Naboo Sanat Holding

Process Vessel
Air Cooler
Heat Treatment Furnace
Hot Oil Boiler
Bell Furnace
Reactor
Shell & Tube Heat Exchanger
Innercover & Protection Bell
Water Tube Boiler
Tower
Steel Plant Equipment
Recuperator
Fire Tube Boiler
Process Separator
Heat Treatment Furnace

2024

Energy Bokhar Asia

" Stay Warm In Our World ".

Our Vision

Respect our clients
Provide **eco-friendly** products
Be the customer's **first choice**

Energy Bokhar Asia

Index

The Company

Since 1996

Energy Bokhar Asia

The Company

Introducing of Board Members

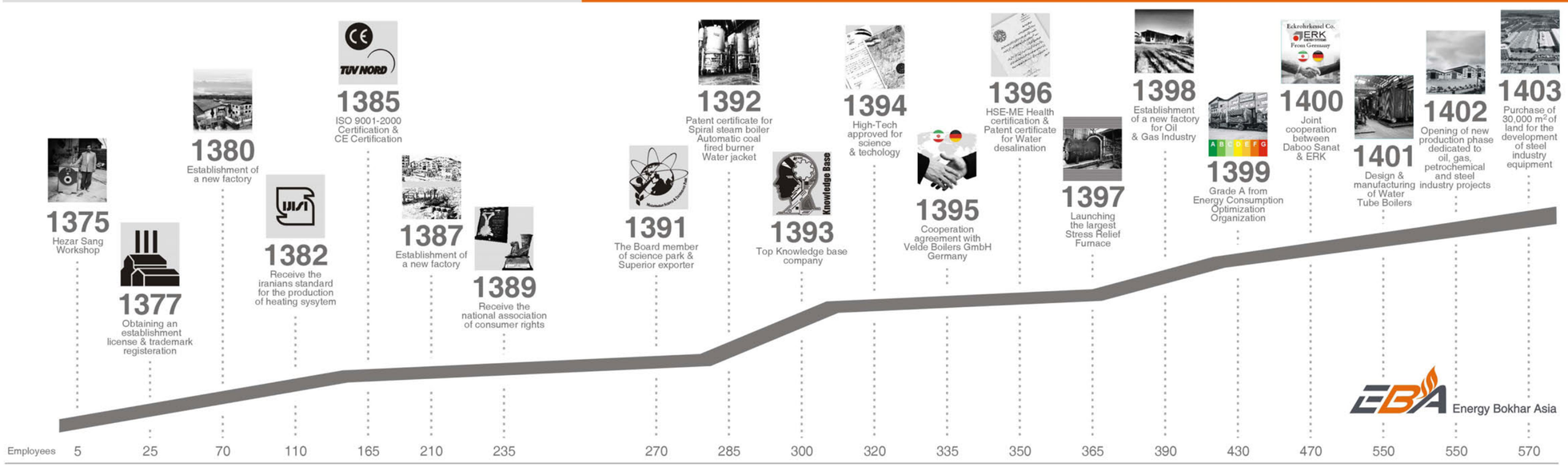
Ali A. Rahmani
C.E.O. and Chairman

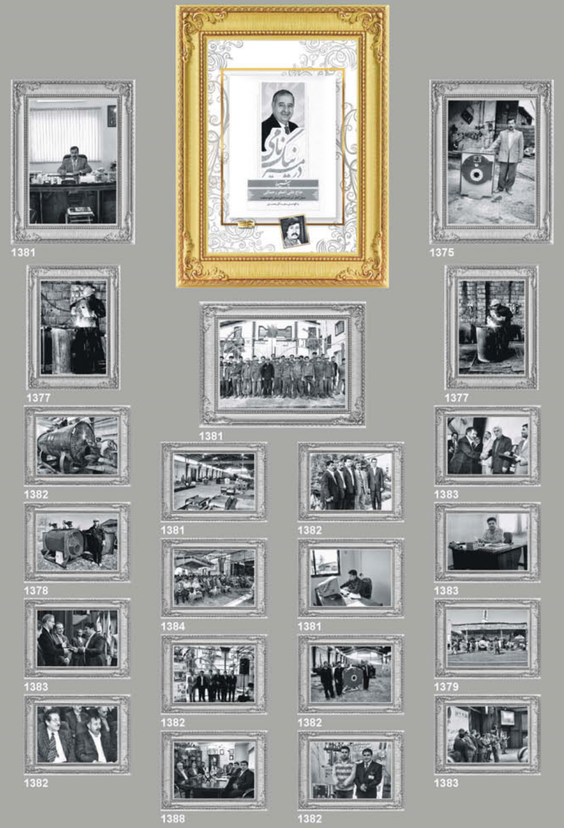
Reza Rahmani
After-sales Service Manager

Mehdi Rahmani
Commercial & Sales Manager

Mohsen Rahmani
Financial, Administrative & Supply Chain Manager

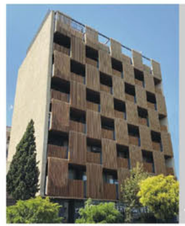
Rafe Rahmani
Factory Manager





Founded in 1996, Daboo-Sanat knowledge-based Company, had started designing and manufacturing equipment related to heating installations and energy industry.
Now over 550 specialists and expert workers are working in this company, and manufacturing in an area of more than 30 acres including 3 production phases (phase 1 and 2 in Mazandaran province, Mahmood Abad, Shohada industrial state Tashbandan and phase 3 in Mazandaran province, Amol, Imamzadeh Abdullah industrial state).
Daboo-Sanat Holding, is a manufacturer and EPC contractor of boiler-room equipment and installations related to oil, gas, petrochemical, power plant, steel industries and etc. Various types of boilers, heat exchangers, pressurized tanks, towers and ancillary equipment related to oil,gas and petrochemical are manufactured in Daboo-Sanat company site.

