the installation	Air present in the installation	Bleed the installation
Noise in the circulating pump	Air present in the circulating pump	Bleed the circulating pump
	Inlet pressure too low	Increase the pressure
Reduction in flow rate and increase in pressure loss	Clogging of bags	Replace the worn bags with new bags
Leak between filter cover and body	Bolts not tightened properly	Retighten the bolts
	Faulty gaskets	Replace the gasket

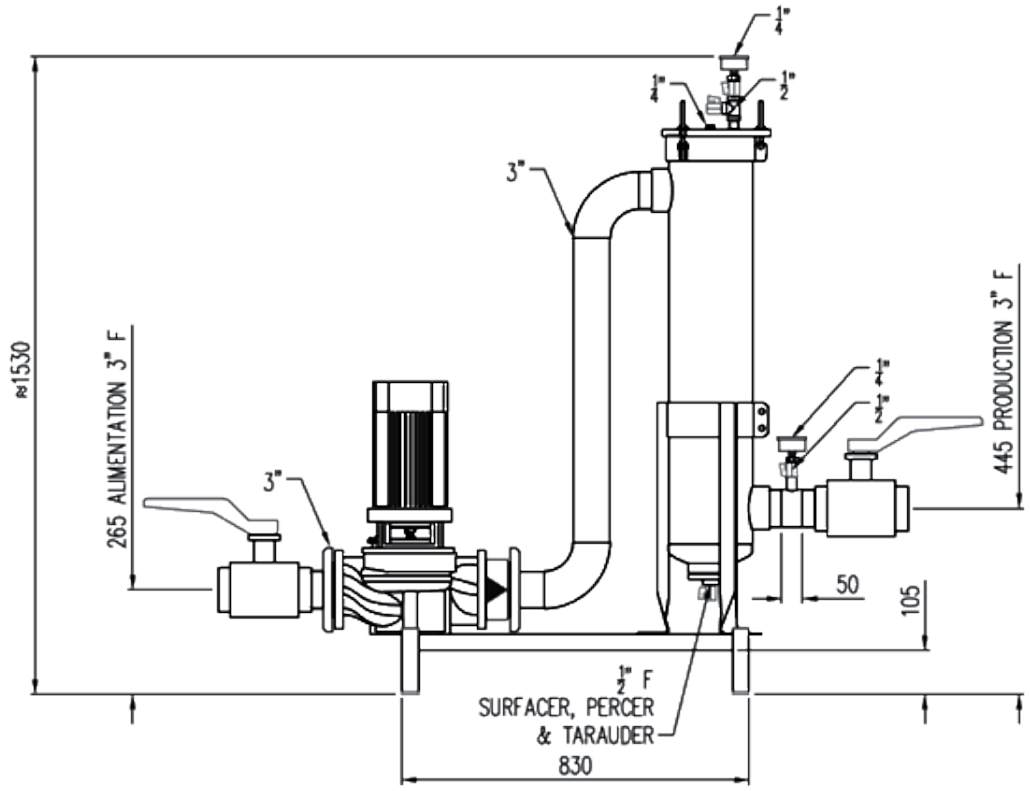
CONSUMABLES

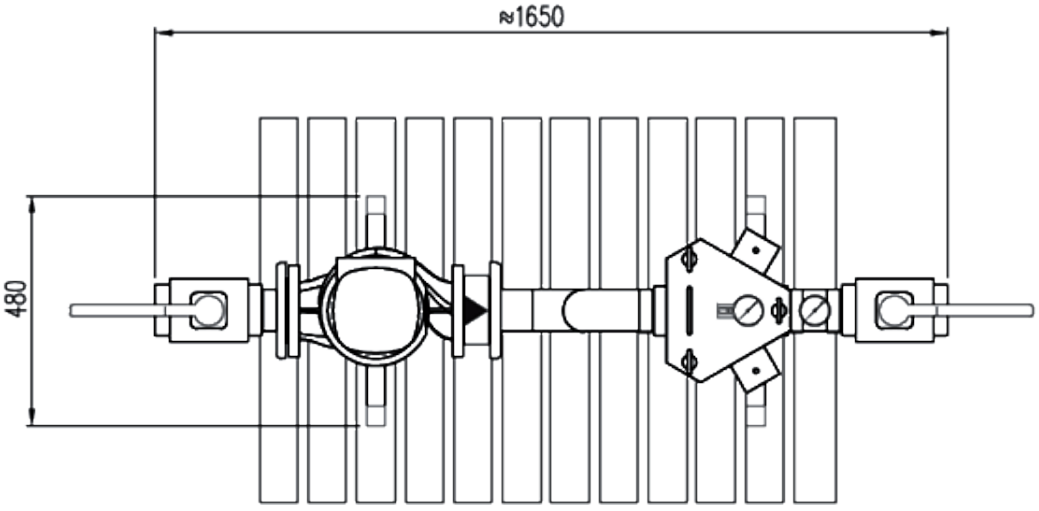
CODES	DESCRIPTION
P0003890	50 microns Bag for 21/50 filters
P0003891	100 microns Bag for 21/50 filters

