

eWater[®] Hydraulic Design Guide

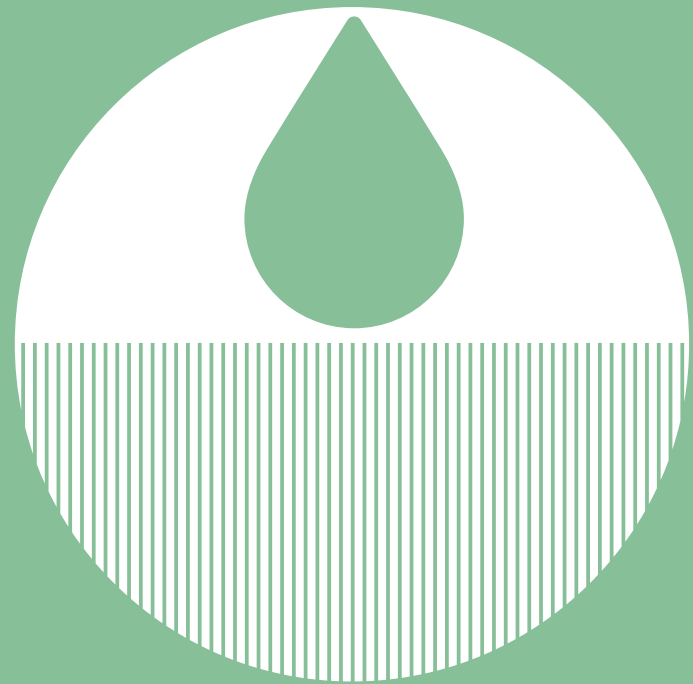


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Introduction to eWater®

eWater Systems ROX Water range provides a brilliantly efficient and effective electrolysed water systems that create and maintain a cleaner, safer environment for food preparation and processing.

eWater is ideal for use as a single source system for providing cleaning and sanitising solutions that can greatly benefit a wide variety of industries where food safety and hygiene are of critical importance. eWater is perfect for hand washing and for cleaning and sanitising cutting boards, utensils, bench tops, tables, trolleys, sinks and floors. It is also used to clean and sanitise fresh produce like fruit, vegetables, salads, fish and meat.

eWater kills all common pathogenic bacteria, moulds, fungi, viruses and yeasts. And it is highly effective against spores that are normally resistant to sanitisers. It is highly effective, exhaustively researched and undoubtedly proven to work.

Benefits of eWater®

▪ More effective

Numerous studies indicate that electrolysed water is more effective and safer than the alternatives such as quats, peracetic acid and bleach.

▪ Safer for people

Being non-hazardous and non-toxic, there are no eye or skin irritations. And there is less risk because there is no need to transport, store, dilute or mix dangerous chemicals.

▪ Safer for our environment

There are no suds or chemicals going down the drain. As both the acidic and alkaline solutions are very dilute, disposal presents no environmental problems.

▪ Less risk

A daily pH test replaces the need to mix and dilute dangerous chemicals meaning there is less risk and chance of human error.

▪ Saves time

With one system replacing an array of chemicals training and use are easy.

▪ Fast Acting

Requiring less contact time means faster sterilization, delivering further time and cost savings.

▪ No Residues

The process is virtually odour free. eWater is highly effective at low concentrations and will not taint food.

What is eWater?

eWater is created by a process that electrolyses a weak saline solution, tap water and common salt, resulting in a dissociation of saline to form two separate streams:

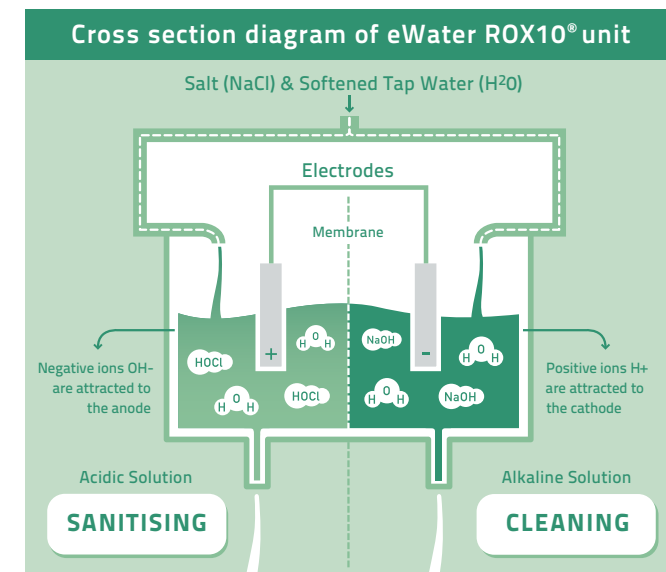
▪ Cleaning Water

A dilute solution of sodium hydroxide (NaOH), pH about 11.3, that is a natural cleaning agent and detergent and a highly effective degreaser.