In recent years, this company has proudly succeeded in achieving the A Grade of energy optimization from Energy Conservation Organization. Now Daboo-Sanat has a great share in every steam and hot-water unit projects by signing technical and engineering agreement with Eckrohrkessel company (ERK) of Germany and utilizing updated and modern machineries being used in Europe and USA and also establishment of company and formation of offices beyond country borders in order to import controlling tools, precision instruments, Industrial valves and consuming materials including sheets and carbon steel tubes of Dillinger and Bentler of Germany, Posco of south Korea and Tubos of Spain. Despite of obtaining the license of Iran's national standard sign, Daboo-Sanat knowledge-based Company also considers all stated and mandatory issues of other international standards such as TEMA, NFPA, ASME, BS, ASTM, ANST, DIN, API, EN, ISO in its design and MOP and manufacturing of its products. To enhance final quality of the product, Daboo-Sanat has established laboratory, quality control and welding engineering department in company site. Daboo-Sanat provides engineering, installing, piping, and after sales services to its customers. Daboo-Sanat Company has succeeded in manufacturing and registering new knowledge-based energy saving products and increasing thermal efficiency since 2014. This company is a member of Mazandaran Science & Technology Park, with a research and development department using new technologies. By help of local experts, in order to fulfill projects related to conservation and reduction of energy consumption along with the country's development vision, Daboo-Sanat believing on its expert's ability, became a trustful replacement of prominent brands. This company has succeeded to utilize many projects by its conservation vision and localization of products inside and outside the country, which has resulted in significant currency savings for the country and created a distinctive competition position in the industry of heating installations and energy equipment and services.



Tehran Office

Phase 1 / 120,000 m²
Phase 3 / 20,000 m²


CNC Bend Tube Machine
in order to bend tubes from 3/4 inch to 3 inch
and working length of 12 meter, capable of rotation.

European technology **Swaging Machine**



Heavy Duty Lathe, Millimg, Boring
&
Radial Drill Machine


CNC Guillotine Cutting Machine
width 6 meters
&
CNC Brake Press - 300 Ton


Elliptical Flanging Machine
with a working diameter of 4000 mm
and a working thickness of 30 mm


Axis Plasma Cutting Machine
with Hypertherm technology of US
working width 4300 mm x 15000 mm

Fully Automatic Orbital Welding Machine
of French polysoude brand

SAW Welding Machine

Post-Weld Heat Treatment furnace 1100 °C
with a volume of 500 m^3
and temperature
accuracy of +/-5 °C

Expanding Machine
of Poland KRAIS brand

Corrugating Machine
6000 mm length and
25 mm working thickness

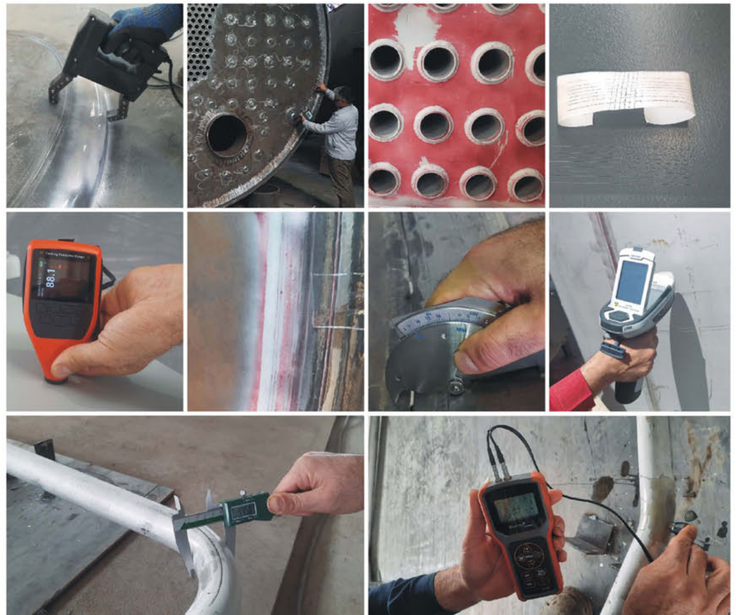
CNC Milling Drill
Siemens technology
and two spindles
(3200 rpm)

CNC Hydraulic Pipe Rolling Machine
capable of working from 3/4 inch
to 6 inch

Rolling Machine
with 4 hydraulic rollers
3300 mm working width and
60 mm working thickness

600 Ton
Hydraulic Pressing Machine

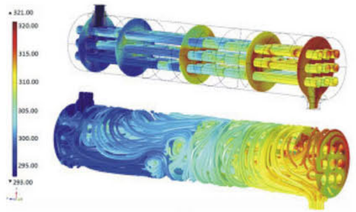
Destructive & None-Desructive **Tests** & **Standards**



