

henden™

Mineral and Salt Chlorinators
HMSC20, HMSC26

INSTALLATION & OWNERS MANUAL



IMPORTANT
Please read carefully



WARNING:
Failure to follow these instructions and comply with all applicable codes may cause serious bodily injury and/or property damage.

The installation of this product should be carried out by a person knowledgeable in swimming pool plumbing requirements following the installation instructions provided in this manual.

Please pass these instructions on to the operator of this equipment

Contents

Henden Mineral & Salt Chlorinator

INSTALLATION

1. INSTALLATION INSTRUCTIONS	5
1.1 Installing the Power Supply	5
1.2 Connecting the In-line Electrolytic Cell to the Power Supply	6
1.3 Connecting the Flow Switch to the Power Supply	6
1.4 Connecting the Filter Circulation Pump to the Power Supply	6
1.5 Pre-start up procedure	7
1.6 Storage and safety	7
1.7 Mineral Salt	8

OWNERS MANUAL

2. IMPORTANT INSTRUCTIONS FOR USE	10
3. OPERATION OF YOUR HENDEN SALT WATER CHLORINATOR	11
3.1 Control panel layout	11
4. HENDEN CHLORINATOR SPECIAL FEATURES	12
4.1 System control (sanitiser output dial)	12
4.2 Polarity Indicators A & B	12
4.3 Low salinity indication	12
5. AUTOMATIC TIME CLOCK OPERATION	13
6. MAINTENANCE OF POWER SUPPLY	14
7. MAINTENANCE OF THE IN-LINE ELECTROLYTIC CELL	14
7.1 To clean the Henden In-Line Cell	14
8. DAY TO DAY OPERATION	16
8.1 Stabiliser	16
8.2 pH and total alkalinity	16
8.3 TDS levels	16
8.4 Running times	16
9. CHLORINE PRODUCTION	17
9.1 "Shock" treatment	17
9.2 Chlorine types and comparisons / max pool size	17
10. GENERAL INFORMATION	18
10.1 Pool water chemistry instructions	18
10.2 Common terms	18
11. TROUBLE SHOOTING	19
12. HENDEN™ REPAIR OR REPLACEMENT GUARANTEE	19

INSTALLATION

Congratulations! You are now the proud owner of a new Henden Mineral and Salt Water Chlorinator. Please read all information in this manual carefully before installing or operating your Salt Water Chlorinator.



In accordance with AS/NZS 60335.2.41 we are obligated to inform you that this pump is not to be used by children or infirm persons and must not be used as a toy by children.

PACKING LIST

Included with your system are the following items, please check the contents of the box carefully prior to attempting to install the system:

- Power Supply
- In-Line Electrolytic Cell
- 2 x Barrel Unions
- Mounting Kit
- Flow Switch
- Installation & Operating Manual
- Blanking Cap Assembly (plug, o-ring and lock ring)



Note: The Chlorinator is not intended for use by young children or infirm persons without supervision. Please ensure that young children are supervised to ensure that they do not play with the Chlorinator.



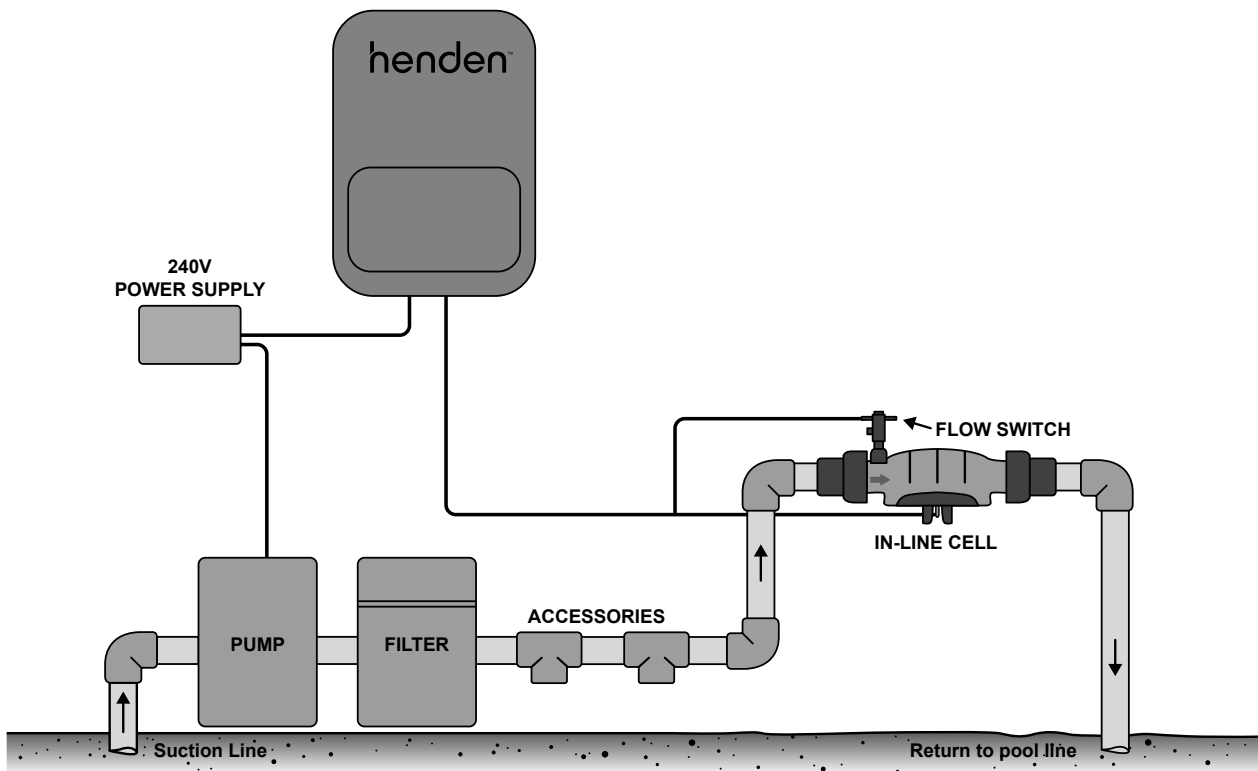
Power connections and wiring must be carried out by an authorised electrician.

1. INSTALLATION INSTRUCTIONS

1.1 Installing the Power Supply

Select a convenient well-ventilated location within one metre of filter equipment and mount the power supply vertically onto a post or wall 1.5 metres above ground level. Australian Standards requires that the power supply shall not be located within 3 meters of the pool water. Plug power supply into a suitable weatherproof outlet and plug pump into the power outlet of the power supply unit. The unit must be kept away from acid and other chemical storage areas. Acid and chemical vapours will corrode the electronics inside the unit.

