



BW T Disinfecton

On site production of disinfection liquid

For You and Planet Blue.

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Safety Instructions

This manual contains general instructions that must be read before installation, operation and maintenance of the machine. It must be read by both the installer and the operator, prior to installation and start-up, and must always be available at the installation location.

This manual uses the following markings:

Warning	If these warnings are not adhered to, it might result in personal injury
Caution	If these safety instructions are not adhered to, it might result in malfunction and damage to the machine and/or installation
Note	If these notes are adhered to, it will make installation and maintenance easier.

Qualifications of installer and operator

The installer must be sufficiently qualified to install the machine and must adhere to the local standards regarding the electrical and hydraulic installation.

The operator must be sufficiently trained in the workings of the machine, with emphasis on the safety instructions in this manual.

If the safety instructions are not followed, it might lead to personal injury and result in loss of warranty.

Generally Safety instructions

The safety instructions given in this manual and any existing local legislation on health protection must be adhered to.

Always disconnect the water and power supply before working inside the machine. The machine forms small amounts of hydrogen as a by-product of disinfection fluid production. Inadequate ventilation can lead to an explosive atmosphere. The water quality must meet drinking water specifications – if this is not adhered to, the softener and cell can be damaged. Neuthox® and residual chloride can become corrosive at high concentrations – beware of material specifications in application.

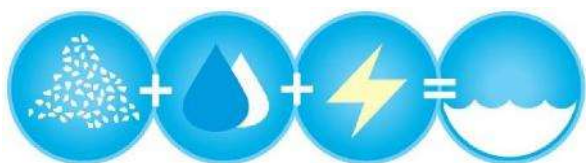
General Information

The BWT Disinfecton is an on-site disinfection liquid producing system. Through the electrolysis of salt water, using patented membrane cell technology, it produces a safe, cost effective, environmentally friendly nonhazardous disinfection fluid. This unique disinfection fluid is produced under the registered name Neuthox®. Neuthox® contains hypochlorous acid which is a highly potent oxidant. This means Neuthox® can be used as a biocide whenever bacteria in water needs to be controlled.

Electrolysis in chemistry is the method, where an otherwise non-spontaneous process is driven by applying a direct current. When creating Neuthox®, the machine utilize this to split chlorine (Cl) from Sodium (Na), in ordinary kitchen salt (NaCl).

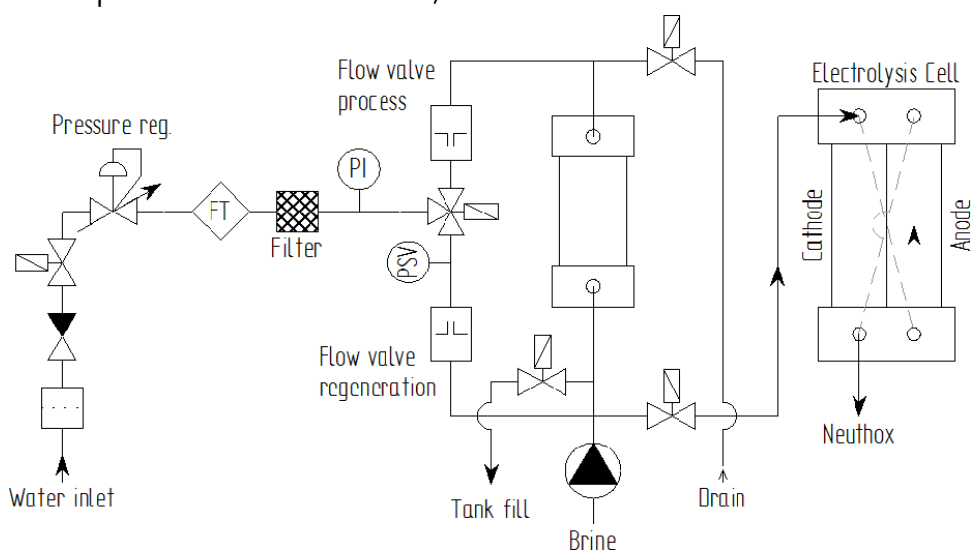
Neuthox

Neuthox is a non-hazardous disinfectant. It has a neutral pH value of pH 5,5 - 8,5. The main components in Neuthox is free chlorine, hypochlorous acid and sodium. For further information please read the Safety data sheet for Neuthox.



The BWT Disinfection

The machine comes with a integrated water softener system to avoid lime scale in the cell. The production process is carefully controlled by the build-in BWT controller/HMI to supply a uniform product with the lowest possible residual chlorides, all the time!



A simplified P&I diagram shows the process. Water enters the machine through the prefilter and then the built-in filter and the lime scale/calcium is removed in the water softener. The now soft water flow is reduced to accommodate the cell capacity and brine is mixed into the water before it enters the electrolysis cell.

What makes Neuthox® special is that all the fluid is exposed to both sides of the cell. First the fluid passes the negative cathode and afterwards the positive anode. By never splitting the flow, the risk of creating chlorine gas is eliminated. Furthermore, the final product is 8.5 pH – close to pH neutral.

Application

Neuthox® is an effective biocide in multiple applications, where water quality is the key factor. It is applicable in the areas listed below:

- Dental Clinics
- Medical Schools
- Cooling towers
- Swimming pools
- Hot and cold-water systems
- Drinking water disinfection
- Cooling towers

BWT's engineering staff can advise you on all application matters.

Improper Operating Methods

The BWT Disinfecton should be located in a frost-free and well-ventilated room.

If the BWT Disinfecton is located in a small confined space without adequate ventilation, it is necessary to fit an exhaust system, which our BWT staff will be able to advise you on.

Warning

The machine forms small amounts of hydrogen as a by-product. Inadequate ventilation can lead to an explosive atmosphere

Warning

The machine is not approved for operation in potentially explosive atmospheres.

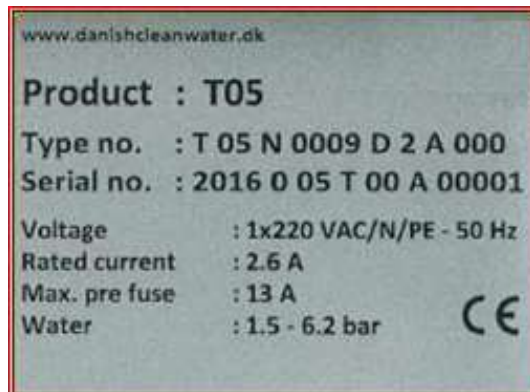
**Warrant
ty**
A

guarantee claim in accordance with our general terms of sale and delivery is only valid if the following requirements are fulfilled:

- The BWT Disinfecton is used in accordance with the information within this manual.
- The machine is correctly handled.
- The maintenance is carried out by authorized and qualified BWT personnel.
- Original BWT spare parts are used for repairs during maintenance.

