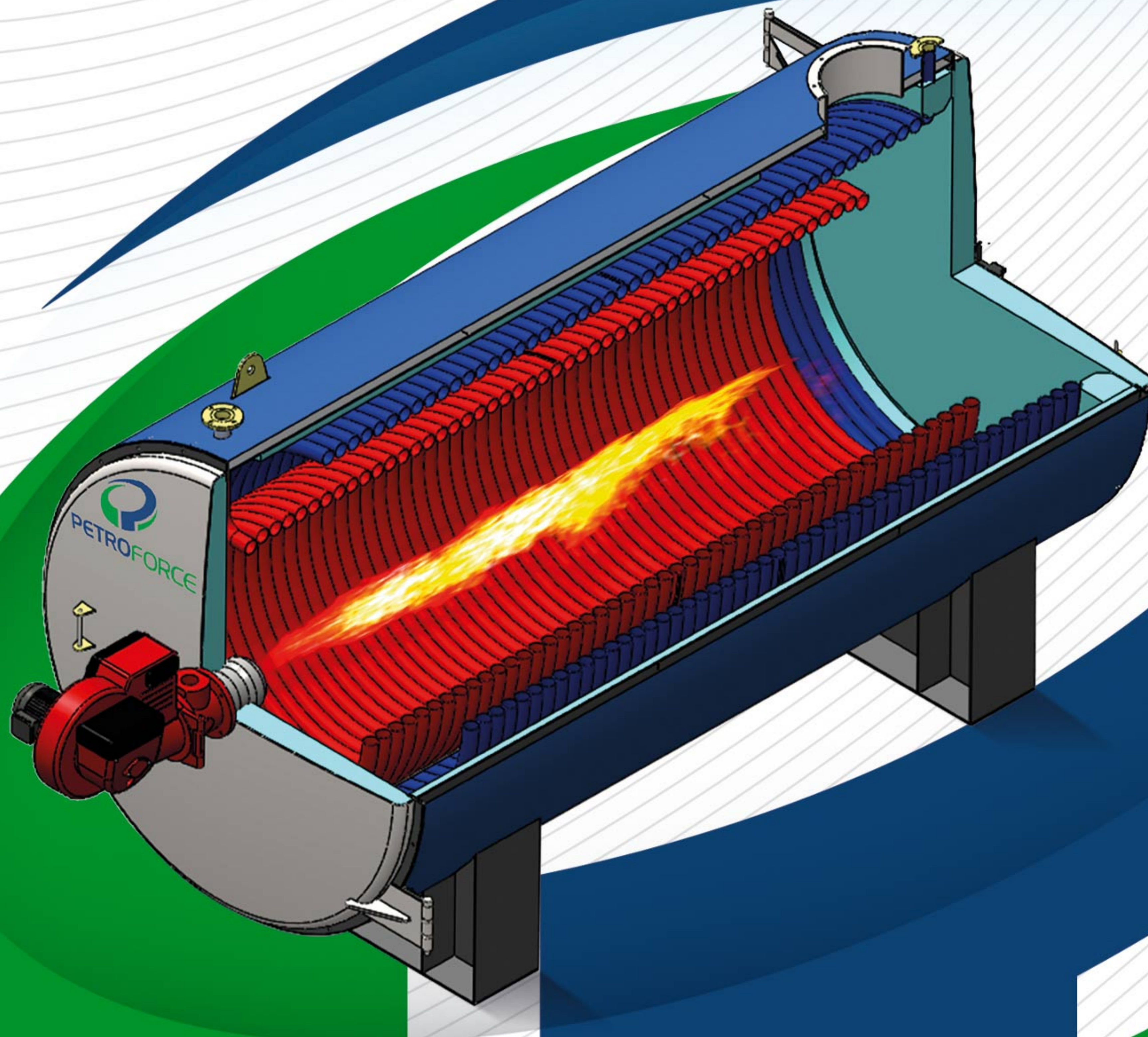




PETROFORCE

Design, Engineering, Equipment Manufacturing,
Installation & Commissioning
Oil, Gas, Petrochemical Units & Mini Refineries

PETROFORCE Industrial Group
Pishgam Palayesh Force



Hot Oil Boiler Catalog

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| About us

Pishgam Palayesh Force Company

This company was established as a subgroup of the Petroforce industrial group, using skilled and efficient personnel with over 20 years of experience in the fields of design, modeling, technical calculations, equipment procurement, construction, and commissioning of oil product manufacturing plants and providing engineering services.

