AAC

ABAN AIR COOLER

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کولر هوایی آبان

ABAN AIR COOLER

دفتر مرکزی و کارخانه :
شیراز، دوکوهک، بلوار دکتر ملک حسینی (ورودی دوم شهر صدرا)
کیلومتر ۲، خیابان کارآفرین کد پستی : ۵۸۷۵۵ - ۷۱۹۹۱
تلفن : ۹۸۷۱۳۳۱۱۰۰۰۰ + فکس : ۹۸ ۷۱ ۳۳۱۱۰۰۰۱ +

دفتر فروش :
تهران، خیابان گاندی جنوبی، کوچه اول، پلاک ۲۲، طبقه ۳
کد پستی : ۸۳۴۱۵ - ۱۵۱۶۹
تلفن : ۹۸۲۱۴۱۴۶۲۰۰۰ + فکس : ۹۸۲۱ ۸۸۶۵۱۴۹۴ +

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YOUR PARTNER FOR OPTIMUM PROCESS SOLUTIONS

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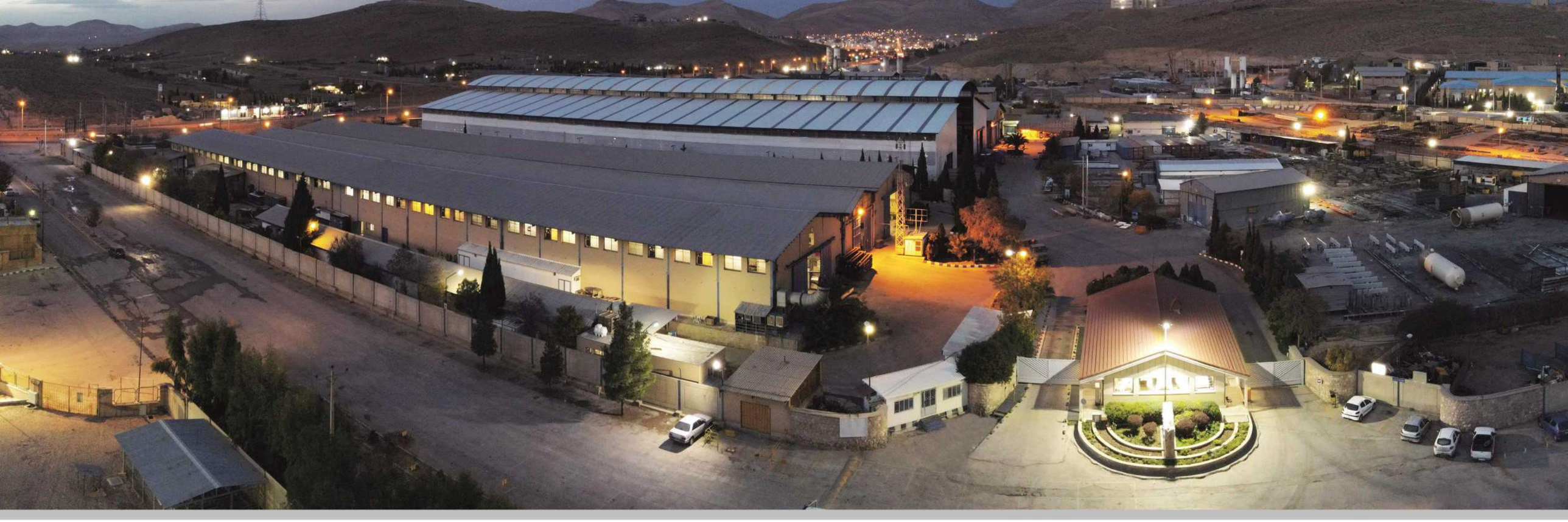


Company Profile

Aban Air Cooler Co. (AAC), a private joint stock company, was founded in Shiraz, Iran in 1998.
AAC production facility is located in northwest of Shiraz, Iran with a total area of 101,000 m^2,which 24,500 m^2 is production halls.

AAC, as a solution provider, specializes in engineering, design, production and supply, installation and commissioning of heat transfer systems for oil, gas and petrochemical plants, direct/indirect power plant cooling systems and solutions, static and super heavy equipment, process packages and water refrigeration packages for variety of applications.

By undertaking advanced methodologies in supply chain management, AAC integrates supply and demand management across customers, vendors and subsidiaries, with primary responsibility for linking major business functions and business processes into a cohesive and high performance business model.
Customer satisfaction defines the priorities of our industrial and commercial policies.

AAC

Products:

The following is an overview of the products which AAC offers to its customers:

EQUIPMENT:

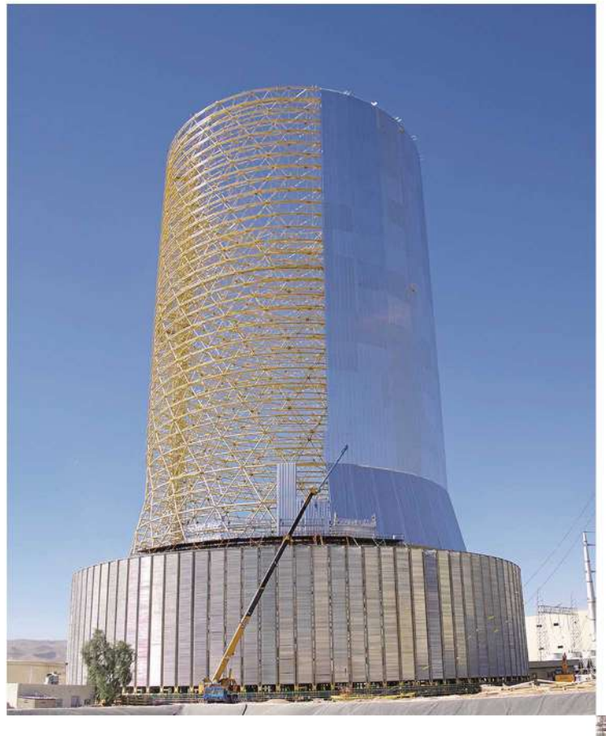
- Air Cooled Heat Exchanger
- Air Cooled Condenser (Brazed Single & Multi Row)
- Shell and Tubes Heat Exchanger
- Helical Shell & Tube Heat Exchanger
- Double Pipe Heat Exchanger
- Special Heat Exchangers
- Plate Heat Exchanger(Welded Type & Gasketed Type)
- Sulfur Condenser
- Plate Fin Heat Exchanger (PFHE/BAHX)
- Titanium Surface Condenser
- Tanks
- Tower & Column
- Splitters
- Drum
- Reactor
- Desalter
- Ejectors
- Tube Bundle Puller

CRYOGENIC EQUIPMENT, PACKAGES AND SYSTEMS:

- Cold Box
- ASU (Air Separation Unit)
- Vacuum Double Wall Cryogenic Storage Tank
- Ambient Air Vaporizer (AAV)
- LNG/ mini LNG Plants (STPD up to 200 TPD)

GAS PROCESSING PACKAGES:

- Refrigeration Package
- BOG (BOIL OFF GAS) Units
- LPG Recovery Units
- Nitrogen/Oxygen Generation Package (PSA)
- Hydrogen PSA & Hydrogen Purification Packages
- Gas Dehydration (Molecular Sieve and SilicaGel)
- Crack Furnace
- Degassing System
- Gas Sweetening Units
- Decoke Air Compressor
- Treatment Packages (Monomer)
- Condensate Polishing Package
- LPG Polishing Package
- Gas Dehydration (Glycol)
- SRU (Sulphur Removal or Recovery Unit)
- Flare Gas Recovery
- Incinerator Package
- PSA package



HIGH TEMPERATURE EQUIPMENT AND PACKAGES:

- Steam Reformer
- Convection Coil & Radiation Coil
- Waste Heat Boiler
- Boiler and Boiler Package
- Recuperator
- Transfer Line Heat Exchanger (TLE)
- In-line Heater
- Preheater
- Crossover
- Fired Heater
- Electrical Heater

COOLING SYSTEMS:

- Cooling Tower
- Hybrid Cooling System
- Direct and Indirect Cooling System
- Turbine Inlet Air Cooling (TIAC)
- Evaporative Cooling Media
- Fogging Systems
- Chiller Systems
- Termal Energy Storage (TES)

Services:

AAC provides the following services to its clients:

- Engineering and Design
  - Basic Design
  - Front-end Engineering
  - Detail Engineering
- Procurement and Supply Services
- On-site Services
  - Construction
  - Installation
  - Commissioning
  - Supervision and Management
- After Sales Services

AAC

WHEREVER COOLING IS REQUIRED IN PRODUCTION PROCESSES WE PROVIDE OUR OPTIMUM SOLUTIONS.