Nameplate

Example of nameplate, with type- and serial number, rated electrical and hydraulic data used for installation and CE mark approval.



of

Type Key

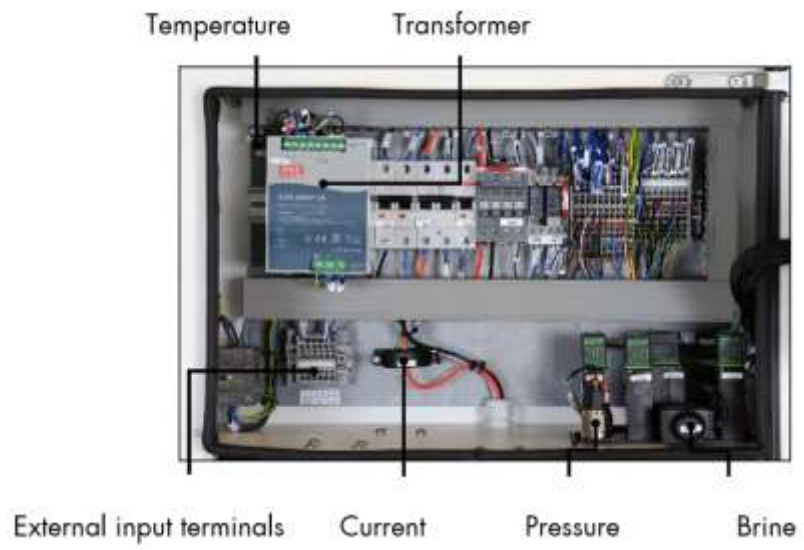
Code Example

T 00 N 0015 D 2 A 0 0 0

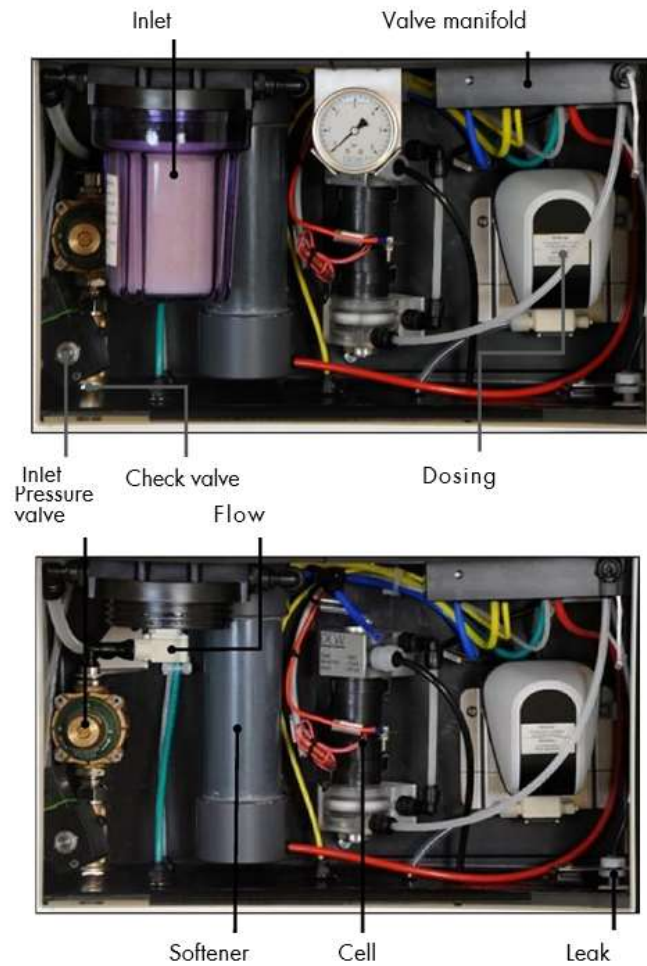
	Supply Water						
T	Potable water						
	Base construction						
	Cabinet						
N	Standard						
S	Stainless steel						
	Size [l/h]						
	Output						
D	Neuthox/Cathox LC						
F	Neuthox/Cathox Agro						
	Supply voltage						
1	1x120 VAC (US)						
2	1x220 VAC						
4	3x400 VAC						
	Communication						
A	Without communication						
B	G S M						
C	GSM and Ethernet						
D	Ethernet/Modbus TCP/IP						
	Salt						
0	NaCl (sodium chloride)						
1	KCl (potassium chloride)						
	Pump type						
1	KNF						
2	Etatron 0607						
3	Etatron 2007						
4	Iwaki C060						
5	Iwaki C150						
6	Grundfos DDA 17-7						
	Delivery						
0	Standard						

Product overview

Electrical cabinet

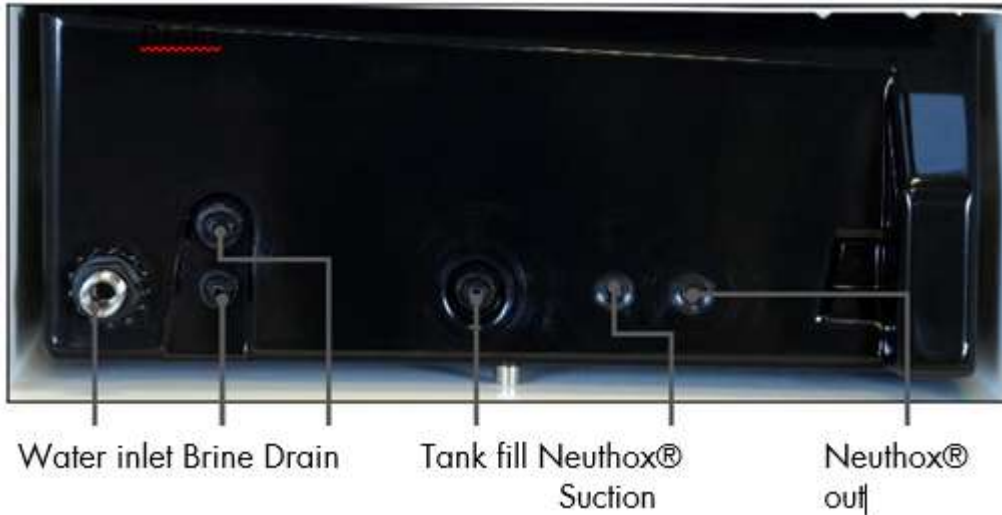


Hydraulic cabinet



Connections

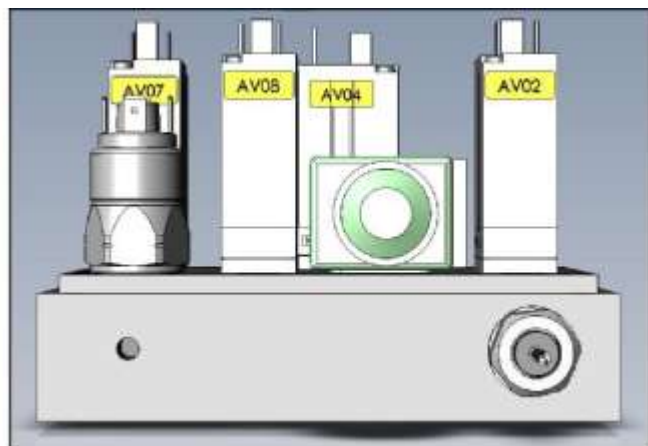
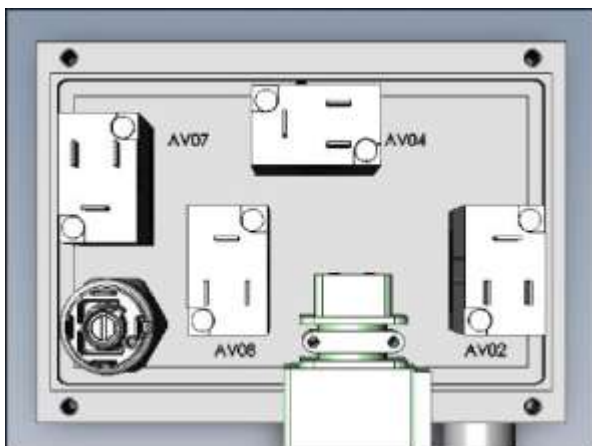
Hoses must be cut with a sharp blade to ensure that it stays round, do not use a tool that deforms the hose in any way.



