# Part 3.0

# Storage Tanks

Title	Section
SV Series	3.1
GXC Series	3.2
LEX Series	3.3
EX Series	3.4
EHX Series	3.5
SHX Series	3.6
HEV Series	3.7
TC Series	3.8

This information expands on the relevant SV Configuration detail from Section 2.1 of this manual.

# **Installation Details**

**Location of Tank Connections** 



#### Positioning

- An SV Series tank can be installed inside or outside.
- Make sure it is accessible for maintenance allow 50mm clearance at the top and sides.
- The tank must sit on a solid, well-drained and level base.
- Locate as near as possible to water services & any other system components.

#### **Cold Water Supply**

- The tank is classified by AS3500.1 as a low hazard device. This means that it requires only a nontestable back-flow prevention device be fitted in the incoming water supply prior to the system. Section 4.0 of Australian Standard AS3500.1 provides you with details on these devices.
- The valves required for the cold water supply are shown below and must be fitted before the heater. If the incoming water pressure exceeds 550kPa then a 450kPa pressure-limiting valve must be fitted.

#### **Cold Water Valving**



• Size the incoming cold water pipe in accordance with the guidelines provided in AS3500.1. If you require the full flow capacity of the tank then we recommend the pipe be sized the same as the tank connection which is 50mm.

#### Hot Water Supply

- As the storage tank is a direct type, it requires a both a pressure and a temperature relief valve to be fitted in the circuit for the heat source. These valves are provided as part of the heat-source provided with this system.
- A pressure relief valve of 1000 KPa rating is to be fitted. The SV has its own dedicated type connection on the outlet of the storage tank. This valve is used for eliminating air on filling (by being held open) and also to test the temperature of the water once the system is operational.
- A water hammer arrestor must be installed where the unit is subject to pulsing ie. Fast acting solenoids on washing machines etc.
- All hot water pipe-work should be insulated.
- Make sure the pump is installed with its shaft in the horizontal position.

#### **Hot Water Circulation Pump**



If the building has a secondary or ring-main return it must be connected back into the cold water supply after the cold water check valve. The ring-main circulation pump should have isolating valves either side of it for servicing and a check valve fitted downstream of it but before entering back into the cold water supply.

#### **Connecting A Heat Source & Control Box**

- Depending on the application, the SV tank can be connected to a variety of different heat sources and control boxes. Refer to the relevant configuration diagram in Section 2.1 of the manual and this will then refer you to the appropriate Section 4.0 and Section 5.0 for specific installation details.
- 50 mm flow and return pipes connecting the tank and the heat-source together are to be installed as shown in the relevant configuration diagram of Section 2.1. The flow line to the heat-source is connected via a tee piece in the cold water supply (prior to the cold water expansion control valve) and the return line from the heat-source is connected to the 50mm tank connection shown.

#### **Manifolding Tanks Together**



#### **Electrical Connection**

Power is provided to the Control Box (see Section 4.0). The temperature sensor is attached to the storage tank by inserting it into the sensor pocket located in the tank.

#### Filling the Tank with Water

- Check that all your pipe-work, valves, fittings & associated equipment have been completed and tightened. Remember to open any valves in the water circuit that are connected to the heat-source.
- Jam open the pressure/temperature relief valve in the heat source circuit and storage tank to allow air to escape from the system.
- Open the hot water outlet furthest away from the heater.
- Open the cold water supply to the tank. Commence filling the tank.
- Allow the entire tank and circuit to fill until water is running continuously from the relief valve drain & the hot water outlet.
- Close the cold water supply valve, hot tap and the relief valve. Check for any leaks in the circuit.

# Commissioning

The SV tank will normally have a remote heat-source attached. The heat-source has its own commissioning instructions contained in Section 5.0 of this manual.

#### **Completion Checklist**

All pipe-work & fittings are water tight & sound by pressure testing.

Operating thermostat is set at clients desired temperature. This will usually be approx. 60°C.

Check all valves operate correctly including expansion control (if fitted) & T&PR valves (pull levers to check discharge).

Plastic protective coating around the tank is removed and any marks tidied up.

A copy of the User Guide has been handed to the client for their future referral & owners instructions explained.





		_

		_

## Maintenance

Full maintenance on the SV Series tank should only be carried out by a qualified trades-person. As the owner however, you can do a few simple things to help maintain the tank at its peak.

#### Every 6 months check:

- There are no water leaks in any joins or fittings and electrical cables are secure and undamaged.
- The cold water expansion control valve (if fitted located in the cold water supply near the tank) is operating correctly by pulling the lever and allowing water to discharge.

#### **Full Maintenance**

This can only be performed by a qualified trades-person.

Visual Inspection	<ul> <li>Inspect the shell for any leaks or weeps.</li> <li>Check that all connections are tight and not corroded.</li> <li>Replace any deteriorating insulation on the pipe-work.</li> </ul>
Performance Check	<ul> <li>Check that the water temperature from the tank is within 7°C of the thermostat setting on the control box.</li> </ul>
Final	<ul><li>Detail the tank.</li><li>Tidy up the plant room.</li><li>Complete paperwork.</li></ul>

# **Spare Parts**

Description	Type / Model	Stock Code
Cold Water Expansion Control Valve	RMC H50 - 700kPa (not supplied in kit)	2020319
Washer	50mm x 3mm Fibre Washer	4040077
Pressure Relief Valve (not suitable for energy relief)	RMC HT575 1000kPa	220604
Pressure Limiting Valve	RMC PSL50 – 500 kPa	2020350
	SYR Adjustable Red Valve.	2020349

# **Problem Solving**

Lack Of Water Pressure		
Possible Cause	Remedy	
Line strainer (if fitted) is blocked	Turn off cold water, remove strainer, flush, refit and turn water back on.	
Blockage in pipe-work	Isolate the likely area. Try and flush by quickly opening/closing a hot top. If unsuccessful remove pipe, clean or replace.	
Water is too harsh	Check the water quality against the recommended levels. If too high contact Edwards for advice.	
Cold or hot water pipes too small	Refer to AS3500.1 for sizing guidelines.	
Check valve in reverse	Remove the valve and fit with the arrow on its body pointing in the same direction as the flow of water.	

#### **Relief Valve Drips**

A relief valve is designed to drip as part of its normal operation:

- A cold water expansion control valve will normally drip when water is being heated because the water will expand up to 5% of the stored water per day. Is this the case?
- A hot water relief valve will drip if the temperature begins to exceed 99 °C or the pressure increases above 850 kPa. Is this the case?

If the answer is no;

Possible Cause	Remedy
The incoming water pressure	Turn off the water supply and fit a pressure limiting
is too high for the valve	valve in the cold water supply to the heater prior to the
setting.	cold water expansion control valve.
The thermostat settings have	Check the thermostat settings on the control box,
been changed or are	readjust or replace if faulty (see Section 4.0 for
malfunctioning.	instructions on how to do this).
Dirt has built up under the	Turn off the cold water supply, remove the valve, flush
seal in the valve stopping it	the valve with water, check the closing operation and
from fully closing.	re-fit.

Brown Coloured Water From Taps		
Possible Cause	Remedy	
Mud or silt built up in cold	Flush out the pipe-work and any supply tanks.	
water supply		

Not Enough Hot Water		
Possible Cause	Remedy	
Thermostat setting is too low or faulty.	Adjust thermostat setting to a higher set point (see Section 4.0 for instructions on how to do this).	
Heat source not functioning correctly.	See Section 5.0 for instructions.	
Leaking hot water pipe/fitting.	Re-weld or tighten the effected area.	
No check valve fitted in the secondary return line (if connected to a ring-main)	Fit a check valve in the ring-main secondary return line downstream of the circulation pump but prior to entry back into the cold water supply.	
Hot & cold water pipes have been interconnected.	Trace pipe-work, remove the interconnecting pipe & reweld.	
Faulty cold water expansion control valve is dumping all the water.	Isolate the cold water & replace the valve.	

Not Enough Water Flow		
Possible Cause	Remedy	
Block in the pipe-work	Flush the pipe-work with water. If the water quality is poor there could be a build up of calcium or silt in the pipes or heat exchanger, which will require flushing with a suitable cleaning agent – contact Edwards.	
Pipe-work is too small.	Contact your nearest Edwards Distributor for assistance.	
Blocked strainer in the cold water supply.	Isolate the water supply, remove the strainer, clean & re-fit.	

Water Hammer in Pipes		
Possible Cause	Remedy	
Pipe-work is not clipped	Clip pipes at the intervals specified in Australian	
properly.	Standard AS3500.4	
Taps are 'fast	Replace taps with slow opening type.	
opening/closing' types.		
Appliance (such as a	Check with the appliance manufacturer to see if slower	
dishwasher) uses 'fast	opening solenoids are available.	
opening' solenoid valves.		
Water pressure is too high.	Fit a water hammer arrester valve into the pipe-work.	

# Warranty

Item	Coverage
Storage Cylinder	5 years (Pro-rata) 3yrs full, 4 <sup>th</sup> year 75%, 5 <sup>th</sup> year 50% cover
Associated parts- valves	1 year
Labour, Travel & Freight	1 year

Also refer to General Warranty terms & Conditions (Section 1.3). Ensure that the warranty registration form provided with the system has been completed and returned to Edwards.

This information expands on the GXC Configuration detail from Section 2.2 of this manual.

# **Installation Details**



**Note**: Refer to the GXC Technical Data Sheet for unit dimensions and further information on connection sizes and mounting data.

#### Positioning

- A GXC Series tank can be installed inside or outside.
- Make sure it is accessible for maintenance allow 250 mm clearance at the top for access to the expansion tank (if located on top of tank) and 50 mm around sides. Allow sufficient space between adjacent tanks for service and maintenance.
- The tank must sit on a solid, well-drained and level base.
- Locate as near as possible to water, electric and fuel supplies.
- Sufficient access must be provided to all valves and auxiliary plant.

#### **Cold Water Supply**

- The tank is classified in AS/NZS3500.1.2 as a low hazard device. This means that it requires only a nontestable back-flow prevention device be fitted in the incoming water supply prior to the system. AS/NZS3500.1.2 provides you with details on these devices.
- The valves required for the cold water supply are shown below and must be fitted before the heater. Isolation valves shall be either Ball or Globe valves.
- Shell pressure must not exceed coil pressure by more than 150kPa.

#### **Cold Water Valving**



- Incoming cold water pipe-work shall be sized in accordance with the guidelines provided in AS/NZS3500.1.2. If you require the full flow capacity of the tank then we recommend the pipe be sized the same as the tank connection.
- All valves fitted in the system shall be at least line size to minimise any restriction in pipe-work.

#### **Connection Methods**

You have 2 options for connecting pipes to the inlet & outlets on top of the tank.

Option 1

Option 2



#### **Hot/Warm Water Supply**

- For use as a warm water heater under NSW Health Approvals, refer to the Edwards Hot Water Warm Water Systems Manual. This Manual should be supplied when ordered as a warm water heater. If it has not been supplied, ask your nearest Edwards distributor to arrange a copy.
- As the storage tank is an open vented (heat exchanger) type, it does not require a pressure and temperature relief valve to be fitted in the tank
- All hot and warm water pipe-work should be insulated to AS4426.

#### **Expansion Tank**

IMPORTANT: Always fill the heat exchanger coil with mains or full pressure water BEFORE you start filling the main tank. Otherwise you could damage the heat exchange coil by partially crushing it. Failure to follow this instruction will void the warranty.

- The expansion tank (25 litre supplied as standard) must be fitted to the GXC storage tank. This tank acts as a reservoir to allow expansion and contraction of the treated water in the GXC tank.
- It must be installed at the highest point of the treated water circuit.
- If necessary due to site restrictions, you can locate the expansion tank away from the GXC tank. Ensure that it is no higher than 40 m from the top of the GXC tank to the bottom of the expansion tank and that there is a continually falling gradient between the tanks and that the flow of water is unrestricted by any valve.
- If the GXC tank is being used as a solar pre-heater, the expansion tank must be mounted above the solar panels at the highest point of the treated water circuit. Direct solar contribution is **not** permitted on warm water systems.

#### **Expansion Tank Layout**



#### **Expansion Pipe**

Never install an isolating valve in this pipe - always keep it unobstructed.

#### **Overflow Pipe**

It is recommended that you direct water away from the top of the LEX tank and via an air-break into a tundish or drain connected to the buildings drainage system.

#### **Cold Water Supply To Expansion Tank**

You must connect the float valve inside the expansion tank to the cold water supply using a 15 mm pipe. This allows the system to automatically replace evaporated water with a small amount of fresh water. A strainer/filter must be fitted to the expansion tank cold water supply line, unless the expansion supply is connected after the strainer/filter in the heater main supply. An isolating valve must also be fitted so that it can be isolated during servicing – this valve must remain open when the system is operational.

#### Hot Water Circulation Pump



- If the building has a secondary or ring-main return it must be connected back into the cold water supply
  after the cold water check valve. The ring-main circulation pump should have isolating valves either side
  of it for servicing and a check valve fitted downstream of it but before entering back into the cold water
  supply.
- The pump should also be installed using either union or flange fittings to help facilitate maintenance or removal.
- Make sure the pump is installed with its shaft in the horizontal position.
- Pressure tappings either side of the pump, to aid flow-rate checks, must also be provided.