Number	Title	Reference standard and its approval interval	Operating Unit
1	Hydrostatic Test (Hy.T)	ASME SEC VIII-Spec & procedure, BS2790, EN12953	Iran Standard & Quality Inspection Co. & Employer inspection company
2	Ultrasonic Test (U.T)	ASME SEC VIII & V & Spec & procedure	NDT test implementation contractor
3	Visual Test (V.T)	ASME SEC VIII & V & Spec & procedure & - ISO 5817-level B.-ISO 3834	NDT test implementation contractor
4	Lamination Test (L.T)	ASME SEC VIII and V, ASTM A435 & ASTM A578	NDT test implementation contractor
5	Dimensional Test (D.T)	ASME SEC VIII & Spec & procedure & Drawing, DWG .EN12953.BD 2790	Iran Standard & Quality Inspection Co. & Employer inspection company
6	Tensile Test (T.T)	ASME SEC VIII & V & Spec & procedure, ASME SEC IX	Valid laboratory (Razi and Jahad Sharif, Razi applied sciences, etc.)
7	Chemical Analysis Test (Ch.T)	ASME SEC VIII & V & Spec & procedure, ASME SEC II	Valid laboratory (Razi and Jahad Sharif, Razi applied sciences, etc.)
8	Penetration Test (P.T)	ASME SEC VIII & V & Spec & procedure	Iran Standard & Quality Inspection Co. & Employer inspection company
9	Radiography Test (RT) and Magnetic Test (MT)	ASME SEC VIII & V & Spec & procedure	Employer inspection company & NDT test implementation contractor
10	SAND BLAST & PAINTING	D-3359 &Spec & procedure	Iran Standard & Quality Inspection Co. & Employer inspection company
11	Hardness Test	Nace Mr 0175 ,0103 & Spec & procedure	Iran Standard & Quality Inspection Co. & Employer inspection company
12	Final Book	According to documents & SPEC	Iran Standard & Quality Inspection Co. & Employer inspection company

Engineering Software

The continuous and stable development of computer technologies has changed the way engineers design and analyze products and projects.
Nowadays, engineering softwares have provided the possibility of predicting the physical behavior of the system and converting the effect of changing various design and user parameters into a model.
The research & development and engineering departments of Daboo-Sanat are using the capabilities of some of these softwares:
PVELITE, ASPEN EDR, TRI, COMSOL MULTI PHYSICS, AUTO CAD PIPENET, CATIA, PDMS, CAESAR, TANK, ANSYS, EES, ASPEN HYSYS SOLID WORKS & CADWORK are used for process simulation and design of boilers, heat exchangers, pressure vessels in different stages of projects.



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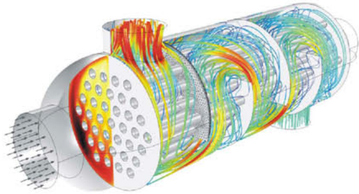

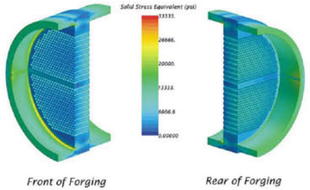

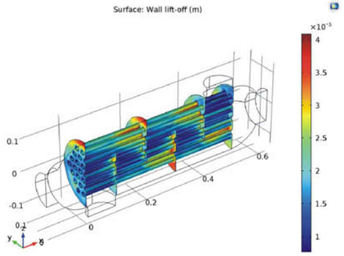

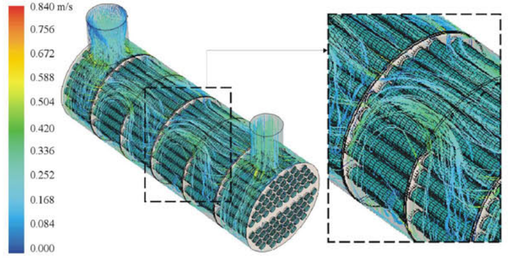

Products

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Water tube type steam and hot water Boilers:

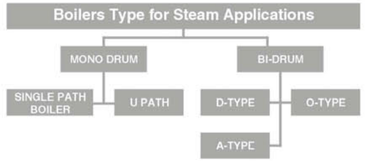
A Water Tube Boiler is a boiler in which water circulates in tubes heated externally by the fire. The water tube boilers are used for high-pressure boilers. Fuel is burned inside the furnace, creating hot gas which heats water in the steam-generating tubes. The **DABOOSANAT** water tube Boiler is a natural circulation boiler without any forced water flow, designed under the license of **ERK Eckrohrkessel GmbH, Germany.**

DABOOSANAT (DS) has manufacturing ERK boiler under know-how license contract with Eckrohrkessel Gmbh.

ERK Eckrohrkessel GmbH issues world-wide know-how licenses to reputed boiler manufacturers. The licensing agreement assures technical back-up to our licensee, enabling manufacturers to produce Eckrohr boilers in compliance with the latest technical standards.

The license agreement between ERK & DS provides technical support and enables licensees to manufacture, install and commission equipment according to international codes and standards.Technology licenses for boiler systems including the ERK Boiler, two-drum, fire-tube boilers.

This license will allow DS to have the German company's know-how in order to manufacture water tube boilers.



Eckrohr & Bi-Drum type of water tube boiler

DS boiler solutions' water-tube boilers are designed as single-drum, high-pressure steam or hot water boilers.