Valve block

The integrated valve block contains four valves, a brine pump and a pressure switch. The valve block distributes water and brine through the machine. The brine pump is used for both Neuthox® production and softener regeneration. The valves are marked individually on the block.

- AV02, Cell inlet valve (NC)
- AV04, Drain valve (NO)
- AV07, 3/2-way valve (directs flow to production process when inactive)
- Switches water flow between production- and regeneration process
- AV08, Tank fill valve (NC)

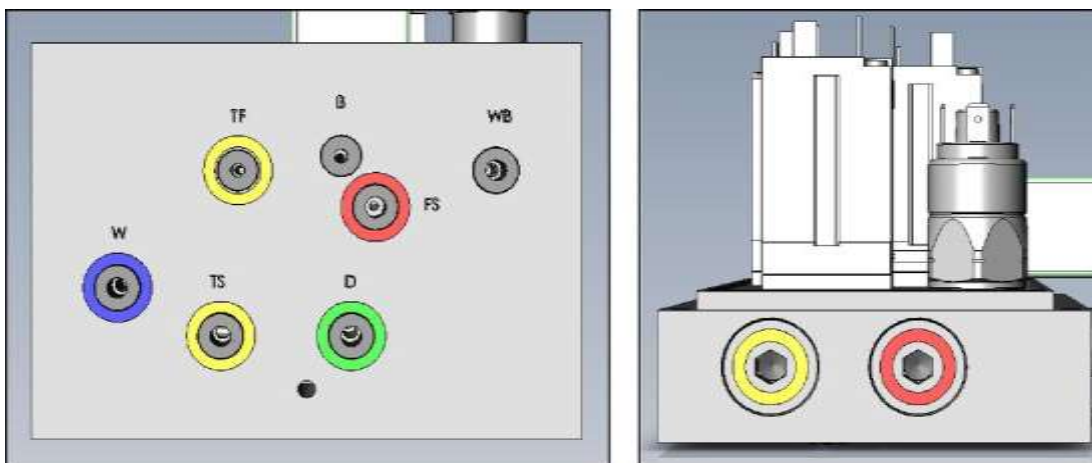


The connections in the bottom of the block are marked with both abbreviations and colored marking rings. The colored rings correspond to the color of the hoses inserted.

- **W**: Water (6 mm blue hose): Hard water inlet from the inlet filter.
- **TS**: To Softener (6 mm yellow hose): Hard water to the softener.
- **FS**: From Softener (6 mm red hose): Soft water from the softener.
- **TF**: Tank Fill (4 mm yellow hose): Soft water for filling the brine tank.
- **D**: Drain (6 mm hose): Water from softener regeneration process.
- **B**: Brine (4 mm clear hose): Brine inlet from brine tank.
- **WB**: Water and Brine (6 mm clear hose): Outlet of soft water and brine for the cell.

The flow is controlled by two flow restriction inserts mounted in a individual banjo bolt on the left side of the block. The banjo bolts are marked with colored marking rings to tell them apart from each other.

- Yellow: flow restrictor for production process
- Red: flow restrictor for regeneration process.



Technical Data

BWT Disinfecton

BWT Disinfecton		
Neuthox Production Capacity (±10%)	L/h*	9
Chloride Content in Neuthox®	mg/L*	980
Free Active Chlorine	ppm*	500
pH-value	pH*	8.5
Approx. NaCl Consumption	Kg/day**	0.4
Pre-fuse	A	13
Max. Power Consumption	W	380
Voltage	V	200 - 240 VAC (±10%); 50/60 Hz
Length of Power Supply Cable	m	3
Enclosure Class, Electrical		IP54
Required Water Pressure at 15 L/min	Bar	1.5 – 6,2 bar
Max. Drain Back Pressure	Bar	0.2
Ambient Temperature Tolerance	°C	5 < 40
Required Room Ventilation	m³/h	7
Recommended Running Hours	h/day	15
Maximum Running Hours	h/day	20
Connection Hose Length	m	1.3
Connection (BSP Male) Inlet	"	1/2"
Connection (Push-in) Drain	mm	6
Drain Hose - min. inner	mm	4
Drain Hose - max. length	m	5
Dosing Pump		No
Max. Flow Rate	L/h	-
Max. Pressure	Bar	-
Suction Head	mWg	-
Dimensions		
Width	mm	560
Height	mm	1540
Depth	mm	485
Weight	Kg	63?
Brine Tank Capacity	L	33
Neuthox tank Capacity	L	33
Sound Pressure	dB(A)	51

* Production is dependent on mechanical flow valve and is subject to variation (± 10%)

** Free available chlorine is dependent on each individual cell and is subject to variations (± 10%)

*** Salt consumption is calculated from empirical data and is subject to variations

**** Always supply power through a residual current circuit breaker

Assembly and Installation

Electrical Connection

Warning

Make sure that the supply voltage is the same as specified on the machine.

The BWT Disinfecton is supplied with 230V, 50Hz via a CEE plug, for easy connection to the power supply.

Check valve

The water supply for the BWT Disinfecton requires installing of a Medium Category 2 non-return valve with sampling. Controllable non-return valve (Type EA according to DS / EN-1717)

The machine has a male 'A" BSP connection for water inlet located in the bottom of the cabinet. The water supply should be of potable quality, containing less than 0.5 mg/l iron and less than 0.1 mg/l manganese. The supply pressure and drain backpressure must be within the limits stated in the technical data. Low water supply pressure and high drain backpressure can increase the precision of the flow valves.

The machine flushes water from the regeneration process to the drain. The drainage from the machine consists of saline water with a high calcium content. Connect the drain hose to the machine with the push in fitting in the bottom of the machine. Place the other end in an appropriate outlet.

- 6mm hose; drainage from machine

See section: Connections for picture of machine connections.

Caution

The water pressure should be at minimum 1,5 bar, and the back pressure in the drain should not be more than 0,2 bar. The water supply must meet the drinking water specifications 98/83/EC – if this is not adhered to the softener and cell

can be damaged.

Brine tank

Place the brine tank on the left side, below the machine. The two hoses on the backside of the tank is connected to the machine, through the push-in fitting directly above them.

- 4 mm clear hose; brine to machine
- 4 mm yellow hose; soft water refilling of brine tank

The brine tank comes standard with 10 kg of salt for commissioning the machine. 25 kg of salt should be added subsequently, to fill the brine tank. The level of salt must be above water level. No water should be visible. The salt needs some time to dissolve, in order to saturate the water.

See section: Connections for **picture** of machine connections.

The brine tank level sensor plug is connected to the machine via the M8 circular plug hanging on the left side of the cabinet, next to the drip tray. The excess wire can be bundled behind the tank. To avoid waiting time for the initial filling of soft water, bring five liters of water for commissioning the machine.

Note

Bring 5L for start-up to avoid unnecessary waiting time.

Caution

The tank must be supplied with water from the softener during the process to avoid lime scale in the cell.

Connecting the brine filter

The hose for the brine filter is taped to the bottom of the BWT Disinfecton.