AAC develops suitable special designs for the specific applications of its customers i.e. circulating air coolers, anode protection systems, heating coils, deluging systems to combine benefits of dry cooling with those of evaporative cooling.
Each tube bundle is manufactured, tested, and stamped in strict accordance with rigid industry codes and standards.
With a mindset of manufacturing quality, economic efficiency and flexibility, AAC offers a variety of air cooler designs for all applications, starting with simple components and ending with complex process engineering.

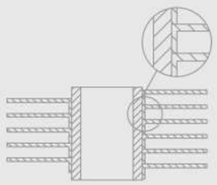
AIR COOLER - Air Cooled Heat Exchanger (ACHE)

ACHEs are commonly used where a reliable source of water is not available as a cooling media.
Even when water is available, ACHEs are sometimes favored for environmental, economic or operational reasons.
An ACHE is designed to exchange heat with a fluid using the cheapest and most available medium, air. Various types of ACHEs are designed and manufactured according to requirements and specifications of our clients.
The main types of ACHEs are Forced Draft or Induced Draft type. The less sensitive to certain changes in weather conditions are induced draft type, whereas, the airflow distribution through heat exchanger is more uniform in the forced draft type. Due to relatively high escape velocity of the air from the fans, the induced draft system is less susceptible to crosswinds and recirculation of hot air.

'L' Fin

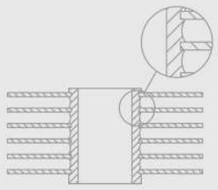
The strip material is subjected to controlled deformation under tension giving the optimum contact pressure of the foot of the fin onto the base tube thus maximize the heat transfer properties.

The foot of the fin considerably enhances the corrosion protection of the base tube. Maximum operating temperature for this fin type is 120°C.



'G' Fin

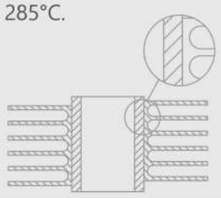
(Embedded Fin) The fin strip is wound into a machined groove and securely locked into place by back filling with base tube material. This ensures that maximum heat transfer is maintained at high tube metal temperature. Maximum operating temperature for this fin type is 400° C.



'Extruded High Fin'

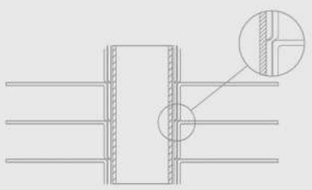
This fin type is formed from a bi-metallic tube consisting of aluminum outer tube and an inner tube of almost any material. The fin is formed by rolling material from the outside of the exterior tube to give an integral fin with excellent heat transfer properties and longevity.

Extruded fin offers excellent corrosion protection of the base tube. Maximum operating temperature for this fin type is 285°C.



'KL' Fin

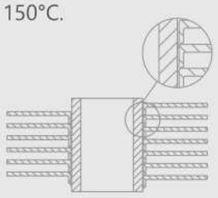
Manufactured exactly as the 'L' fin except that the base tube is knurled before application of the fin foot. After application the fin foot is knurled into the corresponding knurling on the base tube thereby enhancing the bond between the fin and tube resulting in improved heat transfer characteristics. Maximum operating temperature for this fin type is 260°C.



'LL' Fin

Manufactured in the same way as the 'L' fin type except that the fin foot is overlapped to completely enclose the base tube, thereby giving excellent corrosion resistance.

This type of tube is often used as an alternative to the more expensive extruded type fin in corrosive environments. Maximum operating temperature for this fin type is 150°C.



ACHEs are mostly used as:

- Process Cooler
- Gas / CNG / LNG / GTL Cooler, Condenser etc.
- Lube Oil Cooler
- Gas and Steam Condenser
- Intercooler
- Aftercooler
- Pre-cooler
- Hybrid cooling tower

WE COOL IT DRY

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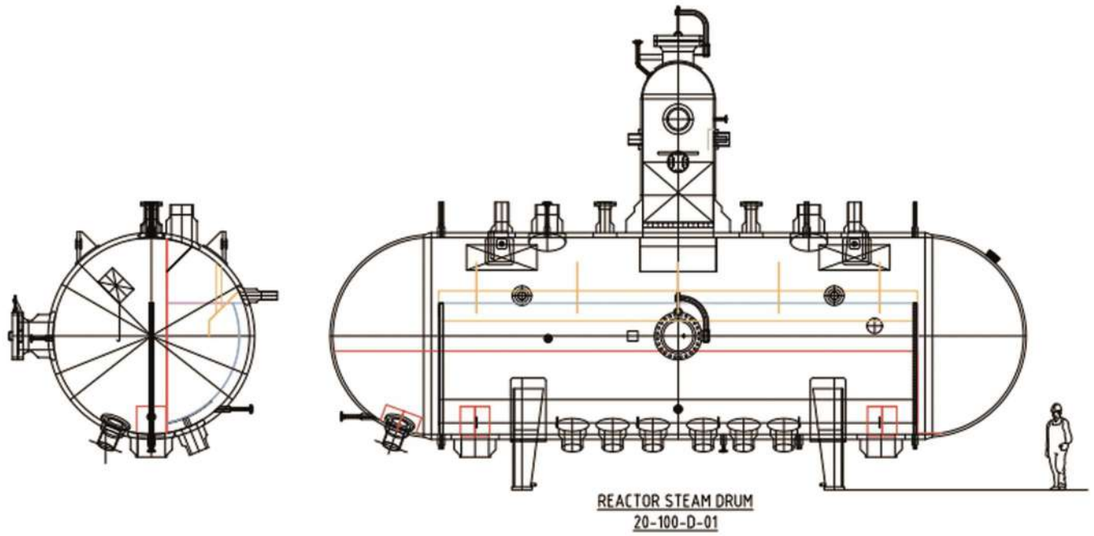
WE KNOW HOW TO BALANCE THE ENERGY

AAC designs and manufactures shell and tube heat exchangers for refinery, petrochemical, gas, process, metal mineral and power plant industries in complete range of configurations and in full compliance with international standards, i.e. ASME, TEMA, DIN, CE, GHOST, JIS, KS and API. Enjoying our strong sourcing capabilities in combination with up to date knowledge and state of the art production facilities, AAC is able to provide shell and tube heat exchangers in a full range of materials and widest range of operational conditions according to customer's requirements and specification.



Shell and Tube Heat Exchanger (STHE)

Shell and Tube Heat Exchangers in various configurations are probably the most widespread and commonly used basic heat exchanger configuration in the process industries. A shell and tube heat exchanger (STHE) provides a comparatively large ratio of heat transfer area to volume and weight in a form, which is relatively easy to construct in a wide range of sizes, whereas it is mechanically rugged enough to withstand normal shop fabrication, shipping and field erection stresses.

WE KNOW HOW TO BALANCE THE ENERGY

Power Plant Cooling
Delta Heat Exchanger

Heller (Heller-Forgo) heat exchangers, (a special design of air cooled heat exchanger) are solely designed and
manufactured for Combined Cycle Gas Turbine (CCPP) and Steam (Thermal) Power Plants. All aluminum tube bundles, chemically coated for higher corrosion resistance, deliver a high thermal performance and long lasting product.
Indirect Dry Cooling Systems include a water-cooled
condenser, circulating water mains and a dry cooling tower accommodating our manufactured air cooled heat exchangers. The water-cooled condenser can either be DC Jet or Surface Condenser type.

Air Cooled Condenser (ACC)

Air Cooled Condensers (ACC), are designed and manufactured by AAC in two types of Multi and Single Row, which are installed mostly in power plants, LNG and GTL or similar plants. An ACC consists of cells arranged in parallel rows. The fin tube bundles are arranged on the fan deck. The airflow through the heat exchanger bundles is achieved by forced-draft fans.
The ACC normally comprises the supporting steel/concrete structure, steam ducting from the turbine exhaust to the heat exchanger bundles, the fin tube bundles, fan units, condensate tank, condensate and drain pumps, evacuation system,interconnecting piping and instrumentation.