The design is based on the principles of the so-called corner-tube boiler.

The capacity of the water-tube boiler can range from 0.5 to 600 t/h of steam, with an operating pressure of between 0.5 to 135 bar(g). The boiler can also be used in hot-water systems.

The boiler can be fully assembled and tested at DS boiler solution before taking delivery. This makes it unnecessary to assemble the boiler on-site, significantly shortening the total installation time.

To achieve better efficiency, an economiser can be installed. It makes optimal use of the waste heat in the flue gases. This leads to remarkable efficiency gains and significant fuel (cost) savings.

Water-tube boilers can also be equipped with a superheater, making it possible to reach steam temperatures of approximately 600oC across a wide control range.

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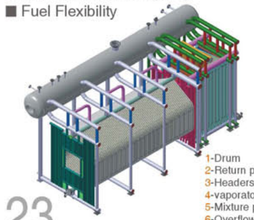
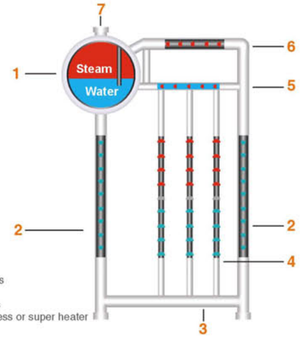
ERK Boiler

The ERK (corner tube) Boiler is a modern, natural-circulation, single drum water tube boiler. The main characteristics are a very active water circulation, rapid load change capability, light-weight construction and self-supporting structure.

KEY ADVANTAGES OF THE ERK SYSTEM

- Adaptable to all types of combustion system low maintenance and high reliability
- Custom designs & adjustments to available footprint
- Self-supporting design
- Quick start-up and rapid response
- High load variation speeds
- High pressure variation speeds
- High level of steam purity
- Fuel Flexibility

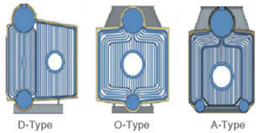




1-Drum
2-Return pipes
3-Headers
4-vaporator tubes
5-Mixture pipes
6-Overflow pipes
7-Steam to process or super heater

Bi-Drum & Tree-drum Boiler:

Bi-drum boilers are well-known and widely established systems. Typically, operating in natural circulation to provide saturated or superheated steam. DABOO SANAT does provide bi-drum boiler designs but has adapted the standard version with an advanced water circulation to improve operational performance and reliability.



D-Type O-Type A-Type

Water Tube Types

Multi-fuel operation

Emission limit valuesfor industry are falling while demands increase, Daboo Sanat can offers standardized boiler and burner for Gas or Oil a wide range of fuels with high control range and minimum air excess are especially efficient and provide high availability.

- Lowest emission values in accordance with or reliably below country-specific emission regulations
- High efficiency due to low residual oxygen in the exhaust gas, even under high emission requirements
- Available as a Gas, Oil or Dual fuel firing with the option of simultaneous operation of two fuels and combustion of special fuels

For Large Capacity
Boiler for higher capacities for steam and hot water generation can be delivered of various liquids, gaseous and solid fuels.

Range of Capacity
Steam rating up to 600 Ton/h
Steam pressure up to 135 barg
Steam temperature up to 535 c
Hot water boiler up to 175 MW

Heat Recovery Steam Generation
The Heat Recovery Steam Generator, based on natural circulation, is often used for larger gas turbines to produce superheated steam of up to approximately 120 bar(g) and with temperatures up to 500 °C. These boilers can also be equipped with a burner for supplementary firing or a fresh-air unit.

Waste Heat Recovery Boiler
In the fire-tube exhaust gas boiler,steam or hotwater is produced by using heat recovery from flue gases and/or process gases produced by gas engines, diesel engines, gas turbines, or other combustion processes, such as incinerators.
The boilers can be used in situations with flue gases and/or process gases with temperatures of up to approximately 950 °C and a flue-gas mass flow of approximately 50 kg/s.

Economizer
The purpose of an economizer is to further lower the temperature of the flue gases on the output side of the boiler in order to reduce heat loss. This leads to a 3 to 5% increase in the efficiency of the boiler. On the secondary side, the boiler's feed water is increased in temperature, reducing the thermal tension within the boiler. The economiser is installed in a boiler's flue gas exhaust.

Feed water tank / deaerator
The purpose of the feed water tank with deaerator is to remove undissolved gases in the feed water, such as O_2 and CO_2, which cause corrosion in the steam/condensation system, before the water is fed to the boiler. The feed water tank/degasser is installed between the water treatment and the boiler inlet or economiser.

Fire tube Boilers manufactured by Daboo Sanat company are designed in accordance with the international standards EN12953 & BS2790 and approved manufacturing plans by the German ERK Company.
The latest technological achievements of the world is offered in this company by using experts, elite teams, advanced machines and equipment.

Daboo Sanat company by beginning to import alloy sheets with a width of 5 meters exclusively and directly from the reliable companies such as Dillinger of Germany & POSCO of South Korea and alloy tubes from Benteller of Germany and Tubos of Spain in order to manufacture products and use integrated sheets in the tube sheets and to create minimum longitudinal weld in the shell, has been trying to provide a superior quality in the country.