1. Pull hose through lid.
2. Pull hose through grey square.
3. Unscrew filter and pull hose through black fitting, leave a 30mm gap between the bottom of the filter and the bottom end of the hose.
4. Insert hose in filter and screw filter back on.
5. Activate manual regeneration of softener on the Sequence control menu.

Neuthox tank

Place the Neuthox tank on the right side, below the machine. Connect the supplied 6 mm black hose to the machine, through the hole in the plastic spill tray, into the Neuthox[®] outlet push-in fitting on the cell. Place the other end of the hose in the Neuthox tank.

Hose entry fitting must be horizontal to avoid leakage (connections should be from the bottom to ensure that the support for the hose is properly seated).

See section: Connections for picture of machine connections.

The Neuthox tank level sensor plug is connected to the machine via the M8 circular plug hanging from the cabinet's right side, next to the drip tray. The excess wire can be bundled behind the tank.

Dosing Pump

The BWT Disinfecton is equipped with an internal dosing pump, which is governed by the controller, based on the pulses from the water meter. Connect the supplied 6 mm clear, soft PVC hose, through the designated hole in the plastic spill tray, to the fitting on the suction side of the pump.

Place the other end of the hose at the bottom of the Neuthox tank and install the supplied foot valve.

Dosing connector

The dosing connector has a 1/2 "external thread. The dosing connector contains a shortened internal check valve. This means the tube can be seated in the middle of the pipe. It can be installed in all directions.

Water meter

To prevent overdosing during low water usage pulses from a water meter is recorded in the controller/HMI and dosing stopped if water consumptions drops below specified values entered in the controller/HMI. The 2-lead cable from the water meter is connected directly to the terminals inside the cabinet. If the water meter uses a transistor output be aware of polarity.

See the electrical diagram for more information.

Communication

A communication system can be connected to the BWT Disinfecton.

Ethernet Modbus

If the machine is equipped with an Ethernet card, communication via Modbus TCP/IP or Remote Access (Unitronics freeware) is possible. Connect to the unit via the RJ45 plug on the side of the cabinet.

SMS communication

If the machine is equipped with a Modem for mobile phone messages. Insert a SIM card into the modem

Neuthox production configurations

Softener settings

For the controller/HMI to calculate the time between regeneration, the local water hardness must be entered in the controller/HMI at the softener settings. The local water hardness can be measured with the hardness measuring kit supplied with the machine.

1. Fill the test tube with water up to 10ml.
2. Add 2 drops of solution A into the test tube.
3. Carefully shake tube to incorporate. The water should now turn purple red.
4. Add 1 drop of solution B while carefully shaking tube.
5. Continue adding drops and shaking, until the color of the water changes.
6. The added number of drops of solution B until a color change indicates the hardness of the water in °dH.

Brine pump start up

The air in the hose between the brine tank and the brine pump must be pumped out of the system. Go to Sequence control menu and run a manual regenerating process. This will ensure that the pump will be vented. The sound of the pump will change when the pump has been vented.

Neuthox dosing configurations

Configuration

The unit can be set up for different applications, choose the application by pressing the button. The selected button will turn green.

Proportional dosing; Set application for Neuthox dosing with water meter.

Parameters

The controller needs certain parameters. These are required to calculate the interval between regeneration of the water softener, and ensure the correct amount of chloride dosed into the system.

Dosing settings

Enter the settings by pressing the following buttons.

Water pressure (all applications); Set the pressure in the water system.

This will ensure that the maximum capacity of the dosing pump is adjusted to a maximum speed that is suited for the pressure in the system.

Water meter dosing (proportional); Output from the water meter installed in the water system in liters per pulse.

Max capacity dosing pump; The maximum capacity of the dosing pump can be adjusted.

Adjusting the maximum speed can prevent the dosing pump from stopping in systems, where the pressure is high. See Installation manual for reset of dosing pump.

Water salt concentration; Salt concentration in the supply. Can be retrieved from the local water supplier, or measured with saline strip test. This can be supplied by BWT upon request.

Max. dosing (proportional); Set the maximum amount of Neuthox that can be pumped into the system.

Stop dosing at (proportional); Insert the maximum litres that can be pumped per hour.

Dosing regulator control

The accuracy of the dosing pump control can be adjusted when necessary.

Xp output; The gain can be changed if it is required, when the maximum speed of the dosing pump is reduced (0,5-1,5). Greater gain causes a faster, but more unstable control. Lower gain causes a slower and more stable control.

I output; For adjusting the time intervals for the dosing regulation, more time gives a slower control when **Load default** is activated the default value for the control will be retrieved.

The dosing pump can run manually for conditions where a test is required during service.

Water

Turn on the BWT Disinfecton and open the water supply slowly. The valves inside the machine will automatically open and fill the entire machine with water.

Start-up

Neuthox production process

Start the Neuthox production on the Screen for Neuthox production. When the level sensor in the tank detects a low level of Neuthox, the machine will start a valve test (the valve test is also started before filling brine tank and regeneration of softener), to check if the valves are working correctly. After the valve test the Neuthox production starts and the machine will regulate the production of Neuthox by adjusting the brine pump speed.

The mixture of water and brine solution is measured by the controller and adjusted to regulate the process to the current setpoint in the cell. The faster the pump runs, the higher the current will become. Neuthox is produced

inside the cell and runs into the Neuthox tank. When the level sensor in the tank detects a high level of Neuthox, the machine will produce an extra 15 litres above the high level. When the tank is full or another process must start, the production will stop. The salt will be rinsed out of the cell. The machine will be on standby mode until the level sensor in the tank detects a low level again.

The machine starts a regeneration of the water softener unit when the capacity during Neuthox production has reached 100%. During any other process such as filling the brine tank and standby mode the regeneration will start at 80% capacity. During the regeneration process the brine pump pumps brine through the softener. This changes the captured calcium ions, afterwards the brine is rinsed out of the softener.

The brine tank will be filled during Neuthox production when the level sensor has detected a low level and the calculated consumption has reached the minimum brine level in the tank. During any other process such as regeneration or standby mode, the filling of the brine tank will start when the level sensor detects a low level.

Neuthox dosing for Proportional dosing

Neuthox dosing for Proportional dosing is used in drinking water for human and livestock consumption. Start the Neuthox dosing on the Screen for Neuthox. The setpoint for the mixing ratio of Neuthox in the water is set at 4ppm or the permitted level according to local legislation. Number of pulses from the water meter and the amount of water per pulse determines the speed of the dosing pump. The water meter informs the machine of the water consumption in the system and ensures that the amount of Neuthox dosed into the system will match the desired amount.

When the machine has been running, the amount of free chlorine in the system is measured with a water testing instrument, and the setpoint is adjusted to the permitted level according to the local legislation.

Operation

Note

This manual only covers the general aspects – consult the controller manual section to fully utilize the machine's potential.

After the initial start described above, the production of Neuthox is fully automatized. The controller/HMI ensure that the process can be monitored and any abnormal activity will be displayed. The only thing required by the operator is to monitor the salt level regularly.

Service

This section describes the regular service and checks that should be performed by the operator to insure correct production of Neuthox. The machine is highly automatized, leaving only very few service routines for the operator. This includes filling of salt, and controlling the chloride level in the water.

Salt

Both the electrolysis process and regeneration of the water softener requires salt. If there is no salt left in the brine tank, the machine will give an alarm – however, to ensure a uniform production of Neuthox® please refill salt regularly, before it empties completely, and the alarm activates.