▪ Sanitising Water

A sterilising and disinfecting solution containing hypochlorous Acid (HOCl) with a pH about 2.7 and a very high oxidation reduction potential (ORP) of 1100mv. When ORP is greater than 650 millivolts, most pathogens are killed on contact. Due to this high ORP, the sodium hypochlorite (HClO) in acidic ROX Water sterilises approximately 80 times faster than other sodium hypochlorite solutions of the same concentration.

(Source 'Water Purification Technologies" Gihodo Shuppan, Japan, 1985.)



Background

eWater Systems supply both ends of the system:

- a. Electrolyser production plant (arrives fully assembled on plinth)
 - b. Module tanks to be fitted to production plant
 - c. Dispensers – either auto sensor hand wash units or sink faucets sets
 - d. Remote Control Panel
- eWater Systems does not install the plant, fixtures or pipework. We do provide comprehensive hydraulic and installation advice and commission the system on completion of install.
 - eWater Systems are fully reticulated through 2 dedicated parallel lines, one for Sanitising Solution (acidic) the other for Cleaning Solution
 - eWater Systems are dead leg
 - eWater Systems are advised by manufacturers that UPVCSch80, ABS or PP-R pipe are acceptable.
 - eWater Systems has Watermark Certification WMKA2283

eWater Systems Main Considerations

BASE PLANT:

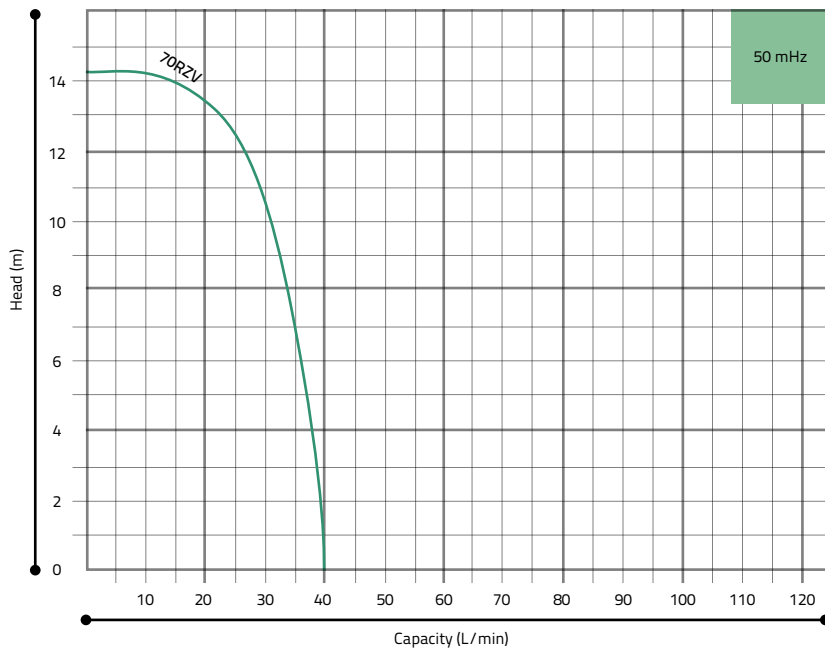
1. Location of base plant. eWater plant can supply up to approx. 70m depending on plant location and the number of outlets. The preferred location is on the same floor as the dispensers. See spatial details at the rear of this document
2. 20mm potable cold water inlet for base plant, through RPZD valve with 15mm connection to base plant
3. One 240v 10 amp GPO
4. Tundish/overflow and drainage points at base plant
5. Venting (to atmosphere where possible)
6. Pipework
 - a. Main line either 32mm or 25 mm (all sizes OD)
 - b. Branch lines 20 or 25 mm
 - c. Droppers 20mm, with isolation valves on each line behind access panels
7. See sections on VDW Hand Wash and AY Sink Tap Sets for dispenser information
8. Remote Control Monitor requires 2 signal cables connected directly from to Base Plant (see Remote Control Data Sheet)

eWater Systems Pumps

- There are two Iwaki MD 70RZV pumps supplied and integrated within base plant, one for Sanitising Solution the other for Cleaning Solution
- Both pumps are encased and located within the bottom of the plant.
- MD 70 RZV 50Hz has maximum capacity 40-43 Litres Per Minute
- The pumps can pump to a MAX Head height of between 14.3 m - 20.3 m