In industrial heating systems, water and steam are generally used as working fluid in order to transfer of thermal energy. However, at the high temperature conditions, the use of water and steam as a working fluid needs high pressures which is not cost effective and safe. Therefore, at high temperature applications such as natural gas and crude oil heating, indirect heating systems, and so on, heat transfer oil is used as a working fluid in order to transfer of thermal energy.
Heat transfer oil (or hot oil) can operate at 300 °C under atmospheric pressure. By contrast, in order to operate at 300 °C, steam and water need operating pressure equal to 85 bar.

In addition to lower operating pressures, another advantages of using heat transfer oil instead of water or steam are as follows:

- Low volume system
- Energy consumption optimization
- Capability to install in a simple space
- The fastest desired temperature supply,comparing to other boilers
- Simple operation
- Less noise pollution compared to steam boilers
- Infinite heat capacity
- No need of preliminary operation of water supply
- There are no dangers related to corrosion and freezing In order to the hot oil boiler optimum utilization at high temperature, accurate and safe design of it is very important.

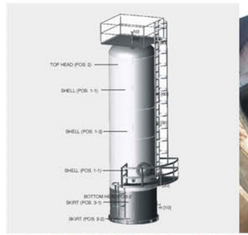
Daboo Sanat hot oil boilers are designed and manufactured based on international standards of API and DIN 4754. These boilers have integrated coils and are introduced to the market in horizontal and vertical models with the capacities of 100,000 kcal/h to 6,000,000 kcal/h.
All of the hot oil boiler construction process are under direct supervision of Quality Control inspectors.

Features and Technical Specifications

- Noticeable efficiency of 85%
- Capability to operate until 350 °C
- Capability to tolerate thermal shock due to temperature difference between the boiler oil input and oil output up to 50 °C
- Pumping cost reduction due to lower pressure loss of oil circulation in the boiler
- The use of high accurate control equipment produced by European companies
- High system safety
- Simplicity in maintenance and operation
- High safety factor in the boiler body design and its components and also, beauty by considering high strength
- The possibility of installing a recuperator on flue gases in order to preheat combustion air and increase the boiler efficiency
- Satisfying all the requirements of NFPA standards
- The Boiler body and door are insulated by ceramic fiber with density of 128 kg/m^3 and thickness of 100 mm

Towers

One of the important processes in the oil and gas industry is the separation of components in a compound, which is done by towers.
Distillation is one of the most important and widely used separation methods and is based on the distribution of components between two phases, liquid and gas. In fact, distillation is one of the most common methods of separating substances from each other due to the difference in boiling point. Distillation is a physical process for separating substances at boiling temperature. The heavier the hydrocarbon is, the higher its boiling point, and the more hydrocarbon is lighter, the sooner the heat exchangers are passed, the heat dissipated to the tower after it has warmed, and in the pressures and temperatures. Towers are classified according to the function performed. Examples are distillation, stripping or extraction. Also classified by the type of device installed inside (internals) so the tower can perform its desired function.
Internals consist of either trays or packings. Our process design, engineering, and fabrication experts work with you to understand your separation needs, develop a detailed 3D model, and fabricate custom industrial distillation equipment and distillation systems to meet your goals and your budget.



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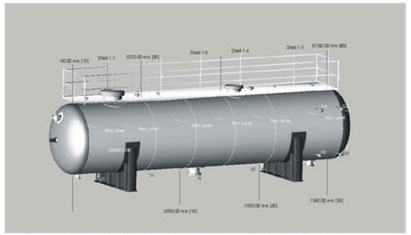
Reactor

A chemical reactor is a device which is used to contain controlled chemical reactions. Reactions take place inside the reactor, in conditions which can be monitored and controlled for safety and efficiency.
Chemical reactors exist in such a wide range of forms and types that a complete sys-thematic classification is impossible.Two main categories which can be distinguished are homogeneous and heterogeneous reactors.
Inhomogeneous reactors only one phase, usually a gas or a liquid, is present. If more than one reactant is involved, provision must be made for mixing them together to form a homogeneous mixture. Another kind of classification, which cuts across the homogeneous heterogeneous division,is the mode of operation, batch wise or continuous. Homogeneous batch reactions are carried out in vessels, tanks, or autoclaves, in which the reaction mixture is agitated and mixed in a suitable manner.. Continuous flow reactors for homogeneous reaction systems already show a much greater variety. The predominant forms are the tubular reactor and the mixed tank reactor, which have essentially different characteristics. In heterogeneous reactors, two or more phases are present. The classification of reactors for heterogeneous systems has a great number of possibilities.
The dominant factor is the contact between the different phases.This leads to a classification of reactors as a contact apparatus. Some common examples are gas-liquid, gas-solid, liquid-solid, liquid-liquid, and gas-liquid-solid systems. In many cases the solid phase is present as a catalyst. Gas-solid catalytic reactors comprise an important class of heterogeneous chemical reaction systems.

Process Vessels

Pressure vessels are containers for the containment of pressure, either internal or external. These robust vessels play a crucial role in most industries and thousands of people work closely with or around pressure vessels every day.
Pressure vessels for internal containment are the most common and are designed to store liquid, gas, or vapor.
These versatile pressure vessels are often part of a production process line, where different tanks are used together to process a product. Tasks completed by process vessels include separation, heating, cooling, purification, blending, and more. Process vessels can be found in paint manufacturing, drug manufacturing, refineries, and food processing facilities, to name a few.
We have the capacity to provide high quality pressure vessel construction from project inception to completion.