The time between refilling depends on the machine size and Neuthox® consumption. We recommend using food grade salt within the following specification

Salt Standard EN 973

Component	Chemical Symbol	Composition
Sodium Chloride	NaCl	99.7 %
Potassium	K	≤70 mg/kg
Calcium	Ca	≤20 mg/kg
Iron (free)	Fe	≤2 mg/kg
Insoluble Sulphates	SO4	≤1500 mg/kg
Magnesium	Mg	≤1 mg/kg
Copper	Cu	≤0.1 mg/kg

Troubleshooting

List of Alarms and troubleshooting

The alarms are divided into three groups, depending on type:

1. Group 0; General collection are alarms or warnings that are general for both production and dosing process and will stop the production and dosing process or issue a warning
2. Group 1; Process alarms will stop the production process
3. Group 2; Process alarms will stop the dosing process

List of faults, which the machine can detect, and raise an alarm.

Alarm	#	Trouble shooting
General collection (Group 00) – General alarms for the machine; Red alarm stops machine, Yellow is information		
Leak alarm	21	<i>Internal leakage in generator/spill tray full</i> <ul style="list-style-type: none"> - Check for leaks and repair - Empty spill tray
PLC – battery low	24	<i>Internal controller battery has low voltage(Yellow)</i> <ul style="list-style-type: none"> - Contact service partner for change of battery - Do not turn off main power!
Start-up test (Group 1) –Valve Alarm; stops Neuthox production		
Start-up valve test Flow in system is low AV01 failed to open or supply water flow is low	00	<i>Water flow is below minimum level.</i> <ul style="list-style-type: none"> - Check that AV01 and AV04 are open - Check water supply - Check water filter and/or strainer by supply
Start-up valve test Flow in system is high AV04 failed to close or AV02 is open or AV08 is open	01	<i>Water flow is below minimum level.</i> <ul style="list-style-type: none"> - Check that AV04, AV02 and AV08 are closed - Check that AV04, AV02 and AV08 are free from any blockage, that will prevent them from closing - Check for leaks in the hoses or components in the machine
Start-up valve test Flow in system is high AV01 is open or AV02 is open or AV04 is open or AV08 is open	02	<i>Water flow is too high</i> <ul style="list-style-type: none"> - Check that all valves are closed - Check for leaks in the hoses or components in the machine
Start-up valve test Flow in system is high AV01 is open	03	<i>Water flow too high</i> <ul style="list-style-type: none"> - Check that AV01 is closed - Check for leaks in the hoses or components in the machine
Start-up valve test Flow in system is low AV01	04	<i>Water flow is below minimum level.</i> <ul style="list-style-type: none"> - Check that AV01 and AV04 are open - Check water supply - Check water filter and/or strainer by supply

failed to open or supply water flow is low		
Refilling brine tank Flow in system is low AV01 failed to open or supply water flow is low	05	<i>Water flow is below minimum level.</i> <ul style="list-style-type: none"> - Check that AV01 and AV04 are open - Check that AV01 and AV04 are free from any blockage, that will prevent them from closing - Check water supply - Check water filter and/or strainer by supply - Check for leaks in the hoses or components in the machine
Refilling brine tank Flow in system is high AV04 failed to close or AV02 is open or AV08 is open	06	<i>Water flow continues during closing operation</i> <ul style="list-style-type: none"> - Check that AV04, AV02 or AV08 are closed - Check for leaks in the hoses or components in the machine
Refilling brine tank Flow in system is high AV01 is open or AV02 is open or AV04 is open or AV08 is open	07	<i>Water flow continues during closing operation</i> <ul style="list-style-type: none"> - Check that all valves are closed - Check for leaks in the hoses or components in the machine
Refilling brine tank Flow in system is high AV01 is open	08	<i>Water flow continues during closing operation</i> <ul style="list-style-type: none"> - Check that AV01 is closed - Check that AV08 is free from any blockage, that will prevent it from closing
Refilling brine tank Flow in system is low AV01 failed to open or supply water pressure is low	09	<i>Water flow is below minimum level.</i> <ul style="list-style-type: none"> - Check AV08 is open - Check that AV08 is free from any blockage, that will prevent it from closing - Check water supply - Check water filter and/or strainer by supply
Regeneration Flow in system is low AV01 failed to open or supply water flow is low	10	<i>Water flow is below minimum level.</i> <ul style="list-style-type: none"> - Check that AV01 and AV04 are open - Check water supply - Check water filter and/or strainer by supply
Regeneration Flow in system is low AV01 is closed or AV04 is closed or supply water flow is low	11	<i>Water flow is below minimum level.</i> <ul style="list-style-type: none"> - Check that AV01 and AV04 are open - Check water supply - Check water filter and/or strainer by supply

<p>Regeneration Flow in system is high AV04 failed to close or AV02 is open or AV08 is open</p>	12	<p><i>Water flow continues during closing operation</i></p> <ul style="list-style-type: none"> - Check that AV04, AV02 and AV08 are closed - Check that AV04, AV02 and AV08 are free from any blockage, that will prevent them from closing - Check for leaks in the hoses or components in the machine
<p>Regeneration Flow in system is high AV01 is open or AV02 is open or AV04 is open or AV08 is open</p>	13	<p><i>Water flow continues during closing operation</i></p> <ul style="list-style-type: none"> - Check that all valves are closed - Check for leaks in the hoses or components in the machine
<p>Regeneration Flow in system is high AV01 is open</p>	14	<p><i>Water flow continues during closing operation</i></p> <ul style="list-style-type: none"> - Check that AV01 is closed - Check that AV01 is free from any blockage, that will prevent it from closing
<p>Regeneration Flow in system is low AV01 failed to open or supply water flow is low</p>	15	<p><i>Water flow is below minimum level.</i></p> <ul style="list-style-type: none"> - Check that AV01 is open - Check water supply - Check water filter and/or strainer by supply
<p>Start-up valve test Pressure in system is high AV04 is closed or PM01 is defect</p>	30	<p><i>Water pressure is not releasing during valve test</i></p> <ul style="list-style-type: none"> - Check that AV04 is open - Check AV04 for blockages - Check that PM01 is switching and sending signal to PLC
<p>Start-up valve test Pressure in system is low AV04 failed to close or supply water pressure is low</p>	31	<p><i>Water pressure is not building up</i></p> <ul style="list-style-type: none"> - Check that AV04 is closed - Check that AV04 is free from any blockage, that will prevent it from closing - Check that AV01 is open - Check for leaks in the hoses or components in the machine - Check water supply - Check water filter and/or strainer by supply - Check that water pressure on manometer is above 2 bar
<p>Start-up valve test Pressure in system is low AV02 is open or AV01 is open or AV08 is open</p>	32	<p><i>Water pressure is not staying high</i></p> <ul style="list-style-type: none"> - Check that all valves are closed - Check that valves are free from any blockage, that will prevent them from closing - Check for leaks in the hoses or components in the machine
<p>Start-up valve test Pressure in system is high AV02 failed to open</p>	33	<p><i>Water pressure is not releasing during valve test</i></p> <ul style="list-style-type: none"> - Check that AV02 is open
<p>Start-up valve test Pressure in system is high flow is blocked in AV02 or cell</p>	34	<p><i>Water pressure is not releasing during valve test</i></p> <ul style="list-style-type: none"> - Check that AV02 is open - Check for blockages in cell and connections