Description of the Hot Oil Boiler

In industry, steam boilers are usually used in heating systems and heat transfer at low temperatures. Outside this temperature range, due to changes in pressure, another fluid must be selected for heat transferring. At high temperatures, such as heating of crude oil and natural gas, thermal oil is used. The hot oil boiler is an equipment that uses special thermal oil to transfer heat indirectly at low pressures, high temperatures, high safety and accuracy in various industries.

In this case, for optimal use and heat transfer in industrial systems, the hot oil boiler equipment designed and manufactured by Pishgam Palayesh Force is introduced with many advantages to the country's industry and foreign countries. It should be noted that the hot oil boiler manufactured by Pishgam Palayesh Force is designed under the customer's operational condition requirements in terms of flow rate, oil pressure, temperature, capacity, safety and reliability. Using skilled and efficient personnel, Pishgam Palayesh Force manufacture its own hot oil boiler with high efficiency in several capacities with range from 100,000 to 5 million kilocalories/hour in three-passes and two types of horizontal and vertical.



Vertical Hot Oil Boiler (Standing)

In this model, the main structure of the boiler is constructed vertically, and the coils are installed vertically inside the boiler body. Usually, vertical hot oil boilers are used in low capacities or due to space constraints.

Advantages

- Due to rising hot air, the heat inside the boiler lasts longer.
- Circulation and rotation of the hot oil inside the coils does better due to the earth's gravity.
- Based on its vertical orientation, discharging of the hot oil is much faster.



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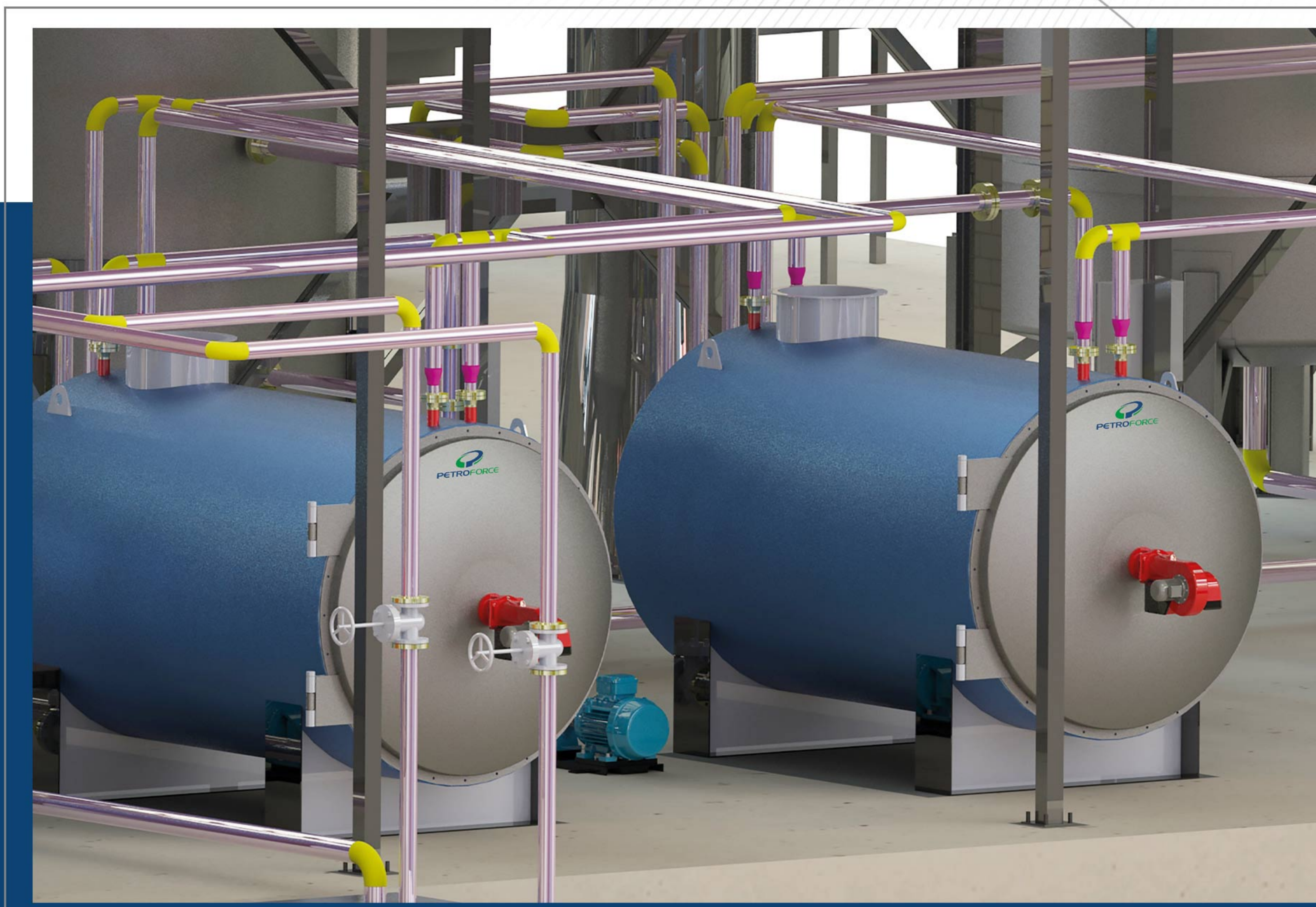
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Horizontal Hot Oil Boiler