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Process separators

We are diligently working to create unique business opportunities in upstream market to approach onshore and offshore well production and services, particularly in manufacturing of oil field equipment, and offering custom-made and standard solutions in well-related services. Daboo Sanat in this field, we have had many experiences in the design and construction of these equipment's in the oil and gas industry, especially related equipment's in the processes of oil well activation.
One of these equipment's is process separators, which are designed and manufactured by Daboo Sanat company in different types depending on the type of separation. An oil/gas separator is a pressure vessel used for separating a well stream into gaseous and liquid components. Based on the vessel configurations, the oil/gas separators can be divided into horizontal, vertical, or spherical separators.
In teams of fluids to be separated, the oil/gas separators can be grouped into gas/liquid two-phase separator or oil/gas/water three-phase separator. Based on separation function, the oil/gas separators can also classified into primary phase separator, test separator, high-pressure separator, low-pressure separator, deliquilizer, degasser, etc.

To meet process requirements, the oil / gas separators are normally designed in stages, in which the first stage separator is used for preliminary phase separation, while the second and third stage separator are applied for further treatment of each individual phase (gas, oil and water).

Products > Shell & Tube Heat Exchanger

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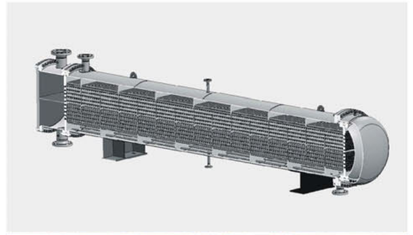
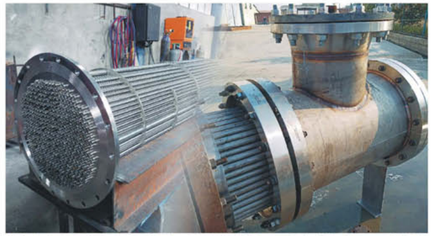
Shell & tube heat exchanger

A shell-and-tube heat exchanger is a class of heat exchanger designs. It is the most common type of heat exchanger in industries, and is suited for higher-pressure applications.
A shell and tube exchanger consists of a number of tubes mounted inside a cylindrical shell. Two fluids can exchange heat, one fluid flows over the outside of the tubes while the second fluid flows through the tubes.
The fluids can be single or two phase and can flow in a parallel or a cross/counter flow arrangement.The shell and tube exchanger consists of four major parts: Front Header: this is where the fluid enters the tube side of the exchanger. Rear Header: this is where the tube side fluid leaves the exchanger or where it is returned to the front header in exchangers with multiple passes. Tube bundle: this consists of the tubes, tube sheets, baffles and tie rods etc. to hold the bundle. Shell: this contains the tube bundle.
Two fluids, of different starting temperatures, flow through the heat exchanger. One f lows through the tubes (the tube side) and the other flows outside the tubes but inside the shell (the shell side). Heat is transferred from one fluid to the other through the tube walls, either from tube side to shell side or vice versa. The fluids can be either liquids or gases on either the shell or the tube side.
Daboo Sanat, with more than 20 years of experience in the field of designing and manufacturing shell and tube heat exchangers, can help you design, select and supply materials and manufacture shell and tube heat exchangers based on the latest standards of the world, with information on the process of your industry.
To be able to transfer heat well, the tube material should have good thermal conductivity. Because heat is transferred from a hot to a cold side through the tubes, there is a temperature difference through the width of the tubes. Because of the tendency of the tube material to thermally expand differently at various temperatures, thermal stresses occur during operation. This is in addition to any stress from high pressures from the fluids themselves. The tube material also should be compatible with both the shell-and-tube side fluids for long periods under the operating conditions (temperatures, pressures, pH, etc.) to minimize deterioration such as corrosion. All of these requirements call for careful selection of strong, thermally-conductive, corrosion-resistant, high quality tube materials, typically metals, including aluminum, copper alloy, stainless steel, carbon steel, non-ferrous copper alloy, Inconel, nickel, Hastelloy and titanium.





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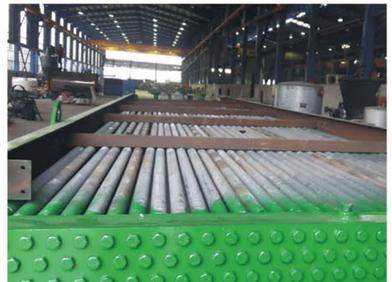
Recuperator

A recuperator is a device used to reclaim heat energy from a heating.
A technology is that used to recover thermal energy in industries and need for a second heat source and also helps to reduce fuel costs associated with heating. This device helps to improve energy efficiency, which can reduce costs associated with heating or manufacturing. Depending on the application, a recuperator may also be known as a heat exchanger or heat recovery unit.

In fact recuperator 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 extract 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 improves the energy efficiency of the system as a whole.