Refilling brine tank Pressure in system is high AV04 is closed or PM01 is defect	35	<i>Water pressure is not releasing during valve test</i> <ul style="list-style-type: none"> - Check that AV04 is open - Check AV04 for blockages - Check that PM01 is switching and sending signal to PLC
Refilling brine tank Pressure in system is low AV04 failed to close or supply water pressure is low	36	<i>Water pressure is not building up</i> <ul style="list-style-type: none"> - Check that AV04 is closed - Check that AV04 is free from any blockage, that will prevent it from closing - Check for leaks in the hoses or components in the machine - Check water supply - Check water filter and/or strainer by supply
Refilling brine tank Pressure in system is low AV02 is open or AV01 is open or AV08 is open	37	<i>Water pressure is not staying high</i> <ul style="list-style-type: none"> - Check that all valves are closed - Check that valves are free from any blockage, that will prevent them from closing - Check for leaks in the hoses or components in the machine

Refilling brine tank Pressure in system is high <u>AV08 failed to open</u>	38	<i>Water pressure is not releasing during valve test</i> <ul style="list-style-type: none"> - Check that AV02 is open
Refilling brine tank Pressure in system is high AV08 failed to open or system for filling brine tank is <u>blocked</u>	39	<i>Water pressure is not releasing during valve test</i> <ul style="list-style-type: none"> - Check that AV08 is open - Check for blockages in brine suction filter and connections
Regeneration Pressure in system is high AV04 is closed or PM01 is defect	40	<i>Water pressure is not releasing during valve test</i> <ul style="list-style-type: none"> - Check that AV04 is open - Check AV04 for blockages <p>Check that PM01 is switching and sending signal to PLC</p>
Regeneration Pressure in system is low AV07 failed to change flow direction	41	<i>Water pressure is not building up</i> <ul style="list-style-type: none"> - Check that AV07 has switched - Check that AV01 is open - Check water supply - Check water filter and/or strainer by supply
Regeneration Pressure in system is low supply water pressure is low	42	<i>Water pressure is not building up</i> <ul style="list-style-type: none"> - Check that AV01 is open - Check water supply - Check water filter and/or strainer by supply
Regeneration Pressure in system is low AV02 is open or AV01 is open or AV08 is open	43	<i>Water pressure is not staying high</i> <ul style="list-style-type: none"> - Check that all valves are closed - Check that valves are free from any blockage, that will prevent them from closing - Check for leaks in the hoses or components in the machine

Regeneration Pressure in system is high AV04 is closed or PM01 is defect	44	<i>Water pressure is not releasing during valve test</i> - Check that AV04 is open - Check AV04 for blockages Check that PM01 is switching and sending signal to PLC
Regeneration Pressure in system is low AV01 failed to open	45	<i>Water pressure is not building up</i> - Check that AV01 is open - Check water supply Check water filter and/or strainer by supply
Neuthox production alarms (Group 02) - Alarm; Stops production of Neuthox		
Cell error Cell high current	16	<i>Production of Neuthox stopped three times in one day due to high cell current</i> - Check for air in brine hose - Check for leaks in brine pump valves - Flush hot water trough brine pump
Cell error Cell high temperature	17	<i>Temperature in cell too high (above 55°C) during Neuthox production</i> - Check water flow - Check cell for lime scale - Check the temperature of the water supply
No salt/Brine Cell current below 70pct of nominal value	18	<i>Amperage was low for too long time during Neuthox production</i> - Check that brine tank has salt - Check for air in brine hose - Check for leaks in brine pump valves - Flush hot water trough brine pump
Cell error Cell no current not increasing	19	<i>Amperage on cell does not go above 0.5 amperes during Neuthox production</i> - Check circuit breaker FU1 - Use a clamp meter and check if the current transducer is working - If water supply is RO water, contact BWT
Transformer temp. high	20	<i>Temperature in electrical system is high</i> - Check temperature inside enclosure - Check thermostat switch is working - Check that surrounding temperature is below supplier recommendations
Neuthox production remaining The Neuthox production has been running too long	22	<i>The production has produced 25 litres without activating the level sensor</i> - Check level sensor in buffer tank - Check if Neuthox consumption exceeds production - Check the Neuthox tank for leaks
Refilling brine tank The level switch did not de-activate after the specified time	23	<i>System has refilled 10 litres of water into the brine tank without activating the level sensor</i> - Check level sensor in brine tank - Check the brine tank for leaks
Refilling brine tank Flow in system is low AV01 failed to open or supply water pressure is low	26	<i>Water flow is below minimum level during filling of brine tank</i> - Check AV08 is open - Check that AV08 is free from any blockage, that will prevent it from closing - Check water supply - Check water filter and/or strainer by supply