Model	Hose connection (RZV)		Screwed connection (RZV)		Max. capacity (L/mm)	Max. head (m)	S.G.	Output (w)	Input t(w)	Power source (Note 2)	Mass (kg)
	Inlet (mm)	Outlet (mm)	Inlet/ outlet	Union (mm) (Note 1)							
MD-70RZV	20	20	G3 /4	16	40/ 43	14.3/ 20.3	1.0	180 /216	275 /395	240V Three phase	6

Performance Curves



eWater Systems Pipe Sizes

- Critical to note eWater outlets furthest from plant to ensure adequate pressure and flows
- If hose reels specified refer to manufacturers specification flow rates and pressures
- The distance, head height and number of fittings will determine the friction loss and therefore the size of the pipe work
- 2 main supply lines generally 32mm or 25mm with branches 25mm or 20mm to droppers to eWater outlets at 20mm
- The outlet connections at the plant on the side of the unit require a 20mm MI – 20mm F glued socket. The pipes from this fitting on both the cleaning water and sanitising are then installed into a 20mm Barrel union. After the barrel union the plumber can then use reducers to reduce up to either 25mm or 32mm
- 20mm Isolation valves to be installed on all lines and located within the access panel at each outlet

eWater Systems Drainage and Tundish Locations

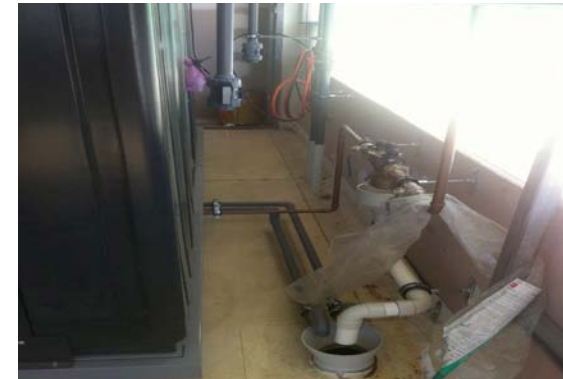
- Plant has 2 x 20 mm overflow drains located centrally on underside of plant
- Plumber requires two 1/2inch MI to 20 f glued socket fittings
- Allow for 2 x 20 mm drainage pipes to most appropriate drainage point.



There are two options for the drainage points.

Option One

- 2x20mm uPVC/ABS pipes to 100mm diameter tundish/drainage point where RPZD located.
- The tundish as close to FF level as possible as only 150mm between floor and drainage point connections at underside of the frame of the eWater plant.
- Ensure adequate fall on 2 x pipes discharging over the tundish



Option Two

- Locate drainage point/tundish directly below 2 x drainage points at front of plan



eWater Systems Venting Requirements

- 3 x 25mm diameter from plant through dedicated pipes (without interconnecting) direct to atmosphere or a well ventilated area.
- There are 2 vents on the Cleaning water side - one from cleaning solution tanks, the other from the acid water neutraliser within the plant
- There is 1 vent on Sanitising side
- Systems with one only pair of 200 litre tanks (ROX60-200) to be directly connected from the base plant to the main eWater vent line
- Systems with more than one pair of tanks (ROX60-400 & ROX60-600) require connection between tanks then connection to main eWater vent lines



Sanitising Water Side

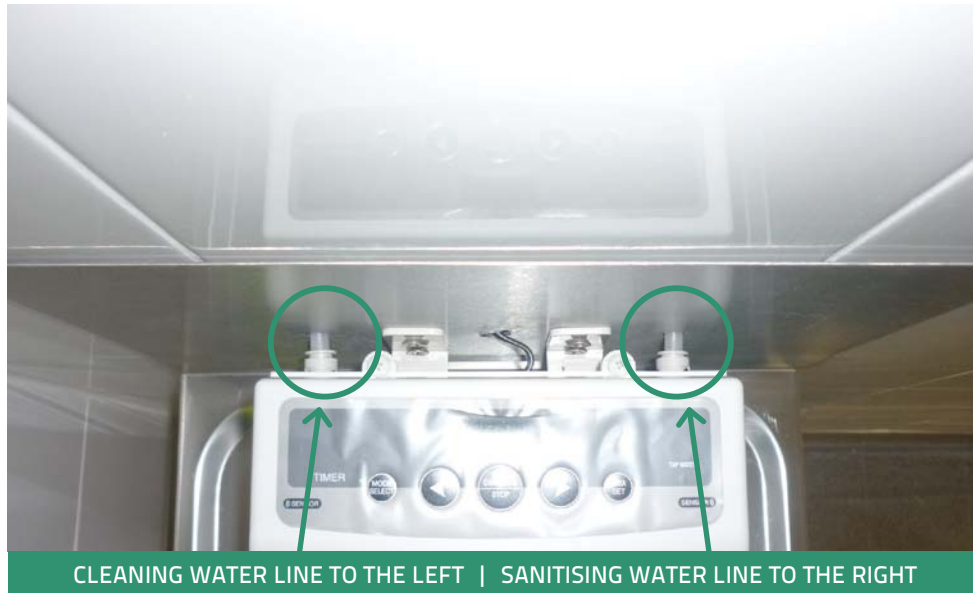
1. Sanitising water vent outlet
25mm connection
2. Sanitising water outlet
20mm connection