This model of the hot oil boiler is much more common than its vertical model.

Advantages

- Easy to use
- Easier repairs and Inspections
- Easier opening and closing of the boiler doors
- Higher thermal efficiency of horizontal boilers compared to vertical boilers



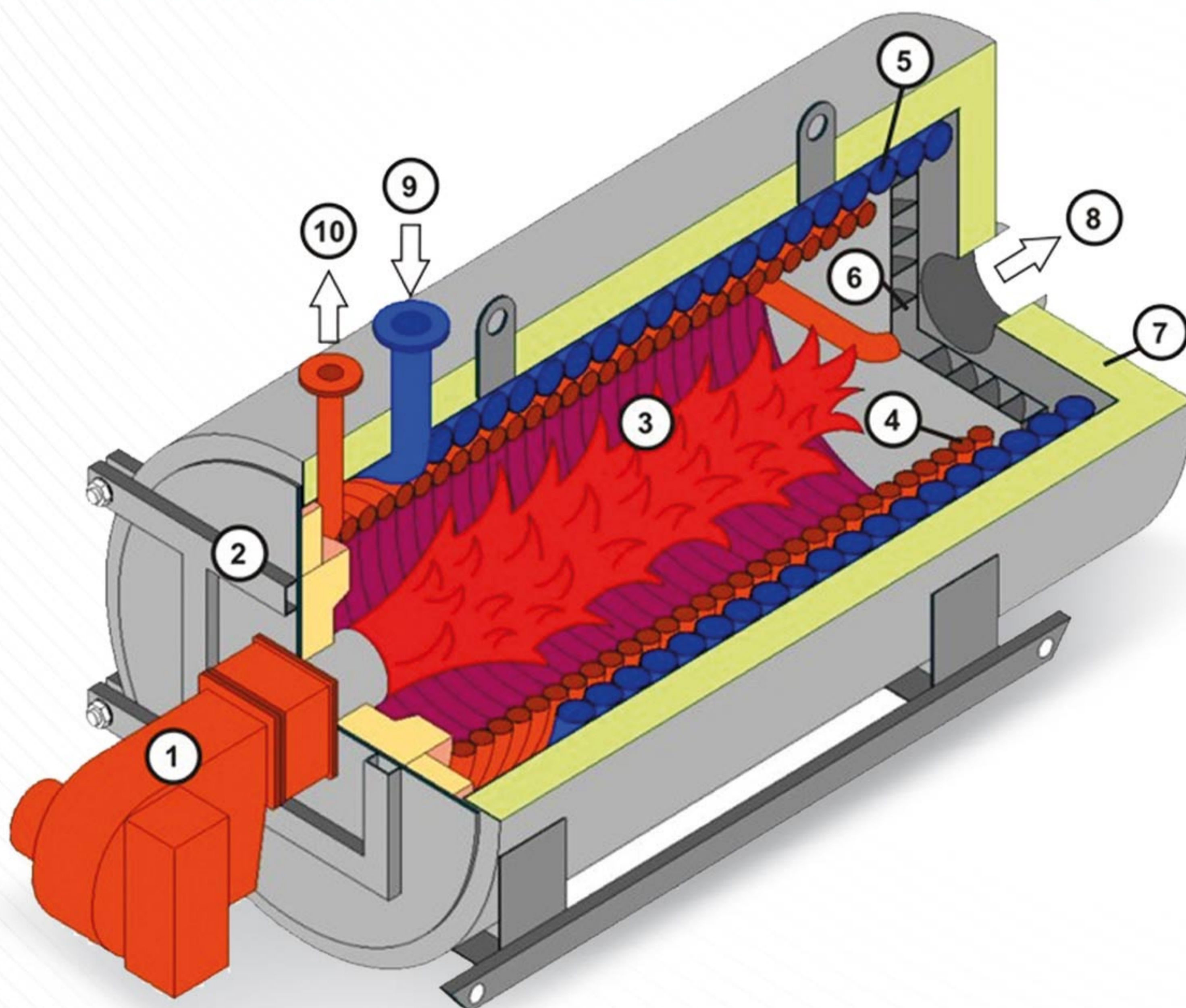
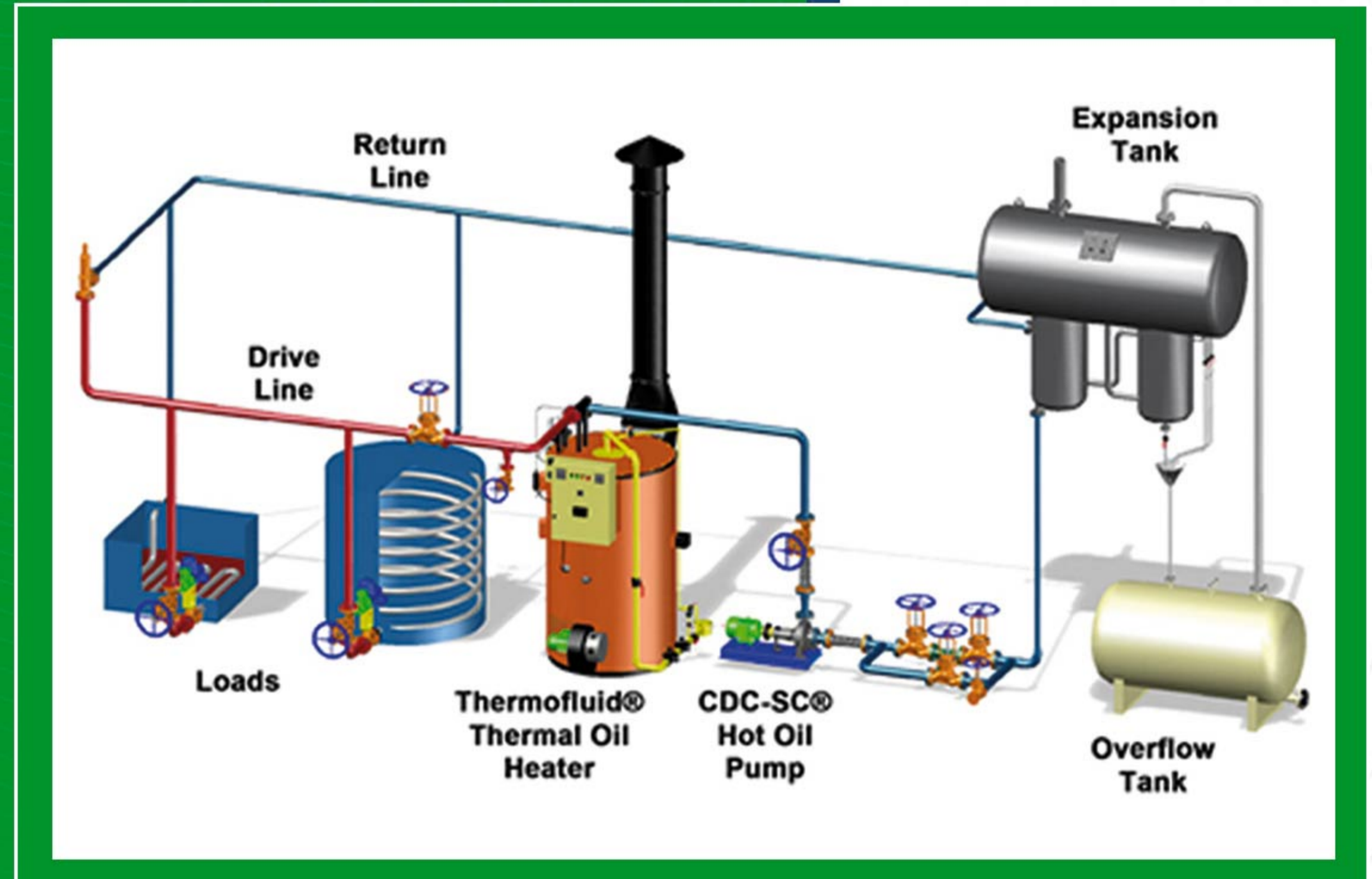
Each of the hot oil boiler models of pishgam palayesh force company is designed and manufactured according to the capacity and needs of the customer.