SPARE PARTS

CODES	DESCRIPTION
P0974855	Circulating pump 80-140/2
P0043079	Manometer diameter 60 mm 10 bar
P0993138	Stainless steel DN80 valve
P0500520	DN80 Isolating valve
P0962678	Ball valve 1/2'' male/female

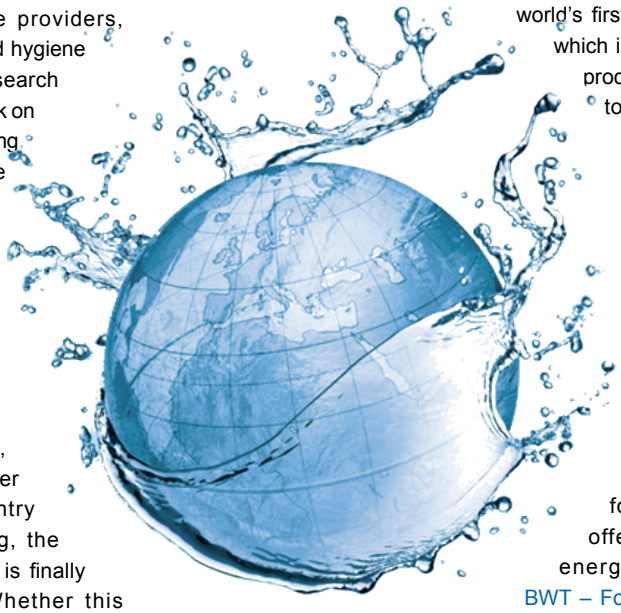
21/50 DESLUDGING UNIT





The BWT group

Best Water Technology Group was founded in 1990, and is now one of the leading European water technology companies. It has 70 subsidiaries and affiliated companies, with total staff of over 2800. although the BWT network also comprises thousands of partner companies, service providers, installers, planners, architects and hygiene specialists. The staff in the Research and Development department work on new processes and equipment, using state of the art techniques, with the aim of developing new products that are both environmentally-friendly and cost-effective. BWT is particularly committed to the reduction of energy consumption and CO2 emissions. BWT revolutionary products are present, and have already more than proved their effectiveness, in almost every field where water is involved: whether at the entry of a water pipe into a building, the "Point of entry", or where water is finally drawn, the "Point of use". Whether this is for the treatment of drinking water, mineral water or demineralised water for pharmaceutical applications, swimming pools, heating and process water, water for boilers and cooling water, and even water for air conditioning.



A multitude of innovations which ensure maximum safety, hygiene and health protection for our customers during their daily contacts with water, that precious elixir of life. Amongst these innovations, in particular we find SEPTRON®, the world's first EDI (electro-deionisation) module, which is fitted with spiral winding, the MDA process (activation of manganese oxide), to effectively eliminate manganese, total AQA bipolar technology, which offers protection against calcium carbonate, without the addition of chemicals, SANISAL, the world's first regenerating salt for water softening installations, which simultaneously disinfects the water, and the revolutionary new Mg2+ technology, which gives both filtered water, along with tea and coffee, a better taste. With its unique high yield membranes for fuel cells and batteries, BWT offers a cleaner, more sustainable energy solution in the 21st century.

BWT – For You and Planet Blue: our mission is to bear the environmental, economic and social responsibility to supply our customers with the best water treatment products, systems, technologies and services, and so contribute to the most effective protection of the global resources of our blue planet.

BWT BEST WATER TECHNOLOGY | For You and Planet Blue.