Cleaning Water Side

1. Cleaning water outlet
20mm connection
2. Neutraliser vent outlet
25mm connection
3. Cleaning water vent outlet
25mm connection

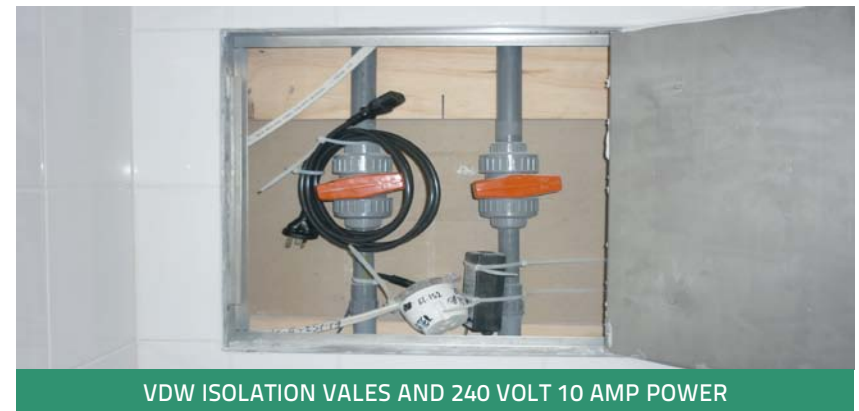
eWater Systems VDW Hand Wash Dispensers

- VDW Hand Wash Dispensers have both Cleaning Water and Sanitising Water connected into the back of the unit. (refer to picture below)



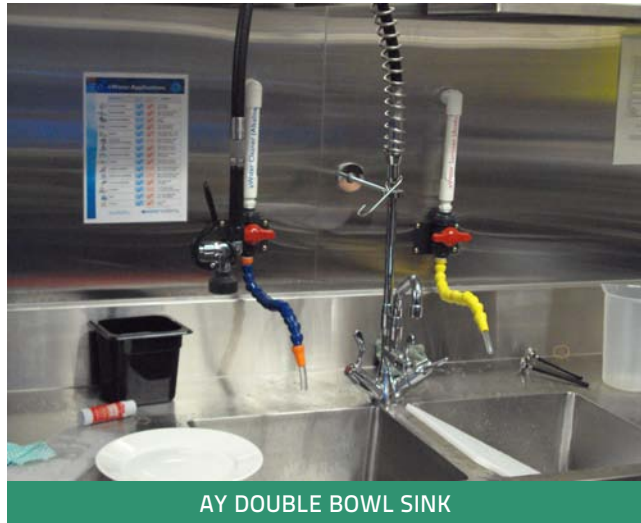
- The maximum recommended pressure to the VDW hand wash dispensers is 200KPA or 2.0bar for both Sanitising and Cleaning solution supply lines.
- VDW hand wash dispensers require 240 volt 10 amp GPO with minimum 12mm hole at rear for power connection
- 2 x 12mm holes for flexible pipes connecting VDW to eWater lines

- Under current standards it is necessary to provide warm water at hand basins in addition to eWater VDW Handwash dispensers
- Hydraulic Engineer, Architect/Kitchen Consultant to allow for warm water at hand basins in addition to eWater under current standard.
- Coordination is required to ensure the correct positioning of the VDW Handwash dispenser in relation to warm water tapware at basin
- VDW Handwash dispenser should be installed centrally over basin with back lip of basin not more than 75mm in depth ensuring VDW discharges directly over the bowl of the basin.
- Provide an access panel either above or below the basin for isolation valves servicing the VDW unit.
- For island bench installations the VDW will require to be fixed to an Up Stand or raised Splash Back to a minimum height of 300mm



eWater Systems AY Sink Tap Sets

- AY tap sets flow rate 9-12 litres per minute
- AY valves installed at an appropriate height where the flexible connections can easily discharge directly into the sink and are easily accessible.



AY DOUBLE BOWL SINK

- AY tap sets installed over a double bowl have eWater Cleaning water valve centre left hand side bowl and eWater Sanitising water centre right hand side bowl.



AY TAPS AT SINGLE BOWL PREP SINKS



AY CLEANERS SINK

- AY tap sets positioned at appropriate height for filling buckets and spray bottles.

eWater Systems Remote Control Unit

The remote control is an indicator panel which can be installed remotely away from ROX 60 plant to enable staff to see when salt replenishment is required, to check the eWater storage levels within the tanks and to check if there are any errors in the system.



