

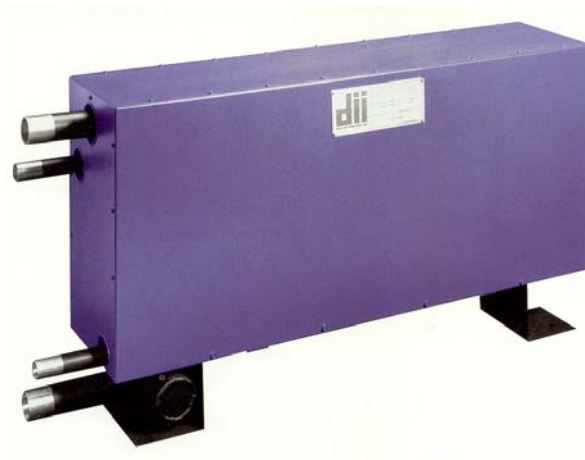


AHTT

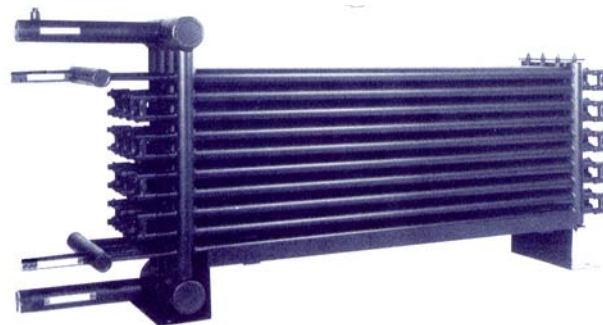
Ph: +61-2-9890-7122
Fax: +61-2-9890-7133
Email: ahtt@bigpond.net.au
www.heattransfer.com.au

DESUPERHEATERS

Heat Exchangers For Free Hot Water



Freon



Ammonia

FREE HOT WATER FROM YOUR AIR CONDITIONING SYSTEM - HEAT RECOVERY

Many of the favourite resort spots around the globe are found in the tropics. But even in a scenic paradise hotel management must contend with pressing issues such as rising energy costs.

In particular, hotels/motels use considerable amounts of hot water on a daily basis. Owners, managers, and maintenance personnel need practical methods to hold down costs while offering guests air conditioned rooms and ample hot water. Thus, they are among the most open-minded individuals when it comes to new methods of adding to their bottom line without forfeiting comfort.

Desuperheaters, energy saving options and your hot water bill

Dubbed the ultimate accessory a desuperheater attached to any mechanical refrigeration system from 5 to 200 tonnes and in some cases up to 1000 tonnes is a practical and timely method to recover otherwise lost heat. A desuperheater unit is designed to heat domestic hot water, taking heat recovered from the refrigeration system to heat water directly from 10C to 60C and supplement the boiler system already installed.

The heat given out in a system is comprised of two components, superheat and condensing heat energy. By capturing the super heat which is 15% to 20% of a system's heat rejection, a unit is capable of heating up to 100% of domestic hot water requirements and dramatically reduce hot water expenses.

Typical hotel applications use a chiller system to cool water that is distributed throughout pipelines to each room within the hotel. Heat generated during the cooling process is removed usually through an air or water-cooled condensing unit.

A considerable amount of that heat is recovered by the desuperheater to heat the potable water consumed by kitchens. Cleaning, showers, dish washers and indirect pool heating.

What's interesting is how the desuperheater can recover enough heat for an entire hotel during peak summer months, depending on the chiller capacity. Making it possible, to obtain heated potable water practically for free, after a typical payback time of 12-18 months.

Further benefits of a desuperheater installation is an increase of up to 15% condenser capacity, a handy free extra for particularly hot days or situations where a sudden short demand occurs. It is not unusual to experience a 5-10% reduction in chiller operation costs when a desuperheater is fitted. Reduced boiler use equates to lower maintenance costs of the boiler and increased life of the unit.

Greenhouse gas savings are an additional benefit which all engineering's are now increasingly being asked to clarify and promote to the hotel management and community.

For example a 20kw desuperheater on an electrical heating system saves 108 tonnes of greenhouse gases per year.

Desuperheater design

Desuperheaters are not a new device for capturing heat from a chiller system. For over 20 years desuperheaters in various constructions have been in service.

The early units consisted of a single walled carbon steel shell and tube, which was the mainstay for many years. The requirement for ever safer drinking water has resulted in more exotic materials being applied such as copper, cupro-nickel and 316 stainless steel over carbon steel.

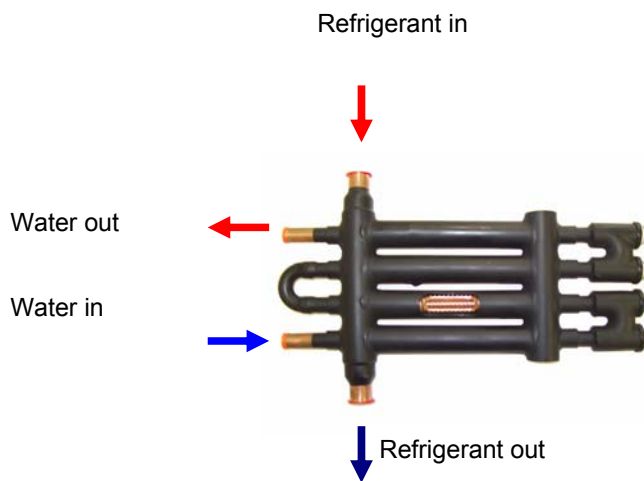
Single walled plate heat exchangers in various configurations gradually replaced the shell & tube units. Today's requirements for potable water or indeed any water which may be used during certain food preparations and general public use need a more secure heat exchanger.

The advent of the double walled shell & tube with copper construction for freon and stainless steel for ammonia, allowing for separation of potable water from the refrigeration circuit has renewed the interest and solved a fundamental cost barrier.

The double-wall system consists of fluted tubing to create a vent path between tubes so should a tube leak occur the fluid vents to the atmosphere for early detection.

The desuperheater is also designed to eliminate work hardening via its free-floating tube design, thus allowing the inside tubing to expand and contract as needed. It's the vented double-wall construction that provides added security overall.

Premature failure can be avoided by using the desuperheater in place of single-wall, plate, or shell-and-tube heat exchanger because that is where thermal shock can often occur.



Advantages and cost savings

- FREE HOT WATER
- 5-10% reduction in chiller operation costs.
- 10-15% increase in condenser capacity
- Reduced boiler use equates to lower maintenance costs of the boiler
- Extended life of the boiler
- Safer delivery of hot water
- Reduced greenhouse gases