



With nearly 30 years of accumulated expertise in heat transfer, Applied Cooling Technology is a natural choice for the design and manufacture of high quality heat exchangers, with an emphasis on developing bespoke solutions to overcome specific problems.

## Plate-Fin Heat Exchangers



Our extended-surface heat exchangers use Patented 'Elfin' plate-fin technology, resulting in class-leading levels of performance and durability.

The ability to specify virtually any combination of tube and fin material, including copper-alloys, stainless steel and titanium etc., gives engineers the freedom to balance budget and longevity considerations.

Our expertise in the use of vortex clean air technology reduces pressure loss and fin fouling, resulting in lower maintenance costs and reduced energy consumption.



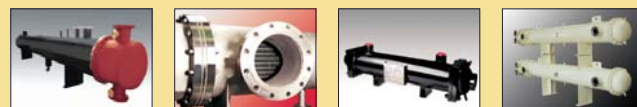
## Shell & Tube Heat Exchangers



Our experience in a broad spectrum of industries and applications means that we are able to offer a very competitive design-and-manufacture service for complete shell & tube heat exchangers.

In-house design engineers make use of the most advanced thermal and mechanical design techniques including thermal modeling and computational fluid dynamics (CFD).

Our welding department carry approvals in accordance with a range of internationally recognized standards such as: ASME VIII/1; ASTM TEMA B, C & R; API; BS PD 5500 etc.



## Tube Bundles & U-Tube Bundles



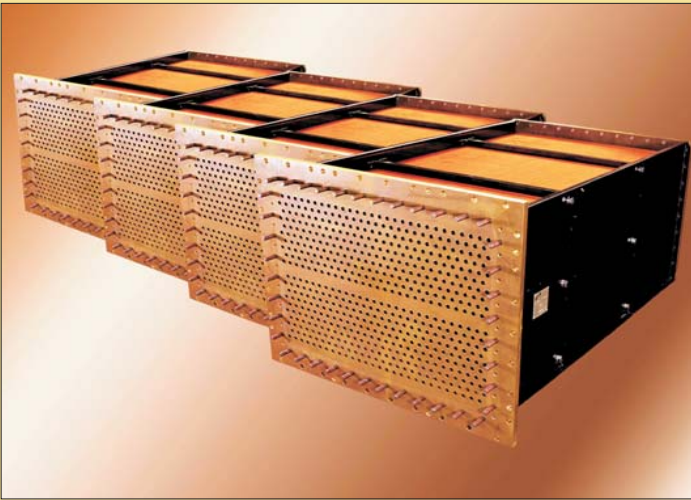
Applied Cooling Technology manufactures tube bundles for both new and existing applications, including direct replacements for existing units. However, our extensive knowledge and experience allows us to offer a longer life expectancy, often at similar or lower cost than the original manufacturer's unit.

Our extensive stockholding of heat exchanger tubes, coupled with a dedicated in-house tube manipulation department means that both straight and u-tube bundles can be manufactured on short delivery times.



From small tube bundles to complete shell & tube packages complete with header tanks and ancillary equipment, from a single unit to several hundred units, Applied Cooling Technology caters to clients both large and small. Here are just a few examples of our capabilities.

## Charge Air Coolers



Applied Cooling Technology is highly respected around the world for its advanced range of high quality replacement main- and auxiliary-engine charge air coolers, suitable for use with both fresh- and sea-water cooled marine diesel engines.

Our marine charge air coolers combine our own Patented 'Elfin' plate-fin core; proven tube support designs and innovative air flow manipulation techniques (including vortex clean air technology) to maximize optimum performance and extend the operating life of the unit.

Replacement coolers are available for all engine makes including: M.A.N.; B&W; Pielstick; Wartsila etc. With thousands of accumulated drawings on file, it is likely that no site survey will be necessary for costing or manufacturing purposes.