Media Cooler System

An Efficient Evaporative Cooling Solution for Gas Turbines

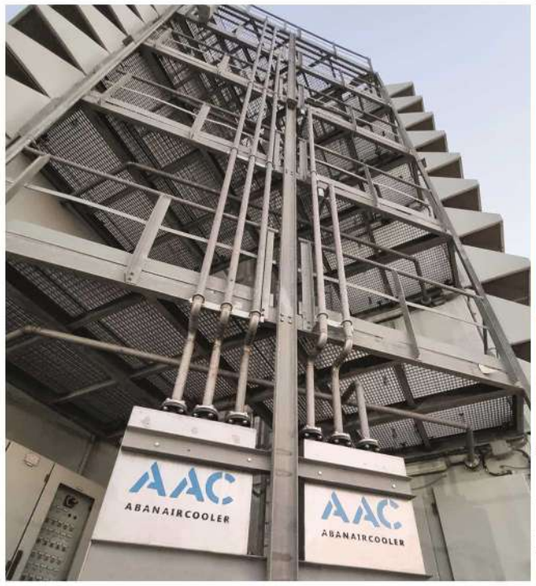
The Media Cooler System is an advanced evaporative cooling solution designed to enhance the performance of gas turbines, particularly during hot seasons. This system addresses a critical challenge in power generation: the decline in turbine output due to high ambient temperatures. By reducing the inlet air temperature, the system can improve turbine efficiency by more than 20%, even under fuel-limited conditions.

Soft water, treated through a Reverse Osmosis (R.O.) system, is pumped into a dedicated cooling tank using forwarding pumps. Circulation pumps then deliver this water to specially designed media pads installed at the turbine's air intake. As air passes through these moistened pads, part of the water evaporates, cooling the air and increasing its relative humidity. This process optimizes combustion conditions and significantly boosts turbine output.

The water that does not evaporate is collected and returned to the cooling tank, allowing for continuous reuse within the cycle. This closed-loop system ensures efficient water usage while maintaining stable cooling performance.

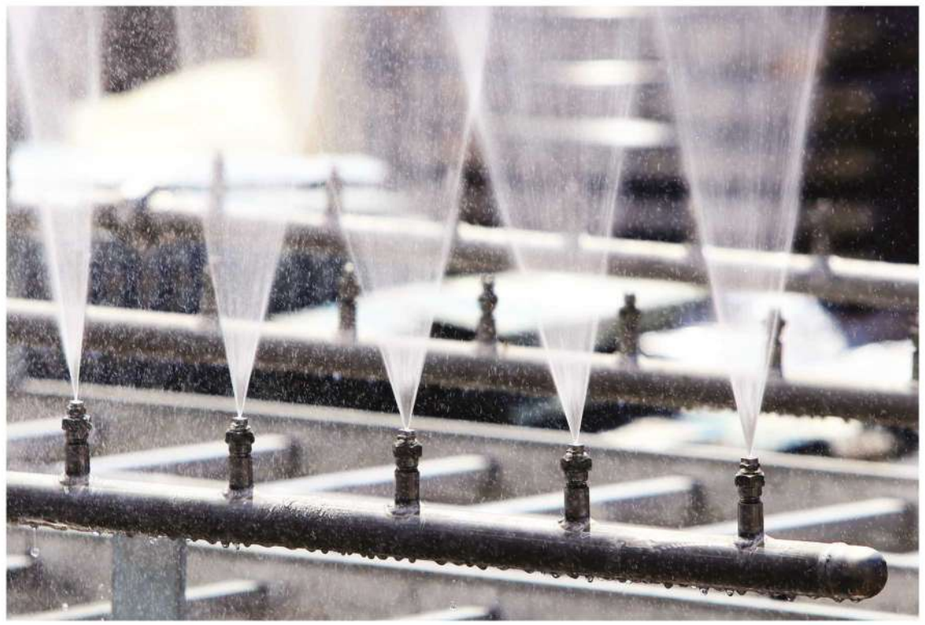
Key Benefits:

- More than 20% increase in turbine output during peak temperature seasons
- Reduced fuel consumption per MW generated
- Improved combustion efficiency and thermal stability
- Simple integration with existing turbine setups
- Sustainable water management with low operational cost



Cleaning System

The tube bundle cleaning system for ACHE/ACC are designed and fabricated by AAC. The cleaning system uses an optimized volume of water, but at a calculated pressure, while
allowing for effective surface cleaning, avoids damaging surfaces and fins. The main components of the system include a nozzle beam, a movement mechanism, and a control panel. The water contains no additives.
The nozzle beam is optimally matched to the tube bundle geometry, with a constant jet angle. Furthermore, the carriage on which the nozzle beam is mounted moves at a constant speed and so allows the fouling to be removed effectively and uniformly across the heat exchange elements of the condenser. Because the fouling material is removed, air flow is no longer
obstructed.
Air cooled heat exchangers/condensers are an important part of industrial heat transfer systems, especially where clean cooling water is scarce. Unfortunately, fouling of ACHE/ACC is a serious problem since the quality of air cannot practically be controlled, which is a common phenomenon in our region.
An important advantage of the cleaning system is that cleaning can be performed during operation while the unit is still on-line and the need for scaffolding and labor requirements are minimized.



Refrigeration Package

Design, manufacturing, installation and commissioning of Refrigeration Package is done to suit capacity and temperature condition as required in process. Required standards and specifications are considered and applied in design and manufacturing processes.
All products are manufactured with the best quality through AAC quality procedure and assurance manual. R-22, alternate refrigerant (R-134a, R-501, R410a), ammonia, propylene, propane, and butane can be used as the refrigerant for the unit.
Pressure vessels and shell & tube heat exchanger of each package are designed according to ASME international standards and regulations. Heat Exchangers which are utilized in the package could be selected and delivered from the range of Shell & Tube type, Plate type and Air-Cooled type.
Package types are manufactured and delivered as follows:

- Screw compressor unit
- Condensing, liquid receiver unit
- Chiller package
- Oil pump, cooler & separator unit
- Oil ejector, hot gas bypass, refrigerant dry unit

Tube Bundle Puller

The device is used to service Shell & Tube HEX in order to remove the bundle tube and also to place it.
Tube Bundle puller/extractor is an agile, safe and automatic device for reducing the issues of pulling out and placing Tube Bundle in Shell & Tube HEX. (This device combines all the hydraulic, mechanical and structural components in a compact arrangement, and easily removes and replaces the heat exchanger bundle tubes using a crane and also uses a Remote Control.
The main technical advantage of this device is the use of a diesel engine to produce the driving force that allows the device to be used anywhere and away from power sources electrical motors could be supplied on demand.
We design a scissor lifter with trolley device for limited environments or when we unable to use a crane, it designed to use in a special situation and to take out the bundles, it can be designed and manufactured for variable weights and heights.

Recuperator

The recuperator in concept is a gas-to-gas heat exchanger in which the combustion air of the burner is heated by the combustion output products.
Generally, they are used to recover heat from the exhaust and use it to preheat air entering the combustion system. In this way, they use waste energy to heat the air, offsetting some of the fuel, and thereby improving the energy efficiency of the system as a whole.

Inline Heater

Inline heater are designed to increase the process gas temperature to the set value in its flow path.
In various methods of inline heating, the use of direct flame has many significant advantages.
The most important thing is its effectiveness and high thermal efficiency.

Double Pipe Heat Exchanger

Double pipe heat exchanger is a type of heat exchanger in which a fluid flows inside the inner pipe, and the other fluid flows in between the inner and outer pipe.
In a double pipe heat exchanger, the flow can be either co-current or counter current.
Considering the records of AAC in production and design of heat exchangers, the diversified industries demands are met.

AAC

Brazed Aluminum Plate Fin Heat Exchangers (PFHE)

Brazed Aluminum Plate Fin Heat Exchangers (PFHE) are the most compact and energy efficient heat exchangers for handling a wide range of services.

