

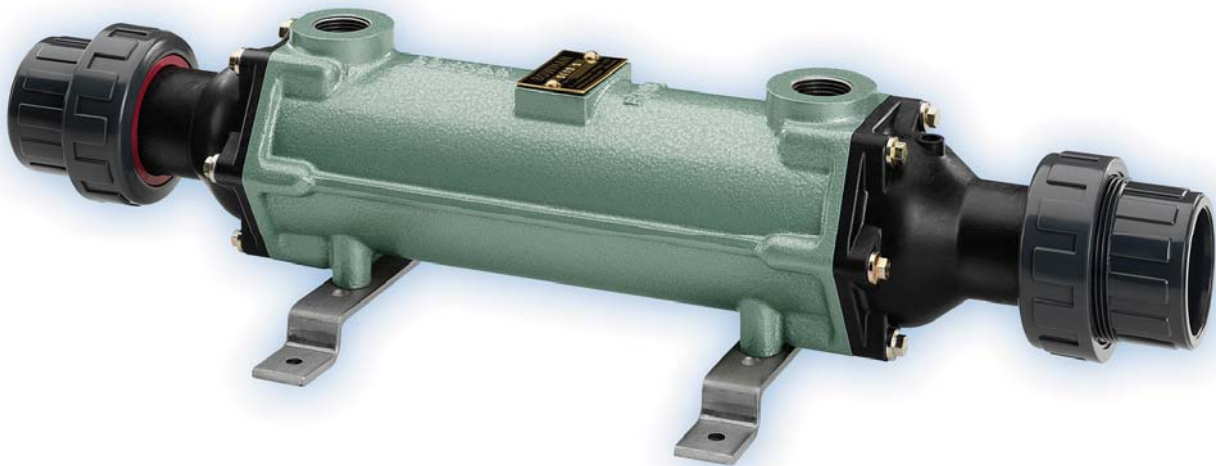
# BOWMAN®



## SWIMMING POOL HEAT EXCHANGERS

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For Use With Boilers, Solar Panels & Heat Pumps



# Installation, Operation & Maintenance Guide

# Installation, Operation & Maintenance Guide

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# Foreword

Dear Customer,

Congratulations on the purchase of your new high quality "Swimming Pool Heat exchanger".

**BOWMAN®** has been manufacturing high quality "Swimming Pool Heat Exchangers" for over 60 years.

Your **BOWMAN®** Stockist/dealer will be happy to provide you with advice and practical assistance.

Please read these instructions fully and carefully.

Keep the "Installation, Operation & Maintenance Guide" for all future reference to ensure the long lasting performance from your new "Swimming Pool Heat Exchanger".

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# 1 Safety

## 1.1 Hazards When Handling the Heat Exchanger

**BOWMAN®** "Swimming Pool Heat Exchangers" are constructed with current practice and recognised safety rules. Hazards may still arise from operation, such as:

- Injury of the operator or
- Third parties or
- Damage to the heat exchanger or
- Damage to property and equipment

Any person involved with the installation, commissioning, operation, maintenance or repair of the heat exchanger must be:

- Physically and mentally capable of performing such work
- Be appropriately qualified.
- Comply completely with the installation instructions

The heat exchanger must only be used for its intended use.

In the event of breakdowns which may compromise safety, a qualified plumber must always be contacted.

## 1.2 Safety Instructions

The following symbols are used in these operating instructions:



This symbol indicates an **immediate danger** to health.  
*Failure to comply with this instruction may result in severe injury.*



This symbol indicates a **possible danger** to health.  
*Failure to comply with this instruction may result in severe injury.*



This symbol indicates a **possible risk** to health.  
*Failure to comply with this instruction may result in injury or damage to property.*



This symbol indicates important information about correct handling of the equipment  
*Failure to comply with this instruction may cause damage to the heat exchanger and/or its surroundings.*

### 1.3 Approved Use



**BOWMAN®** "Swimming Pool Heat Exchangers" are only approved for heating or cooling pools with boiler water, solar and heat pump installation.

Any other use unless specified by **BOWMAN®** is not approved. **BOWMAN®** declines all liability for damage associated or arising from such use.

The maximum permissible operating pressure must not exceed:

Heating/Cooling (primary side)	:	3 bar max.
Pool Water (secondary side)	:	3 bar max.

The maximum permissible operating temperature must not exceed:

Heating/Cooling (primary side)	:	120 Deg.C
Pool Water (secondary side)	:	100 Deg.C

### 1.4 Potential Hazards



take care

The heat exchanger may be damaged or leak if the maximum permissible operating pressure is exceeded.



caution

Connections on the heating water side of the heat exchanger may reach temperatures as high as 100 Deg.C.

The heat exchanger may heat up to the flow temperature of the heating water if there is no pool water flowing through the heat exchanger. Any connected plastic pipe work may be exposed to inadmissible temperature and suffer damage.

### 1.5 Safety Measures at Installation Site



take care

The heat exchanger is recommended to be installed in frost free premises.

Ensure the maximum permissible operating pressure on the primary or secondary side of the heat exchanger is not exceeded. The heat exchanger or surrounding equipment may be damaged.



While the pool is in operation, weekly inspection of the heat exchanger and its connections should be maintained for leaks and externally visible damage.