## Hydrogen Coolers

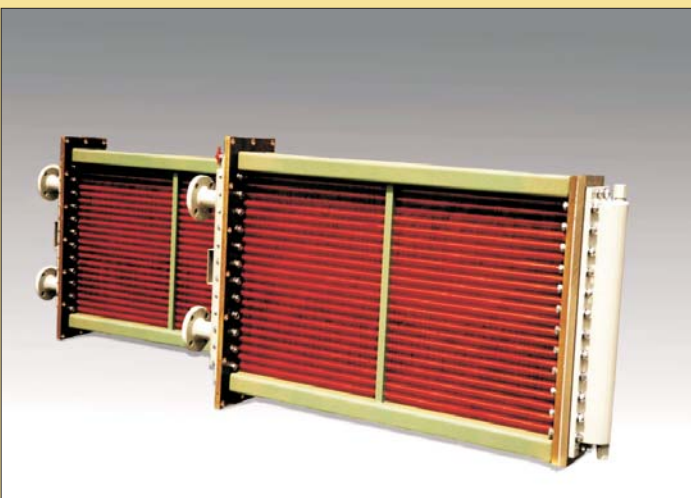


A range of options are available in the design and construction of hydrogen coolers for the power generation industry; bundle length from 6' to 30'; ribbon wound, wire wound or our own 'Elfin' plate-fin extended surface tubes in a range of materials including copper-alloys, stainless steel or titanium. Even the fin shape can be customized in order to minimize pressure loss.

Due to potential vibration induced failure, one of the most crucial considerations is that of tube support and our unique system ensures that each tube is individually supported. Combined with robust 'Elfin' multi-tube plate-fin cores, fatigue is minimized for a long and trouble free service life.

Existing components can sometimes be re-used, potentially reducing both manufacturing cost and delivery time.

## Electric Motor & Generator Air Coolers

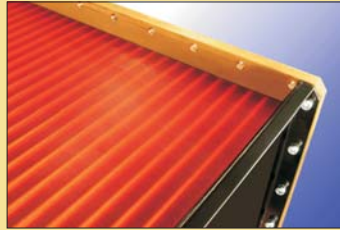


The failure of an electric motor cooler or generator cooler can result in catastrophic damage to the electrical equipment. Applied Cooling Technology makes use of leak-detection tubes to virtually eliminate this risk. We are able to offer short delivery times (for minimal downtime in emergency situations) by maintaining a stockholding of these specialized double-wall tubes in copper-alloy bi-metallic combinations. Additionally, titanium primary/inner tubes can be specified for enhanced erosion/corrosion resistance and extra-long life expectancy.

Single-wall tubes (i.e. without leak detection capability) can be utilized where conditions allow.

Applied Cooling Technology supply heat transfer solutions to a broad industry base including Marine, Power Generation, Offshore, Compressor, Rail, Military and many others, often developing new products or solutions to meet specific needs or overcome problems.

## Marine Shipping & Cruise Industry

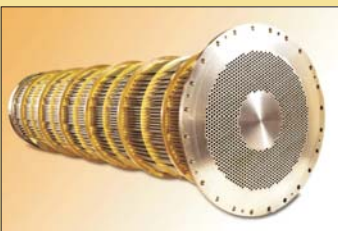
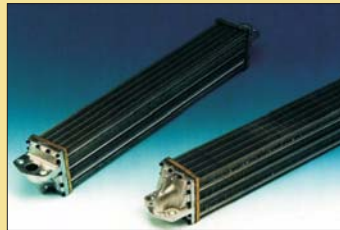


Applied Cooling Technology have been involved in the Marine industry for in excess of 25 years and have accumulated a wealth of knowledge and experience. We have developed and refined solutions to several industry specific issues and helped ship operators increase the efficiency and reliability of their engine and ancillary cooling equipment.

One recent success story clearly demonstrates the potential benefits of incorporating our technology into your heat exchangers systems. A client purchased new charge-air coolers for 5 vessels and the reduced pressure drop and increased efficiency resulted in a fuel saving of 1 ton per vessel, per day.

All manner of plain and extended surface heat exchangers are catered for including high pressure LPG cargo heaters etc.

## Nuclear, Coal & Hydro Electric Power Generation Industries



Applied Cooling Technology have been at the forefront of an ongoing drive to reduce maintenance and downtime at several power stations in the United Kingdom. This was facilitated by re-manufacturing coolers using titanium tubes and tube-plates, resulting in significantly increased resistance to erosion and corrosion and thus a potential 10-fold increase in expected service life

In air-cooled applications, 'Elfin' extended surface technology allows the cost effective application of copper fins onto titanium tubes, a process which is inherently difficult using other conventional finning techniques.

Plain tube bundles are also catered for, as are sectional radiator cores and hydrogen coolers etc.

## Compressor Cooling



Applied Cooling Technology has invested in the necessary equipment and machinery to produce all types of compressor cooler incorporating both 'roped' (spirally formed) and plate-finned ('Elfin') tubes.