#### **Connecting A Heat Source & Control Box**

- The GXC tank is usually connected to a heat source and control box. Refer to the relevant configuration diagrams in Section 2.2 of this manual and this will then refer you to the appropriate parts of Section 4.0 and Section 5.0 for specific installation details.
- Warm water systems installed under the NSW Health Approvals must also be installed in conjunction with the Edwards Hot Water Warm Water Systems manual.
- Burner flow and return connections are shown below.
- Isolating ball valves are recommended to be fitted to all connections for easier servicing.



#### **Electrical Connection**

Power is provided to the Control Box (see Section 4.0 of this Manual). The temperature sensor is attached to the storage tank by inserting it into the sensor pocket in the tank.

#### Filling the Tank with Water

Important: Always fill the heat exchanger coil with mains or full pressure water BEFORE you start filling the main tank. Otherwise you could damage the heat exchange coil by partially crushing it. Failure to follow this instruction will void the warranty.

- Check that all your pipe-work, valves, fittings & associated equipment have been completed, tightened and checked for leaks. Remember to open any valves in the treated water circuit that are connected to the heat-source.
- Connect a temporary cold water supply to the service valve located on one of the burner connections.
- Open the service valve and commence filling up the treated water storage tank until it is approximately half full. Shut off service valve.
- Add the water treatment to the unit through the expansion tank connection.
- Recommence filling the system by opening the service valve again until the water level rises just enough to start entering the expansion tank. Shut off the service valve and disconnect the cold water supply to it.
- Set the float valve inside the expansion tank (by gently bending the arm) so that it will shut-off after filling the tank to a maximum of 20 mm above the bottom of the expansion tank.



• Open the cold water supply valve to the float valve in the expansion tank and let the system fill until the float valve automatically shuts off – check for air locks!

# Commissioning

The GXC tank will normally have a remote heat-source attached. The heat-source has its own commissioning instructions contained in Section 5.0 of this Manual.

NSW Health approved warm water applications will also need to be commissioned in accordance with the Edwards Hot Water – Warm Water Manual. Use a photocopy of this page as a working sheet.

#### **Completion Checklist**

Model Number: \_\_\_\_\_

Serial Number: \_\_\_\_\_

The model and serial numbers can be found on the identification sticker fixed on the front of the unit.

All pipe-work & fittings are water tight & sound by pressure testing (this also confirms that the heat exchanger coil is OK).	
Flush or clean system as per AS/NZS3500.1.2	
Operating temperature is set at clients desired temperature, when checked at the outlet fixture. Refer Warm Water Manual for warm water systems.	
The expansion tank is connected correctly and there is a continuous gradient.	
The isolating valve to the expansion tank is open & the float valve is set at approx. 20 mm above the bottom of the expansion tank.	
<ul> <li>Water treatment is at the correct dosage.</li> <li>□ Take a small sample of water from the service valve and place it in a container. 250 to 500 ml is plenty.</li> <li>□ Use a pH tester (such as litmus paper) and check that the pH of the water is between 8.5 – 9.0</li> </ul>	
This should be done once the heat source has been installed as the treated wate must be circulating for 30 minutes to evenly distribute the water treatment.	r
Plastic protective coating around the tank is removed and any marks tidied up.	
A copy of the User Guide and any other applicable documents has been handed to the client for their future referral & owners instructions explained.	

### Maintenance

Full maintenance on the GXC Series tank should only be carried out by a qualified trades-person. As the building owner/manager however, you can do a few simple things to help maintain the tank at its peak. Refer also to the Edwards Hot Water – Warm Water Manual if system is being used to generate warm water.

#### Every 6 months check:

- There are no water leaks in any joints or fittings and electrical cables are secure and undamaged.
- The water treatment has a pH of 8.5 to 9.0 see completion checklist above for instructions on how to do this.
- There is water in the expansion tank it should be dark in colour.
- The cold water expansion control valve (located in the cold water supply near the tank) is operating correctly by slowly pulling the lever and allowing water to discharge.

#### Full Maintenance

This can only be performed by a qualified trades-person. Use a photocopy of this page as a working sheet.

Model Number: \_\_\_\_\_

Serial Number: \_\_\_\_\_

The model and serial numbers can be found on the identification sticker located on the front of the unit.

The following can only be performed by or under the direct supervision on site of a qualified trades-person.

Visual Inspection	<ul> <li>Inspect shell for any leaks or weeps</li> <li>Check that all connections are tight and not corroded</li> <li>Replace any deteriorating insulation on pipe-work</li> </ul>	
Valves and Fittings	- Service backflow prevention device as per AS2845.3	
Expansion Tank	<ul> <li>Inspect for any water treatment stains</li> <li>Adjust float level to shut-off water at 20mm from bottom.</li> <li>Check that float valve shuts completely, and service as necessary</li> </ul>	
Water Treatment	<ul> <li>Drain approximately 250 ml of treated water from service drain valve on main tank.</li> <li>Check pH level of sample, using litmus paper. pH must be within 8.5-9.0</li> <li>If pH level is outside this range, re-dose with water treatment using a plumbers pump connected to the service valve. Retest pH level</li> </ul>	
Performance Test	<ul> <li>Check that the temperature at the outlet fixture is within the clients specifications.</li> <li>If the unit is being used in a harsh water environment, the heat exchange coil may need to be flushed out regularly. Contact Edwards.</li> </ul>	
	- Check for any complaints from end users.	
Final	<ul> <li>Detail Tank</li> <li>Tidy up plant room</li> <li>Complete paperwork and hand a copy of the maintenance report to client</li> </ul>	

# **Spare Parts**

Description	Type / Model	Stock Code
Cold Water Expansion Control Valve	RMC H50 – 1200kPa	2020316
Washer	50mm x 3mm Fibre washer	4040077
Water Treatment	Gendex – 500mL per unit, mix to 0.1% ie 1 litre per 1000 litres	8080049
Expansion Tank	Replace with 25L polypropelene tank	3030032
Service Valve	15mm BSP Brass ball valve	2020075
Float Valve	Philmac Valve 3005 & Plastic Float 4993	2020368 2020369

# **Problem Solving**

Lack Of Water Pressure		
Possible Cause	Remedy	
Line strainer is blocked	Turn off cold water, remove strainer, flush, re-fit and turn water back on.	
Blockage in pipe-work	Isolate the likely area. Try and flush by quickly opening/closing a hot top. If unsuccessful remove pipe, clean or replace.	
Supply water is too harsh	Check the incoming water quality against the recommended levels stated in the warranty handbook. If too high contact Edwards for advice.	
Cold or hot water pipes too small	Refer to AS/NZS3500.1.2 for sizing guidelines or contact Edwards for recommendations.	
Check valve in reverse	Remove the valve and fit with the arrow on its body pointing in the same direction as the flow of water.	

Brown Coloured Water From Taps	
Possible Cause	Remedy
Mud or silt built up in cold water supply	Flush out the pipe-work and any supply tanks.
Heat exchange coil inside tank is leaking	Isolate the water supply to the expansion tank, drain water level in the main tank until it is level with the bottom of the expansion tank. If the expansion tank fills up again then the coil is leaking – contact Edwards.

#### **Relief Valve Drips**

A relief valve is designed to drip as part of its normal operation:

• A cold water expansion control valve will normally drip when water is being heated because the water will expand up to 5% of the stored water per day. Is this the case?

If the answer is no;

Remedy
Turn off the water supply and fit a pressure limiting
valve in the cold water supply to the heater prior to the
cold water expansion control valve.
Turn off the cold water supply, remove the valve, flush
the valve with water, check the closing operation and
re-fit.

Not Enough Hot or Warm Water		
Possible Cause	Remedy	
Thermostat setting is too low or faulty.	Adjust thermostat setting to a higher set point (see Section 4.0 for instructions on how to do this).	
Heat source not functioning correctly.	See Section 5.0 of this Manual for instructions.	
Leaking hot water pipe or fitting.	Re-weld or tighten the effected area.	
No check valve fitted in the secondary return line (if connected to a ring-main)	Fit a check valve in the ring-main secondary return line downstream of the circulation pump but prior to entry back into the cold water supply.	
Hot & cold water pipes have been interconnected.	Trace pipe-work, remove the interconnecting pipe & reweld.	
Hot & cold connections reversed on tank.	Cold inlet should be the right hand side of the tank (looking from the front).	
Cold water expansion control valve dumps all the water.	Isolate the cold water & replace the valve.	
Recirculation rate for system is inadequate	Check flow-rate for circulation pump	
Excessive heat losses	Check for uninsulated pipes, damaged insulation on pipes or inadequate insulation on pipes.	

Water Hammer in Pipes		
Possible Cause	Remedy	
Pipe-work is not clipped properly.	Clip pipes at the intervals specified in AS/NZS 3500.4.2	
Draw-off taps/solenoids are 'fast opening/closing' type.	Replace taps/solenoids with slow opening type.	
Appliance (such as a dishwasher) uses 'fast opening' solenoid valves.	Check with the appliance manufacturer to see if slower opening solenoids are available.	
Water pressure is too high.	Fit a water hammer arrester into the supply pipe- work. Consult supplier for type and size.	

Heated Water too Hot or Too Cold		
Possible Cause	Remedy	
Thermostat set too high or	Adjust thermostat setting to correct limit.	
too low		
Control box on over-	Rectify cause of over-temperature lock-out and re-	
temperature lock-out	commission as required	
Heat source not functioning	See Section 5.0 of this Manual for instructions.	
correctly.		
Hot & cold water pipes have	Trace pipe-work, remove the interconnecting pipe &	
been interconnected.	reweld.	
Hot & cold connections	Cold inlet should be the right hand side of the tank	
reversed on tank.	(looking from the front).	
Excessive heat losses	Check for uninsulated pipes, damaged insulation on	
	pipes or inadequate insulation on pipes.	

Not Enough Water Flow		
Possible Cause	Remedy	
Blockage in the pipe-work	Flush the pipe-work with water. If the water quality is poor there could be a build up of calcium or silt in the pipes or heat exchanger which will require flushing with a suitable cleaning agent – contact Edwards.	
Pipe-work is too small.	Contact your nearest Edwards Distributor for advice.	
Heat exchange coil is undersized for the load	Check that the flow rate for this model (see brochure) meets the requirements of the project. Additional load has been added to system.	
Additional load being placed on heat exchange coil	Remove source of additional load. Increase input from heat source (if possible). Replace heater with larger unit. Contact your nearest Edwards Distributor for advice.	
Water level in the tank is low	Check the level of water inside the expansion tank is approx. 20 mm above the bottom of the expansion tank. Make sure that the isolating valve to the float valve is not turned off.	
Blocked strainer in the cold water supply.	Isolate the water supply, remove the strainer, clean & re-fit.	

Overflow Pipe Runs Continuously		
Possible Cause	Remedy	
Float valve is set too high.	Drain some water from the expansion tank and slowly bend the arm of the valve until the float is approx. 50 mm from the bottom of the tank.	
Expansion tank is not level.	Realign the expansion tank so that it is level. You can use blocks of wood or readjust brackets if fitted.	
Expansion tank is too small	The size of the expansion tank should be 6% of the main tank capacity eg. A 450 litre tank requires a 25 litre expansion tank.	
Heat exchange coil is leaking.	Isolate the water supply to the expansion tank, drain water level in the main tank until it is level with the bottom of the expansion tank. If the expansion tank fills up again then the coil is leaking – contact Edwards.	

Г

Water treatment Is Low	
Possible Cause	Remedy
Regular maintenance is not being carried out	Make sure a full service is done.
Heat exchange coil or pipe- work is leaking.	Isolate the water supply to the expansion tank, drain water level in the main tank until it is level with the bottom of the expansion tank. If the expansion tank fills up again then the coil is leaking – contact Edwards.

# Warranty

ltem	Coverage
Heat Exchange Storage Tank	3 years full cover 4th year 75% cover 5th year 50% cover
Associated parts- valves	1 year
Labour, Travel & Freight	1 year

Also refer to General Warranty terms & Conditions (Section 1.3). Ensure that the warranty registration form provided with the system has been completed and returned to Edwards.

This information expands on the LEX Configuration details from Section 2.3 of this Manual.

#### Installation Details Location of Tank Connections



#### Positioning

- A LEX Series tank can be installed inside or outside.
- Make sure it is accessible for maintenance allow 250 mm clearance at the top for access to the expansion tank (if located on top of tank) and 50 mm around sides. Allow sufficient space between adjacent tanks for service and maintenance.
- The tank must sit on a solid, well-drained and level base.
- Locate as near as possible to water, electric and fuel supplies.
- Sufficient access must be provided to all valves and auxiliary plant.

#### **Cold Water Supply**

- The tank is classified in AS/NZS3500.1.2 as a low hazard device. This means that it requires only a non-testable back-flow prevention device be fitted in the incoming water supply prior to the system. AS/NZS3500.1.2 provides you with details on these devices.
- The valves required for the cold water supply are shown below and must be fitted before the heater. Isolation valves shall be either Ball or Globe valves.
- Shell pressure must not exceed coil pressure by more than 150kPa.