It must also be kept away from heat sources. Good ventilation is necessary for correct operation.



Two self-tapping screws and wall plugs have been provided for fast and simple installation.

Use a 6mm masonry drill bit when fitting power supply to a brick or concrete wall. When mounting to a post drill pilot holes and fit screws provided. Once screws are in position simply hang sanitiser via bracket on back of unit.



IMPORTANT This diagram is intended to conform with SPASA for the safe operation of salt sanitisers. Any deviation is at the installer's risk and may void the manufacturer's warranty.

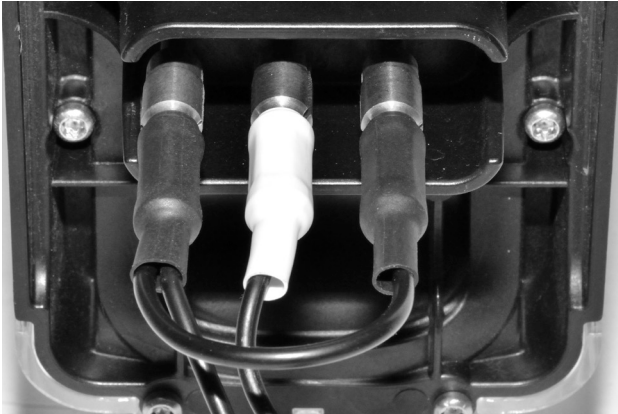


NOTE The cell must be fitted to allow for easy removal and cleaning, and positioned after all accessories such as heater or pool cleaner, but before it divides if there is more than one return to pool line.

1.2 Connecting the In-line Electrolytic Cell to the Power Supply

The Henden Salt Water Chlorinator uses a reverse polarity In-Line Electrolytic Cell for low maintenance operation. The Henden Power Supply is fitted with a flexible lead terminated with push on brass connectors.

These must be correctly fitted to the connections on the cell. Fit black connectors to the outer titanium rods. Fit the white connector to the middle titanium rod as per illustration below.



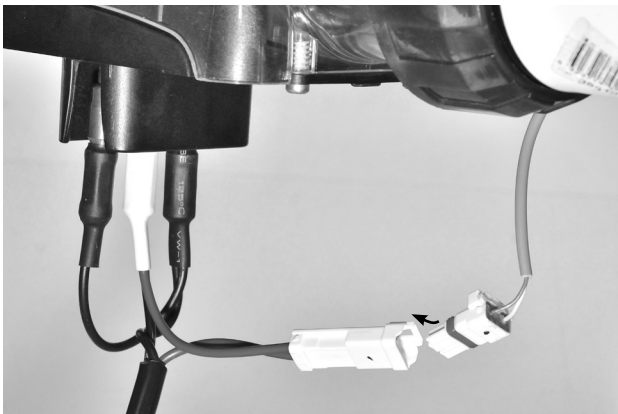
NOTE: The Henden cell is supplied with a paddle type flow switch, which is to be installed on the cell as shown in the diagram on page 6.



IMPORTANT The flow switch must be mounted with the highlighted arrow on top of the switch pointing in the direction of flow.

1.3 Connecting the Flow Switch to the Power Supply

Join the connector on the flow switch and the connector on the cell cable together. They will clip together.



IMPORTANT Always fit the cell **ABOVE** the highest point in the filtration system. This therefore needs to be higher than the filter.

1.4 Connecting the Filter Circulation Pump to the Power Supply

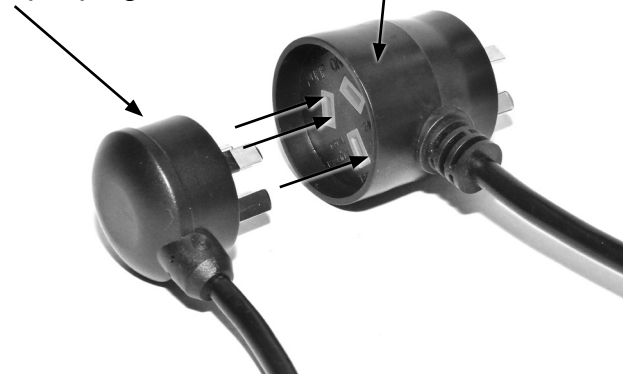
Insert the pool pump's 3 pin plug into the 3 pin socket located on the back of the chlorinator's power supply plug. See diagram on following page.



NOTE Filter circulation pump current draw should not exceed 8 Amps.

Pool pump's 3 pin plug

Sanitiser's plug and socket



Do not use a double adaptor to connect more than one pump - it can cause overload to the system and could void your warranty.

1.5 Pre-start up procedure

Before operating your Henden Pool Sanitiser System please ensure the following quantity of Pool Salt or mineral salt (HMS15) and mineral activator (HMA15) has been added to your pool.

POOL SALT

SALT LEVEL GUIDE – 20kg Bag											
To raise salt concentration by		Salt Required									
ppm	%	25,000L Bags / kg	30,000L Bags / kg	35,000L Bags / kg	40,000L Bags / kg	45,000L Bags / kg	50,000L Bags / kg	55,000L Bags / kg	60,000L Bags / kg	65,000L Bags / kg	70,000L Bags / kg
1000	0.1	1.3 / 26	1.5 / 30	1.8 / 36	2.0 / 40	2.3 / 46	2.5 / 50	2.8 / 56	3.0 / 60	3.3 / 66	3.5 / 70
2000	0.2	2.4 / 48	2.8 / 56	3.3 / 66	3.7 / 74	4.2 / 84	4.6 / 92	5.1 / 102	5.5 / 110	6.0 / 120	6.4 / 128
3000	0.3	3.6 / 72	4.4 / 88	5.1 / 102	5.9 / 118	6.6 / 132	7.4 / 148	8.1 / 162	8.9 / 178	9.6 / 192	10.4 / 208
4000	0.4	5.0 / 100	6.0 / 120	7.0 / 140	8.0 / 160	9.0 / 180	10.0 / 200	11.0 / 220	12.0 / 240	13.0 / 260	14.0 / 280
5000	0.5	6.3 / 126	7.5 / 150	8.8 / 176	10.0 / 200	11.3 / 226	12.5 / 250	13.8 / 276	15.0 / 300	16.3 / 326	17.5 / 350
6000	0.6	7.3 / 146	8.8 / 176	10.3 / 206	11.8 / 236	13.3 / 266	14.8 / 296	16.3 / 326	17.8 / 356	19.3 / 386	20.8 / 416

1.6 Storage and safety

1. Store in a dry, covered place away from direct sunlight for longer bag life
2. Always use the entire bag content of salt, once opened. Do not keep open bags of pool salt, as it is sensitive to moisture in the air.
3. Care should be taken to avoid contact with eyes and inhaling salt dust. Wearing eye protection and a dust mask is good practice.
4. If eyes become affected, flush with clean tap water.
5. If skin becomes irritated, immediately wash contaminated skin with plenty of water and then wash with soap and water.