When the largest compressor manufacturer in the world required a range of turbo compressor coolers for a new product range, 'Elfin' technology was the only plate-fin product that met (and exceeded in some cases) the thermal and mechanical design requirements.

'Elfin' plate-fin technology is ideally suited to use in demanding compressor cooling applications due to the flexibility of material combinations and the precise nature of the finning process which results in a high level of product consistency.

At Applied Cooling Technology, we pride ourselves on offering innovative, unique and inspiring solutions for all kinds of problems. One common issue is that of accessibility. If the old heat exchanger cannot be removed then it is likely that we have encountered it and have a workaround.

## Dri-Seal™ Tube-Plate Protection & Repair System



Over 80% of heat exchanger failures occur either at the inlet face of the tube plate or in the first 50 to 100mm of the inlet-pass tubes. Tube inserts have been in use for many years in order to stem tube end corrosion. However, the Dri-Seal Façade System has been developed to protect the whole tube plate and tube-end area by sealing this vulnerable zone with a unique triple seal system. Experience has shown that this system is so effective that even cracked ligaments in the plate are sealed automatically against further leakage.

This system utilises a secondary tube-plate, backed by a non-porous neoprene joint/gasket, to protect the tube-plate face. Then pre-formed metallic tube inserts with o-ring seals are used to both protect the tube-ends and also fix the Façade in place. Various materials may be specified depending on the tube-side temperature and chemical/fluid/gas involved.

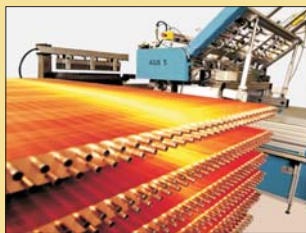
This service can be carried out on-site or at our workshops.

## Elfin™ Plate-Fin Extended Surface Technology



'Elfin' is a Patented extended surface tube technology which utilizes a cold manufacturing process to mechanically bond the fins to the tubes with great precision. This process imparts certain unique advantages over conventional construction methods, enabling the heat exchanger design engineer to "think outside the box" and gain a significant competitive advantage.

One of the main attributes of 'Elfin' is the virtually limitless choice of tube and fin materials that can be combined including copper-alloys, aluminum, stainless steel, titanium etc.



There is no other product on the market today that can match the unique attributes and exceptional versatility of 'Elfin' at such an affordable cost. With successes in the marine, power generation, rail, compressor and chemical processing industries, 'Elfin' has gained an enviable reputation for quality and flexibility.

## Site Services



Where it is impractical, due to size or time constraints, to remove an existing heat exchanger from a site or vessel, Applied Cooling Technology provides professional worldwide on-site services.

Our own highly skilled, fully equipped fitters are available to travel anywhere in the world, usually at short notice, to undertake such things as commissioning, 're-tubing' (removal and replacement of tubes into existing bundle/shell), installation of tube inserts and tube seals and also the fitting of our Patented Tube-Plate Protection & Repair System.

Our site fitters are trained for hazardous environments such as fuel tanker and container vessel engine rooms, nuclear power stations etc and are able to comply with all local safety regulations and procedures.

We are also able to obtain measurements and carry out heat exchanger surveys at remote sites for quotation and re-manufacturing purposes.

## Company Profile

Applied Cooling Technology LLC (ACT USA) is a privately owned company which has been formed in the USA to offer specialised heat transfer products and services to the 50 states and other local regions.

Our primary objective is to provide a professional and dedicated service within the USA, just as our UK-based sister organisation has done for the European and Asian regions for the past 28 years.

Working in partnership with Britannia Heatex Ltd and its parent company in the UK, Applied Cooling Technology Ltd (ACT UK), brings many distinct benefits to the organisation. For example, human resources, knowledge, expertise etc can be shared or combined; ACT USA has access to the numerous Patented technologies that have been developed by ACT UK over the last

decade; easier access to international suppliers and reduced costs through co-operative and bulk purchasing etc.

The management team of Applied Cooling Technology LLC is made up of some of ACT UK's most experienced and skilled employees. Each having between 20 and 35 years experience in the heat transfer industry, they are skilled in such areas as product development, mechanical design, on-site operations and all aspects of heat exchanger manufacture. Applied Cooling Technology LLC is a professional organisation led by a professional team who will endeavour to exceed your expectations in every way.

We look forward to assisting you with your requirements and long term objectives.

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