For Cryogenic Applications:

- Cryogenic separation of air (ASU Plant)
- Natural Gas Processing (NGP)
- Liquefaction of Natural Gas (LNG Plants)
- Industrial Gas Processing, Refining of Petrochemicals, and Refrigeration Services

The following are the advantages of PFHE:

- Compact Heat Exchanger, 1000 – 2000 m2/m3
- High Thermal Efficiency
- Compactness
- Very Low Temperature Difference
- Low Weight
- Low Maintenance
- Ability to Carry Multiple Streams, Up to 12 Streams

A Brazed Aluminum Plate-Fin Heat Exchanger consists of a block of alternating layers of corrugated fins. The layers are separated from each other by parting sheets and sealed along the edges by means of side bars, and are provided with inlet and outlet ports for the streams.

Aban Air Cooler (AAC) is the pioneer in Brazed Aluminum Plate Fin Heat Exchanger manufacturing in west of Asia. AAC has the large brazing furnace to produce large aluminum brazed core.

Incinerator Package

An incinerator package is used to provide a safe and cost-efficient means of disposing of waste while minimizing environmental impact. Incinerator packages are used in a wide variety of application in Chemicals and petrochemicals industries such as Sulphur Recovery Unit.

incinerator package includes the combustion chamber, exhaust system, air pollution control equipment, and other necessary features.

According to the type and volume of waste and other operational requisition of the customer, AAC Company designs the most safe and cost-effective incinerator package.

Convection Coils

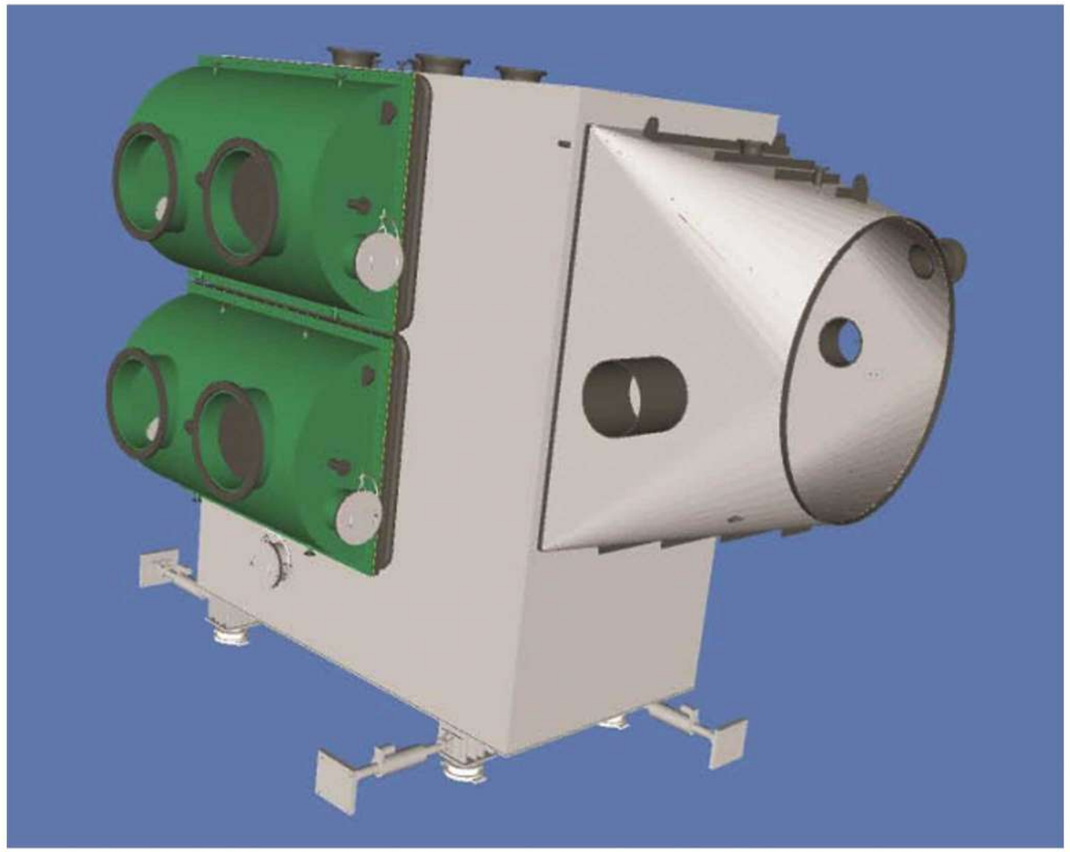
The convection coils use for gas cracking on petroleum industries. Cracking, in petroleum refining, the process by which heavy hydrocarbon molecules are broken up into lighter molecules by means of heat and usually pressure and sometimes catalysts. Cracking is the most important process for the commercial production of gasoline and diesel fuel.
For Karun Petrochemical Company 6 modules of convection coils have been fabricated by AAC. These module are series and hot gas flows in to the coils on top and exit on the bottom.

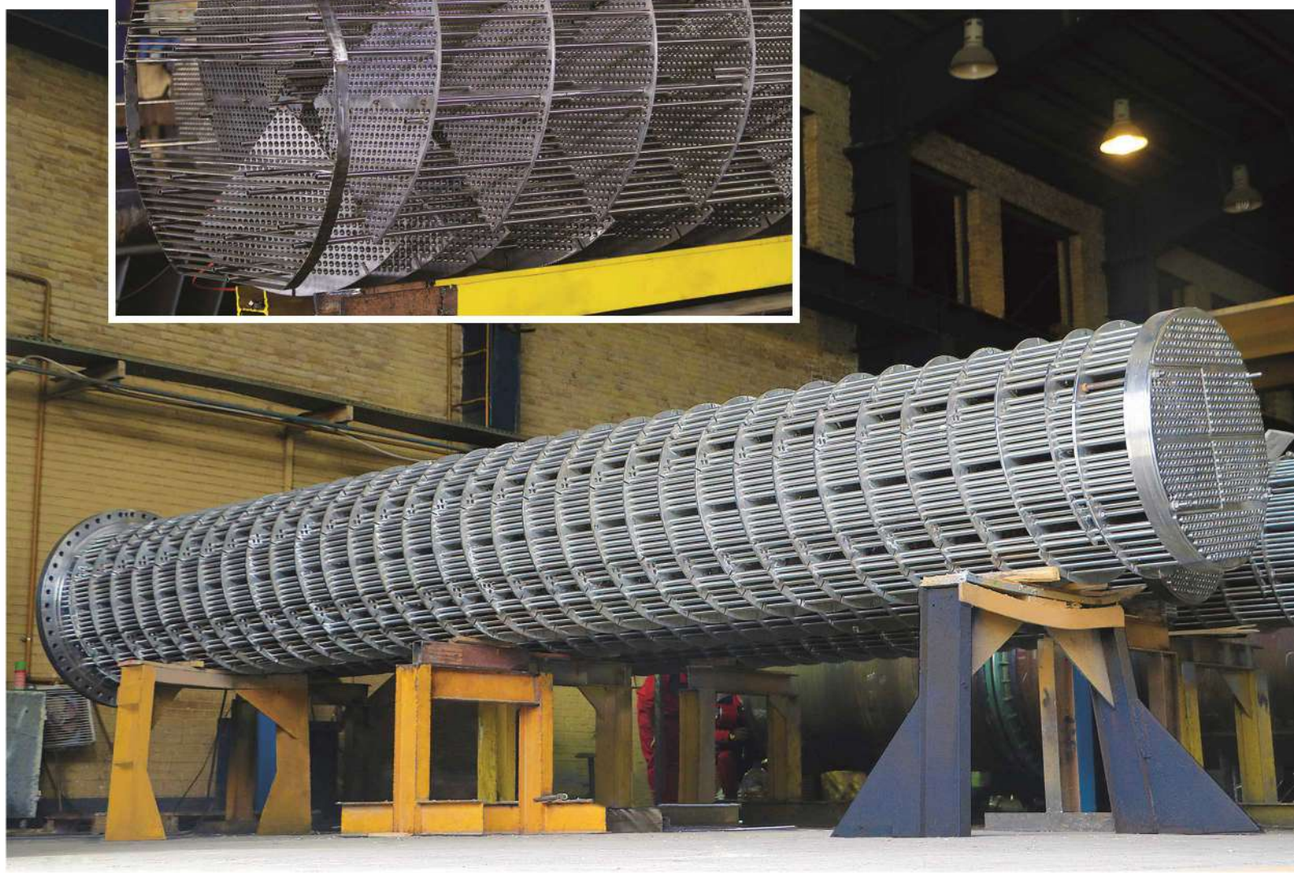
Sulfur Condenser

The sulfur condenser is a piece of key equipment in a sulfur recovery unit. The sulfur condenser belongs to the shell and tube boiler, which is a special type of heat exchanger equipped with internal refractory and steam coil.
The main function of this equipment is to cool and condense the sulfur generated in the upstream reaction section.