CHLORINE - For a new pool installation that has not been chlorinated, add sufficient chlorine (liquid or granular) to achieve a reading of 3 ppm (with a suitable test kit), or run the sanitiser system continuously for at least 24 hours or until a reading of 3 ppm is reached.

STABILISER - It is essential that pool stabiliser be added and maintained at the rate of 30 - 50 ppm at all times. Do not exceed 100 ppm. **(FOR OUTDOOR POOLS ONLY)**

(Refer Day to Day Operation page 16 for further information).

1.7 Mineral Salt

For Mineral Salt applications please ensure the following quantity of Mineral Salt (P/N: HMS15) and Mineral Activator (P/N: HMA15) has been added to your pool.

Converting existing salt pools

Pool Size (Litres)	Henden Therapeutic Mineral Salt (15kg bags)
Up to 5,000	1 Bag = 15kg
Up to 10,000	2 Bags = 30kg
Up to 15,000	3 Bags = 45kg
Up to 20,000	4 Bags = 60kg
Up to 25,000	5 Bags = 75kg
Up to 30,000	6 Bags = 90kg
Up to 35,000	7 Bags = 105kg
Up to 40,000	8 Bags = 120kg
Up to 45,000	9 Bags = 135kg
Up to 50,000	10 Bags = 150kg
Up to 55,000	11 Bags = 165kg
Up to 60,000	12 Bags = 180kg
Up to 65,000	13 Bags = 195kg
Up to 70,000	14 Bags = 210kg
Up to 75,000	15 Bags = 225kg

1. Continue to operate your filter pump for a period of 24 hours following the addition of Mineral Salt to ensure proper blending has occurred.
2. Henden Mineral Salt can be used with all Henden Salt Water Chlorinators with recommended TDS levels of between 4,000 and 6,000ppm.
3. When replacing normal pool salt with Henden Mineral Salt, ensure that TDS levels do not exceed 6,000ppm after its addition to the pool.
4. Ensure pH levels are between 7.4 & 7.6 after the addition.

To increase TDS by Approximately 1,000ppm

Pool Size (Litres)	Henden Therapeutic Mineral Salt (15kg bags)	Henden Mineral Activator (15kg bags)
Up to 10,000	0.5 Bag	0.5 Bag
Up to 20,000	1 Bag	1 Bag
Up to 30,000	1.5 Bags	1.5 Bags
Up to 40,000	2 Bags	2 Bags
Up to 50,000	2.5 Bags	2.5 Bags
Up to 60,000	3 Bags	3 Bags
Up to 70,000	3.5 Bags	3.5 Bags

New mineral salt pools

Pool Size (Litres)	Henden Therapeutic Mineral Salt (15kg bags)	Henden Mineral Activator (15kg bags)
Up to 5,000	1 Bag = 15kg	1 Bag = 15kg
Up to 10,000	2 Bags = 30kg	2 Bags = 30kg
Up to 15,000	3 Bags = 45kg	3 Bags = 45kg
Up to 20,000	4 Bags = 60kg	4 Bags = 60kg
Up to 25,000	5 Bags = 75kg	5 Bags = 75kg
Up to 30,000	6 Bags = 90kg	6 Bags = 90kg
Up to 35,000	7 Bags = 105kg	7 Bags = 105kg
Up to 40,000	8 Bags = 120kg	8 Bags = 120kg
Up to 45,000	9 Bags = 135kg	9 Bags = 135kg
Up to 50,000	10 Bags = 150kg	10 Bags = 150kg
Up to 55,000	11 Bags = 165kg	11 Bags = 165kg
Up to 60,000	12 Bags = 180kg	12 Bags = 180kg
Up to 65,000	13 Bags = 195kg	13 Bags = 195kg
Up to 70,000	14 Bags = 210kg	14 Bags = 210kg
Up to 75,000	15 Bags = 225kg	15 Bags = 225kg

1. With the filter pump running, pour the contents of Henden Mineral Salt and Henden Mineral Activator into the pool evenly around the edge.
2. Continue to operate the filter pump for a period of 24 hours following the addition to ensure proper blending has occurred.
3. It is recommended that TDS levels be maintained between 4,000 and 6,000ppm.
4. When using the Henden Mineral Salt and Henden Mineral Activator, ensure that TDS levels do not exceed 6,000ppm after its addition to the pool.
5. Ensure pH levels are between 7.4 & 7.6 after the addition.

STORAGE AND SAFETY

Store in a dry, covered place away from direct sunlight for longer bag life

Always use the entire bag content of Mineral Salt, once opened. Do not keep open bags of Mineral Salt as it is sensitive to moisture in the air.

Care should be taken to avoid contact with eyes and inhaling salt dust. Wearing eye protection and a dust mask is good practice.

If eyes become affected, flush with clean tap water.

If skin becomes irritated, immediately wash contaminated skin with plenty of water and then wash with soap and water.

CHLORINE - For a new pool installation that has not been chlorinated, add sufficient Chlorine (liquid or granular) to achieve a reading of 3 ppm (with a suitable test kit), or run the Sanitiser system continuously for at least 24 hours or until a reading of 3 ppm is reached.

STABILISER - It is essential that pool stabiliser be added and maintained at the rate of 30 - 50 ppm at all times. Do not exceed 100 ppm. **(FOR OUTDOOR POOLS ONLY)** (Refer Day to Day Operation page 16 for further information).

Note: When the need arises to top up your pool with Henden Mineral Salt or Henden Mineral Activator, due to dilution through rainfall or backwashing, Henden recommends you use equal quantities of Mineral Salt to Activator (ratio 1:1) and that you maintain your TDS level between 4,000 and 6,000ppm. This will ensure your mineral pool water stays soft, silky and crystal clear.

