

Heat Exchangers



Our heat exchangers heat to the temperature you want, improving plant efficiency, customised to your needs.

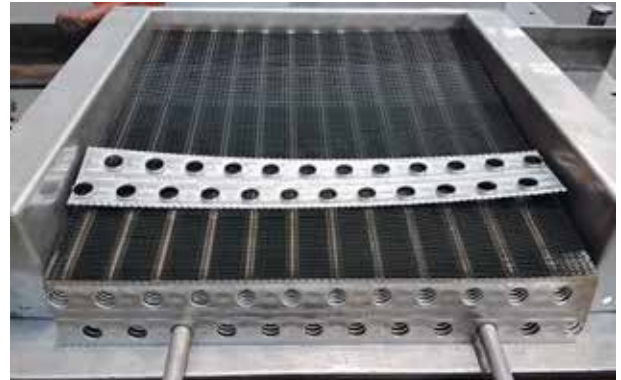


Heat Exchangers



Fin-Pack Heating and Cooling Coils

Fin-pack designs use punched fins that are the height of the coil, with tubes mechanically expanded inside to form a common fin-pack module. The advantages of this technology are strength as the fins are common throughout the face and increased heat transfer compared to traditional finned tube. Pressure part materials can be 316 stainless steel, carbon steel, copper or copper nickel.



High-Pressure Vertical Finned Tube Heat Exchanger

Specifically designed for the exacting dairy market and high pressure (40bar) steam. Our vertical tube, single row heat exchangers accommodate both the extreme thermal growth and variable loading typical of milk spray dryer facilities.

All pressure components, and the structural frame, are made wholly from 304 stainless steel, with options of aluminium and stainless for the fins.

In these difficult applications it isn't just the heat exchanger performance that's critical to smooth operation. Condensate management and removal are even more important so as not to cause cyclic sub cooling and water hammer. We can also design and supply the inlet and outlet pipework, support stand, preheater and optional foreign object catcher.



Case Study: Waste Steam Recovery – Pulp Mill

Our customer was using both diesel and gas burners to create an airflow temperature high enough for their process. The waste airstream from this process was warm enough to be a potential preheat source. Windsor investigated and designed a pair of heat exchangers that would reduce the fossil fuel demand of the process.

"Windsor really got involved and wanted to understand our process. The units they supplied have delivered beyond our expectation and through good design have not caused any disturbance to our process. We look forward to installing more of this type of equipment to reduce our heating loads." – Bruce Ayling, Manager – Engineering Development, Pulp division – Pan Pac Forest Products.

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Medium Pressure Horizontal Finned Tube Heat Exchanger

Our medium pressure (<15bar) horizontal finned tube heat exchanger is suitable for a wide variety of applications, from wood drying kilns, industrial heat dumps, pre-heating and utilising waste heat streams. Standard designs are single or double pass, depending on the application and customer requirements. These units are built from either carbon steel or stainless steel, with fin options of carbon steel, aluminium or stainless steel.



Case Study: Power Station Preheat Air

This project was for a power station customer in Australia. These heaters use steam to preheat the air going into the power station's heat process. The previous units were over 20 years old and were so corroded and damaged that they were no longer being used - resulting in additional heating costs for the site. We had to design and fabricate replacement units that would fit into the exact same space as the old units. Working in conjunction with the site crew, and interpreting old drawings to confirm the available space, we implemented an improved design which utilised the same space as the old heaters, but with increased heat transfer capacity (by using more advanced materials) and improved condensate drainage using inclined tubes and optimised design. The units were installed and fitted perfectly.



Heat Exchangers



Materials

Most of our products can be manufactured utilising either stainless steel or carbon steel tubes and headers (with fin pack solutions also offered in copper and copper nickel) with a choice of fin materials.

Fin materials carried in stock are:

- 0.2mm / 0.45mm plain aluminium
- 0.2mm double gold epoxy coated aluminium
- 0.2mm copper
- 0.25mm 316 stainless steel

Finned tubes are manufactured from $\frac{3}{4}$ " or 1" diameter carbon steel or stainless steel base tube. Fins can be G-fin (wound into a groove on the tube and swage locked) or extruded type (fins integral to a "muff" tube over the base tube). We are happy to discuss which is most appropriate for your application.



Manufacture & Inspection

All heat exchangers are manufactured in our factories to Australian or ASME codes, and the requirements of the OSH code of practice.

All heat exchangers are externally design verified. We supply full quality assurance documentation with each heat exchanger, and can supply weld maps if required.

Third party inspection (including full internal endoscopic inspection) can be provided where necessary.



Custom Solutions



Windsor Engineering excel in delivering bespoke quality engineered solutions, specifically for customers in demanding applications such as power generation, petrochemical, dairy, food and beverage, marine or industrial processing. We can reverse engineer, replace finned tube with fin pack for increased performance or design to a performance specification.

Air Handling Units

All in one air temperature and humidity control, filtration and clean air supply. Specialised design ensures maximum air turbulence through the coil, providing optimum contact between the air and the heat exchanger surface, with minimal pressure drop. Solutions can include structural assemblies, fans, filtration and moisture eliminators.



Compressed Air Coolers

These coils are generally manufactured from stainless steel with aluminium fins and have a baffle system to direct air over the fins in a convoluted path to maximise heat transfer.



Boiler or Process Heat Recovery Coils

Typically for package gas fired boilers but also used as secondary units for condensing applications for greater efficiency. Also installed on solid fired boilers (after suitable emission reduction systems).



Custom Solutions



Methane / Biogas Coolers

These units include a water coil within a pressure vessel used to cool a process gas.



Heat Dumps

Cooling stations, waste heat disposal and energy demand balancing.



Generator and Motor Coolers

Water coils used for cooling air for critical applications often in utility power stations, often fitted with sacrificial anodes and vulcanised header boxes as required.



Heavy Duty Steam Coils

A comprehensive range of solutions, from standard round header design to heavy duty tubesheets with orbitally welded tubes.



Calorifiers

Replacement tube bundles or calorifiers (typically used for generating hot water from steam), offered with copper tubes expanded into TEMA grooved tubesheet or stainless tubes orbitally typically welded into the tubesheet.



Our History



We produce our heat exchangers in two locations across Australasia:

Windsor Australia (formerly Crossle Coils Pty Ltd):

As the oldest heat exchanger manufacturer in Australia, we provide not just the most experience, but a unique insight into quality production, specialising in contract coil manufacture.

Our heat exchangers are designed, engineered and manufactured to provide the best possible heat transfer under all operating conditions.



Windsor Engineering, New Zealand:

We began constructing carbon steel finned tube heat exchangers in the late 1980's for our high temperature kilns. As the timber drying market evolved to include lower temperature drying we added stainless steel designs to our portfolio.

Over time this expertise was leveraged into other industries, including heat plant preheat, process heat recovery and the exacting requirements of the dairy industry.



Using our in-house designed software we create bespoke designs to suit each customers requirements, ranging from high-pressure hot water or steam, and thermal oil and a variety of air side gases.

Our designs involve the careful selection of heater coil materials, relevant welding procedures, allowances for thermal expansion, provision for coil support and testing and inspection requirements.





Please contact us for more information on these products.

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