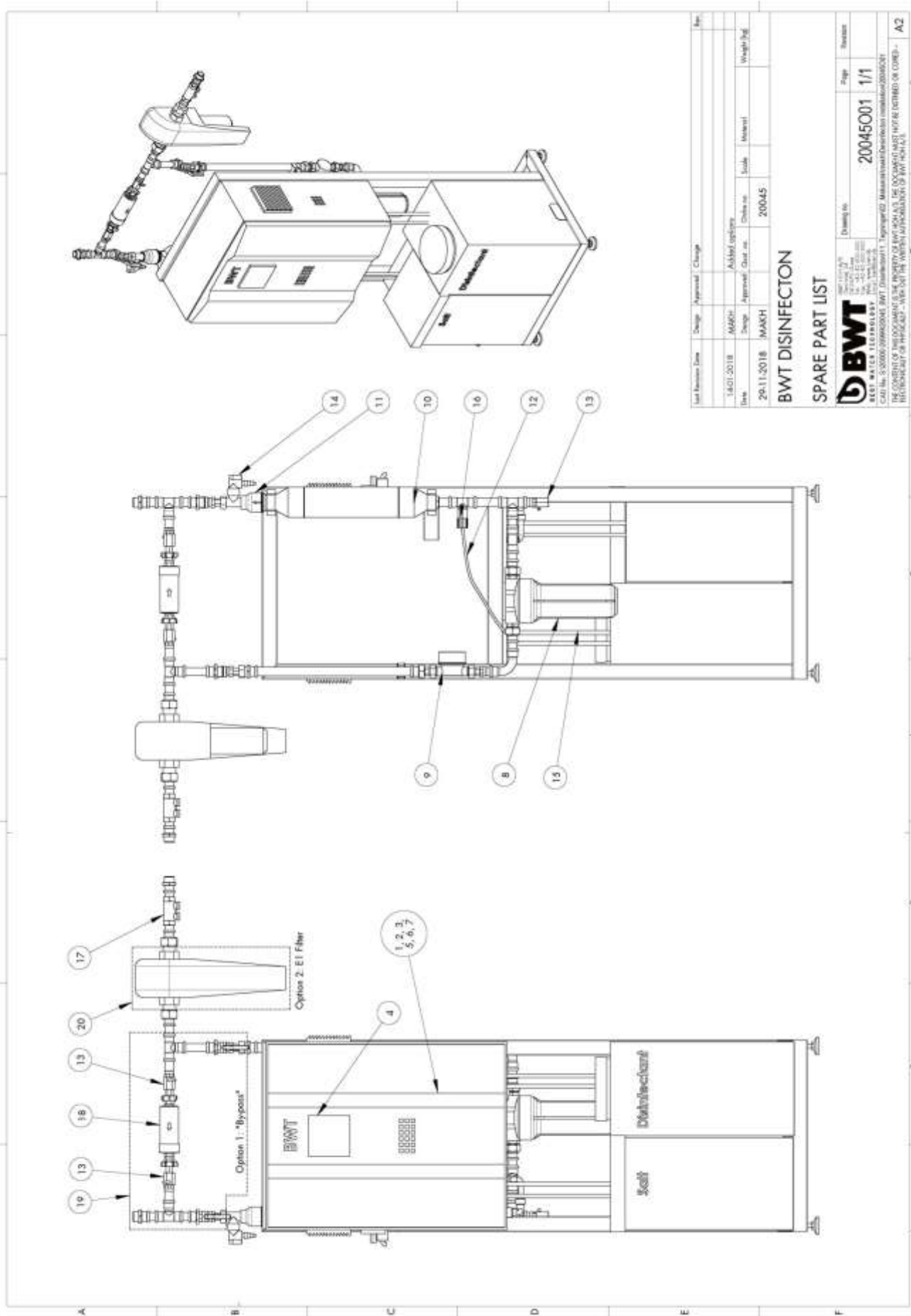
Error during production Low brine concentration	27	<i>Brine pump flow increased 100% to achieve nominal amps during Neuthox production</i> <ul style="list-style-type: none"> - Check salt level in brine tank - If salt was just refilled to an empty tank, wait 10 minutes and restart - Check brine pump - Check brine suction filter inside tank - Check for leaks in brine system, is it taking in air - Check cell for lime scale build up
Refilling brine tank Pressure in system is high AV08 failed to open or system for filling brine tank is blocked	28	<i>Water pressure is not releasing during refilling of brine tank</i> <ul style="list-style-type: none"> - Check that AV08 is open Check for blockages in brine suction filter and connections
Error during production Pressure in system is high flow is blocked in AV02 or cell	29	<i>Water pressure is not releasing during Neuthox production</i> <ul style="list-style-type: none"> - Check that AV02 is open - Check for blockages in cell and connections
Start-up valve test Flow in system is low AV01 failed to open or supply water flow is low	46	<i>Water flow is below minimum level.</i> <ul style="list-style-type: none"> - Check that AV01 and AV04 are open - Check water supply - Check water filter and/or strainer by supply
Error during production Cell No current	48	<i>There is no current on cell</i> <ul style="list-style-type: none"> - Check circuit breaker for cell - If the water supply is RO water, contact BWT
Regeneration Pressure in system is low AV01 failed to open	49	<i>Water pressure is not building up when brine was pumped into softener</i> <ul style="list-style-type: none"> - Check that AV01 is open - Check water supply Check water filter and/or strainer by supply
Regeneration Pressure in system is low AV01 failed to open	50	<i>Water pressure is not building up during rinsing of softener</i> <ul style="list-style-type: none"> - Check that AV01 is open - Check water supply Check water filter and/or strainer by supply
Regeneration Flow in system is low AV01 failed to open or supply water flow is low	51	<i>Water flow is below minimum level when brine was pumped into softener</i> <ul style="list-style-type: none"> - Check that AV01 is open - Check water supply - Check water filter and/or strainer by supply
Regeneration Flow in system is low AV01 failed to open or supply water flow is low		<i>Water flow is below minimum level during rinsing of softener</i> <ul style="list-style-type: none"> - Check that AV01 is open - Check water supply - Check water filter and/or strainer by supply

Spare part list

Nr.	BWT Ordre number	Discription	Change frequency
1	454100085	Service kit Dos pump	
2	701993035	Eletrolyse Cell	
3	701993030	Valveblock	
4	750000980	PLC	
5	120948250	Current sensor	
6	405213250	Fitting R20	
7	421801015	Brine pump.	
8	321413000	Prefilter Cartridge	1 year
9	251260004	Watermeter	
10	By request	Static mixer	
11	200729006	Nonreturn valve	
12	101110006	Dosings hose	
13	200746004	Drain valve	
14	200721020	Test valve	
15	101110006	Nethox hoses	
16	454100074	Injection Nippel	

Options:

Nr.	BWT Order number	Description	Change frequency
17	200725006	Controllable checkvalve	
18	321448802	BWT B-SAFE FILTER	If used.
19	By request	Option 1 – By-pass	
20	321408510	Option 2 – E1 filter	1 year



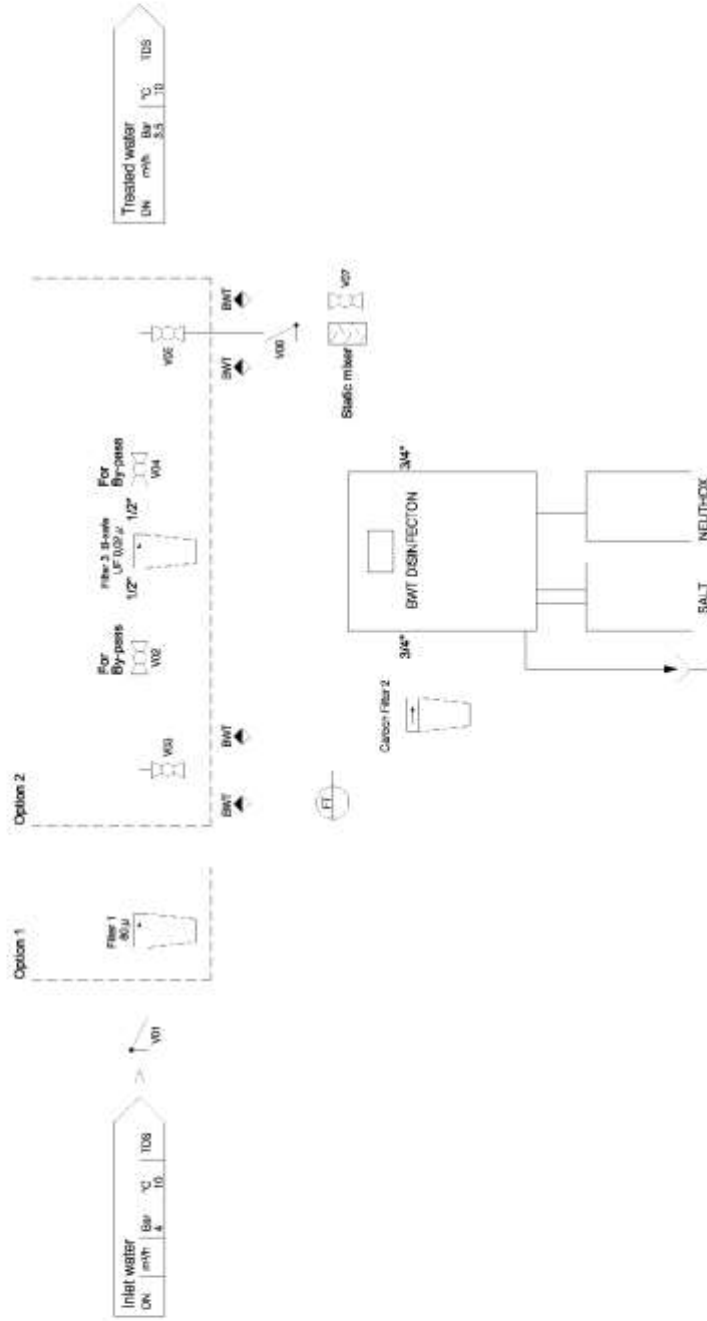
Last Revision Date	Design	Approved	Change	Rev.
14.01.2018	MARCH		Added options	
Date	Design	Approved	Drawn no.	Scale
26.11.2018	MARCH		20045	