Air Cooler

Daboo Sanat can offer custom built Air Cooled Heat Exchangers based on the application and nature of working fluids.
Air Cooled Heat Exchanger(ACHE) is a heat rejection equipment where the excess process heat is rejected to the atmosphere. It works on the principle of convection and conduction to dissipate heat from process fluid to air.The process fluid passes through the tubes and air stream is passed over the tubes to carry away the heat; air streams are created by the fans mounted on the unit. By suitably selecting the tube material, 'ACHE' can effectively cool or condense process water, chemicals or any other heat transfer fluid.
The tubes which carry the process fluid are of carbon steel or stainless steel with aluminium high fins to maximize the heat transfer.
Tube bundle of air cooler is an assembly of tubes, headers, side frames, and tube supports. Air passes over the tube surface which has extended surface in the form of fins to compensate for the low heat transfer rate of air at atmospheric pressure and at a low enough velocity for reasonable fan power consumption.
Fins are helical or plate type, and are usually of aluminium for reasons of good thermal conductivity and economy of fabrication. Steel fins are used for very high-temperature applications.



Heat Treatment Furnace:

Daboosanat can boast over ten years of experience also in the construction of **bells, and inner cover** of different sizes used **over 1100 ° in annealing furnaces**, easily adapting to our customers' requests.
Our deep knowledge of different materials and experience in their welding aspect allows us to supply the complete group consisting of **Annealing furnaces and inner cover.**
This furnaces, in particular, are used to perform heat treatments such as carbonitriding, quenching, annealing and normalization process.
The most common **heat treatments** include case-hardening, tempering, annealing and process. Each treatment has different requirements thermal in the heating zone and mechanical in the zone where the charge is placed. In **bell furnaces**, the material to be treated can be loaded on easily accessible isolated bases, in a straightforward and rapid manner.
The typical plant is composed by one or more ventilated base assembly, on which the charge is loaded, an inner retort that preserve the treatment atmosphere, and the furnace, that covers the retort. An overhead crane is used to load the charge and move all the plant parts.
The inner retort, equipped with a water cooled silicon seal, contains the desired atmosphere and protects the charge from the burners' direct heat. The furnace brings the charge to the desired temperature to allow the metallurgical changes to occur, keeping contaminants out of the annealing atmosphere.
This prevents chemical changes as well as eliminates the formation of oxides and soot on the metal. The heat can be produced in several ways, as such as direct fired, tangentially fired, radiant tube, and electrical resistances. After heat treatment, cooling can be performed by removing the furnace leaving the inner cover in place to maintain the protective atmosphere, and can even be accelerated with a forced-cooler bell and water spry.
All this leads to important benefits of Daboo Sanat furnace.

The 4 benefits of the bell furnace and the advantageous experience of Daboo Sanat in this production:
1)Thanks to the protective atmospheres used, (H_2or HNX) the treatments with these furnaces can be carried out on a wide range of materials
2) Thanks to the heating and cooling bells, treatment times are easier
3) Bell furnaces offer a safe and economic method of heat treatment
4) Its structure facilitates quickly the loading of the material to be treated.
Please consider also that Daboo Sanat can supply the complete group of the structure (heating bell & inner cover), manufactured inside the company.
Bell furnaces are the result of an operation studied and followed by professionals in the sector aimed to a constant research and development.
The benefit of a production followed in every aspect, combined with the advantages offered using a bell furnace in heat treatments, leads to a common result: the certainty of a quality product and the consequent savings (time and economic convenience).

Innercover & Protection Bell

Energy Bokhar Asia

Inner Cover & Protection Bell

In fact, the cover annealing furnace inner cover and Protection bell is an integral part of the cover annealing furnace, and is an indispensable component of the cover annealing furnace to heat the workpiece.
Our Engineers have been engaged in designing and manufacturing the same and have now become one of the best Annealing Pot Inner Cover and Protection bell Manufacturers in Iran.
The main function of the bell annealing furnace is to isolate the coil from the combustion space, so that the coil can be annealed in a protective atmosphere and not oxidized, and heat can be transferred during heating and cooling. The cover annealing furnace inner cover and Protection bell is very important and is a structural component that cannot be lacked in the cover annealing furnace.
The main body of the inner cover and Protection bell of the cover annealing furnace is a corrugated (in protection bell is non corrugated) cylinder welded by a high temperature resistant chrome-nickel steel plate, and the upper part is a sealing head, and a lifting ring for lifting the three-jaw jig is welded on the upper surface of the sealing head.
At the bottom of Inner cover is a machined sealing flange. This flange is mainly made of plain carbon steel. The flange of the inner cover is placed on the sealing flange surface of the furnace table. Therefore, the inner surface of the inner cover of the cover annealing furnace is completely isolated from the outside by the action of the rubber sealing ring embedded in the sealing surface of the furnace table. It is very good to avoid the entry of air. An annular sealing groove is also arranged on the flange of the inner cover, and a heat-resistant silicone rubber is placed therein to isolate the heating space from the outside, thereby improving the thermal efficiency.
Between the annular seal groove and the corrugated cylinder, there is also a water tank dedicated to cooling water. The purpose of this water tank is to prevent heat from radiating onto the rubber seal of the furnace to extend its service life. There is also a flow tank on the wall of the sealing groove, which is mainly for acilitating the discharge of cooling water during spray cooling. When the inner cover is not used and placed in other positions, in order not to damage the sealing plane, the outer edge of the flange also contains a support stud.