Titanium Surface Condenser

A surface condenser is a water-cooled shell and tube heat exchanger installed to condense exhaust steam from a steam turbine in thermal power stations. These condensers are heat exchangers which convert steam from its gaseous to its liquid state at a pressure below atmospheric pressure. In special application Sea Water is used as cold media, and Titanium tubes can be resisting against sea water corrosion.





Helix Heat Exchangers

In this type of Exchanger, the special baffle geometry, cause the rotational movement of the fluid on the shell side and prevent the creation of dead points that are created behind normal segmental baffles. This type of movement causes that fluid sedimentation in the shell side area is much less than the other type for high viscosity fluid.
Therefore the efficiency as well as heat transfer for Helix Heat Exchanger be higher than normal Heat Exchangers. The fabrication of this type of baffles is quite special because of the holes drilling where the tubes pass to be oval. Also, tube bundle assembly needs special procedure.

Treatment Packages (Monomer)

Ethylene CO Removal Package: This package will remove CO from a gaseous raw ethylene stream. There are two adsorption beds operate in series, one acts as primary and another as guard bed. The guard bed should be fresh bed. Once the primary bed is saturated with CO, it will be regenerated with hot mixed nitrogen and oxygen stream.
The regeneration cycle is close loop cycle and the heat regeneration is provided by the independent heater to oxidize the adsorbed CO.
The adsorption beds are filled with high efficiency BASF adsorbent.

Ethylene Drying Package: The ethylene drying package will remove CO2, methanol, and water from a gaseous raw ethylene stream. There are two adsorption beds operate in series, one acts as primary and another as guard bed. The guard bed should be fresh bed. Once the primary bed is saturated with impurities, it will be regenerated with hot high purity nitrogen.

Donor Drying Package: The aim of this package is drying THF liquid and it is composed of one regenerable molecular sieve bed. This package will be operated batch wise and once bed is saturated with water, THF will be discharged by nitrogen pressure and subsequently the regeneration cycle with high temperature open loop nitrogen will be started.

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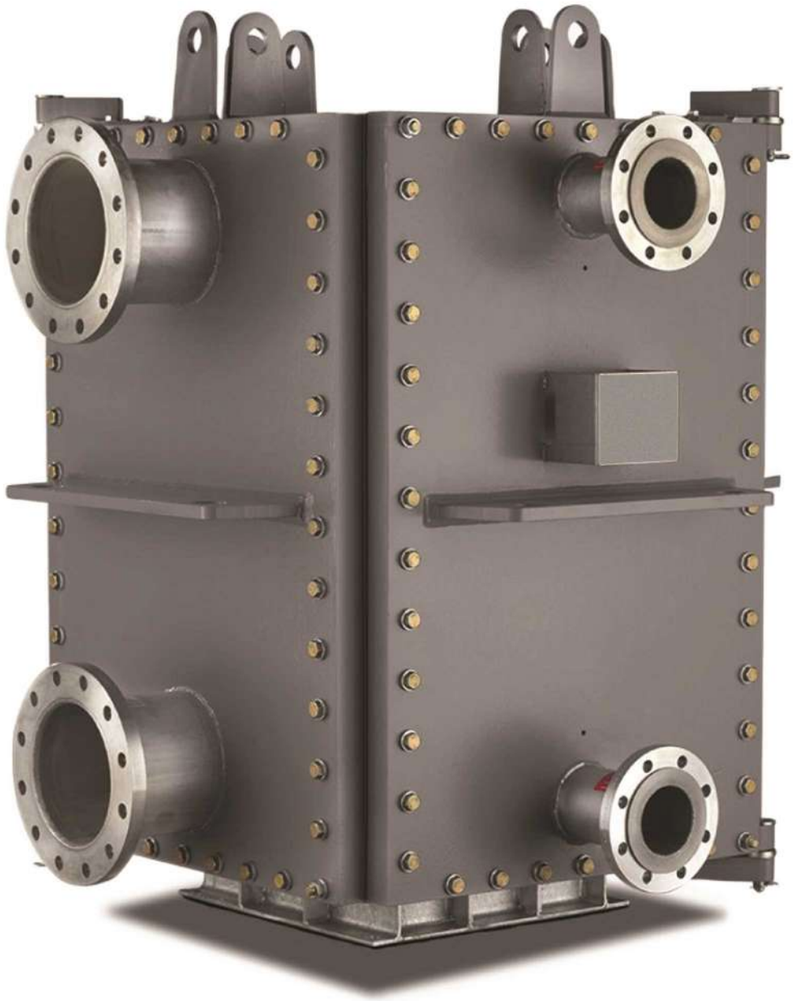


Welded Plate-and-Frame Heat Exchanger (Compablock Heat Exchanger)

AAC Welded Plate type heat exchanger which can be applied up to pressure of 42 bar and temperature of 375˚C .This is because the heat plates are welded instead of the rubber gaskets used in conventional plate heat exchangers.

Gasketed Plate-and-Frame Heat Exchanger

AAC Plate Heat Exchangers provide high rates of heat transfer, due to the turbulence inducing shape of the plates. The special gasket configuration of the plates prevents any mixing of the media being processed. In the port area both fluids are separated by double gaskets.
Plate Material range; STS304, 304L, 316, 316L, 317, AVESTA, 254SMO, HASTELLOY-B, C, Titanium, Ti-Pd, NI.CP(Nickel), AL-BRASS

PSA package

H2 PSA package

The PSA package uses Pressure Swing Adsorption. Impurities are adsorbed at high pressure and then desorbed at low pressure. The hydrogen PSA unit purifies hydrogen-rich feed gas and product high purity hydrogen (up to 99.999%) and a purge stream containing the impurities. The capacity and hydrogen recovery of the unit depend on the type and composition of the feed gas.

The package includes adsorber vessels (from 2 to more than 10 beds), piping and instrumentation to purify Hydrogen and supply tail gas for compression unit. In the main mode of operation, there is always some adsorber vessels in adsorption, while the others are in depressurization, regeneration or re-pressurization.

During adsorption, feed gas enters the bottom of the adsorber, while pure hydrogen leaves from the top. At the end of adsorption, the adsorber is loaded with impurities, concentrated at the bottom and desorption is needed to prepare the bed for next adsorption. Internally this is a batch-type process. However, battery limit flows, feed, product, and off-gas are continuous.

N2 and O2 PSA package

PSA (Pressure Swing Adsorption) is one of the high-tech adsorption technologies which has received a lot of attention these days. It could be used for removing impurities or Separating the components of a gas such as air. To generate pure N2 or O2, a compressor package, pressurizes the air, after removing the bulk liquid like water and oil in the filters, the compressed air enters to dryers which adsorb hydrate and produce a dry air for upstream. At least two fixed bed adsorbtion vessel which is loaded by especial molecular sieves are needed to make the operation continues by changing vessels in adsorption or regeneration mode.

After drying, filtration, oil removing by activated carbon tower, the fresh air is ready to enters N2 generator or O2 generator. A generator package is at least two parallel tower which have been loaded by special molecular sieves with high selectivity to separate air component like N2 and O2.

A control system is responsible to control and monitor operation and a PLC make it easier to change over the beds while adsorption or regeneration mode.

Regeneration is a part of each cycle to regenerate the beds by reducing pressure.