## 2 Installation

### 2.1 Transport / Storage

The heat exchanger must be fully drained down prior to transportation. Once drained and fully dry, the heat exchanger must only be stored indoors within a non aggressive atmosphere.



take care

### 2.2 Installation

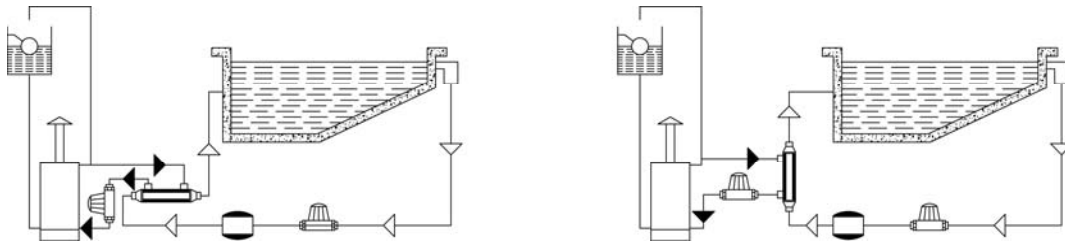
The heat exchanger should only be installed in frost-free, dry premises with a non aggressive atmosphere. Ensure easy access for assembly/disassembly.



take care

### 2.3 Fitting

Before fitting, check the heat exchanger for visible signs of damage, the heat exchanger can be installed above or below the pool water level, positioned horizontally or vertically within the installation pipe work.



The heat exchanger may be damaged by chemicals. Dosing systems must be fitted downstream from the heat exchanger incorporating a non return valve. If chemicals are used, gases must be prevented from entering the heat exchanger when the filtration system is not in use.

The heat exchanger should always be installed downstream of the pumping and filtration equipment. The boiler/solar water must be pump assisted and the usual precautions taken to prevent air locks. The pool water pump should be controlled by a thermostat in the pool water pipe work before the heat exchanger and set at the required pool temperature.



Under no circumstances should the heat exchanger be used in conjunction with corona discharge type ozone systems. For alternative dosing/disinfection systems not specified within this Installation, Operation & Maintenance Guide please contact our technical department for advice prior to installation of the heat exchanger.

## 2.4 Connecting the Heat Exchanger

Shut off all drainage valves in the flow and return pipes of the primary and secondary circuits.



Ensure compliance with water quality and maximum permissible pressure requirements.



When fitting the heat exchanger into the pipe work care must be taken to ensure that no debris has been introduced into the primary or secondary circuit of the heat exchanger.

## 3 Operation



It is essential that the following instructions are followed to prevent corrosion/erosion of the heat exchanger:



- a) **BOWMAN®** Stainless Steel heat exchangers should not be used with seawater or salt water pools. (**BOWMAN®** Cupro Nickel or Titanium heat exchangers are available for this application).
- b) Always maintain the water pH to within correct levels. The ideal pool pH should be kept within 7.4 to 7.6. On no account should it fall below 7.2 or above 7.8. Checks should be made on a day-to-day basis. (Reference to the recommended chemical levels for **BOWMAN®** Stainless Steel and Cupro Nickel heat exchangers is shown below. (Not applicable to **BOWMAN®** Titanium heat exchangers)

<i>Chemical</i>	<i>Levels</i>
Free Chlorine	1.0 - 3.0 ppm
pH	7.2 to 7.8
Calcium Hardness	200 - 400 ppm
Alkalinity	100 - 150 ppm
Total Dissolved Solids	less than 1,000 ppm
Bromine	2.0 - 4.0 ppm
Chloride	Less than 140 ppm

- c) If a by-pass is fitted to the heat exchanger circuit, it is essential that any valves are correctly positioned to allow the recommended pool water flow to pass through the heat exchanger.

- d) The filter unit should be checked regularly, especially if sand filters are utilised. If sand filters are installed but working incorrectly, fine particles of sand can be allowed to flow around the pool circuit causing erosion of the pipe work, heat exchanger and pump unit.
- e) Keep pool free from debris such as leaves, grass cuttings etc. This foreign matter can decay and increase the pH level in the pool.
- f) It is essential that the correct amount of chemical dosage is added to the pool. To allow proper dispersion of the dose in the pool water, distribution of the dose should be made to various areas of the pool. Do not dose in one area only, especially local to the pool return as this will create high acidic areas which can cause corrosion/erosion of the pool equipment.

## 4 Commissioning



caution

Commissioning of the heat exchanger should not be undertaken until such time that this document has been fully read and understood.



danger

The primary and secondary circuits of the heat exchanger must be fully closed prior to commissioning.



Adequate provision should be made to ensure that correct operating/service equipment along with personal protection (PPE) in accordance with current standards/legislation is utilised prior to the commencement of any working.

## 5 Maintenance / Repair



take care

### 5.1 Winter Shutdown in Frost Free Areas

When shut down in frost free premises the heat exchanger must be completely full of water and fully purged of air.



### 5.2 Winter Shutdown in Areas Exposed To Frost

Care should be taken to prevent frost damage from a winter shutdown in premises exposed to frost. We recommend fully draining down the heat exchanger or removing the heat exchanger completely from the installation throughout the duration of the shutdown period.

## 6 Warranty

All **BOWMAN**® Swimming Pool Heat Exchangers are guaranteed against manufacturing defaults associated with the product for a period of twelve months from the date of invoice

**BOWMAN**® titanium material incorporates a ten year anti-corrosion guarantee against any damage associated from the pool water.

For full warranty terms, please see the **BOWMAN**® Conditions of Sale. A copy of which is available on request or via download from the website.