EWATER REMOTE CONTROL IS A REPLICA OF THE OPERATING PANEL ON THE BASE PLANT

Remote Control Wiring needs		
Cable	Spec	Maximum wiring length
Communication	6 core, 0.5mm ²	Unrestricted
Power supply	VCTF 4 core, 2mm ²	150m
	VCTF 4 core, 1.25mm ²	100m



EWATER REMOTE CONTROL UNIT

eWater ROX[®] 30/60 Spatials

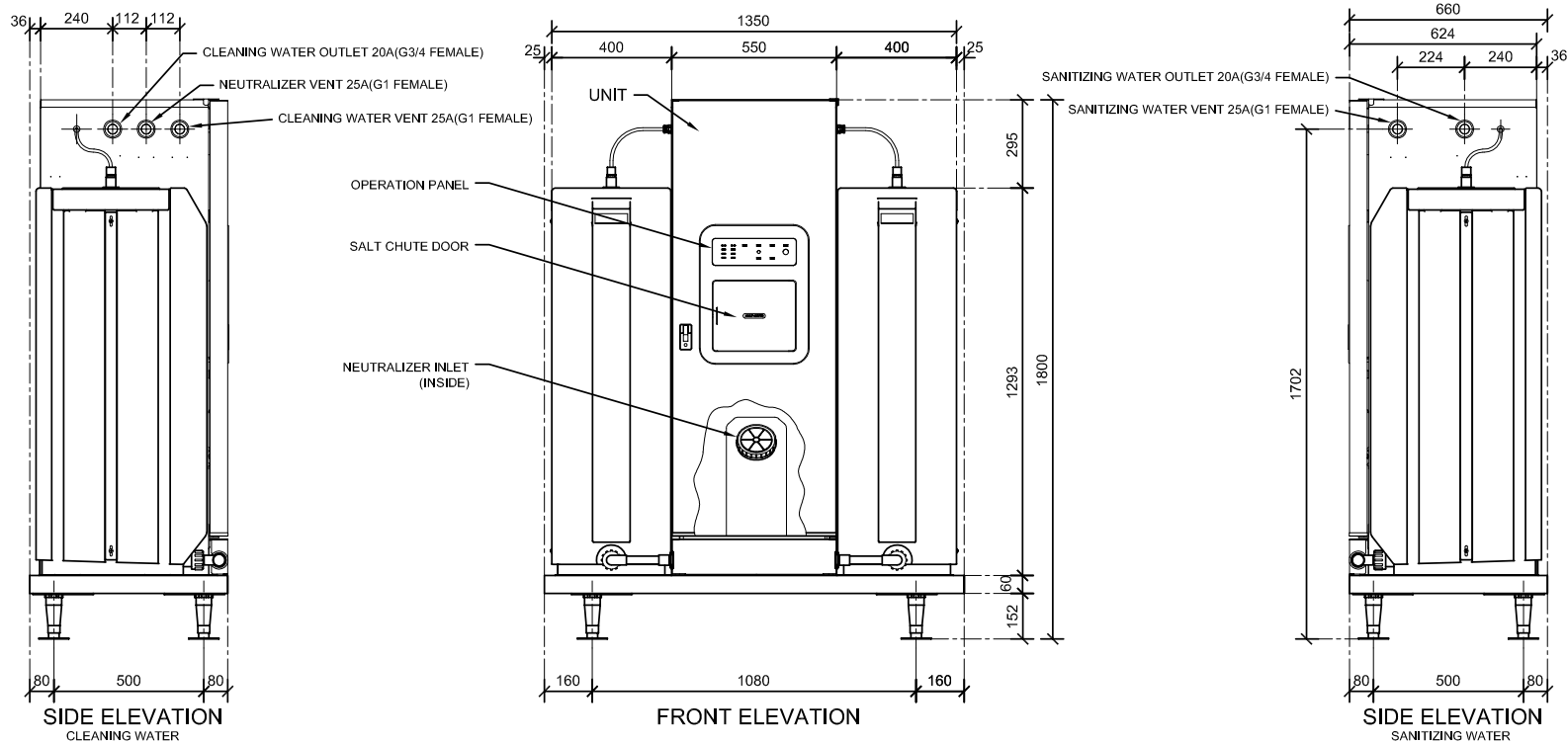
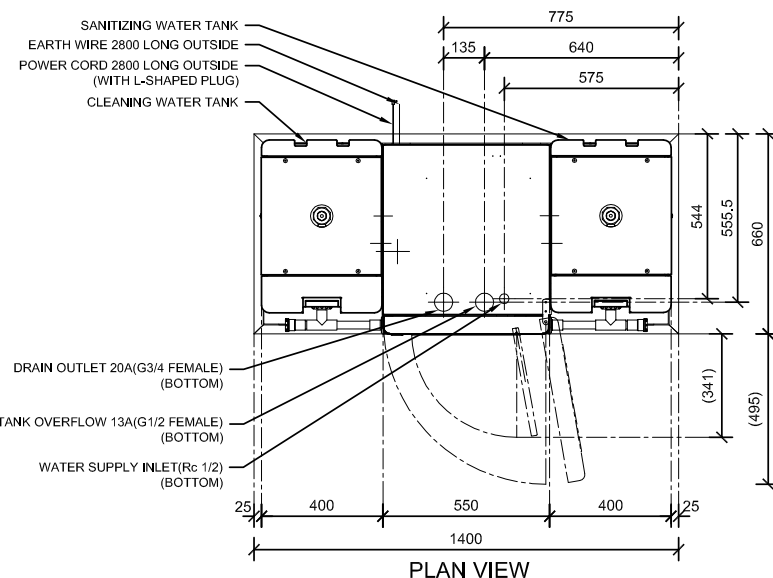
200 LITRE SYSTEM