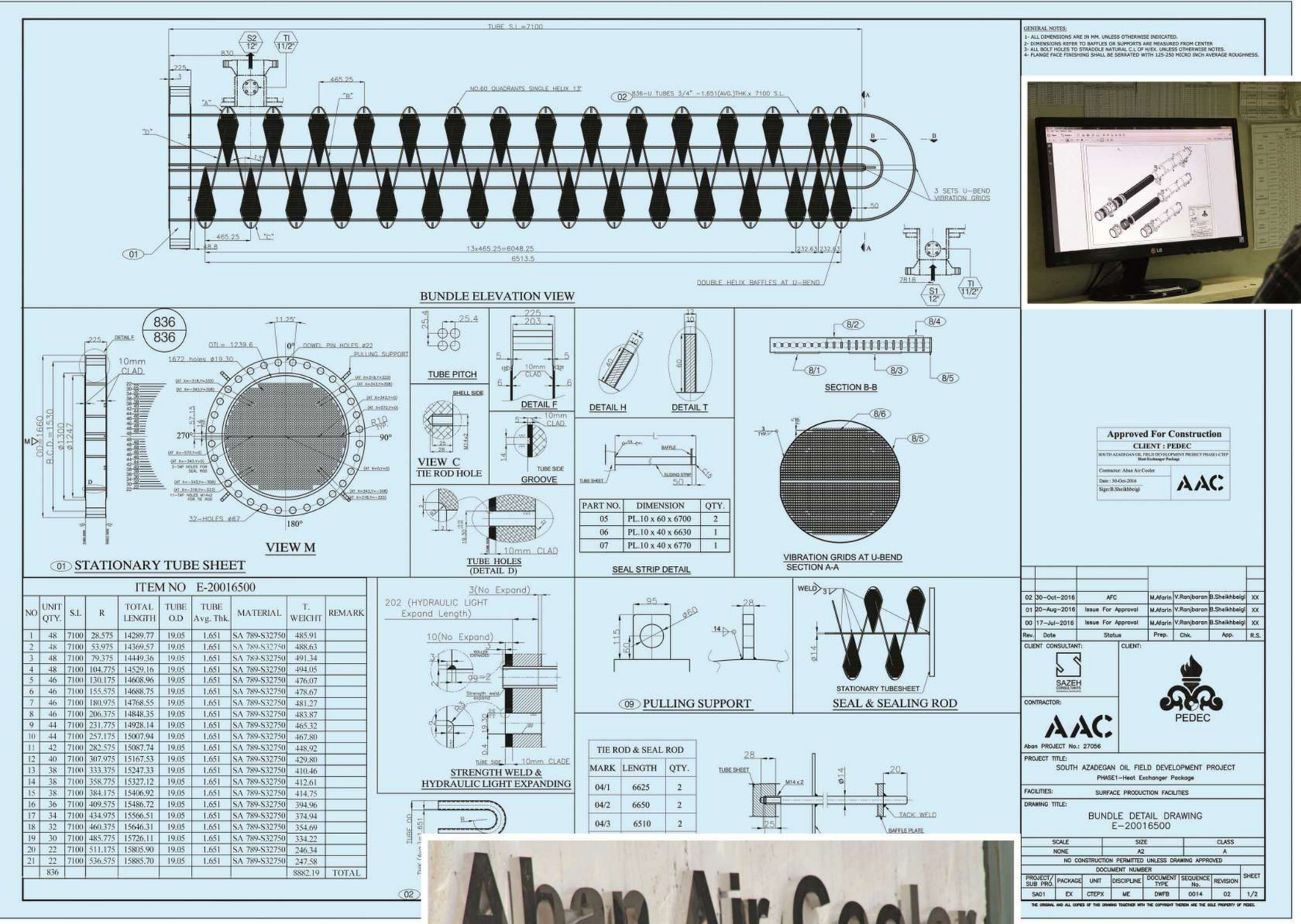
Finally, PSA package produce N2 or O2 with a high recovery of product and 99.999% purity.

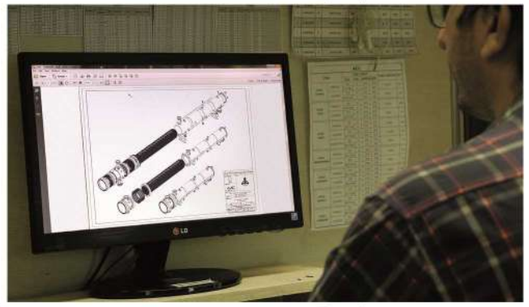
Production

Our reputation as a highly reliable supplier is built on a long tradition of knowledge and technical skills, always striving for continuous improvement. The demonstrated quality of our products is assured by adopting the highest competence into every step of the manufacturing process.

The 101,000 m2 manufacturing facility has 24,500 m2 of workspace amply outfitted with metal working machineries, computerized systems and more. We also, have customized in-house developed machineries to fulfill our efficiency and precision needs. With an additional 68,000 m2 of storage, marshaling, and assembly areas, AAC has largest production capacity for heat transfer equipment in the region. Our impressive physical plant, combined with a workforce of continuous improvement, provides our customers with a unique solution for their demands and requirements.

Customers have peace of mind of knowing that AAC is on the job. Whether it is a full unit turnaround, replacing a complete heat exchanger or tube bundle, or repairing a component in our shop, AAC coordinates and handles the entire job, as your single point of responsibility with no handoffs.





Design & Engineering

The World Over, engineering organizations face three key challenges to win in a dynamic business environment:

Agility: Making quick and informed decisions in a complex, fast-paced, competitive business environment, and understanding cost/value implications across the value chain.

Innovation: Adopting innovations in engineering concepts, technologies and business systems to be on the cutting edge and create more value for customers.

Profitability: Maximizing customer opportunity across the relationship life cycle with offerings needed to gain repeat business, wallet share, and stability.

Well-trained engineers, using the latest computer design tools, with comprehensive knowledge, combined with decades of experience, translate the proposal into a design that meet all the latest internationally accepted codes and standards.

Our engineering and design team provides the following services:

- Conceptual and Basic Design
- Process/Chemical Design
- Engineering and Product Development Solutions
- Mechanical Design
- Metallurgical/Welding Design
- Civil and Structural Design
- Power, Electrical and Instrumentation Design and Prototypes in cooperation with R&D team.

QA/QC
Quality Assurance - Quality Control

Quality Assurance (QA) refers to planned and systematic production processes that provide confidence in a product's suitability for its intended purpose.
It is a set of activities intended to ensure that products and/or services satisfy AAC customer's requirements in a systematic and reliable fashion.
Whereas Quality Control (QC) emphasizes testing and blocking the release of defective products, QA is about improving and stabilizing production and associated processes to avoid or at least minimize an issue that leads to the defects in the first place.
Competition to provide specialized products and services result in breakthroughs as well as long-term growth and change.
QA verifies that any customer offering, regardless if it is new or evolved, is produced and offered with the best materials, in the most comprehensive way, with the latest related standards. The goal to exceed customer expectations in a measurable and accountable process is provided by QA. In AAC, QA is characterized by two key principles:
"Fit For Purpose" The product should be suitable for the intended purpose (Customer Satisfaction).
"Right First Time" Mistake should be eliminated.
QA includes the regulations of the raw materials quality, assemblies, products and components, plus services that related to production, management and inspection processes.
AAC is committed to produce high quality products, systems and well delivered above the market standard services. Latest revision of standards and project specification combined with years of experience and well-trained staff enables us to deliver our products at the highest level of quality.

AAC is well acquainted and experienced in engineering, design, and manufacturing of heat transfer Equipment and pressure vessels in accordance with the following codes and standards:

- API
- TEMA
- ASTM
- ASME
- IPS
- BS
- DIN
- IEC

Maintaining and augmentation of the quality level of our products is our first priority and corporate strategy; hence, we conserve the right for our customers/clients to perform the full survey over our methods and procedures in order to be assured of offered quality.

Research & Development

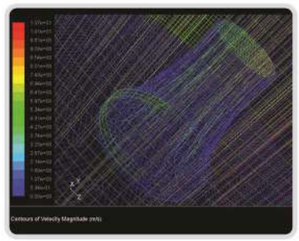
Our objective of satisfying our customer's expectations is to fulfilled through continuous research and development activities for developing, improving and optimizing the products, services and processes. AAC allocates a large part of resources and efforts in research and development to improve our products continuously.