# LEX Storage Tank 3.3

#### **Cold Water Valving**



- Incoming cold water pipe-work shall be sized in accordance with the guidelines provided in AS/NZS3500.1.2. If you require the full flow capacity of the tank then we recommend the pipe be sized the same as the tank connection.
- All valves fitted in the system shall be at least line size to minimise any restriction in pipe-work.

#### **Connection Methods**

You have 2 options for connecting pipes to the inlet & outlets on top of the tank.

Option 1

Option 2



#### **Hot/Warm Water Supply**

- For use as a warm water heater under NSW Health Approvals, refer to the Edwards Hot Water -Warm Water Systems Manual. This Manual should be supplied when ordered as a warm water heater. If it has not been supplied, ask your nearest Edwards distributor to arrange a copy.
- As the storage tank is an open vented (heat exchanger) type, it does not require a pressure and temperature relief valve to be fitted in the tank
- All hot and warm water pipe-work should be insulated to AS4426.

#### **Expansion Tank**

- An expansion tank (not supplied as standard) must be fitted to the LEX storage tank. This tank acts as a reservoir to allow expansion and contraction of the treated water in the LEX tank. The size of the expansion tank will vary depending on the type of system being installed, its heat source and if it is being used with solar pre-heat.
- It must be installed at the highest point of the treated water circuit.
- If necessary due to site restrictions, you can locate the expansion tank away from the LEX tank. Ensure that it is no higher than 40 m from the top of the LEX tank to the bottom of the expansion tank and that there is a continually falling gradient between the tanks and that the flow of water is unrestricted by any valve.
- If the LEX tank is being used as solar pre-heater, the expansion tank must be mounted above the solar panels at the highest point of the treated water circuit. Direct solar contribution is **not** permitted on warm water systems.

Note: If you wish to install a single expansion tank for both the LEX and its heat source, refer to Section 2.3.

# Expansion Tank Layout

#### **Expansion Pipe**

Never install an isolating valve in this pipe - always keep it unobstructed.

#### **Overflow Pipe**

It is recommended that you direct water away from the top of the LEX tank and via an air-break into a tundish or drain connected to the buildings drainage system.

#### **Cold Water Supply To Expansion Tank**

You must connect the float valve inside the expansion tank to the cold water supply using a 15 mm pipe. This allows the system to automatically replace evaporated water with a small amount of fresh water. A strainer/filter must be fitted to the expansion cold water line, unless the expansion supply is connected after the strainer/filter in the heater main supply. An isolating valve must also be fitted so that it can be isolated during servicing – this valve must remain open when the system is operational.

# LEX Storage Tank 3.3

#### **Hot Water Circulation Pump**



- If the building has a secondary or ring-main return it must be connected back into the cold water supply after the cold water check valve. The ring-main circulation pump should have isolating valves either side of it for servicing and a check valve fitted downstream of it but before entering back into the cold water supply.
- The pump should also be installed using either union or flange fittings to help facilitate maintenance or removal.
- Make sure the pump is installed with its shaft in the horizontal position.
- Pressure tappings either side of the pump, to aid flow-rate checks, must also be provided.

#### **Connecting A Gas/Oil Heat Source & Control Box**

- The LEX tank is usually connected to a heat source and control box. Refer to the relevant configuration diagrams in Section 2.3 of this manual and this will then refer you to the appropriate parts of Section 4.0 and Section 5.0 for specific installation details.
- Warm water systems installed under the NSW Health Approvals must also be installed in conjunction with the Edwards Hot Water Warm Water Systems manual.
- The flow line to the heat source from the tank is from the lower connection on the right hand side of the tank. The return line from the heat source is connected to the tank connection on the lower left-hand side of the tank. These are clearly marked on the tanks.
- A process flow line (eg. central heating) is connected at the top of the tank and the process return line is connected to the bottom. These connections will need to be blanked off if not needed.
- Isolating ball valves are recommended to be fitted to all connections for easier servicing.

#### **Connecting A Solar Heat Source**

The LEX can be connected to a number of solar panels to reduce fuel costs. The LEX tank must be connected into the cold water supply prior to the separate gas/oil boost tank. This is known as a solar pre-heater. LEX systems configured as solar pre-heaters in this manner are not permitted to be used as warm water systems.

- The same connections used for the gas/oil heat source are also used for the connection of solar ie. the solar flow line is connected to the heat source flow line. The solar return line is connected to the heat source return line.
- For details on the installation of the solar panels themselves, refer to Section 5.3 of this manual.

#### **Solar Heat Source**



#### Manifolding Tanks Together



#### **Electrical Connection**

Power is provided to the Control Box (see Section 4.0 of this Manual). The temperature sensor is attached to the storage tank by inserting it into the socket located in the tank.

#### Filling the Heater Tank with Water

Important: Always fill the heat exchanger coil with mains or full pressure water BEFORE you start filling the main tank. Otherwise you could damage the heat exchange coil by partially crushing it. Failure to follow this instruction will void the warranty.

• Check that all your pipe-work, valves, fittings & associated equipment have been completed, tightened and checked for leaks. Remember to open any valves in the treated water circuit that are connected to the heat-source.

• Connect a temporary cold water supply to the service valve located near the 'Process Flow' connection.



- Open the service valve and commence filling up the treated water storage tank until it is approximately half full. Shut off service valve.
- Using the same method pour the contents of the water treatment container into the unit via the service valve.
- Recommence filling the system by opening the service valve again until the water level rises just enough to start entering the expansion tank. Shut off the service valve and disconnect the cold water supply to it.
- Set the float valve inside the expansion tank (by gently bending the arm) so that it will shut-off after filling the tank to a maximum of 20 mm above the bottom of the expansion tank.



• Open the cold water supply valve to the float valve in the expansion tank and let the system fill until the float valve automatically shuts off – check for air locks!

# Commissioning

The LEX tank will normally have a remote heat-source attached. The heat-source has its own commissioning instructions contained in Section 5.0 of this manual.

NSW Health approved warm water applications will also need to be commissioned in accordance with the Edwards Hot Water – Warm Water Manual.

Use a photocopy of this page as a working sheet.

#### **Completion Checklist**

Model Number: \_\_\_\_\_

Serial Number: \_\_\_\_\_

The model and serial numbers can be found on the identification sticker fixed on the front of the unit.

All pipe-work & fittings are water tight & sound by pressure testing (this also confirms that the heat exchanger coil is OK).	
Flush or clean system as per AS/NZS3500.1.2	
Operating temperature is set at clients desired temperature, when checked at the outlet fixture. Refer Warm Water Manual for warm water systems.	
The expansion tank is connected correctly and there is a continuous gradient.	
The isolating valve to the expansion tank is open & the float valve is set at approx. 20 mm above the bottom of the expansion tank.	
<ul> <li>Water treatment is at the correct dosage.</li> <li>□ Take a small sample of water from the service valve and place it in a container. 250 to 500 ml is plenty.</li> <li>□ Use a pH tester (such as litmus paper) and check that the pH of the water is between 8.5 - 9.0</li> <li>This should be done once the heat source has been installed as the treated water must be circulating for 30 minutes to evenly distribute the water treatment.</li> </ul>	
Plastic protective coating around the tank is removed and any marks tidied up.	
A copy of the User Guide and any other applicable documents has been	

handed to the client for their future referral & owners instructions explained.

## Maintenance

Full maintenance on the LEX Series tank should only be carried out by a qualified trades-person. As the building owner/manager however, you can check a few simple things to help maintain the tank at its peak. Refer also to the Edwards Hot Water – Warm Water Manual if system is being used to generate warm water.

#### Every 6 months check:

- There are no water leaks in any joints or fittings and electrical cables are secure and undamaged.
- The water treatment has a pH of 8.5 to 9.0 see completion checklist above for instructions on how to do this.
- There is water in the expansion tank it should be dark in colour.
- The cold water expansion control valve (located in the cold water supply near the tank) is operating correctly by slowly pulling the lever and allowing water to discharge.

#### **Full Maintenance**

This can only be performed by a qualified trades-person. Use a photocopy of this page as a working sheet.

Model Number: \_\_\_\_\_

Serial Number: \_\_\_\_\_

The model and serial numbers can be found on the identification sticker located on the front of the unit. The following can only be performed by or under the direct supervision on site of a qualified tradesperson.

Visual Inspection	<ul> <li>Inspect shell for any leaks or weeps</li> <li>Check that all connections are tight and not corroded</li> <li>Replace any deteriorating insulation on pipe-work</li> </ul>	
Valves and Fittings	- Service backflow prevention device as per AS2845.3	
Expansion Tank	<ul> <li>Inspect for any water treatment stains</li> <li>Adjust float level to shut-off water at 20mm from bottom.</li> <li>Check that float valve shuts completely, and service as required</li> </ul>	
Water Treatment	<ul> <li>Drain approximately 250 ml of treated water from service drain valve on main tank.</li> <li>Check pH level of sample, using litmus paper. pH must be within 8.5-9.0</li> </ul>	
	- If pH level is outside this range, re-dose with water treatment using a plumbers pump connected to the service valve. Retest pH level	
Performance Test	<ul> <li>Check that the temperature at the outlet fixture is within the clients specifications.</li> <li>If the unit is being used in a harsh water environment, the heat exchange coil may need to be flushed out regularly. Contact Edwards.</li> </ul>	
	- Check for any complaints from end users.	
Final	- Detail Tank - Tidy up plant room - Complete paperwork and hand a copy of the maintenance report to client	

# Spare Parts

Description	Type / Model	Stock Code
Cold Water Expansion Control Valve	RMC H50 – 1200kPa	2020316
Water Treatment	Gendex – use 1 ml for every litre of storage capacity eg. 1 litre per 1000 litres.	8080049
Expansion Tank	Replace with same capacity as original	-
Service Valve	15mm BSP Brass ball valve	2020075
Temperature Gauge	Caleffi 688000	2020427
Float Valve	Philmac Valve 3005 & Plastic Float 4993	2020368 2020369

# **Problem Solving**

Lack Of Water Pressure		
Possible Cause	Remedy	
Line strainer is blocked	Turn off cold water, remove strainer, flush, re-fit and turn water back on.	
Blockage in pipe-work	Isolate the likely area. Try and flush by quickly opening/closing a hot top. If unsuccessful remove pipe, clean or replace.	
Supply water is too harsh	Check the water quality against the recommended levels stated in the warranty handbook. If too high contact Edwards for advice.	
Cold or hot water pipes too small	Refer to AS/NZS3500.1.2 for sizing guidelines or contact Edwards for recommendations.	
Check valve in reverse	Remove the valve and fit with the arrow on its body pointing in the same direction as the flow of water.	

Brown Coloured Water From Taps	
Possible Cause	Remedy
Mud or silt built up in cold water supply	Flush out the pipe-work and any supply tanks.
Heat exchange coil inside tank is leaking	Isolate the water supply to the expansion tank, drain water level in the main tank until it is level with the bottom of the expansion tank. If the expansion tank fills up again then the coil is leaking – contact Edwards.

#### **Relief Valve Drips**

A relief valve is designed to drip as part of its normal operation:

• A cold water expansion control valve will normally drip when water is being heated because the water will expand up to 5% of the stored water per day. Is this the case? If the answer is no;

Possible Cause	Remedy
The incoming water pressure is too	Turn off the water supply and fit a pressure limiting
high for the valve setting.	valve in the cold water supply to the heater prior to the
	cold water expansion control valve.
Dirt has built up under the seal in the	Turn off the cold water supply, remove the valve, flush
valve stopping it from fully closing.	the valve with water, check the closing operation and
	re-fit.

Not Enough Hot or Warm Water		
Possible Cause	Remedy	
Thermostat setting is too low or faulty.	Adjust thermostat setting to a higher set point (see	
	Section 4.0 for instructions on how to do this).	
Heat source not functioning correctly.	See Section 5.0 of this Manual for instructions.	
Leaking hot water pipe or fitting.	Re-weld or tighten the effected area.	
No check valve fitted in the secondary	Fit a check valve in the ring-main secondary return line	
return line (if connected to a ring-	downstream of the circulation pump but prior to entry	
main)	back into the cold water supply.	
Hot & cold water pipes have been	Trace pipe-work, remove the interconnecting pipe &	
interconnected.	reweld.	
Hot & cold connections reversed on	Cold inlet should be the right hand side of the tank	
tank.	(looking from the front).	
Cold water expansion control valve	Isolate the cold water & replace the valve.	
dumps all the water.		
Recirculation rate for system is	Check flow-rate for circulation pump	
inadequate		
Excessive heat losses	Check for uninsulated pipes, damaged insulation on	
	pipes or inadequate insulation on pipes.	