Physical plant spacial

- ROX 60 200- 1800mm high x 660mm deep x 1350mm wide

Overall spacial requirements

- ROX 60 200- 1800mm high x 1160mm deep x 1350mm wide (with clear access to the front of the plant and 500mm space at the back of the unit)



eWater ROX[®] 30/60 Spatial

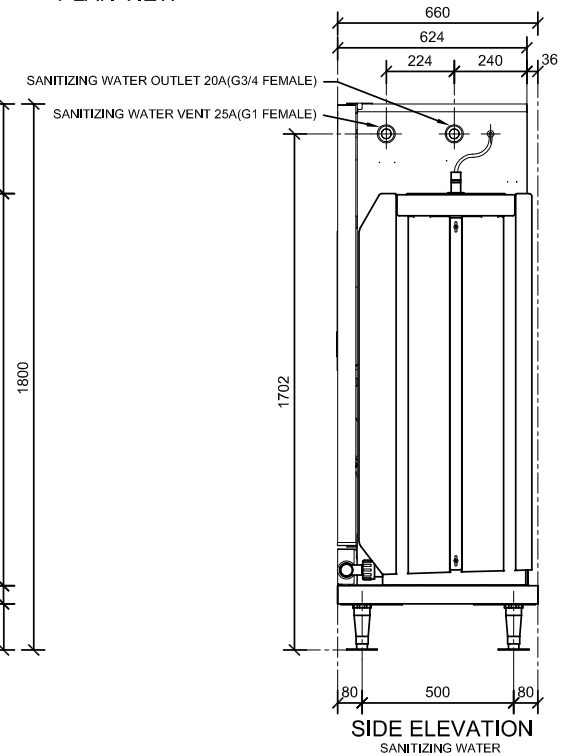
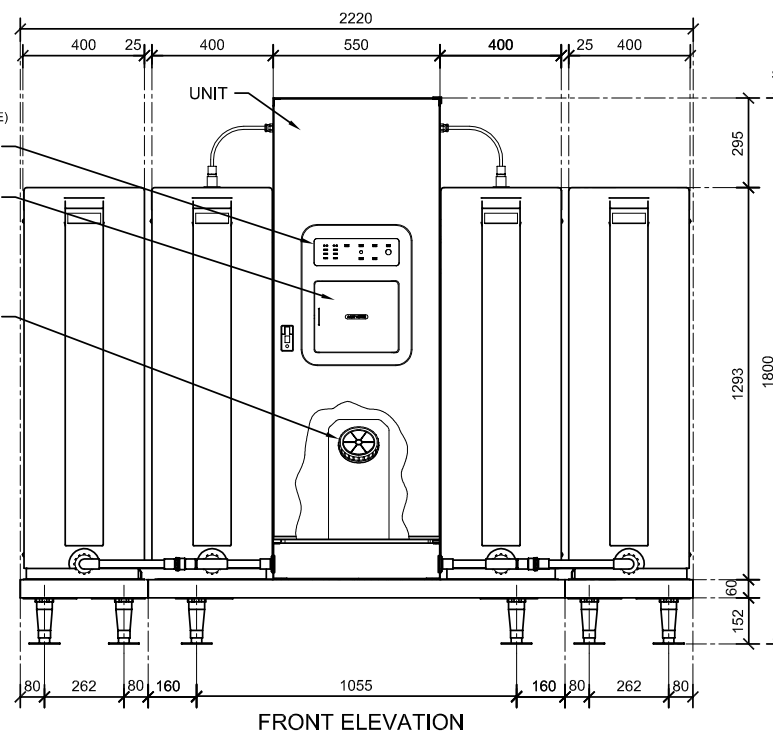
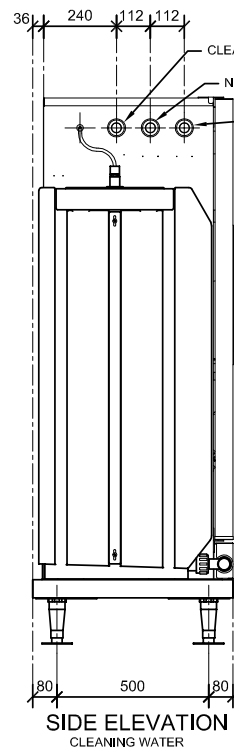
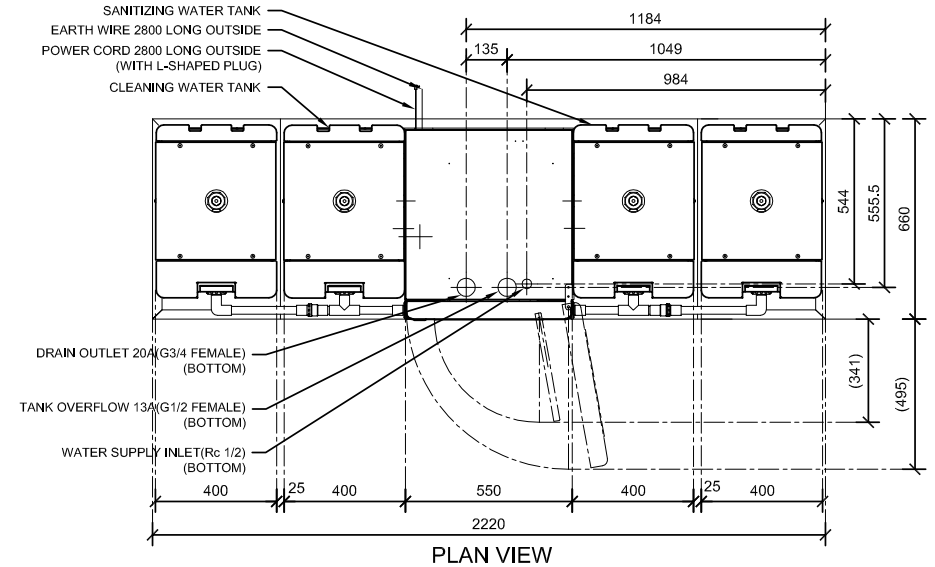
400 LITRE SYSTEM