BWT DISINFECTON
SPARE PART LIST

BWT	Drawing no.	Page	Revision
20045001	1/1		

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PI-diagram



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Scale	Designed by	Date	Drawn no.	Order no.	Drawing code	Material	Weight [kg]

Rev.	Date	Description
1	15-01-2019	

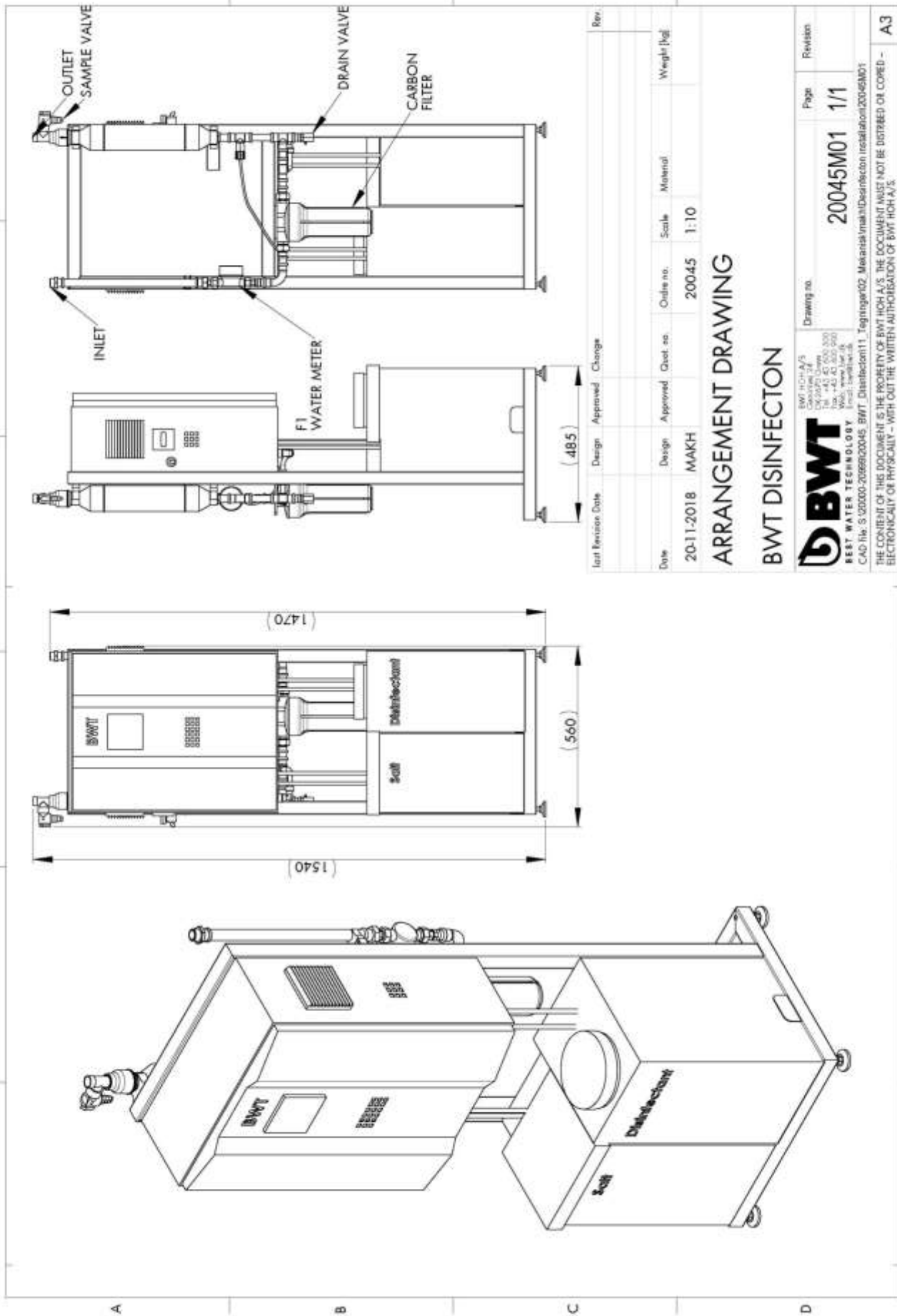
BWT Disinfection P&I diagram

Unit	Revision	Date	Drawn	Test

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Page	Revision
20045P01	A

Arrangement drawing



Rev.	Change	Approved	Date

Date	Design	Approved	Quot. no.	Order no.	Scale	Material	Weight [kg]
20-11-2018	MAKH			200.45	1:10		

ARRANGEMENT DRAWING BWT DISINFECTON

<p>BWT BEST WATER TECHNOLOGY CAD file: S:\202001-202699\20045_BWT_Disinfecton11_Tegriinger02_Mekaniak\mak\Disinfecton installation\20045M01</p>		Drawing no. 20045M01	Page 1/1	Revision A3
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Disposal

The packaging is to be taken to a local waste disposal site if no longer required. The packaging comprises of environmentally-friendly materials that can be used as secondary raw materials.



The device, including accessories and batteries, is not to be thrown into the household waste. EU legislation in Member States requires electrical and electronic equipment to be collected separately from unsorted municipal waste so that it may be recycled.

In Denmark and several other countries, BWT itself assumes responsibility for the return and conformant disposal of its electronic and electrical products. These products may not be placed with household waste or brought to collection centres run by local public disposal operations – not even by small commercial operators.

For disposal in Denmark and in the other member nations of the European Economic Area (EEA), please contact our local BWT service technicians or our Service Center in Greve, Denmark:

BWT HOH A/S

Geminivej 24

DK-2670 Greve

In countries that are not members of the European Economic Area (EEA) or where no BWT subsidiaries or dealerships are located, please contact your local authorities or a commercial disposal operator.

Remove the batteries and hand them in to a collection point prior to disposal/scraping of the device.

BWT, its affiliates, subsidiaries, dealers and distributors will not take back equipment contaminated with hazardous materials (ABC contamination) – neither for repair nor disposal. Please refer to our web site (www.bwt-group.com) for more detailed information regarding addresses for repair service or disposal of your device.

No restrictions for transport of Neuthox. Store in a dry place (max. relative humidity = 75%) When Neuthox is exposed to sunlight over a period it will disintegrate and it can no longer be used for bacteria control and should be disposed of.

Neuthox is produced from Sodium Chloride and tap water, and should be disposed of according to Material safety datasheet for Sodium Chloride. Waste disposal in accordance with regulations. Contaminated packaging according to local regulations.

Declaration of Conformity

Declaration of Conformity



Danish Clean Water

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www.danishcleanwater.dk

Manufacturer:

Danish Clean Water A/S

Unit:

Product Description : Electrolytic Disinfectant Unit

Type : DCW T00/T05

We hereby declare that the above mentioned product meet the Machinery Directive regarding. 2006/42/EU starting from December 29, 2009 and was manufactured in conformity with the following national standards and the harmonized standards.

2006/42/EU	:	Machinery Directive
2014/35/EU	:	Low voltage directive
2014/30/EU	:	EMC Directive

Issued by : Danish Clean Water A/S

Date : 1. April 2016

Signature:

A handwritten signature in blue ink that reads 'Hardy Jepsen'.

Hardy Jepsen
CEO, managing director

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