After adding Henden Mineral Salts to your pool the water may temporarily have discolouration and form clusters of foam on the surface. This is completely normal and is part of the mineralisation stage and transformation process. This may last for 24 hours, however after this time, your pool will return to normal and become crystal clear and clean. It is recommended that you run your filter pump for a minimum 24 hours after the addition of Henden Mineral Salts.

IMPORTANT INFORMATION ABOUT YOUR CHLORINATOR

FACTORS THAT WILL IMPROVE THE PERFORMANCE
& LIFE OF YOUR HENDEN MINERAL & SALT CHLORINATOR
PLEASE READ THIS BEFORE OPERATING YOUR CHLORINATOR

POOL BUILDERS: Please cover this information with your customer during the new pool "Handover Session"

Sanitisers are a valuable piece of pool sanitising equipment and must be cared for to get the best performance and life span.

There are THREE main factors that will damage your sanitiser and reduce the life of the product. Please monitor the following factors in accordance with your installation & operating instructions.

1. MAINTAIN RECOMMENDED TOTAL DISSOLVED SOLIDS (TDS) LEVELS

RECOMMENDED OPERATING RANGE: 4,000 - 6,000ppm

- Run sanitiser at the TDS levels stated within this document and on the product to ensure optimum sanitiser output and cell life.
- Operating this device at low TDS levels will damage the cell and reduce its life.
- The control panel displays a red LED indicator warning when the TDS levels are low.
- If no action is taken to rectify the TDS levels, damage to the cell may result which will not be covered under warranty.

2. MONITOR & MAINTAIN YOUR SANITISER IN-LINE CELL

Henden has a "Reverse Polarity" In-Line cell.

- To keep your Henden Salt Water Sanitiser in the best possible condition, regular monitoring of the electrolytic cell is recommended. The 'cell' is the clear plastic housing containing the plates.
- During the sanitisation process a white powdery calcium scale may naturally build up on the titanium plates in the cell. Monitor the cell to prevent excessive scale build up. Excessive scale build up will cause damage to your cell, and dramatically reduce its efficiency and lifespan.
- Reverse Polarity models have low maintenance cells that minimise scale build up.
- The control panel displays a red LED indicator warning when the cell requires cleaning.
- If calcium scale builds up please clean the cell, following the cleaning instructions provided on page 14.
- **NEVER:** Use concentrated acid to clean your cell.
- **NEVER:** Leave cell in cleaning solution for extended periods of time
- **NEVER:** Use metal implements, scourers or brushes to clean your cell

3. BALANCED POOL WATER CHEMISTRY

Salt TDS levels **MUST** be maintained at **4,000 - 6,000ppm** for optimum performance and lifespan

Calcium hardness levels **MUST** be kept to ideal ranges of **200 - 275ppm** (for concrete and tiled pools) and 100 - 225ppm (for other surfaces) to prevent excessive scale build up and damage to equipment

pH levels **MUST** be kept to ideal levels to prevent damage to equipment and pool surfaces and to obtain optimum sanitiser effectiveness.

Total alkalinity and stabiliser levels must also be kept in an ideal range.

Note: Please refer to the **POOL WATER CHEMISTRY** chart on page 17 for more information.

OWNERS MANUAL

2. IMPORTANT INSTRUCTIONS FOR USE

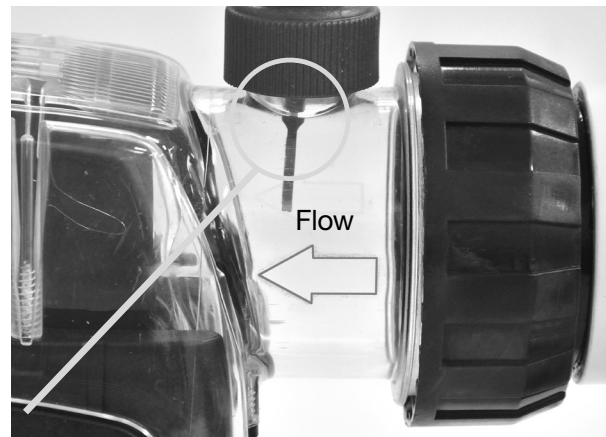
To minimise the risk of gas build-up in the cell, you must ensure there is sufficient water flow through the cell when the unit is on and producing chlorine.

It is essential that your pool pump circulates sufficient water through the cell to completely fill the cell with water during the chlorination process.

Periodically check the paddle of the safety flow switch to ensure it is free to move back and forth.

Diagram A

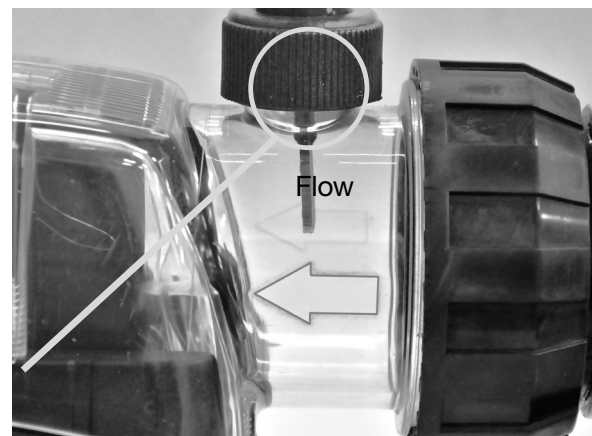
**CORRECT OPERATION
WITH PUMP RUNNING**



Flow switch ON.