Heated Water too Hot or Too Cold		
Possible Cause	Remedy	
Thermostat set too high or	Adjust thermostat setting to correct limit.	
too low		
Control box on over-	Rectify cause of over-temperature lock-out and re-commission	
temperature lock-out	as required	
Heat source not functioning	See Section 5.0 of this Manual for instructions.	
correctly.		
Hot & cold water pipes have	Trace pipe-work, remove the interconnecting pipe & reweld.	
been interconnected.		
Hot & cold connections	Cold inlet should be the right hand side of the tank (looking from	
reversed on tank.	the front).	
Excessive heat losses	Check for uninsulated pipes, damaged insulation on pipes or	
	inadequate insulation on pipes.	

Water Hammer in Pipes		
Possible Cause	Remedy	
Pipe-work is not clipped properly.	Clip pipes at the intervals specified in AS/NZS 3500.4.2	
Draw-off taps/solenoids are 'fast opening/closing' type.	Replace taps/solenoids with slow opening type.	
Appliance (such as a dishwasher) uses 'fast opening' solenoid valves.	Check with the appliance manufacturer to see if slower opening solenoids are available.	
Water pressure is too high.	Fit a water hammer arrester into the supply pipe-work. Consult supplier for type and size.	

Not Enough Water Flow		
Possible Cause	Remedy	
Blockage in the pipe-work	Flush the pipe-work with water. If the water quality is poor there could be a build up of calcium or silt in the pipes or heat exchanger which will require flushing with a suitable cleaning agent – contact Edwards.	
Pipe-work is too small.	Contact your nearest Edwards Distributor for advice.	
Heat exchange coil is undersized for the load	Check that the flow rate for this model (see brochure) meets the requirements of the project. Additional load has been added to system.	
Additional load being placed on heat exchange coil	Remove source of additional load. Increase input from heat source (if possible). Replace heater with larger unit. Contact your nearest Edwards Distributor for advice.	
Water level in the tank is low	Check the level of water inside the expansion tank is approx. 20 mm above the bottom of the expansion tank. Make sure that the isolating valve to the float valve is not turned off.	
Blocked strainer in the cold water supply.	Isolate the water supply, remove the strainer, clean & re-fit.	

Overflow Pipe Runs Continuously		
Possible Cause	Remedy	
Float valve is set too high.	Drain some water from the expansion tank and slowly bend the arm of the valve until the float is approx. 50 mm from the bottom of the tank.	
Expansion tank is not level.	Realign the expansion tank so that it is level. You can use blocks of wood or readjust brackets if fitted.	
Expansion tank is too small	The size of the expansion tank should be 6% of the main tank capacity eg. A 450 litre tank requires a 25 litre expansion tank.	
Heat exchange coil is leaking.	Isolate the water supply to the expansion tank, drain water level in the main tank until it is level with the bottom of the expansion tank. If the expansion tank fills up again then the coil is leaking – contact Edwards.	

Water treatment Is Low		
Possible Cause	Remedy	
Regular maintenance is not being carried out	Make sure a full service is done.	
Heat exchange coil or pipe-work is leaking.	Isolate the water supply to the expansion tank, drain water level in the main tank until it is level with the bottom of the expansion tank. If the expansion tank fills up again then the coil is leaking – contact Edwards.	

# Warranty

ltem	Coverage
Heat Exchange Storage Tank	3 years full cover 4th year 75% cover 5th year 50% cover
Associated parts- valves	1 year
Labour, Travel & Freight	1 year

Also refer to General Warranty terms & Conditions (Section 1.3). Ensure that the warranty registration form provided with the system has been completed and returned to Edwards.

This information expands on the EX Configuration details from Section 2.4 of manual.

# **Installation Details**

#### **Location of Tank Connections**



#### Positioning

- An EX Series tank can be installed inside or outside.
- Make sure it is accessible for maintenance allow 250 mm clearance at the top for access to the expansion tank (if located on top of tank) and 50 mm around sides.
- The tank must sit on a solid, well-drained and level base.
- Locate as near as possible to water services & any other system components.

#### **Cold Water Supply**

- The tank is classified by AS3500.1 as a low hazard device. This means that it requires only a nontestable back-flow prevention device be fitted in the incoming water supply prior to the system. Section 4.0 of Australian Standard AS3500.1 provides you with details on these devices.
- The valves required for the cold water supply are shown below and must be fitted before the heater.

#### **Cold Water Valving**



• Size the incoming cold water pipe in accordance with the guidelines provided in AS3500.1. If you require the full flow capacity of the tank then we recommend the pipe be sized the same as the tank connection. This is 32 mm for the EX450 and 50 mm for the EX850 & EX 1250.

#### **Connection Methods**

You have 2 options for connecting pipes to the inlet & outlets on top of the tank.

Option 1



#### **Hot Water Supply**

- As the storage tank is an open vented (heat exchanger) type, it does not require a pressure and temperature relief valve to be fitted in the tank
- All hot water pipe-work should be insulated.

#### **Expansion Tank**

Important: Always fill the heat exchanger coil with mains or full pressure water BEFORE you start filling the main tank. Otherwise you could damage the heat exchange coil by partially crushing it. Failure to follow this instruction will void the warranty.

- An expansion tank is already fitted to the top of the EX storage tank. This tank acts as a reservoir to allow expansion and contraction of the treated water in the EX tank. This is a vented circuit.
- The expansion tank can be removed for easier access into a plant-room. If necessary due to site restrictions, you can locate the expansion tank away from the EX tank. However, you must ensure that it is no higher than 100 mm from the top of the EX tank to the bottom of the expansion tank and that there is a continually falling gradient between the tanks so that the flow of water is unrestricted.



#### **Expansion Pipe**

Never install an isolating valve in this pipe – always keep it unobstructed.

#### **Overflow Pipe**

It is recommended that you direct water away from the top of the EX tank and into a tundish or drain.

#### Cold Water Supply To Expansion Tank

You must connect the float valve inside the expansion tank to the cold water supply using a 15 mm pipe. This allows the system to automatically replace evaporated water with a small amount of fresh water. A strainer/filter must be fitted to the expansion cold water line (unless connected after the filter in the main supply line). An isolating valve must also be fitted so that it can be isolated during servicing – this valve must remain open when the system is operational.
#### **Hot Water Circulation Pump**



- If the building has a secondary or ring-main return it must be connected back into the cold water supply after the cold water check valve. The ring-main circulation pump should have isolating valves either side of it for servicing and a check valve fitted downstream of it but before entering back into the cold water supply.
- Make sure the pump is installed with its shaft in the horizontal position.

#### **Electrical Connection**

Systems that have 1 element (up to 4.8kW) require a 240 Volt, 20 amp single phase power supply wired into the terminal block inside the tank's control box. For those systems fitted with more than 1 element you require a 415 Volt, 3 phase power supply with an amperage to suit the number of elements (refer table below and details in Section 5.5). Each phase must be balanced.

For further information eg. wiring diagrams, refer to Section 5.5 of this manual.

No. of 4.8kW Elements	Rating Kilowatts	Power Supply Volts	Phase	Amperage per Phase Amps
1	4.8	240	1	20
2	14.4	415	3	25
6	28.8	415	3	50
9	43.2	415	3	75
12	57.6	415	3	100
15	72	415	3	125
18	86.4	415	3	150
21	100.8	415	3	175
24	115.2	415	3	200

### **Electric Element Amperage Requirements**

#### Manifolding Tanks Together



#### Filling the Tank with Water

- Check that all your pipe-work, valves, fittings & associated equipment have been completed and tightened.
- Connect a temporary cold water supply to the service valve located on the tank.



- Open the service valve and commence filling up the storage tank until water has reached approx. two thirds of the tank. Shut off service valve.
- Using the same method pour the contents of the water treatment container into the unit via the service valve.
- Recommence filling the system by opening the service valve again until the water level rises just enough to start entering the expansion tank. Shut off the service valve and disconnect the cold water supply to it.
- Set the float valve inside the expansion tank (by bending the arm) so that it will shut off after filling the tank to a maximum of 20 mm above the bottom of the expansion tank.



• Open the cold water supply valve to the float valve in the expansion tank and let the system fill until the float valve automatically shuts off – check for air locks!

# Commissioning

The heat-source has its own commissioning instructions contained in Section 5.0 of this manual.

#### **Completion Checklist**

All pipe-work & fittings are water tight & sound by pressure testing (this also confirms that the heat exchanger is OK).

Operating thermostat is set at clients desired temperature. This will usually be approx. 60°C for hot water.

The expansion tank is connected correctly ie. There is a continuous gradient.

The isolating valve to the expansion tank is open & the float valve is set at approx. 20 mm above the bottom of the expansion tank.

Water treatment is at the correct dosage

- Take a small sample of water from the service valve and place it in a container. 250 to 500 ml is plenty.
- Use a pH tester (such as litmus paper) and check that the pH of the water is between 8.5 9.0

This should be done once the heat source has been installed because the water must be circulating for 30 minutes to evenly distribute the water treatment.

The cold water expansion control valve is operating correctly (check the valve by pulling on the lever).

Plastic protective coating around the tank is removed and any marks tidied up.

A copy of the User Guide has been handed to the client for their future referral & owners instructions explained.

ght & sound by s that the heat	
nts desired approx. 60°C for hot	
correctly ie. There is a	
on tank is open & the above the bottom of	
osage. rom the service valve 0 to 500 ml is plenty. s paper) and check veen 8.5 – 9.0	
t source has been be circulating for 30 hter treatment.	
valve is operating g on the lever).	
ne tank is removed	

## Maintenance

Full maintenance on the EX Series tank should only be carried out by a qualified trades-person. As the owner however, you can do a few simple things to help maintain the tank at its peak.

#### Every 6 months check;

- There are no water leaks in any joins or fittings and electrical cables are secure and undamaged.
- The water treatment is within 8.5 to 9.0 refer completion checklist for method.
- There is water in the expansion tank it should be dark in colour.
- The cold water expansion control valve (located in the cold water supply near the tank) is operating correctly by pulling the lever and allowing water to discharge.

#### **Full Maintenance**

This can only be performed by a qualified trades-person.

Visual Inspection	<ul> <li>Inspect the shell for any leaks or weeps.</li> <li>Check that all connections are tight and not corroded.</li> <li>Replace any deteriorating insulation on the pipe-work.</li> </ul>
Expansion Tank	<ul> <li>Inspect for any water treatment stains.</li> <li>Adjust the level of the float valve so that it shuts off at approx. 20mm of water level.</li> <li>Check that the float valve shuts off completely.</li> </ul>
Water Treatment	<ul> <li>Drain approx. 250 ml of treated water from the service valve on the main tank.</li> <li>Check the pH of the water (using litmus paper) to see if it is within 8.5 – 9.0.</li> <li>If the level is below this range, re-dose with water treatment using a plumbers' pump connected to the service valve. Retest the pH level.</li> </ul>
Performance Check	<ul> <li>Check that the water temperature from the tank is within 7°C of the thermostat setting for hot water.</li> <li>If the unit is connected to harsh water you may need to get the heat exchanger flushed out regularly – contact Edwards.</li> </ul>
Final	<ul><li>Detail the tank.</li><li>Tidy up the plant room.</li><li>Complete paperwork.</li></ul>

# Spare Parts

Description	Type / Model	Stock Code
Cold Water Expansion Control Valve	RMC H50 - 1200kPa	2020316
Water Treatment	Gendex – use 1 ml for every litre of storage capacity eg. 450 ml for 450 litres.	8080049
Expansion Tank	EX450 & EX 850 = 25 litre capacity	5012025
	EX1250 = 45 litre capacity	5012045
Service Valve	15mm BSP Brass ball valve	2020075
Element	4.8kW 25mm BSP Screw In	6060115
Thermostat	Robertshaw	6060301
Float Valve	Philmac Valve 3005 & Float 4993	2020368
		2020369

# **Problem Solving**

Lack Of Water Pressure		
Possible Cause	Remedy	
Line strainer is blocked	Turn off cold water, remove strainer, flush, re-fit and turn water back on.	
Blockage in pipe-work	Isolate the likely area. Try and flush by quickly opening/closing a hot top. If unsuccessful remove pipe, clean or replace.	
Water is too harsh	Check the water quality against the recommended levels. If too high contact Edwards for advice.	
Cold or hot water pipes too small	Refer to AS3500.1 for sizing guidelines or contact Edwards for recommendations.	
Check valve in reverse	Remove the valve and fit with the arrow on its body pointing in the same direction as the flow of water.	

Brown Coloured Water From Taps		
Possible Cause	Remedy	
Mud or silt built up in cold water supply	Flush out the pipe-work and any supply tanks.	
Heat exchange coil inside tank is leaking	Isolate the water supply to the expansion tank, drain water level in the main tank until it is level with the bottom of the expansion tank. If the expansion tank fills up again then the coil is leaking – contact Edwards.	

#### **Relief Valve Drips**

A relief valve is designed to drip as part of its normal operation:

• A cold water expansion control valve will normally drip when water is being heated because the water will expand up to 5% of the stored water per day. Is this the case?

If the answer is no;

Possible Cause	Remedy
The incoming water pressure	Turn off the water supply and fit a pressure limiting
is too high for the valve	valve in the cold water supply to the heater prior to the
setting.	cold water expansion control valve.
Dirt has built up under the	Turn off the cold water supply, remove the valve, flush
seal in the valve stopping it	the valve with water, check the closing operation and
from fully closing.	re-fit.

