

COMPANY PROFILE:

ALSCO PTY LTD

LOCATION: FOOTSCRAY, VICTORIA

INDUSTRY: LAUNDRY

PRE-INSTALL STATS:

SYSTEM: HEAT EXCHANGER AND
FIRE TUBE BOILER

61.5%

ENERGY UTILISATION

38.5%

ENERGY LOSS

POST INSTALL STATS:

SYSTEM:

DIRECT CONTACT WATER HEATER

91.5%

ENERGY UTILISATION

8.5%

ENERGY LOSS

ROI

6 TO 3 YEARS

SAVINGS

3,600 GJ (34,000 THERMS)

\$15,500 ANNUM

FULL CAPACITY UTILISATION

8,000 GJ (76,000 THERMS)

\$33,500 ANNUM

Kemco Systems, Co. LLC

11500 47th St. N
Clearwater, FL 33762

800.633.7055

www.kemcosystems.com

COMPANY DESCRIPTION

AlSCO Pty Ltd has operated in Australasia since 1962, providing workwear and linen rental services to a large and diverse customer base from its Australian and New Zealand processing plants and distribution centres. AlSCO's Footscray site is home to the laundering and processing of rental clothing.

BACKGROUND

AlSCO recognised that its steam boiler method of heating water was inefficient and costly to operate. So it undertook to improve on this as part of a plant upgrade. As well as the inefficiency concerns, hot water was not available to the washing machines at the required process temperature. This in turn caused process delays whilst individual washing machines had to raise the water temperature. Further, the boiler and associated steam equipment was pressurised and required a high level of maintenance to comply with operational and health and safety requirements.

PROJECT DESCRIPTION

Sustainability Victoria worked with AlSCO to install a KEMCO 1.6 MW (5.5 million btu/hr) direct contact hot water heater unit at AlSCO's Footscray site as part of a greater upgrade to their hot water/steam system. The new direct contact heater replaced a steam heat exchanger and one of two fire tube boilers.

There is now a constant supply of hot water at the temperature required by the process. This enabled a shortened washing cycle time and therefore a potential increase in overall laundry capacity. AlSCO's hot-water system was also reconfigured to become non-pressurised, which has reduced maintenance time and costs.

The heater was deliberately sized to allow for business growth hence the volume of hot water currently generated is considerably less than the heater's capacity. Energy savings enjoyed will increase proportionate to use, i.e. potential savings are far higher than currently experienced.

The heater was quick and easy to install and commission, taking just one weekend. It has been running trouble-free since commissioning in February 2005.

Direct contact heaters are in operation overseas but this is the first installation of this type of water heater in Australia.



Direct Contact Water Heater (DCWH)

TECHNOLOGY

The thermal efficiency of current conventional practices for generating hot water typically ranges from only 60% to 80%. Raising of hot water using steam is a particularly inefficient use of energy.

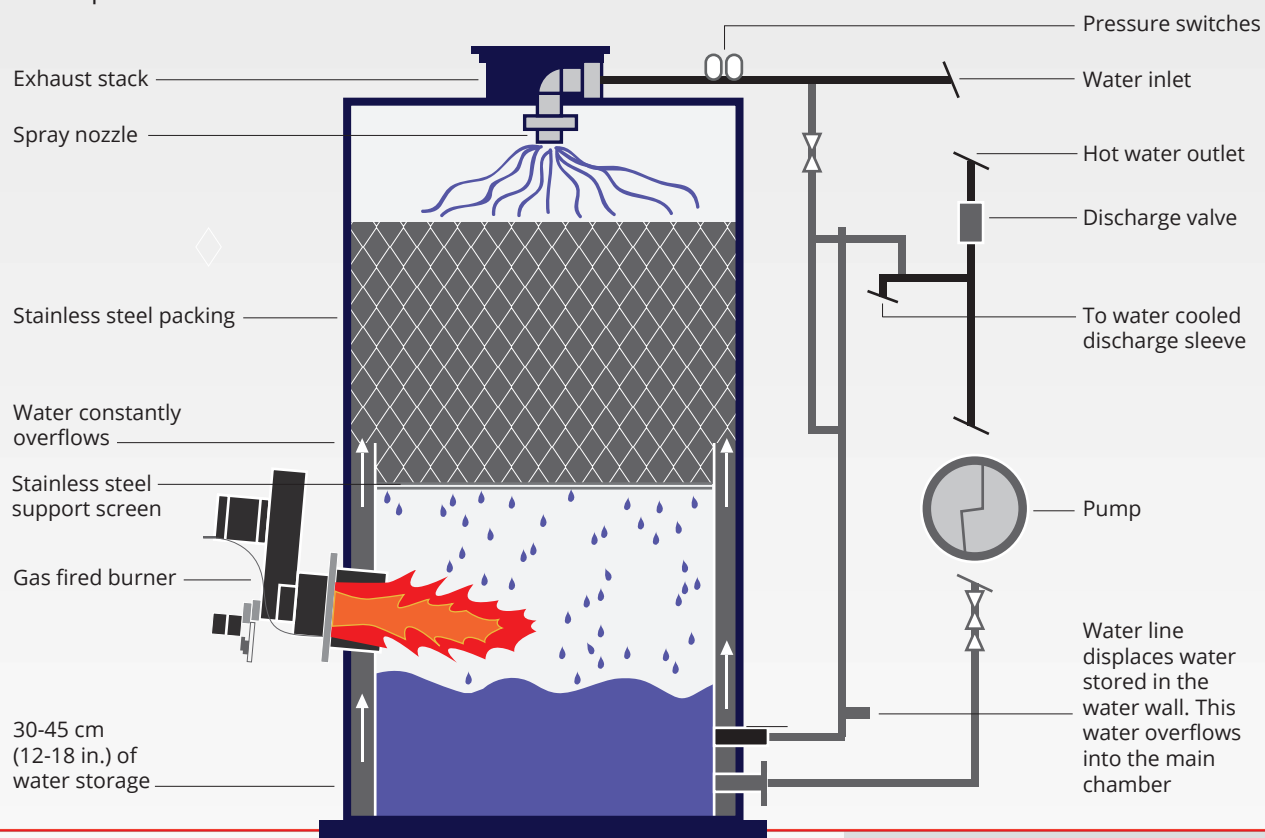
Direct contact heat exchanger technology is more efficient than conventional counter-current heat exchange technology partly because it eliminates the performance reductions caused by fouling of the heat exchange surfaces and the associated energy losses.

Direct contact heating also allows, in some circumstances, full recovery of latent heat of combustion products leading to very low flue gas temperatures and consequent high efficiencies.

Ultra-high efficiency is achieved through the direct contact between combustion products and the incoming water spray, which produces a high heat transfer rate.

The system operates by water entering through the top of the heater through a spray nozzle that distributes it over stainless steel heat transfer media. The resulting water droplets are then preheated as they pass through the media before coming into direct contact with a jet style flame.

In the combustion zone, it is heated to the final temperature as the preheated water comes into direct contact with the flame, to complete the heat transfer process before the water settles in the storage area. Finally, the hot water is pumped or gravity fed into a hot water storage tank or directly to the process.



KEY OUTCOMES

- ➔ a large reduction in gas consumption
- ➔ a reduction in greenhouse pollution
- ➔ reserve water heating capacity for future business growth
- ➔ a reduction in laundry cycle times
- ➔ the retirement of one boiler, releasing valuable factory floor space.

'We are guaranteed water at the correct temperature, therefore we have been able to get an extra seven loads per day out of our washroom...equals 2,700 kg extra per day. This is a time saving of around 9 hours.'

Mr. Rod Davies, Production Manager, AlSCO