Diagram B

**INCORRECT OPERATION
WITH PUMP RUNNING**

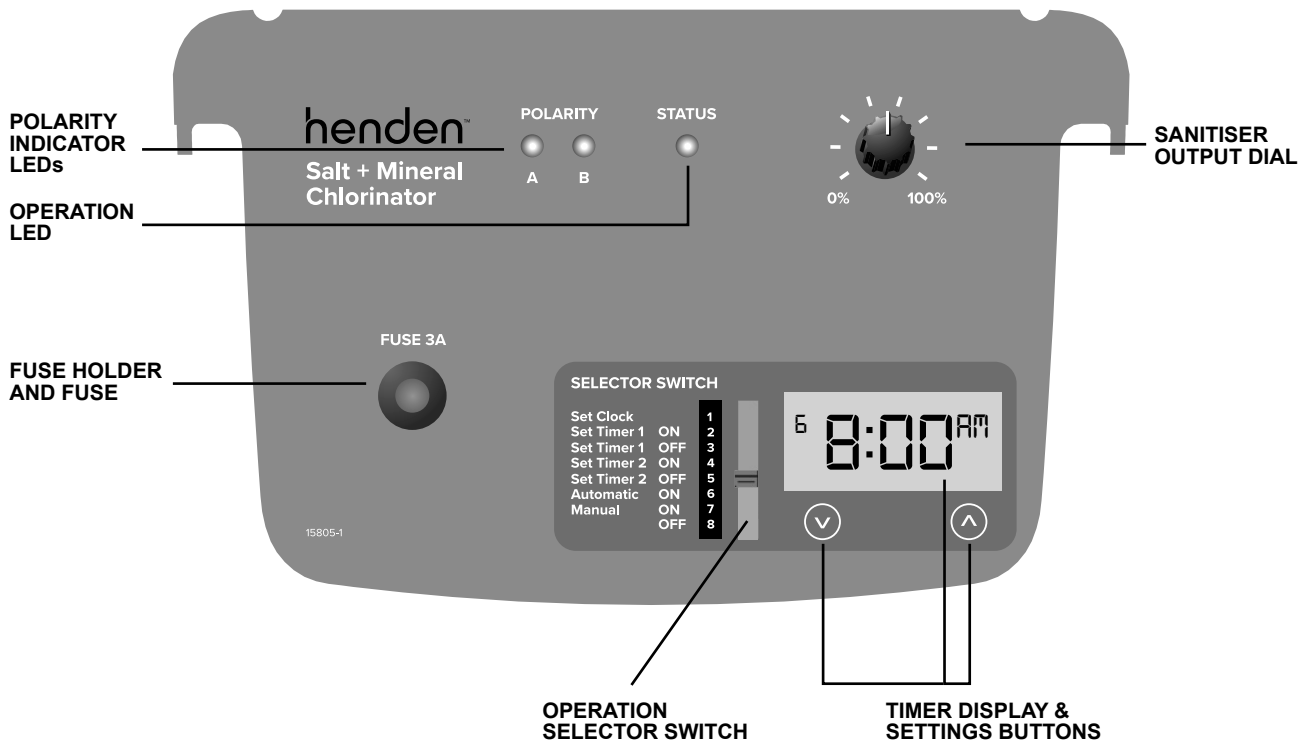


Flow switch OFF.

3. OPERATION OF YOUR HENDEN SALT WATER CHLORINATOR

Cell output is expressed as a percentage. Set the system control to the percentage output required and the unit will automatically adjust the cell output to the set level. The unit is fitted with an electronic control and warning system. This regulates the output of the unit to the preset maximum and changes cell polarity as indicated by POLARITY LEDs A&B. These LEDs will alternate over a number of hours or days depending on how the unit is set to operate. The warning system consists of one Operation LED which will glow green to indicate normal operation or red to indicate possible faults with the unit or damaging operating conditions.

3.1 Control panel layout



Once the TDS level in the pool is correct the unit may be switched on.

Note: Once the unit starts there is a short time delay until the cell operates to ensure the filtration system is primed with water.

At this point the Operation LED should be green; if red refer below. Note: Polarity LED may be either A or B whichever is on or brightest.

The red Operation LED will indicate a number of different possible problem situations:

Possible Problem	Action
TDS level below minimum	Add pool salt at the required quantities specified by your water testing agent
Cell is calcified	Clean cell
Water temperature very cold	Add salt to compensate for cold water
There is a problem with water flow	Check pump / pipes for blockage or damage. Check that flow switch is connected properly and in the right direction

4. HENDEN CHLORINATOR SPECIAL FEATURES

4.1 System control (chlorinator output dial)

The System Control varies the amount of time the cell operates during the filtration cycle.

The System Control will not vary the electrical current supplied to the cell.

As an example, if one filtration cycle is set at 5 hours, and the System Control is set to 80%, then the total amount of time the cell will operate during the 5-hour cycle will be 4 hours. If the System Control is set to 60%, the cell will operate for 3 hours total over the 5-hour filtration cycle. At 100% the cell will be ON for the entire 5 hour cycle.

When the System Control is set to 0, the cell will be OFF for the duration of the filtration cycle. When the System Control is set to 100%, the cell will be ON for the duration of the filtration cycle. To turn the cell OFF, simply turn the System Control to 0.

NOTE: It is recommended to turn the sanitiser output dial to "0" when backwashing.

4.2 Polarity Indicators A & B

These LEDs are used to check that the cell current polarity is reversing. Whichever is on (or brightest) indicates the polarity of operation. The cell will operate in one polarity for a number of hours so any change in these LEDs will happen slowly and depend on how the unit is operated.

4.3 Low salinity indication

Your Henden Chlorinator is fitted with a number of protective systems including the operation LED whose primary function includes Low Salinity Indicator. As the TDS level in the pool decreases, the wear on the cell increases. Although salt and activator is not consumed in the sanitisation process, it is lost through splashing, backwashing and on bathers as they leave the pool. The TDS level is also reduced by rain, which causes dilution

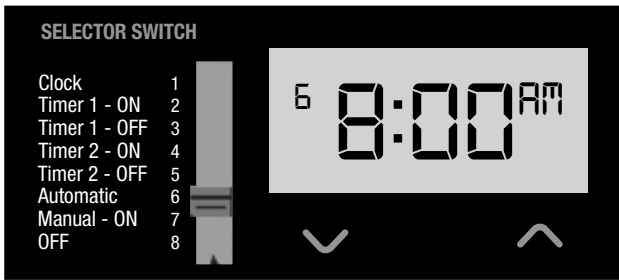
As the TDS level in the pool falls toward the minimum TDS, the Operation LED will turn RED. At this point the TDS level should be increased by adding the required amount of salt as instructed by your pool water tester or pool shop. The addition of salt should not affect the Henden Chlorinator power supply as it is protected against overloads. If no action is taken and the TDS level continues to fall damage to the system may result.

There are other factors that can cause the unit not to work correctly:

1. **Heavy Rain** - can cause very diluted pool water to pass over the cell due to surface skimming.
2. **Scaled Cell** - a scaled cell will not draw as much electrical current as a clean cell when first started.
3. **Cold Water** - cold pool water reduces the ability of a cell to carry electrical current.
4. **Failing Cell** - as the cell ages there will come a time when the electrical current draw will drop. This can be compensated for with the addition of extra Salt. A cell is considered failed when it draws less than 80% of maximum current. Please note that the Low Salinity Indicator is not like TDS meters, which are temperature compensated Scientific Instruments. The accuracy will be within 500ppm and they are water temperature dependent, just as the cell is.