Not Enough Hot or Warm Water		
Possible Cause	Remedy	
Thermostat setting is too low or faulty.	Isolate the power supply to the heater. Adjust thermostat settings to a higher set point by opening the control box cover and adjusting each set point individually.	
Heat source not functioning correctly.	See Section 5.5 for instructions.	
Leaking hot water pipe or fitting.	Re-weld or tighten the effected area.	
No check valve fitted in the secondary return line (if connected to a ring-main)	Fit a check valve in the ring-main secondary return line downstream of the circulation pump but prior to entry back into the cold water supply.	
Hot & cold water pipes have been interconnected.	Trace pipe-work, remove the interconnecting pipe & reweld.	
Hot & cold connections reversed on tank.	Cold inlet should be the right hand side of the tank (looking from the front).	
Faulty cold water expansion control valve is dumping all the water.	Isolate the cold water & replace the valve.	

Water Hammer in Pipes		
Possible Cause	Remedy	
Pipe-work is not clipped	Clip pipes at the intervals specified in Australian	
properly.	Standard AS3500.4	
Taps are 'fast	Replace taps with slow opening type.	
opening/closing' type.		
Appliance (such as a	Check with the appliance manufacturer to see if slower	
dishwasher) uses 'fast	opening solenoids are available.	
opening' solenoid valves.		
Water pressure is too high.	Fit a water hammer arrester valve into the pipe-work.	

Not Enough Water Flow		
Possible Cause	Remedy	
Block in the pipe-work	Flush the pipe-work with water. If the water quality is poor there could be a build up of calcium or silt in the pipes or heat exchanger which will require flushing with a suitable cleaning agent – contact Edwards.	
Pipe-work is too small.	Contact your nearest Edwards Distributor for assistance.	
Heat exchange coil is undersized for the load	Check that the flow rate for this model (se brochure) meets the requirements of the project.	
Water level in the tank is low	Check the level of water inside the expansion tank is approx. 20 mm high. Make sure that the isolating valve to the float valve is not turned off.	
Blocked strainer in the cold water supply.	Isolate the water supply, remove the strainer, clean & re-fit.	

Overflow Pipe Runs Continuously		
Possible Cause	Remedy	
Float valve is set too high.	Drain some water from the expansion tank and bend the arm of the valve until the float is approx. 50 mm from the bottom of the tank.	
Expansion tank is not level.	Realign the expansion tank so that it is level. You can use blocks of wood or readjust brackets if fitted.	
Expansion tank is too small	The size of the expansion tank should be 6% of the main tank capacity eg. A 450 litre tank requires a 25 litre expansion tank.	
Heat exchange coil is leaking.	Isolate the water supply to the expansion tank, drain water level in the main tank until it is level with the bottom of the expansion tank. If the expansion tank fills up again then the coil is leaking – contact Edwards.	

Water treatment Is Low		
Possible Cause	Remedy	
Regular maintenance is not being carried out	Make sure a full service is done.	
Heat exchange coil or pipe- work is leaking.	Isolate the water supply to the expansion tank, drain water level in the main tank until it is level with the bottom of the expansion tank. If the expansion tank fills up again then the coil is leaking – contact Edwards.	

# Warranty

Item	Coverage
Heat Exchange Storage Tank	5 years full cover (pro-rata)
Associated parts- valves	1 year
Labour, Travel & Freight	1 year

Also refer to General Warranty terms & Conditions (Section 1.3). Ensure that the warranty registration form provided with the system has been completed and returned to Edwards.

This information expands on the EHX Configuration details from Section 2.5 of this manual.

## **Installation Details**

**Location of Tank Connections** 



#### Positioning

- An EHX Series tank can be installed inside or outside.
- Make sure it is accessible for maintenance allow 250 mm clearance at the top for access to the expansion tank (if located on top of tank) and 50 mm around sides.
- The tank must sit on a solid, well-drained and level base.
- Locate as near as possible to water services & any other system components.

#### **Cold Water Supply**

- The tank is classified by AS3500.1 as a low hazard device. This means that it requires only a non-٠ testable back-flow prevention device be fitted in the incoming water supply prior to the system. Section 4.0 of Australian Standard AS3500.1 provides you with details on these devices.
- The valves required for the cold water supply are shown below and must be fitted before the heater.

## EHX Storage Tank 3.5

#### **Cold Water Valving**



• Size the incoming cold water pipe in accordance with the guidelines provided in AS3500.1. If you require the full flow capacity of the tank then we recommend the pipe be sized the same as the tank connection. This is 50 mm for the EHX1500, EHX2000, EHX3500 and 80mm for the EHX5000.

#### **Connection Methods**

You have 2 options for connecting pipes to the inlet & outlets on the front of the tank.



#### **Hot Water Supply**

- As the storage tank is an open vented (heat exchanger) type, it does not require a pressure and temperature relief valve to be fitted in the tank
- All hot water pipe-work should be insulated.

#### **Expansion Tank**

Important: Always fill the heat exchanger coil with mains or full pressure water BEFORE you start filling the main tank. Otherwise you could damage the heat exchange coil by partially crushing it. Failure to follow this instruction will void the warranty.

- An expansion tank (not supplied as standard) must be fitted to the EHX storage tank. This tank acts as a reservoir to allow expansion and contraction of the treated water in the EHX tank.
- It must be installed at the highest point of the treated water circuit.
- If necessary due to site restrictions, you can locate the expansion tank away from the EHX tank. Ensure that it is no higher than 40 m from the top of the EHX tank to the bottom of the expansion tank and that there is a continually falling gradient between the tanks so that the flow of water is unrestricted.

#### Expansion Tank Layout



#### **Expansion Pipe**

Never install an isolating valve in this pipe – always keep it unobstructed.

#### **Overflow Pipe**

It is recommended that you direct water away from the top of the EHX tank and into a tundish or drain.

#### **Cold Water Supply to Expansion Tank**

You must connect the float valve inside the Expansion tank to the cold water supply using a 15mm pipe. This allows the system to automatically replace evaporated water with a small amount of fresh water. A strainer/filter must be fitted to the Expansion cold water line (unless connected after the filter in the main supply line). An isolating valve must also be fitted so that it can be isolated during servicing – this valve must remain open when the system is operational.

#### **Hot Water Circulation Pump**



- If the building has a secondary or ring-main return it must be connected back into the cold water supply after the cold water check valve. The ring-main circulation pump should have isolating valves either side of it for servicing and a check valve fitted downstream of it but before entering back into the cold water supply.
- Make sure the pump is installed with its shaft in the horizontal position.

#### **Electrical Connection**

For further information eg. wiring diagrams, refer to Section 5.5 of this manual.

Systems that have 1 element (up to 4.8kW) require a 240Volt, 20amp single-phase power supply wired into the terminal block inside the tank's control box.

For those systems fitted with more than 1 element you require a 415 Volt, 3 phase power supply with an amperage to suit the number of elements (see table below and refer to Section 5.5). Each phase must be balanced.

No. of 4.8kW Elements	Rating Kilowatts	Power Supply Volts	Phase	Amperage per Phase Amps
1	4.8	240	1	20
2	14.4	415	3	25
6	28.8	415	3	50
9	43.2	415	3	75
12	57.6	415	3	100
15	72	415	3	125
18	86.4	415	3	150
21	100.8	415	3	175
24	115.2	415	3	200
27	129.6	415	3	225

#### **Electric Element Amperage Requirements**

#### **Manifolding Tanks Together**



- Check that all your pipe-work, valves, fittings & associated equipment have been completed and tightened. Remember to open any valves in the treated water circuit that are connected to the heat-source.
- Connect a temporary cold water supply to the service valve located on the tank.



- Open the service valve and commence filling up the storage tank until water has reached approx. two thirds of the tank level. Shut off service valve.
- Pour the contents of the water treatment container into the Expansion tank so that it makes its own way down into the main tank (or through service valve).
- Recommence filling the system by opening the service valve again until the water level rises just enough to start entering the Expansion tank. Shut off the service valve and disconnect the cold water supply to it.

• Set the float valve inside the Expansion tank (by bending the arm) so that it will shut off after filling the tank to approx. 50 mm above the bottom of the Expansion tank.



• Open the cold water supply valve to the float valve in the Expansion tank and let the system fill until the float valve automatically shuts off – check for air locks!

# Commissioning

The heat-source has its own commissioning instructions contained in Section 5.0 of this manual.

#### **Completion Checklist**

All pipe-work & fittings are water tight & sound by pressure testing (this also confirms that the heat exchanger is OK).

Operating thermostat is set at clients desired temperature. This will usually be approx. 60°C for hot water.

The Expansion tank is connected correctly ie. There is a continuous gradient.

The isolating valve to the Expansion tank is open & the float valve is set at approx. 50 mm above the bottom of the Expansion tank.

Water treatment is at the correct dosage.

- Take a small sample of water from the service valve and place it in a container. 250 to 500 ml is plenty.
- Use a pH tester (such as litmus paper) and check that the pH of the water is between 8.5 – 9.0

This should be done once the heat source has been installed because the water must be circulating for 30 minutes to evenly distribute the water treatment.

The cold water Expansion control valve is operating correctly (check the valve by pulling on the lever).

Plastic protective coating around the tank is removed and any marks tidied up.

A copy of the User Guide has been handed to the client for their future referral & owners instructions.









## Maintenance

Full maintenance on the EHX Series tank should only be carried out by a qualified trades-person. As the owner however, you can do a few simple things to help maintain the tank at its peak.

#### Every 6 months check:

- There are no water leaks in any joins or fittings and electrical cables are secure and undamaged.
- The water treatment is within 8.5 to 9.0 see completion checklist for method.
- There is water in the Expansion tank it should be dark in colour.
- The cold water Expansion control valve (located in the cold water supply near the tank) is operating correctly by pulling the lever and allowing water to discharge.

#### **Full Maintenance**

This can only be performed by a qualified trades-person.

Visual Inspection	<ul> <li>Inspect the shell for any leaks or weeps.</li> <li>Check that all connections are tight and not corroded.</li> <li>Replace any deteriorating insulation on the pipe-work.</li> </ul>
Expansion Tank	<ul> <li>Inspect for any water treatment stains.</li> <li>Adjust the level of the float valve so that it shuts off at approx. 50mm of water level in the expansion tank.</li> <li>Check that the float valve shuts off completely.</li> </ul>
Water Treatment	<ul> <li>Drain approx. 250 ml of treated water from the service valve on the main tank.</li> <li>Check the pH of the water (using litmus paper) to see if it is within 8.5 – 9.0.</li> <li>If the level is below this range, re-dose with water treatment using a plumbers' pump connected to the service valve. Retest the pH level.</li> </ul>
Performance Check	<ul> <li>Check that the water temperature from the tank is within 7°C of the thermostat setting for hot water.</li> <li>If the unit is connected to harsh water you may need to get the heat exchanger flushed out regularly – contact Edwards.</li> </ul>
Final	<ul><li>Detail the tank.</li><li>Tidy up the plant room.</li><li>Complete paperwork.</li></ul>

# **Spare Parts**

Description	Type / Model	Stock Code
Cold Water Expansion Control Valve	RMC H50 - 1200kPa	2020316
Washer	50mm x 3mm Fibre Washer	4040077
Water Treatment	Gendex – use 1ml for every litre of storage capacity eg. 1000ml for 1000 litres.	8080061
Expansion Tank (if supplied)	EHX1000 & EHX 2000 = 120 litre capacity EHX3500 & EHX5000 = 305 litre capacity	5013120
0		5013300
Service Valve	15mm BSP Brass ball valve	2020075
Element	4.8kW 25mm BSP Screw In	6060115
Thermostat	Robertshaw WIM2A/5018	6060301
Float Valve	Philmac Valve 3005 &	2020368
	Float 4993	2020369

# **Problem Solving**

Lack Of Water Pressure		
Possible Cause	Remedy	
Line strainer is blocked	Turn off cold water, remove strainer, flush, re-fit and turn water back on.	
Blockage in pipe-work	Isolate the likely area. Try and flush by quickly opening/closing a hot top. If unsuccessful remove pipe, clean or replace.	
Water is too harsh	Check the water quality against the recommended levels. If too high contact Edwards for advice.	
Cold or hot water pipes too small	Refer to AS3500.1 for sizing guidelines or contact Edwards for recommendations.	
Check valve in reverse	Remove the valve and fit with the arrow on its body pointing in the same direction as the flow of water.	

Brown Coloured Water From Taps		
Possible Cause	Remedy	
Mud or silt built up in cold water supply	Flush out the pipe-work and any supply tanks.	
Heat exchange coil inside tank is leaking	Isolate the water supply to the Expansion tank, drain water level in the main tank until it is level with the bottom of the Expansion tank. If the Expansion tank fills up again then the coil is leaking – contact Edwards.	

# EHX Storage Tank 3.5

#### **Relief Valve Drips**

A relief valve is designed to drip as part of its normal operation:

• A cold water Expansion control valve will normally drip when water is being heated because the water will expand up to 5% of the stored water per day. Is this the case?