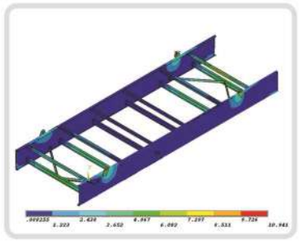
Theoretical Analysis, Experimental Investigation, Finite Element Analysis (FEA), Computational Fluid Dynamics (CFD) and prototyping for validation of new ideas are performed by our R&D team that include specialists in closed connection with universities, consulting firms and research institutes.

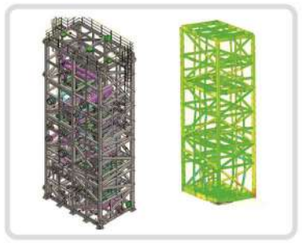
Small, one to one scale model and type tests in wind tunnels and CFD modeling are used to determine the operating characteristics of cooling systems.

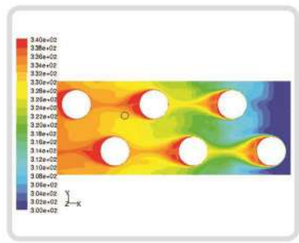
We use the latest software and hardware to simulate the operating behavior of the equipment and adapt them to individual costumer specification.

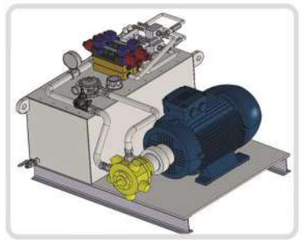
We provide our clients with the best conditions to be technically and economically equipped for the future.

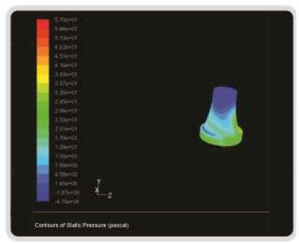










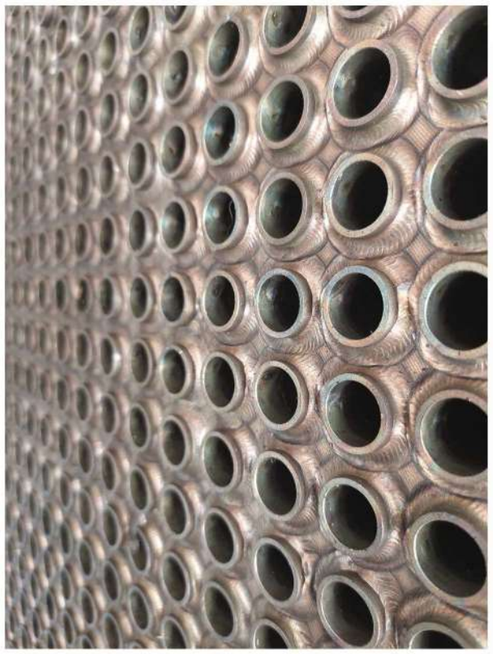


After Sales Services

At AAC we are aware that customers are the assets of every business and after/sales services play an important role in customer satisfaction and customer retention.
To achieve customer loyalty and stay true to our brand values, AAC offers a full scope of services including engineering, procurement, supply of complete units, pre-commissioning, commissioning, supervision on complete installation process and start-up for its products.
Our slogan at AAC is "we are one call away."
AAC provides full after-sales services. We will dispatch our qualified supervisors promptly to investigate probable causes of problems for finding the best solution or remedial action to ensure safe and normal operation of cooling units in any plant.
We also provide spare parts for all related products, either from stock or manufactured according to the requirements in full compliance with the original parts.
As a service partner, we deliver troubleshooting, performance optimizing, retrofitting, complete repairing and re-tubing services in our workshop and sites.

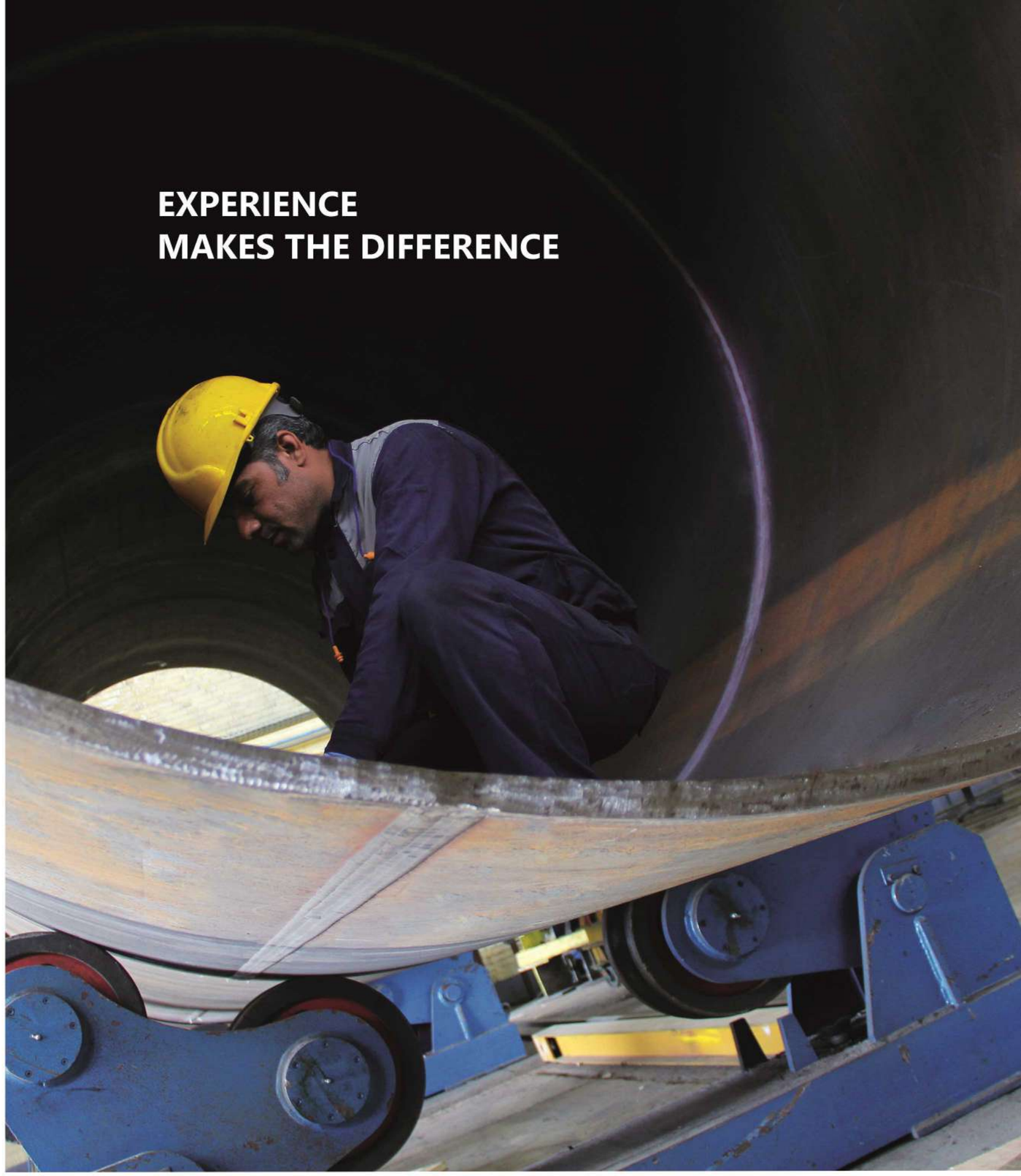
Installation

AAC has allocated an independent division to handle all installation and commissioning to be able to carry out market demands. We are what we repeatedly do; therefore, in AAC excellence is not an act but is a habit.
Our team is capable and well equipped to supervise, conduct, and perform installation and commissioning of all its products, with highly trained staff and expert labor force in all fields of engineering, planning, civil, mechanical, electrical, and Instrument upon client's request.
All AAC staff and engineering can draw on extensive practical experience gained in many installation and assignments.
The vast majority of this specialized staff can look back on several years of professional experience and sometimes they gained under extremely difficult conditions.
AAC has allocated an independent sister company named Aban Energy Industries (AEI), in order to manage all after/sales services, and construction contracts including installation, pre-commissioning and commissioning in order to optimize all required services for obtaining maximum efficiency and long life of all the equipment.