5. AUTOMATIC TIME CLOCK OPERATION

Timer Setting and Functions



NOTE: When you first turn on the power to the sanitiser, it will take approximately 1min for the LCD to appear on the screen.



IMPORTANT. Certain local electrical regulations state "If the supply cord is damaged, it must be replaced by a special cord available from the manufacturer or its service agent".

Function Description	Selector Switch Position	Functions and Instructions
Set Clock	1	<p>SET THE CURRENT TIME ON THE DIGITAL CLOCK</p> <p>Select the Clock position on the selector switch to enable the time of day to be input. A number '1' will appear at the left of the screen.</p> <p>(a) The display will flash on and off as long as the selector switch remains at this position. Use the up and down buttons to reach the desired times. Hold the buttons down for fast increments.</p>
Set Timer 1 - ON	2	<p>SET THE START TIME FOR THE FIRST RUN TIME SEQUENCE</p> <p>Select the Timer 1-ON position on the selector switch. A number '2' will appear at the left of the screen. This time factory pre-set to 6am. Proceed as per (a) in the 'Set Clock' instruction to change time.</p> <p>To disable this timer, move up or down to 11:59PM. Press the UP button one more time to turn OFF.</p> <p>NOTE: This step will also disable the time for 'Set Timer 1 - OFF'.</p>
Set Timer 1 - OFF	3	<p>SET THE COMPLETION TIME OF THE FIRST RUN TIME SEQUENCE</p> <p>Select the Timer 1- OFF position on the selector switch. A number '3' will appear on the left of the screen.</p> <p>This time is factory pre-set to 8am. Proceed as per (a) in the 'Set Clock' instruction to change time.</p>
Set Timer 2 - ON	4	<p>SET THE COMPLETION TIME OF THE SECOND RUN TIME SEQUENCE</p> <p>Select the Timer 2- ON position on the selector switch. A number '4' will appear on the left of the screen. This time is factory pre-set to 5pm. Proceed as per (a) in the 'Set Clock' instruction to change time.</p> <p>To disable this timer, move up or down to 11:59PM. Press the UP button one more time to turn OFF.</p> <p>NOTE: This step will also disable the time for 'Set Timer 2 - OFF'.</p>
Set Timer 2 - OFF	5	<p>SET THE COMPLETION TIME OF THE SECOND RUN TIME SEQUENCE</p> <p>Select the Timer 2- OFF position on the selector switch. A number '5' will appear on the left of the screen. This time is factory pre-set to 11pm. Proceed as per (a) in the 'Set Clock' instruction to change time.</p>
Automatic ON	6	<p>FILTRATION SYSTEM SWITCHES ON AND OFF AUTOMATICALLY ACCORDING TO YOUR SET TIMES</p> <p>Select the Automatic ON position on the selector switch. A number '6' will appear on the left of the screen.</p>
Manual ON	7	<p>OVER-RIDES THE AUTOMATIC TIME CLOCK SETTINGS & SWITCHES FILTRATION SYSTEM ON</p> <p>Select the Manual ON position on the selector switch. A number '7' will appear on the left of the screen.</p> <p>NOTE: Sanitisation will be constant until turned OFF or back to Automatic ON. Over sanitisation may occur if left for long durations</p>
OFF	8	<p>OVER-RIDES THE AUTOMATIC TIME CLOCK SETTINGS & SWITCHES FILTRATION SYSTEM OFF</p> <p>Select the OFF position on the Selector switch. A number '8' will appear on the left of the screen.</p> <p>NOTE: Filtration & sanitisation will cease. Not recommended for long durations.</p>

6. MAINTENANCE OF POWER SUPPLY

Little or no maintenance is normally required with the exception of replacing blown fuses. These fuses can be sourced from your local Reece Irrigation & Pools branch. However, it is essential that the wall or post to which the unit is installed be sprayed (not the unit itself) periodically with a good surface type insect repellent, since penetration by insects may cause damage, which is not covered by your warranty.

Note: The back of the unit has been designed as a heat sink. It is normal for this area to become very hot.

7. MAINTENANCE OF THE IN-LINE ELECTROLYTIC CELL

The in-line cell is composed of precious materials, and although proper maintenance can prolong its life to the maximum, eventually the process of electrolysis will wear away its delicate coating, at which time it gradually ceases to produce chlorine.

Mineral salts and calcium (scale) are deposited on the plates as electrolysis takes place. This build up will interfere with the flow of electrical current in the cell and thus lowers sanitiser production. It is essential to inspect the cell regularly and clean when necessary. The rate at which deposits will form on the plate differs with each pool and can be influenced by the following:

- Calcium hardness of the water
- Water temperature
- pH level
- Water which has been chlorinated with calcium hypochlorite for an extended period
- Calcium in the plaster surfaces of a concrete pool

Because these conditions vary so much, check the cell at least weekly to begin with to see when either scale or a blue/green soapy substance appears on the plates. You will then be able to determine the cleaning cycle necessary for your pool (more frequent cleaning may be required in summer). The intervals between cleaning could get longer to the point where cleaning is only necessary a couple of times each year. One exception is the use of bore water or ground water, in which case cleaning may always need to be as frequent as once a week.



NOTE In areas with hard water, reverse polarity systems may require occasional manual cleaning.

The life of the Henden electrolytic cells vary substantially from one installation to another due to variations in operating time, water quality and composition, system and cell maintenance.

Please ensure that when cell replacement is necessary you use the correct genuine Henden replacement cell to match your system.

ALWAYS INSIST ON GENUINE Henden REPLACEMENT PARTS.

If it is necessary to replace the in-line electrolytic cell, beware of “look-a-likes”. Only the genuine Henden cell is designed and warranted to operate with the Henden power supply.

SERIOUS DAMAGE MAY RESULT TO THE ELECTRONICS INSIDE THE UNIT IF COPY CELLS ARE USED AND MAY VOID WARRANTY.