Main Characteristics of Annealing Pot Inner Covers and Protection bells:

■ High Strength: Inner Cover and Protection bell has optimum finish and known for its rigidness that guarantees their high strength and reliable performance.
■ Rust Resistance: Due to the use of good quality material and fine finishing of the final product, Annealing Pot Inner Cover and Protection bell can prevent damage due to rust, corrosion and more.
■ Precise Design: Since they have its use in the furnace industry and mainly in heat treatment processes, therefore, precision in design is important to be sure that it delivers expected results.

These inner covers and Protection bells are designed and manufactured by our skilled team at our in-house facility and thus, guarantee reliable performance for years and years.Today, our name is recognized among the top-notch Bell Furnace, Corrugated Inner Cover & Protection bell Suppliers in Iran. You can expect timely delivery and round-the-clock support from our end, we promise to not let you down.

Energy Bokhar Asia

Our Projects

Energy Bokhar Asia

Company Name	Products
Mobarakeh Steel Company	■ Steam Boiler / ■ Hot water Boiler / ■ Heat Exchanger / ■ Air Cooler / ■ Protection Bell / ■ Tube Bundle ■ Metal structures with super heavy beams / ■ Demin Water Exchanger / ■ Spray Boom / ■ Acid wash tub / ■ Material transfer duct ■ Recuperator / ■ Inner Cover / ■ Annealing Box furnaces
Ghaenat Steel Complex	Recuperator
Tabas power plant	Steam Package
Marun Petrochemical Complex	■ Deaerator / ■ Heat Exchanger / ■ Condensate tank
Golgohar Development of Iron and Steel	Recuperator
Neyriz Ghadir Steel Complex	■ Tube Bundle / ■ Recuperator
West Asia Steel Company (WASCO)	Inner Cover
Hormozgan Steel Company (HOSCO)	■ Recuperator / ■ Air Duct
Khouzestan Steel Company	Air Cooler / ■ Recuperator

Company Name	Products
Saba Steel Company	Recuperator
Taraz Steel Company	Heat Exchanger
Zob Ahan Esfahan Steel Company	Sand Filter Package (EPC Project)
Sarcheshmeh Copper Holding	■ Heat Exchanger / ■ Process Vessel / ■ Pre-Heater Exchanger
International Process Equipment Constructors (IPEC)	Process Vessel
Persian Gulf Star Oil Co	Process Vessel
Sanat Sazeh Samin	3 Phase Seprator
Tabriz refinery	Heat Exchanger
Havayar Gas	Hot Oil Package
Mobin Energy Persian Gulf	Heat Exchanger
Noor Steel Pars Company	Inner Cover

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Company Name	Products
Isfahan Chemical Industries	Heat Exchanger
Karun Petrochemical	Heat Exchanger
Ghadir Petrochemical	Heat Exchanger
Rasha Caspian Iranian	Steam Package
Arvand J Oil Company	Hot Oil Package
Mana Energy	HVAC Package Boilers
Tehran Oil Refining Company	■ Steam Boiler / ■ Deaerator
Madar Al Majarah Company	■ Tower / ■ Heat Exchanger
Research Institute of Petroleum Industry	Steam Super Heater
Miyaneh Steel Company	Tube Bundle
National Iranian Copper Industries	■ Process Vessel / ■ Heat Exchanger

Company Name	Products
Sirjan Jahan Steel Company	Recuperator
Takht Jamshid Petrochemical Company	■ Steam Package / ■ Heat Exchanger
Shazand Oil Refinery	Heat Exchanger
Persian Gulf Sadaf Petrochemical Company	Process Vessel
Nouri Petrochemical Company	Heat Exchanger
Rawshan Fam Company	Hot Oil Boiler
Kimia Petro Company	■ Fire Tube Boiler / ■ Water Tube Boiler
Zagros Petrochemical Complex	Heat Exchanger
Bid Boland Gas refinery	Tube Bundle
Bandar Imam Petrochemical Company - Kimia	Deaerator
Bandar Imam Petrochemical Company - Abniroo	Condensate Recovery System

Company Name	Products
Takhte Jamshid Pars Assalouyeh Petrochemical Company	■ Steam Package ■ Heat Exchanger
Ghaed Bassir Petrochemical	Hot Oil Package
Sepahan Oil Company	Steam Package
Jam Petrochemical Complex	Heat Exchanger
Iranol Company	Steam Package
Mahmood Abad National Iranian Oil Company	Hot Water Package
Lavan National Iranian South Oil Company	Economizer
Banagostar Bank of Hormuz	Hot Oil Package
Banagostar Bank of Azarakhsh	Hot Oil Package
Petro Palayesh Khorshid Zagros	Hot Oil Package
Mapna Group - Development 3	Steam Package
Iran Chemical Industries	Water Tube Boiler
Idea Energy Development Company	■ Water Tube Boiler ■ Fire Tube Boiler
Arash Knowledge Elixir Petrochemical	Water Tube Boiler
Lima Petrorefinery	■ Tower ■ Heat Exchanger ■ Hot Oil Package ■ Storage Tank

Daboo Sanat

Stay Warm In Our World

Energy Bokhar Asia Ind. Co.

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Daboo Sanat Holding

Process Vessel
Air Cooler
Heat Treatment Furnace
Hot Oil Boiler
Bell Furnace
Reactor
Shell & Tube Heat Exchanger
Innercover & Protection Bell
Water Tube Boiler
Tower
Steel Plant Equipment
Recuperator
Fire Tube Boiler
Process Separator
Heat Treatment Furnace