Physical plant spacial's

- ROX 60 400- 1800mm high x 660mm deep x 2150mm wide

Overall spacial requirements

- ROX 60 400- 1800mm high x 1160mm deep x 2150mm wide (with clear access to the front of the plant and 500mm space at the back of the unit)



eWater ROX® 30/60 Spatial

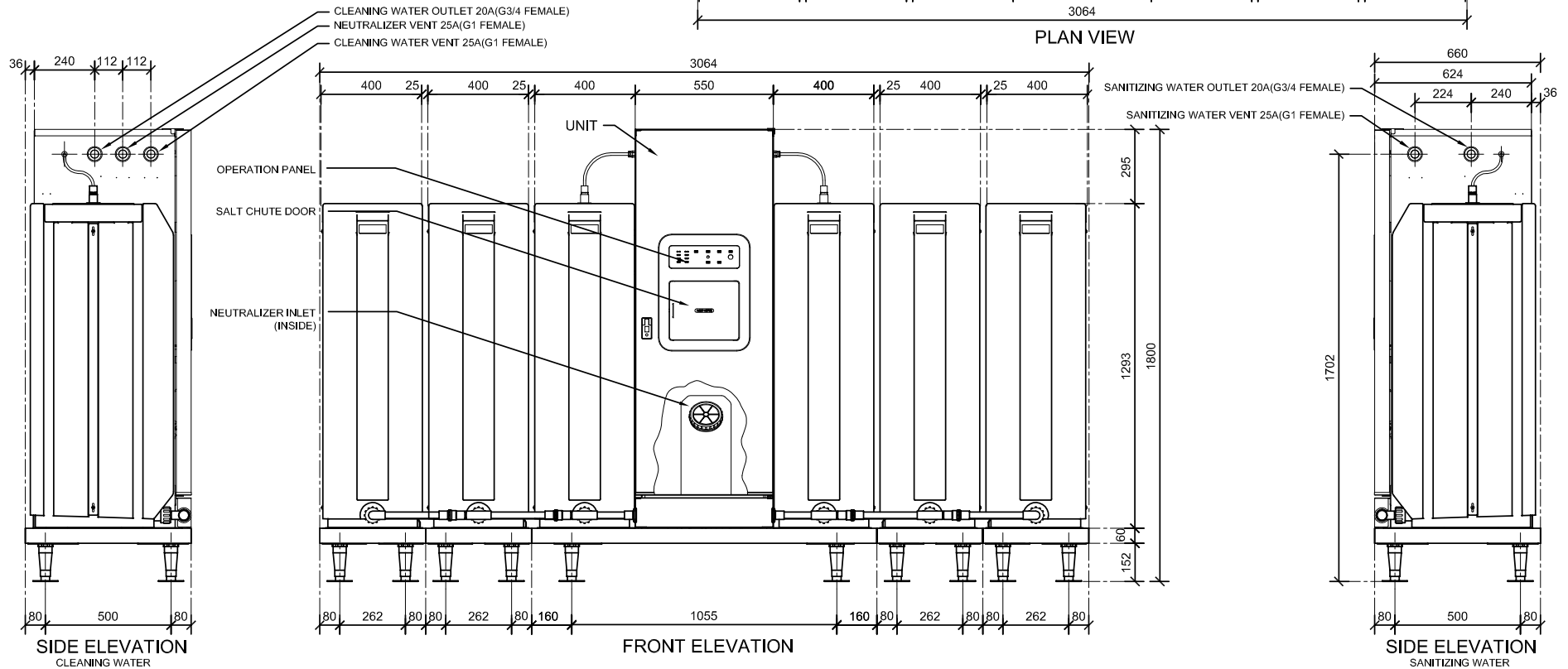
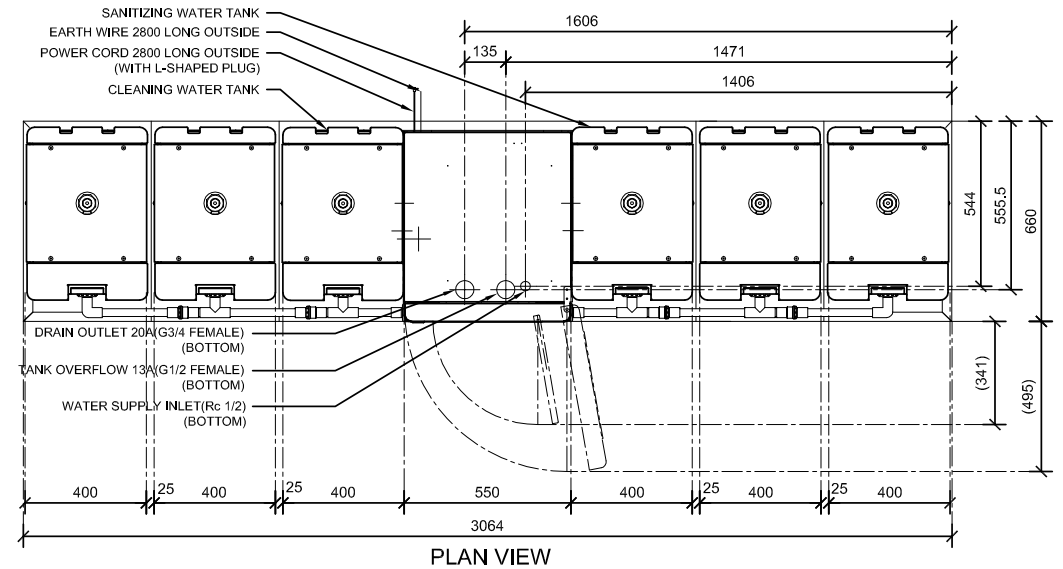
600 LITRE SYSTEM

Physical plant spacial's

- ROX 60 600- 1800mm high x 660mm deep x 3000mm wide

Overall spacial requirements

- ROX 60 600 - 1800mm high x 1160mm deep x 3000mm wide (with clear access to the front of the plant and 500mm space at the back of the unit)



Inclusions

- Base Production Plant*
- Base Plant stand and legs
- Tanks - as specified
- VDW Hand Wash Dispensing Units as specified
- AY Flexible Faucet Connections as specified
- Delivery to site in Melbourne within 40km of GPO

*Base Plant has integrated Acid Water Neutraliser pumps, filter water softener.

Exclusions

- All plumbing installation
- All pipework, isolation valves, pipe fittings
- RPZD back flow prevention
- All electrical wiring and connections (ROX60 wiring to be dedicated)
- Any platform or shelving required specifically for site
- Hose reels
- Any special haulage or elevated lifting requirements



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NOTES / DEALER INFORMATION