Main parts of the Hot Oil Boiler

The main structure of hot oil boiler consists of body and coil. The thermal oil, flows inside the coil by using a circulation pump and its temperature increases with the flame produced by the burner.

In general, a hot oil boiler includes the following parts:

- Shell and body
- Heat coils
- Sensors
- Temperature and pressure indicators
- Discharge and feed pumps
- Burner
- Expansion tank
- Storage tank
- Input and output valves
- Thermostat
- Control panel and circuit



Internal parts of the Hot Oil Boiler

1. Burner
2. Front door
3. Furnace
4. Internal coil tube
5. External coil tube
6. Return cooling plate (chimney gas)
7. Insulation
8. Chimney gas
9. Input connection
10. Output connection

Applications of the Hot Oil Boiler

In cement and mineral industries, iron and steel, metals and machinery, chemical and petrochemical, polymer, textile, wood and paper, oil and gas, packaging, motor oil and bitumen, pharmaceutical, food and beverage, and more.



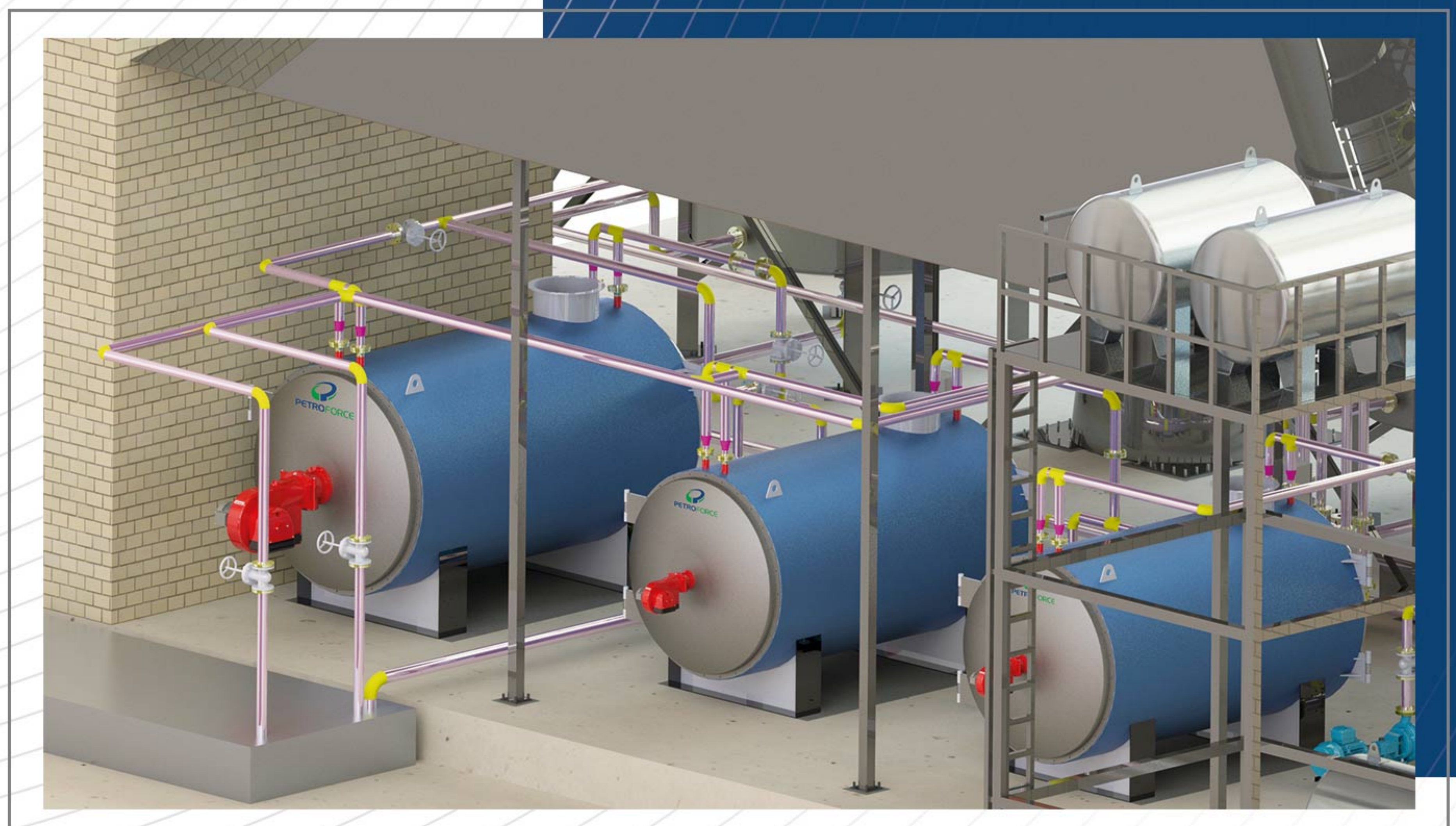
Technical specifications of the Hot Oil Boiler

- **Sheet:** Fire retardant according to DIN1715517MN standard and high tensile strength
- **Pipe:** Completely seamless, flame retardant and in accordance with DIN17175-ST35.8 standard