If the answer is no;

Remedy
Turn off the water supply and fit a pressure limiting
valve in the cold water supply to the heater prior to the
cold water Expansion control valve.
Turn off the cold water supply, remove the valve, flush
the valve with water, check the closing operation and
re-fit.

Not Enough Hot or Warm Water		
Possible Cause	Remedy	
Thermostat setting is too low or faulty.	Isolate the power supply to the heater. Adjust thermostat settings to a higher set point by opening the control box cover and adjusting each set point individually.	
Heat source not functioning correctly.	See Section 5.5 for instructions.	
Leaking hot water pipe or fitting.	Re-weld or tighten the effected area.	
No check valve fitted in the secondary return line (if connected to a ring-main)	Fit a check valve in the ring-main secondary return line downstream of the circulation pump but prior to entry back into the cold water supply.	
Hot & cold water pipes have been interconnected.	Trace pipe-work, remove the interconnecting pipe & re- weld.	
Hot & cold connections reversed on tank.	Cold inlet should be the right hand side of the tank (looking from the front).	
Faulty cold water Expansion control valve is dumping all the water.	Isolate the cold water & replace the valve.	

Not Enough Water Flow		
Possible Cause	Remedy	
Block in the pipe-work	Flush the pipe-work with water. If the water quality is poor there could be a build up of calcium or silt in the pipes or heat exchanger. This will require flushing with	
Pipe-work is too small	Contact your pearest Edwards Distributor for	
	assistance.	
Heat exchange coil is undersized for the load	Check that the flow rate for this model (se brochure) meets the requirements of the project.	
Water level in the tank is low	Check the level of water inside the Expansion tank is approx. 50 mm high. Make sure that the isolating valve to the float valve is not turned off.	
Blocked strainer in the cold water supply.	Isolate the water supply, remove the strainer, clean & re-fit.	

Water Hammer in Pipes		
Possible Cause	Remedy	
Pipe-work is not clipped	Clip pipes at the intervals specified in Australian	
properly.	Standard AS3500.4	
Taps are 'fast	Replace taps with slow opening type.	
opening/closing' type.		
Appliance (such as a	Check with the appliance manufacturer to see if slower	
dishwasher) uses 'fast	opening solenoids are available.	
opening' solenoid valves.		
Water pressure is too high.	Fit a water hammer arrester valve into the pipe-work.	

Overflow Pipe Runs Continuously			
Possible Cause	Remedy		
Float valve is set too high.	Drain some water from the Expansion tank and bend the arm of the valve until the float is approx. 50 mm from the bottom of the tank.		
Expansion tank is not level.	Realign the Expansion tank so that it is level. You can use blocks of wood or readjust brackets if fitted.		
Expansion tank is too small	The size of the Expansion tank should be 6% of the main tank capacity eg. A 5000 litre tank requires a 305 litre Expansion tank.		
Heat exchange coil is leaking.	Isolate the water supply to the Expansion tank, drain water level in the main tank until it is level with the bottom of the Expansion tank. If the Expansion tank fills up again then the coil is leaking – contact Edwards.		

Water treatment Is Low	
Possible Cause	Remedy
Regular maintenance is not being carried out	Make sure a full service is done.
Heat exchange coil or pipe- work is leaking.	Isolate the water supply to the Expansion tank, drain water level in the main tank until it is level with the bottom of the Expansion tank. If the Expansion tank fills up again then the coil is leaking – contact Edwards.

## Warranty

ltem	Coverage
Heat Exchange Storage Tank	3 years full cover 4th year 75% cover 5th year 50% cover
Associated parts- valves	1 year
Labour, Travel & Freight	1 year

Also refer to General Warranty terms & Conditions (Section 1.3). Ensure that the warranty registration form provided with the system has been completed and returned to Edwards.

This information expands on the SHX Configuration details from Section 2.6 of this manual.

## **Installation Details**

# Location of Tank Connections

#### Positioning

- A SHX Series tank can be installed inside or outside.
- Make sure it is accessible for maintenance allow 50 mm all around sides.
- The tank must sit on a solid, well-drained and level base.
- Locate as near as possible to water services & any other system components.

#### **Cold Water Supply**

- The tank is classified by AS3500.1 as a low hazard device. This means that it requires only a nontestable back-flow prevention device be fitted in the incoming water supply prior to the system. Section 4.0 of Australian Standard AS3500.1 provides you with details on these devices.
- The valves required for the cold water supply are shown below and must be fitted before the heater.

## SHX Storage Tank 3.6



• Size the incoming cold water pipe in accordance with the guidelines provided in AS3500.1. If you require the full flow capacity of the tank then we recommend the pipe be sized the same as the tank connection.

#### **Cold & Hot Water Connection Methods**

You have 2 options for connecting pipes to the inlet & outlets on the tank.



#### Hot Water Supply

- As the storage tank is an open vented (heat exchanger) type, it does not require a pressure and temperature relief valve to be fitted in the tank
- All hot water pipe-work should be insulated.

#### **Expansion Tank**

Always fill the heat exchanger coil with mains or full pressure water BEFORE you start filling the main tank. Otherwise you could damage the heat exchange coil by partially crushing it. Failure to follow this instruction will void the warranty.

- An expansion tank (not supplied as standard) must be fitted to the SHX storage tank. This tank acts as a reservoir to allow expansion and contraction of the treated water in the SHX tank.
- It must be installed at the highest point of the treated water circuit this is usually above the solar panels.
- If necessary due to site restrictions, you can locate the expansion tank away from the SHX tank. Ensure that it is no higher than 14 m from the top of the SHX tank to the bottom of the expansion tank and that there is a continually falling gradient between the tanks so that the flow of water is unrestricted.



#### **Expansion Pipe**

Never install an isolating valve in this pipe – always keep it unobstructed.

#### **Overflow Pipe**

It is recommended that you direct water away from the top of the SHX tank and into a tundish or drain.

#### **Cold Water Supply To Expansion Tank**

You must connect the float valve inside the expansion tank to the cold water supply using a 15 mm pipe. This allows the system to automatically replace evaporated water with a small amount of fresh water. A strainer/filter must be fitted to the expansion cold water line (unless connected after the filter in the main supply line). An isolating valve must also be fitted so that it can be isolated during servicing – this valve must remain open when the system is operational.

#### **Hot Water Circulation Pump**



- If the building has a secondary or ring-main return it must be connected back into the cold water supply after the cold water check valve. The ring-main circulation pump should have isolating valves either side of it for servicing and a check valve fitted downstream of it but before entering back into the cold water supply.
- Make sure the pump is installed with its shaft in the horizontal position.

#### **Connecting Solar Heat Source**

The SHX can be connected to a number of solar panels for the reduction of fuel costs. If installed as a Pre-heater (see Section 2.6), the SHX tank must be connected into the cold water supply prior to the separate boost tank. If the SHX is fitted with electric elements it does not require a separate boost tank.

• For details on the installation of the solar panels themselves, refer to Section 5.3 for details.

#### **Solar Heat Source**



- The flow line to the heat source from the tank is from the lower connection on the left-hand side of the tank (B). The return line from the heat source is connected to the tank connection on the lower right-hand side of the tank (A).
- Isolating valves are recommended to be fitted to both connections for easier servicing.

#### Connecting A Solar Control Box

- The solar control box operates a pump that circulates treated water from the SHX tank to the solar panels and back again.
- Full details of the solar controller are provided in Section 4.4.

#### **Electrical Connection For Elements (If Fitted)**

For further information eg. wiring diagrams, refer to Section 5.5 of this manual.

Systems that have 1 element (up to 4.8kW) require a 240Volt, 20amp single-phase power supply wired into the terminal block inside the tank's control box.

For those systems fitted with more than 1 element you require a 415 Volt, 3 phase power supply with an amperage to suit the number of elements (see below and refer to Section 5.5). Each phase must be balanced.

No. of 4.8kW	Rating Kilowatts	Power Supply Volts	Phase	Amperage per Phase Amps
1	4.8	240	1	20
2	14.4	415	3	25
6	28.8	415	3	50
9	43.2	415	3	75
12	57.6	415	3	100
15	72	415	3	125
18	86.4	415	3	150
21	100.8	415	3	175
24	115.2	415	3	200

#### **Electric Element Amperage Requirements**

A 240V 15amp power supply is provided to the Solar Control Box (see Section 4.4). The temperature sensor is attached to the storage tank by inserting it into the socket located in the tank.

#### Filling the Tank with Water

- Check that all your pipe-work, valves, fittings & associated equipment have been completed and tightened. Remember to open any valves in the treated water circuit for the solar panels.
- Connect a temporary cold water supply to the service valve located on the tank.



• Open the service valve and commence filling up the storage tank until water has reached approx. two thirds of the tank. Shut off service valve.

- Pour the contents of the water treatment container into the tank (or through service valve).
- Recommence filling the system by opening the service valve again until the water level rises just enough to start entering the expansion tank. Shut off the service valve and disconnect the cold water supply to it.
- Set the float valve inside the expansion tank (by bending the arm) so that it will shut off after filling the tank to approx. 50 mm above the bottom of the expansion tank.



• Open the cold water supply valve to the float valve in the expansion tank and let the system fill until the float valve automatically shuts off – check for air locks!

## Commissioning

Commissioning the SHX tank involves a few small steps. The solar panels are detailed in Section 5.3.

#### **Completion Checklist**

All pipe-work & fittings are water tight & sound by pressure testing (this also confirms that the heat exchanger is OK).

Operating thermostat is set at clients desired temperature. This will usually be approx. 60°C for hot water.

The Expansion tank is connected correctly ie. There is a continuous gradient.

The isolating value to the Expansion tank is open & the float value is set at approx. 50 mm above the bottom of the Expansion tank.

Water treatment is at the correct dosage.

- Take a small sample of water from the service valve and place it in a container. 250 to 500 ml is plenty.
- Use a pH tester (such as litmus paper) and check that the pH of the water is between 8.5 – 9.0

This should be done once the heat source has been installed because the water must be circulating for 30 minutes to evenly distribute the water treatment.

The cold water Expansion control valve is operating correctly (check the valve by pulling on the lever).

Plastic protective coating around the tank is removed and any marks tidied up.

A copy of the User Guide has been handed to the client for their future referral & owners instructions explained.

	1		
	L		







## Maintenance

Full maintenance on the SHX Series tank should only be carried out by a qualified trades-person. As the owner however, you can do a few simple things to help maintain the tank at its peak.

#### Every 6 months check:

- There are no water leaks in any joins or fittings and electrical cables are secure and undamaged.
- The water treatment is within 8.5 to 9.0 see completion checklist above for instructions on how to do this.
- There is water in the expansion tank it should be dark in colour.
- The cold water expansion control valve (located in the cold water supply near the tank) is operating correctly by pulling the lever and allowing water to discharge.

#### **Full Maintenance**

This can only be performed by a qualified trades-person.

Visual Inspection	<ul> <li>Inspect the shell for any leaks or weeps.</li> <li>Check that all connections are tight and not corroded.</li> <li>Replace any deteriorating insulation on the pipe-work.</li> </ul>
Expansion Tank	<ul> <li>Inspect for any water treatment stains.</li> <li>Adjust the level of the float valve so that it shuts off at approx. 50mm of water level.</li> <li>Check that the float valve shuts off completely.</li> </ul>
Water Treatment	<ul> <li>Drain approx. 250 ml of treated water from the service valve on the main tank.</li> <li>Check the pH of the water (using litmus paper) to see if it is within 8.5 – 9.0.</li> <li>If the level is below this range, re-dose with water treatment using a plumbers' pump connected to the service valve. Retest the pH level.</li> </ul>
Performance Check	Check that the water temperature from the tank is within 7°C of the thermostat setting for hot water. If the unit is connected to harsh water you may need to get the heat exchanger flushed out regularly – contact Edwards.
Final •	Detail the tank. Tidy up the plant room. Complete paperwork.

# **Spare Parts**

Description	Type / Model	Stock Code
Cold Water Expansion Control Valve	RMC H50 - 1200kPa	2020316
Water Treatment	Gendex – use 1 ml for every litre of	8080049
	storage capacity eg. 450 ml for 450	8080061
	litres.	
Expansion Tank	Check size with Edwards	-
Service Valve	15mm BSP Brass ball valve	2020075
Temperature Gauge	Caleffi 688000	2020427
Element	4.8kW 25mm BSP Screw In	6060115
Thermostat	Robertshaw WIM2A	6060301
Float Valve	Philmac Valve 3005 &	2020368
	Float 4993	2020369

# **Problem Solving**

Lack Of Water Pressure		
Possible Cause	Remedy	
Line strainer is blocked	Turn off cold water, remove strainer, flush, re-fit and turn water back on.	
Blockage in pipe-work	Isolate the likely area. Try and flush by quickly opening/closing a hot top. If unsuccessful remove pipe, clean or replace.	
Water is too harsh	Check the water quality against the recommended levels. If too high contact Edwards for advice.	
Cold or hot water pipes too small	Refer to AS3500.1 for sizing guidelines or contact Edwards for recommendations.	
Check valve in reverse	Remove the valve and fit with the arrow on its body pointing in the same direction as the flow of water.	