7.1 To clean the Henden in-line cell

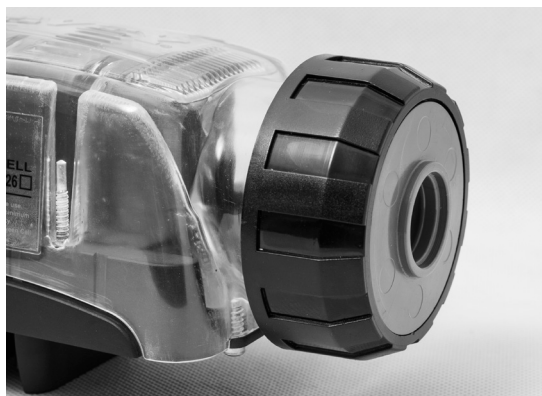
Ensure that the power supply is turned off - failure to do so may result in the pool pump turning on while the cell is not in place. Disconnect the cell lead and flow switch from the cell and remove the cell from the pool return line by undoing the unions, taking care not to lose the o-rings.

Method

Assemble a blanking cap from the supplied plug, o-ring and lock ring.



Install the blanking cap onto the end of the cell opposite the flow switch port.



Secure the cell in a vertical position with the blanking cap at the bottom, to catch any spills the cell should be placed in an acid proof container.

Add 50mL of HYDROCHLORIC ACID to 500mL of WATER in a suitable sized container, carefully pour the solution into the open end of the cell.

Alternatively step 4 can be carried out using an approved commercial cell cleaning solution.

As the scale is being dissolved from the plates the solution will foam, when this foaming action has stopped the cell is clean and the solution can be returned to the container for future use or discarded appropriately. NOTE: do not leave the acid solution in the cell for more than ½ hour.

Rinse the cell out with clean tap water by filling and draining a couple of times, check that all the scale deposits have been removed, repeat the cleaning process if necessary.

Return the cell to its position in the pipe work and re-connect the cell lead and flow switch.



NOTE: Always add acid to water, never add water to acid. Always wear eye protection and rubber gloves. Always clean the cell in a well-ventilated area.

Safety device

Hydrogen Gas is a by-product of the chlorine producing process. A flow switch has been supplied with the unit, which will stop sanitisation if low or no flow is detected.

Henden Chlorinator units are also fitted with a Thermal Cut-Out to prevent overheating. If the temperature rise is too high, power is automatically disconnected. The unit will resume operation when it cools down.

8. DAY TO DAY OPERATION

Four Prime rules must be observed if your unit is to give the best possible service:

8.1 Stabiliser

The importance of pool stabiliser cannot be over-emphasised. It is essential in helping retain chlorine in your pool. Chlorine is rapidly dissipated by sunlight and the use of stabiliser will reduce this dissipation substantially. Without stabiliser, it may be necessary to run the unit for up to three times as long!

Stabiliser should be added at the rate of 500 grams for every 10,000 litres of water. Stabiliser should be maintained at a level of 30 - 50 ppm. Before adding more stabiliser, have your pool water analysed at your pool shop to ensure that you do not add too much. (FOR OUTDOOR POOLS ONLY, INDOOR DO NOT REQUIRE STABILISER)

8.2 pH and total alkalinity

A correct pH level must be maintained to prevent problems such as black spot, staining, cloudy water, etc. An incorrect pH level can damage the pool. Correct pH levels are as follows; fibreglass - 7.2 to 7.4 concrete & tiled - 7.4 to 7.6 If you allow the pH level to rise to 8.0 or above, the chlorine required could be as much as three times the normal amount.

Total alkalinity should not be confused with pH, although the two are closely related. Total alkalinity determines the speed and ease of pH change. The ideal range is 80 - 150 ppm, or refer to your pool professional.

You should use a test kit which includes a test for total alkalinity. Low total alkalinity can cause unstable pH levels - i.e. An inability to keep the pH constant may cause staining, etching and corrosion of metals. High total alkalinity will cause constantly high pH levels.

8.3 TDS levels



WARNING Some people recommend that you put salt directly in the skimmer box. This is a very poor practice as it allows very high concentrations of salt to be passed through your filtration and other pool equipment.

Salt is the essential element by which your unit operates. Insufficient salt will damage your cell.

RECOMMENDED TDS LEVEL RANGE: 4,000 - 6,000ppm



WARNING Do not add Hydrogen Peroxide to pool water or through swimming pool hydraulic or sanitiser system. Use of Hydrogen Peroxide will void warranty on Henden products.

Salt is NOT used up in the sanitisation process or by evaporation. It is only lost through backwashing, splash-out, overflow or by leakage from the pool or plumbing. Heavy rain can dilute the TDS levels in your pool; therefore TDS levels should be checked during these events.

Low TDS levels will destroy the coating on the anode plates and will void all warranty.

The Henden Chlorinator has a built in warning indicator to minimise damage resulting from insufficient TDS levels, however, the ultimate responsibility is on the owner to ensure adequate TDS levels are maintained all year round.

8.4 Running times

These instructions cover Henden Chlorinator for residential use only.

If you run your sanitiser for 24 hours a day, or for long periods, the cell life will be greatly reduced. It is important that the correct model Henden Chlorinator has been installed on your pool. Many models are available from Henden to cope with small courtyard pools up to commercial applications. (Consult your local Reece Irrigation & Pools branch for more information).

Note: The Henden guarantee does not apply to commercial or semi-commercial installations, i.e. where the system runs more than an average of 8 hours per day over the year. Guarantee on commercial and semi-commercial installations is 12 months only on both power supply and cells.

9. CHLORINE PRODUCTION

The Henden Chlorinator must be run daily to generate sufficient chlorine to sanitise the pool. During Summer this is approximately eight hours per day, preferably in two periods - between 6.00 and 8.00am and between 5.00 and 11.00pm. Night time is preferable because chlorine dissipates rapidly in direct sunlight. If these running times are observed, and the cell is functioning correctly, your pool will have sufficient chlorine when tested in the morning.

If the level is too low either longer running times are required or the Sanitiser Output Control needs to be adjusted to maximum. Harsh local conditions such as traffic pollution or wind borne dust require different running times, in which case, seek advice from your pool shop. During winter approximately 4 to 6 hours a day should provide enough chlorine. Without sufficient filtration/sanitisation, your pool will never function correctly. **ALWAYS RUN THE PUMP WHEN SWIMMING IN THE POOL.** In extremely hot weather or during periods of heavy bathing loads, the running time may need to be extended to 10 - 14 hours per day.

In some cases you may find your chlorine level to be too high. To determine if this is the case, run your filter/sanitiser for the suggested times/chlorine production level and test your pool water on the morning after operation. If your chlorine test shows a high level of chlorine, either the running times can be reduced slightly, or the Sanitiser Output Control can be turned anti-clockwise. Test your chlorine level again the following morning at around the same time. If your chlorine level is still high, repeat the above process until the correct level is attained.