Orbital Welding Machine

Fully automatic orbital welding machine for tube to tube sheet welding utilizes GMAW process in which welding is done by fully automatic torch. In a fully automatic model movement, rotation and wiring are done automatically and in semi-automatic machines, wiring is done automatically. All settings of these steps can be controlled by the operator.



ABAN INNOVATIVE
TECHNOLOGIES GROUP CO

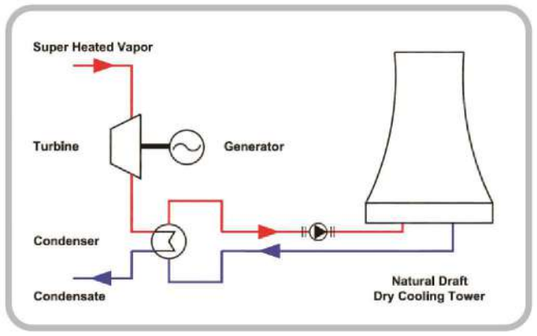
Established in 1996. Aban group of companies strive to provide optimal cooling solutions for the process and power plants. With over two decades of experience, we are now able to deliver our engineered products and systems to our clients all over the world.

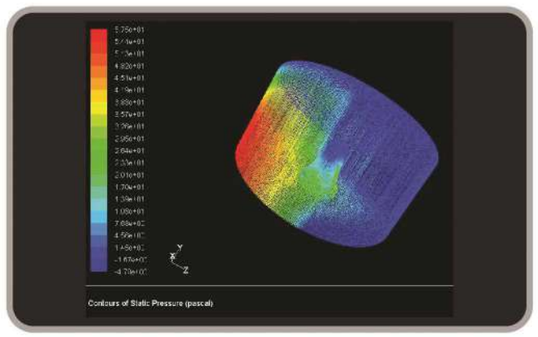
Dry Cooling

Throughout all the MENA region where water is a scarce commodity or in countries where stringent environmental legislation does not allow the use of water, dry cooling is becoming the smarter choice for both clients and plant owners.

Indirect Dry Cooling

Delta exchangers, a special design of air cooled heat exchanger, are solely designed and manufactured for cooling islands in Combined Cycle Gas Turbine (CCPP) and Steam (Thermal) Power Plants.
All aluminum tube bundles, chemically coated for higher corosion resistance, deliver a high thermal perforance and long lasting product.
indirect Dry Cooling Systems include a water-cooled condenser, circulating water mains and a dry cooling tower accommodating our manufactured air cooled heat exchangers.
The water-cooledcondenser can either be DC Jet or SurfaceCondenser type.
The cooling tower can either be of natural draft or mechanical draft type.



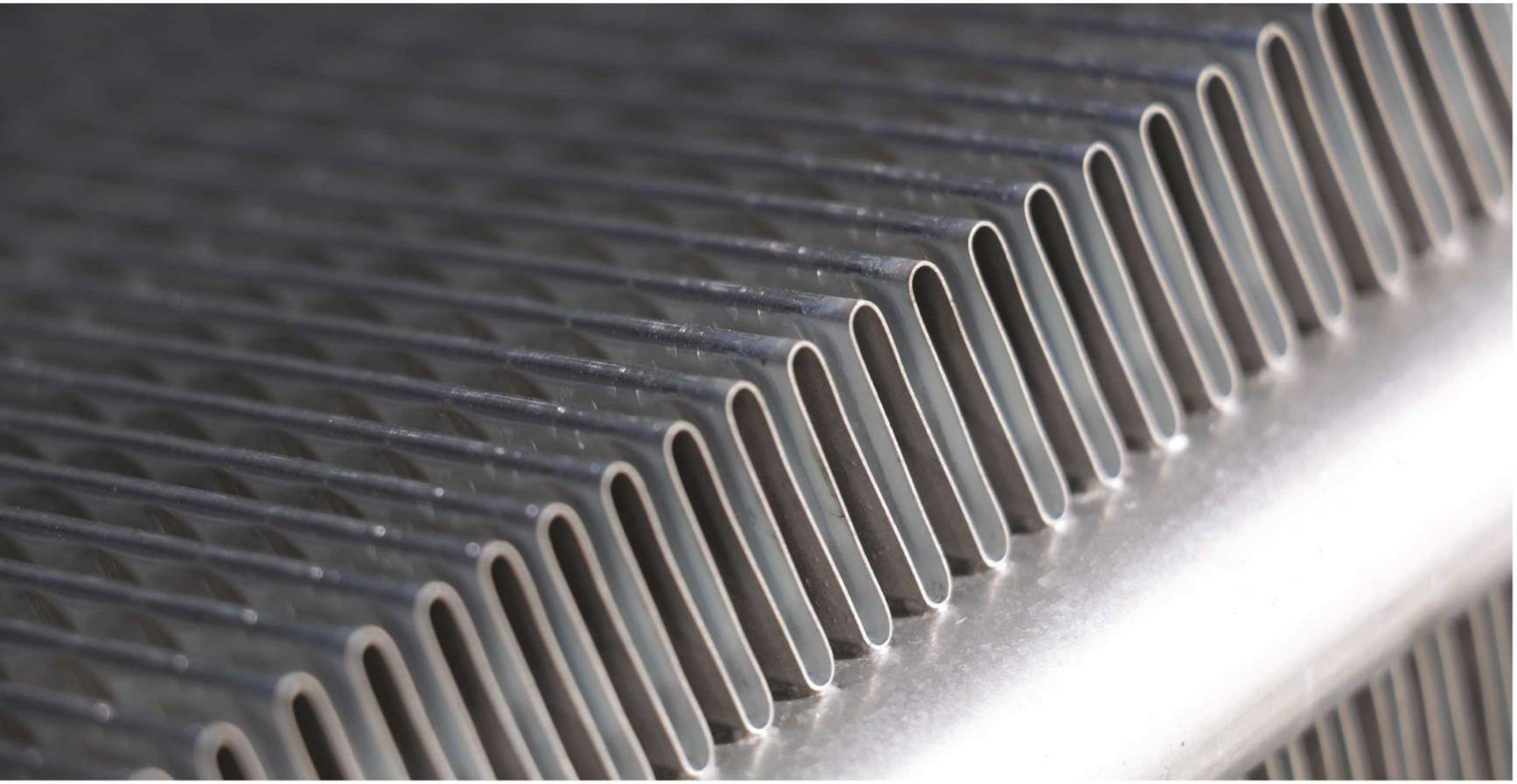


Peak Cooling and Auxiliary Cooling Systems

At Aban, we deliver custom made solutions for peak cooling and auxiliary cooling systems according to the plant location and customer requirements.
Benefiting from our well balanced experience and our production capabilities we are able to deliver optimized design for customer's need.

Direct Dry Cooling

Air Cooled Condenser (ACC) technology does not need water to condense the process fluid.
In this system, exhaust steam from the turbine flows through the tube bundles of an ACC and is condensed in parallel flow tube bundles using air flow induced by properly designed axial fans. The residual steam fwys in counter current.
To meet different customer requirements AAC offers design, engineering, manufacture and_installation of ACC Dry Cooling Systems suitable for Power Plants, Waste to Energy Plants, Chemical and Petrochemical Industry, Oil Refineries etc.
The finned tube bundles are the heart of an Air Cooled Condenser. AAC can provide ACC systems both multi row tube bundles and single-row aluminum fin tube bundles.



Multi row tube technology design feathers can be described as:

- Good corrosion resistance
- Good heat transfer rate
- Well-established and reliable technology

Single-row aluminum fin tube is the state of the art technology in vacuum steam condensers. The main characteristics can be summarized in:

- Higher and more effective heat transfer efficiency
- Flat core tube reducing the air-side pressure drop

Dry cooling systems are environmentally sound technology.
In fact, customers deploying Air Cooled Condensers may benefit from:

- Very low water consumptions rate
- Environment preservation privileges owing to the emission free systems, no hot water discharge into the sea or rivers, affecting the ecosystem
- Low maintenance, in comparison with wet cooling system

The dry cooling systems could be selected early in a project because it increases plant siting options and its use can significantly accelerate approval of constriction permits because water issues are taken off the table. Shorting a project schedule by even few months can completely change the economies of a project and easily balance the increased capital cost of dry cooling options.