Brown Coloured Water From Taps		
Possible Cause	Remedy	
Mud or silt built up in cold water supply	Flush out the pipe-work and any supply tanks.	
Heat exchange coil inside tank is leaking	Isolate the water supply to the expansion tank, drain water level in the main tank until it is level with the bottom of the expansion tank. If the expansion tank fills up again then the coil is leaking – contact Edwards.	

# SHX Storage Tank 3.6

#### **Relief Valve Drips**

A relief valve is designed to drip as part of its normal operation:

• A cold water expansion control valve will normally drip when water is being heated because the water will expand up to 5% of the stored water per day. Is this the case?

If the answer is no;

Possible Cause	Remedy
The incoming water pressure	Turn off the water supply and fit a pressure limiting
is too high for the valve	valve in the cold water supply to the heater prior to the
setting.	cold water expansion control valve.
Dirt has built up under the	Turn off the cold water supply, remove the valve, flush
seal in the valve stopping it	the valve with water, check the closing operation and
from fully closing.	re-fit.

Not Enough Hot or Warm Water		
Possible Cause	Remedy	
Thermostat setting is too low	Adjust thermostat setting to a higher set point (see	
or faulty.	Section 4.0 for instructions on how to do this).	
Heat source not functioning	See Section 5.0 for instructions.	
correctly.		
Leaking hot water pipe or	Re-weld or tighten the effected area.	
fitting.		
No check valve fitted in the	Fit a check valve in the ring-main secondary return line	
secondary return line (if	downstream of the circulation pump but prior to entry	
connected to a ring-main)	back into the cold water supply.	
Hot & cold water pipes have	Trace pipe-work, remove the interconnecting pipe &	
been interconnected.	reweld.	
Hot & cold connections	Cold inlet should be the right hand side of the tank	
reversed on tank.	(looking from the front).	
Cold water expansion control	Isolate the cold water & replace the valve.	
valve dumps all the water.		

Not Enough Water Flow		
Possible Cause	Remedy	
Block in the pipe-work	Flush the pipe-work with water. If the water quality is poor there could be a build up of calcium or silt in the pipes or heat exchanger which will require flushing with a suitable cleaning agent – contact Edwards.	
Pipe-work is too small.	Contact your nearest Edwards Distributor for assistance.	
Heat exchange coil is undersized for the load	Check that the flow rate for this model (se brochure) meets the requirements of the project.	
Water level in the tank is low	Check the level of water inside the expansion tank is approx. 50 mm high. Make sure that the isolating valve to the float valve is not turned off.	
Blocked strainer in the cold water supply.	Isolate the water supply, remove the strainer, clean & re-fit.	

Water Hammer in Pipes		
Possible Cause	Remedy	
Pipe-work is not clipped	Clip pipes at the intervals specified in Australian	
properly.	Standard AS3500.4	
Taps are 'fast	Replace taps with slow opening type.	
opening/closing' type.		
Appliance (such as a	Check with the appliance manufacturer to see if slower	
dishwasher) uses 'fast	opening solenoids are available.	
opening' solenoid valves.		
Water pressure is too high.	Fit a water hammer arrester valve into the pipe-work.	

Overflow Pipe Runs Continuously		
Possible Cause	Remedy	
Float valve is set too high.	Drain some water from the expansion tank and bend the arm of the valve until the float is approx. 50 mm from the bottom of the tank.	
Expansion tank is not level.	Realign the expansion tank so that it is level. You can use blocks of wood or readjust brackets if fitted.	
Expansion tank is too small	The size of the expansion tank should be 6% of the main tank capacity eg. A 5000 litre tank requires a 305 litre expansion tank.	
Heat exchange coil is leaking.	Isolate the water supply to the expansion tank, drain water level in the main tank until it is level with the bottom of the expansion tank. If the expansion tank fills up again then the coil is leaking – contact Edwards.	

Water treatment Is Low		
Possible Cause	Remedy	
Regular maintenance is not being carried out	Make sure a full service is done.	
Heat exchange coil or pipe- work is leaking.	Isolate the water supply to the expansion tank, drain water level in the main tank until it is level with the bottom of the expansion tank. If the expansion tank fills up again then the coil is leaking – contact Edwards.	

## Warranty

Item	Coverage
Heat Exchange Storage Tank	3 years full cover 4th year 75% cover
	5th year 50% cover
Associated parts- valves	1 year
Labour, Travel & Freight	1 year

Also refer to General Warranty terms & Conditions (Section 1.3). Ensure that the warranty registration form provided with the system has been completed and returned to Edwards.

This information expands on the HEV Configuration details from Section 2.7 of this manual.

## **Installation Details**

Location of Tank Connections



#### Positioning

- A HEV Series tank is designed to be installed inside but can be installed outside providing adequate weatherproofing is provided.
- Make sure it is accessible for maintenance allow 250 mm clearance at the top for access to the expansion tank (if located on top of tank) and 50 mm around sides.
- The tank must sit on a solid, well-drained and level base.
- Locate as near as possible to water services & any other system components.
- It should be in a well ventilated area.

#### **Cold Water Supply**

- The tank is classified by AS3500.1 as a low hazard device. This means that it requires only a nontestable back-flow prevention device be fitted in the incoming water supply prior to the system. Section 4.0 of Australian Standard AS3500.1 provides you with details on these devices.
- The valves required for the cold water supply are shown below and must be fitted before the heater.



• Size the incoming cold water pipe in accordance with the guidelines provided in AS3500.1. If you require the full flow capacity of the tank then we recommend the pipe be sized the same as the tank connection.

#### **Connection Methods**

You have 2 options for connecting pipes to the inlet & outlets on top of the tank.



#### **Hot Water Supply**

- As the storage tank is an open vented (heat exchanger) type, it does not require a pressure and temperature relief valve to be fitted in the tank
- All hot water pipe-work should be insulated.

#### **Expansion Tank**

- An expansion tank must be fitted above the HEV storage tank. This tank acts as a reservoir to allow expansion and contraction of the treated water in the HEV tank. This is a vented circuit.
- The expansion tank can be removed for easier access into a plant-room. If necessary due to site restrictions, you can locate the expansion tank away from the HEV tank. However, you must ensure that it is no higher than 8m from the top of the HEV tank to the bottom of the expansion tank and that there is a continually falling gradient between the tanks so that the flow of water is unrestricted.



Note: If you wish to install a single expansion tank for both the HEV series and a storage tank, refer to Section 2 .7.

#### **Expansion Pipe**

Never install an isolating valve in this pipe - always keep it unobstructed.

#### **Overflow Pipe**

It is recommended that you direct water away from the top of the HEV tank and into a tundish or drain.

#### **Cold Water Supply To Expansion Tank**

You must connect the float valve inside the expansion tank to the cold water supply using a 15 mm pipe. This allows the system to automatically replace evaporated water with a small amount of fresh water. A strainer/filter must be fitted to the expansion cold water line (unless connected after the filter in the main supply line). An isolating valve must also be fitted so that it can be isolated during servicing – this valve must remain open when the system is operational.

#### **Hot Water Circulation Pump**



- If the building has a secondary or ring-main return it must be connected back into the cold water supply after the cold water check valve. The ring-main circulation pump should have isolating valves either side of it for servicing and a check valve fitted downstream of it but before entering back into the cold water supply.
- Make sure the pump is installed with its shaft in the horizontal position.

#### **Connecting A HEV Control Box**

The HEV tank is connected to a control box to control a forced draft burner. Refer to Section 4.4 for specific installation details.

#### **Connecting A Forced Draft Burner**

A gas or oil burner (type B appliance) is fitted to the HEV tank. This burner can be supplied by various manufacturers and must be sized to suit the Input (MJ) rating of the HEV tank. Refer to Section 5.4 of this manual for general details on forced draft burners or specifically to the Manufacturers manual that is supplied with the burner itself.

#### Gas Connection (if applicable)

- The gas connection must be made in accordance with AS5601 and any other local gas authority regulations and must be connected by a qualified person.
- Pipe-work should be sized according to the pressure and flow rate (gas consumption) required.
- Refer to Section 5.4

#### **Oil Connection (if applicable)**

- Unless otherwise specified, fuel oil should be light oil distillate Class D. The supply and return (where fitted) pipes should be of copper only. Final connection to the burner can be made with the flexible fuel pipe.
- Refer to Section 5.4

#### **Plant Room Ventilation**

Ventilation requirements vary according to the size of the burner, but it is essential for both gas and oil burners to have adequate ventilation that meets the AGA codes and EPA regulations. Refer to Section 5.4

#### Fluing

All gas or oil heaters must be flued in accordance with AS5601. Refer to Section 5.4

#### **Process Heating Connections**

The HEV tank can be connected to a closed heating circuit via optional process sockets. The flow line from the heater is connected from the top socket on the right–side of the tank and the return line into the lower socket on the right-side of the tank. Isolating valves should be fitted to each socket.

Ensure that the circulation pump is fitted in the flow line so that it draws water directly from the tank. Pumps should be correctly sized to prevent sny overflowing of the expansion tank or oxygen entering the system.

#### **Electrical Connection**

Power is provided to the Control Box (see Section 4.4). The temperature sensors are attached to the storage tank by inserting it into the socket located in the tank.

#### Filling the Tank with Water

Always fill the heat exchanger coil with mains or full pressure water BEFORE you start filling the main tank. Otherwise you could damage the heat exchange coil by partially crushing it. Failure to follow this instruction will void the warranty.

- Check that all your pipe-work, valves, fittings & associated equipment have been completed and tightened. Remember to open any valves in the treated water circuit.
- Connect a temporary cold water supply to the service valve located on the tank.



- Open the service valve and commence filling up the storage tank until water has reached approx. two thirds of the HEV tank. Shut off service valve.
- Using the same method pour the contents of the water treatment container into the unit via the service valve. Shut off service valve.
- Recommence filling the system by opening the service valve again until the water level rises just enough to start entering the expansion tank. Shut off the service valve and disconnect the cold water supply to it.
• Set the float valve inside the expansion tank (by bending the arm) so that it will shut off after filling the tank to a maximum of 20 mm above the bottom of the expansion tank.



• Open the cold water supply valve to the float valve in the expansion tank and let the system fill until the float valve automatically shuts off – check for air locks!

### Commissioning

Commissioning the HEV tank involves a few small steps. The burner requires commissioning by a suitably qualified person. Refer to Section 5.4 for general details on the burner and the specific manufacturers information.

#### **Completion Checklist (Tank Only)**

All pipe-work & fittings are water tight & sound by pressure testing (this also confirms that the heat exchanger is OK).

Operating thermostat is set at clients desired temperature. This will usually be approx. 60°C for hot water.

The expansion tank is connected correctly ie. There is a continuous gradient.

The isolating valve to the expansion tank is open & the float valve is set at approx. 20 mm above the bottom of the expansion tank.

Water treatment is at the correct dosage.

- Take a small sample of water from the service valve and place it in a container. 250 to 500 ml is plenty.
- Use a pH tester (such as litmus paper) and check that the pH of the water is between 8.5 9.0

This should be done once the heat source has been installed because the water must be circulating for 30 minutes to evenly distribute the water treatment.

The cold water expansion control valve is operating correctly (check the valve by pulling on the lever).

Plastic protective coating around the tank is removed and any marks tidied up.

A copy of the User Guide has been handed to the client for their future referral & owners instructions explained.



Ì				

### Maintenance

Full maintenance on the HEV Series tank should only be carried out by a qualified trades-person. As the owner however, you can do a few simple things to help maintain the tank at its peak.

#### Every 6 months check:

- There are no water leaks in any joins or fittings and electrical cables are secure and undamaged.
- The water treatment is within 8.5 to 9.0 see completion checklist above for instructions.
- There is water in the expansion tank it should be dark in colour.
- The cold water expansion control valve (located in the cold water supply near the tank) is operating correctly by pulling the lever and allowing water to discharge.

#### **Full Maintenance**

This can only be performed by a qualified trades-person.