9.1 "Shock" treatment

Periodically, especially during extremely hot conditions, it may be necessary to boost the amount of chlorine in your pool in order to maintain absolute sanitation of the water. This can be achieved by adding either liquid or granulated chlorine. If granulated chlorine is added, the cell must be checked regularly, since the additives from this product will clog the electrodes. Alternatively, extend the running time of your Henden Chlorinator.

9.2 Chlorine types and comparisons / max pool size

Many sanitiser manufacturers calibrate their units to compare with 65% granulated chlorine, making it necessary to adjust their readings to a lower level in order to determine true chlorine production. Below is a comparison table of the available types of chlorine used to sanitise pools.



NOTE The appropriate sanitiser size for your pool is dependent on the local climate and the bather load of the pool. Please note that sanitiser cell life can be increased with shorter running times during winter and lower output settings. Henden recommends that a sanitiser is run for between 6 - 8 hours a day during summer, and 4 hours during winter.

Henden Model	Production Maximum (g/hr 100%)	Production (g/hr 65% equivalent)	Chlorine produced over 8 hours (grams 100%)	Maximum Pool Size (Litres)		
				Cool Climates <25°C	Temperate Climates 25°C to 30°C	Hot & Tropical Climates >30°C
HMSC20	20	31	160	100,000	62,000	44,000
HMSC26	26	40	208	130,000	81,000	57,000

10. GENERAL INFORMATION

10.1 Pool water chemistry instructions

POOL WATER BALANCE	Free Chlorine (ppm)	pH	Total alkalinity TA (ppm)	Calcium hardness (ppm)	Stabiliser - Cyanuric Acid (ppm)	Recommended TDS levels (ppm)
Ideal reading/ range	1.5 - 3	Concrete & tiled pools 7.4-7.6 Other surfaces 7.2-7.4	80 - 150	Concrete & tiled pools 200-275 Other surfaces 100-225	30 - 50	4,000 - 6,000
To increase	Increase output of sanitiser. Add chlorine. Increase filtration time.	Add Soda Ash (Sodium Carbonate)	Add Buffer (Sodium Bicarbonate)	Add Calcium Chloride	Add Cyanuric Acid	Add equal quantities of Henden Salt and Activator (1:1)
To decrease	Decrease output of sanitiser. Decrease filtration time.	Add Hydrochloric Acid	Add Hydrochloric Acid or Dry Acid	Partially drain & refill pool with lower hardness water to dilute	Partially drain & refill pool to dilute	Partially drain & refill pool to dilute
Frequency of testing	Weekly	Weekly	Weekly	Weekly	Regularly	Regularly

10.2 Common terms

Algae Microscopic forms of plant life which enter the pool by rain, wind and dust. There are numerous varieties - some are free floating whilst others grow on walls and in cracks and come in different colours. Some are more resistant to chemical treatment than others.

Bacteria The germs that contaminate your pool. Introduced by swimmers, dust, rain storms and other elements.

Balanced Water The correct ratio of mineral content and pH level that prevents pool water from being corrosive or scale forming.

Chloramines Compounds formed when chlorine combines with nitrogen from urine, perspiration, etc. Chloramines cause eye and skin irritation, as well as unpleasant odours.

Chlorine Demand The chlorine required to destroy germs, algae and other contaminants in the pool.

Chlorine Residual The amount of chlorine remaining after chlorine demand has been satisfied. This is the reading obtained with your test kit.

Cyanuric Acid Also known as stabiliser or conditioner. It reduces dissipation of chlorine by direct sunlight.

Liquid Acid Chemical used to reduce the pH and total alkalinity in the pool water, and for cleaning sanitiser cell.

ppm An abbreviation for Parts Per Million the accepted measurement of chemical concentration in swimming pool water. 1 ppm= 1 mg/L.

11. TROUBLE SHOOTING

No Chlorine Production - Check for:

1. Main power outlet switched off
2. Sanitiser not plugged into main outlet
3. Pump not plugged into sanitiser
4. Time Clock set to Off position/Power switch turned Off
5. Sanitiser Output Control turned to "0" setting
6. Sanitiser fuse blown
7. Dirty Cell
8. Filter needs back washing
9. Flow switch not connected
10. Insufficient water flow through cell
11. Running times incorrect
12. Main house fuse blown
13. Pump motor faulty

Low Chlorine Production - Check for:

1. Dirty cell - clean if required
2. Filter needs back washing
3. Cell failing
4. Pool stabiliser too low
5. pH too high
6. TDS level too low
7. Running time inadequate
8. Sanitiser output control set too low.

12. HENDEN™ REPAIR OR REPLACEMENT GUARANTEE

Henden Guarantee Period
 Power Supply - Four Years
 Electrolytic In Line Cell - Three Years

Our goods come with guarantees that cannot be excluded under the Australian Consumer Law. You are entitled to a replacement or refund for a major failure and compensation for any other reasonably foreseeable loss or damage. You are also entitled to have the goods repaired or replaced if the goods fail to be of acceptable quality and the failure does not amount to a major failure.

Should you experience any difficulties with your Henden product, we suggest in the first instance that you contact the installer of the product or your local Reece Irrigation & Pools branch.

Alternatively you can phone Henden. On receipt of your claim, Henden will seek to resolve your difficulties, if the product is faulty or defective, advise you on how to have your Henden product repaired, obtain a replacement or a refund.

Henden does not cover normal wear or tear, or damage resulting from misuse or negligent handling, improper use for which the product was not designed or advertised, failure to properly follow the provided installation and operating instructions, failure to carry out maintenance, corrosive or abrasive water or other liquid, lightning or high voltage spikes, or unauthorized persons attempting repairs. Where applicable, your Henden product must only be connected to the voltage shown on the nameplate.

Henden does not cover freight or any other costs incurred in making a claim. Please retain your receipt as proof of purchase; you MUST provide evidence of the date of original purchase when making a claim.

Henden shall not be liable for any loss of profits or any consequential, indirect or special loss, damage or injury of any kind whatsoever arising directly or indirectly from Henden products.

Should your Henden product require repair or service after the guarantee period; contact your nearest Reece Irrigation and Pools branch or phone the number below.

For a complete list of Reece Irrigation & Pools branches visit our website reece.com.au/storefinder or contact:

TECHNICAL AND AFTER SALES SUPPORT:

1300 HENDEN (1300 436 336)

MAILING/MANUFACTURER ADDRESS:

Davey Water Products
 6 Lakeview Drive, Scoresby,
 Victoria, 3179

henden™