Visual Inspection	<ul> <li>Inspect the shell for any leaks or weeps.</li> <li>Check that all connections are tight and not corroded.</li> <li>Replace any deteriorating insulation on the pipe-work.</li> </ul>
Expansion Tank	<ul> <li>Inspect for any water treatment stains.</li> <li>Adjust the level of the float valve so that it shuts off at approx. 20mm of water level.</li> <li>Check that the float valve shuts off completely.</li> </ul>
Water Treatment	<ul> <li>Drain approx. 250 ml of treated water from the service valve on the main tank.</li> <li>Check the pH of the water (using litmus paper) to see if it is within 8.5 – 9.0.</li> <li>If the level is below this range, re-dose with water treatment using a plumbers' pump connected to the service valve. Retest the pH level.</li> </ul>
Performance Check	<ul> <li>Check that the water temperature from the tank is within 7°C for hot water.</li> <li>If the unit is connected to harsh water you may need to get the heat exchanger flushed out regularly – contact Edwards.</li> </ul>
Final	<ul><li>Detail the tank.</li><li>Tidy up the plant room.</li><li>Complete paperwork.</li></ul>

# Spare Parts

Description	Type / Model	Stock Code
Cold Water Expansion Control Valve	RMC H50 - 1200kPa	2020316
Water Treatment	Gendex – use 1ml for every litre of storage capacity eg. 45ml for 450 litres.	8080049
Expansion Tank (if	HEV60 & HEV 95 = 25 litre capacity	5012025
supplied)	HEV330 = 120 litre capacity	5013120
Service Valve	15mm BSP Brass ball valve	2020075
Float Valve	Philmac Valve 3005 &	2020368
	Float 4993	2020369

# **Problem Solving**

Lack Of Water Pressure		
Possible Cause	Remedy	
Line strainer is blocked	Turn off cold water, remove strainer, flush, re-fit and turn water back on.	
Blockage in pipe-work	Isolate the likely area. Try and flush by quickly opening/closing a hot top. If unsuccessful remove pipe, clean or replace.	
Water is too harsh	Check the water quality against the recommended levels. If too high contact Edwards for advice.	
Cold or hot water pipes too small	Refer to AS3500.1 for sizing guidelines or contact Edwards for recommendations.	
Check valve in reverse	Remove the valve and fit with the arrow on its body pointing in the same direction as the flow of water.	

Brown Coloured Water From Taps		
Possible Cause	Remedy	
Mud or silt built up in cold water supply	Flush out the pipe-work and any supply tanks.	
Heat exchange coil inside tank is leaking	Isolate the water supply to the expansion tank, drain water level in the main tank until it is level with the bottom of the expansion tank. If the expansion tank fills up again then the coil is leaking – contact Edwards.	

#### **Relief Valve Drips**

A relief valve is designed to drip as part of its normal operation:

• A cold water expansion control valve will normally drip when water is being heated because the water will expand up to 5% of the stored water per day. Is this the case?

If the answer is no;

Possible Cause	Remedy
The incoming water pressure	Turn off the water supply and fit a pressure limiting
is too high for the valve	valve in the cold water supply to the heater prior to the
setting.	cold water expansion control valve.
Dirt has built up under the	Turn off the cold water supply, remove the valve, flush
seal in the valve stopping it	the valve with water, check the closing operation and
from fully closing.	re-fit.

Not Enough Hot or Warm Water			
Possible Cause	Remedy		
Thermostat setting is too low	Adjust thermostat setting to a higher set point (see		
or faulty.	Section 4.0 for instructions on how to do this).		
Heat source not functioning	See Section 5.0 for instructions.		
correctly.			
Leaking hot water pipe or	Re-weld or tighten the effected area.		
fitting.			
No check valve fitted in the	Fit a check valve in the ring-main secondary return line		
secondary return line (if	downstream of the circulation pump but prior to entry		
connected to a ring-main)	back into the cold water supply.		
Hot & cold water pipes have	Trace pipe-work, remove the interconnecting pipe & re-		
been interconnected.	weld.		
Hot & cold connections	Cold inlet should be the right hand side of the tank		
reversed on tank.	(looking from the front).		
Faulty cold water expansion	Isolate the cold water & replace the valve.		
control valve is dumping all			
the water.			

Not Enough Water Flow		
Possible Cause	Remedy	
Block in the pipe-work	Flush the pipe-work with water. If the water quality is poor there could be a build up of calcium or silt in the pipes or heat exchanger. This will require flushing with a suitable cleaning agent – contact Edwards.	
Pipe-work is too small.	Contact your nearest Edwards Distributor for assistance.	
Heat exchange coil is undersized for the load	Check that the flow rate for this model (se brochure) meets the requirements of the project.	
Water level in the tank is low	Check the level of water inside the expansion tank is approx. 50 mm high. Make sure that the isolating valve to the float valve is not turned off.	
Blocked strainer in the cold water supply.	Isolate the water supply, remove the strainer, clean & re-fit.	

Water Hammer in Pipes		
Possible Cause	Remedy	
Pipe-work is not clipped	Clip pipes at the intervals specified in Australian	
properly.	Standard AS3500.4	
Taps are 'fast	Replace taps with slow opening type.	
opening/closing' type.		
Appliance (such as a	Check with the appliance manufacturer to see if slower	
dishwasher) uses 'fast opening solenoids are available.		
opening' solenoid valves.		
Water pressure is too high.	Fit a water hammer arrester valve into the pipe-work.	

Overflow Pipe Runs Continuously		
Possible Cause	Remedy	
Float valve is set too high.	Drain some water from the expansion tank and bend the arm of the valve until the float is approx. 20 mm from the bottom of the tank.	
Expansion tank is not level.	Realign the expansion tank so that it is level. You can use blocks of wood or readjust brackets if fitted.	
Expansion tank is too small	The size of the expansion tank should be 6% of the main tank capacity eg. A 1000 litre tank requires a 60 litre expansion tank.	
Heat exchange coil is leaking.	Isolate the water supply to the expansion tank, drain water level in the main tank until it is level with the bottom of the expansion tank. If the expansion tank fills up again then the coil is leaking – contact Edwards.	

Water treatment Is Low		
Possible Cause	Remedy	
Regular maintenance is not being carried out	Make sure a full service is done.	
Heat exchange coil or pipe- work is leaking.	Isolate the water supply to the expansion tank, drain water level in the main tank until it is level with the bottom of the expansion tank. If the expansion tank fills up again then the coil is leaking – contact Edwards.	

## Warranty

Item	Coverage
Heat Exchange Storage Tank	
Associated parts - valves	1 year
Labour, Travel & Freight	

Also refer to General Warranty terms & Conditions (Section 1.3). Ensure that the warranty registration form provided with the system has been completed and returned to Edwards.

This information expands on the TC Configuration details from Section 2.8 of this Manual.

### **Installation Details**

### **Location of Tank Connections**



#### Positioning

- A TC Series tank can be installed inside or outside.
- Make sure it is accessible for maintenance allow 250 mm clearance at the top if possible and 50 mm around sides. Allow sufficient space between adjacent tanks for service and maintenance.
- The tank must sit on a solid, well-drained and level base.
- Locate as near as possible to water, electric and fuel supplies, the boost water heater and the solar panels.
- Sufficient access must be provided to all valves and auxiliary plant.

#### **Expansion Tank**

- An expansion tank (not supplied as standard) must be fitted to the TC storage tank. This tank acts as a reservoir to allow expansion and contraction of the treated water in the TC tank. The size of the expansion tank will vary depending on the type of system being installed, its heat source and if it is being used with solar pre-heat.
- The expansion tank must be mounted above the solar panels at the highest point of the treated water circuit.
- If necessary due to site restrictions, you can locate the expansion tank away from the TC tank. Ensure that it is no higher than 40 m from the top of the TC tank to the bottom of the expansion tank and that there is a continually falling gradient between the tanks and that the flow of water is unrestricted by any valve.

Note: If you wish to install a single expansion tank for both the TC and its heat source, refer to Section 2.8.

#### **Expansion Tank Layout**



#### **Expansion Pipe**

Never install an isolating valve in this pipe – always keep it unobstructed.

#### **Overflow Pipe**

It is recommended that you direct water away from the top of the TC tank and via an air-break into a tundish or drain connected to the buildings drainage system.

#### **Cold Water Supply To Expansion Tank**

You must connect the float valve inside the expansion tank to the cold water supply using a 15 mm pipe. This allows the system to automatically replace evaporated water with a small amount of fresh water. A strainer/filter must be fitted to the expansion cold water line, unless the expansion supply is connected after the strainer/filter in the heater main supply. An isolating valve must also be fitted so that it can be isolated during servicing – this valve must remain open when the system is operational.

#### **Connecting A Heat Source & Control Box**

- The TC tank is usually connected to a heat source and control box. Refer to the relevant configuration diagram in Section 2.8 of this manual and this will then refer you to the appropriate parts of Section 4.0 and Section 5.0 for specific installation details.
- Warm water systems installed under the NSW Health Approvals must also be installed in conjunction with the Edwards Hot Water Warm Water Systems manual.
- The flow line to the heat source from the TC tank is from the upper connection on top of the tank (the smaller socket is the expansion line). The return line from the heat source is connected to the lower tank connection near the bottom of the tank (between the solar flow/return). These are clearly marked on the tanks.
- Isolating ball valves are recommended to be fitted to all connections for easier servicing.

#### **Connecting a Solar Heat Source**

- The TC can be connected to a number of solar panels to reduce fuel costs. The connections shown in the diagrams for the heat source connection are used for the connection of solar ie. the solar flow line is connected to the heat source flow line. The solar return line is connected to the heat source return line.
- For details on the installation of the solar panels themselves, refer to Section 5.3 of this manual.

#### **Electrical Connection**

Power is provided to the Control Box (see Section 4.0 of this Manual). The temperature sensor is attached to the storage tank by inserting it into the socket located in the tank.

#### Filling the Heater Tank with Water

- Check that all your pipe-work, valves, fittings & associated equipment have been completed, tightened and checked for leaks. Remember to open any valves in the treated water circuit that are connected to the heat-source.
- Connect a temporary cold water supply to the service valve located near the lower connections.



- Open the service valve and commence filling up the treated water storage tank until it is approximately half full. Shut off service valve.
- Using the same method pour the contents of the water treatment container into the unit via the service valve.
- Recommence filling the system by opening the service valve again until the water level rises just enough to start entering the expansion tank. Shut off the service valve and disconnect the cold water supply to it.
- Set the float valve inside the expansion tank (by gently bending the arm) so that it will shut-off after filling the tank to a maximum of 20 mm above the bottom of the expansion tank.



• Open the cold water supply valve to the float valve in the expansion tank and let the system fill until the float valve automatically shuts off – check for air locks in both the heater and solar circuits!

### Commissioning

The TC tank will normally have a remote heat-source attached. The heat-source has its own commissioning instructions contained in Section 5.0 of this manual.

A copy of the User Guide and any other applicable documents has been handed to the client for their future referral & owners instructions explained.

### Maintenance

Full maintenance on the TC Series tank should only be carried out by a qualified trades-person. As the building owner/manager however, you can arrange for a few simple things to be done to help maintain the tank at its peak.

#### Every 6 months check:

- There are no water leaks in any joints or fittings and electrical cables are secure and undamaged.
- The water treatment has a pH of 8.5 to 9.0 see completion checklist above for instructions on how to do this.
- There is water in the expansion tank it should be dark in colour.

#### Full Maintenance

The following can only be performed by or under the direct supervision on site of a qualified tradesperson. The model and serial numbers can be found on the identification sticker located on the front of the unit.

Model Number:		
Serial Number:		
Visual Inspection	<ul> <li>Inspect shell for any leaks or weeps</li> <li>Check that all connections are tight and not corroded</li> <li>Replace any deteriorating insulation on pipe-work</li> </ul>	
Expansion Tank	<ul> <li>Inspect for any water treatment stains</li> <li>Adjust float level to shut-off water at 20mm from bottom.</li> <li>Check that float valve shuts completely, and service as required</li> </ul>	
Water Treatment	<ul> <li>Drain approximately 250 ml of treated water from service drain valve on main tank.</li> <li>Check pH level of sample, using litmus paper. pH must be within 8.5-9.0</li> <li>If pH level is outside this range, re-dose with water treatment using a</li> </ul>	
Final	<ul> <li>plumbers pump connected to the service valve. Retest pH level</li> <li>Detail Tank</li> <li>Tidy up plant room</li> <li>Complete paperwork and hand a copy of the maintenance report to client</li> </ul>	

# Spare Parts

Description	Type / Model	Stock Code
Water Treatment	Gendex – use 1 ml for every litre of	8080049
	storage capacity eg. 1 litre per 1000 litres.	8080061
Expansion Tank	Replace with same capacity as original	-
Service Valve	15mm BSP Brass ball valve	2020075
Temperature Gauge	Caleffi 688000	2020427
Float Valve	Philmac Valve 3005 &	2020368
	Plastic Float 4993	2020369

# **Problem Solving**

Overflow Pipe Runs Continuously		
Possible Cause	Remedy	
Float valve is set too high.	Drain some water from the expansion tank and slowly	
	mm from the bottom of the tank.	
Expansion tank is not level.	Realign the expansion tank so that it is level. You can use blocks of wood or readjust brackets if fitted.	
Expansion tank is too small	The size of the expansion tank should be 6% of the main tank capacity eg. A 450 litre tank requires a 25 litre expansion tank.	
Heat exchange coil in the Heat Source is leaking.	Go to the Heat Source connected to the TC tank and isolate the water supply to the expansion tank, drain water level in the main tank until it is level with the bottom of the expansion tank. If the expansion tank fills up again then the coil is leaking – contact Edwards.	

Water treatment Is Low		
Possible Cause	Remedy	
Regular maintenance is not being carried out	Make sure a full service is done.	

# Warranty

Item	Coverage
Storage Tank	3 years full cover 4th year 75% cover 5th year 50% cover
Associated parts- valves	1 year
Labour, Travel & Freight	1 year

Also refer to General Warranty terms & Conditions (Section 1.3). Ensure that the warranty registration form provided with the system has been completed and returned to Edwards.