- **Electrode:** E7018, preheating 300°C and main welds with automatic sub-powder welding machine
- **Welding:** Based on WPS and PQR approved by the standard organization and performed by qualified welders. (PT, RT, UT, MT tests are performed by the quality control team)
- **Hydrotest:** 1.5 times the design pressure
- **Insulation:** Rock wool with thickness of at least 100mm
- **Coating:** Stainless steel or aluminum coating (based on customer's request) and a maximum thickness of 1mm
- **Capacity:** 100000 to 5 million kcal/hr in three passes, high efficiency and in two horizontal and vertical models which some examples of typical models in terms of dimensions, capacity and other specifications can be seen in the table below

Specification of Hot Oil Boiler								
Model	Capacity	Dimension (mm)			Oil Outlet (Inch)	Fuel		Temperature Allowed (°C)
	Kcal/hr	L	W	H		Natural Gas (m ³ /hr)	Diesel (Lit/hr)	
PFHO500	500,000	1700	1800	1600	2 1/2	85	80	350
PFHO1000	1,000,000	3000	2000	2250	3	170	155	350
PFHO1500	1,500,000	3500	2000	2500	4	250	230	350
PFHO2000	2,000,000	4500	2400	2700	4	335	310	350
PFHO2500	2,500,000	5000	2500	3100	5	420	390	350
PFHO3000	3,000,000	5500	2700	3100	5	500	465	350
PFHO4000	4,000,000	6500	3100	3800	8	670	620	350

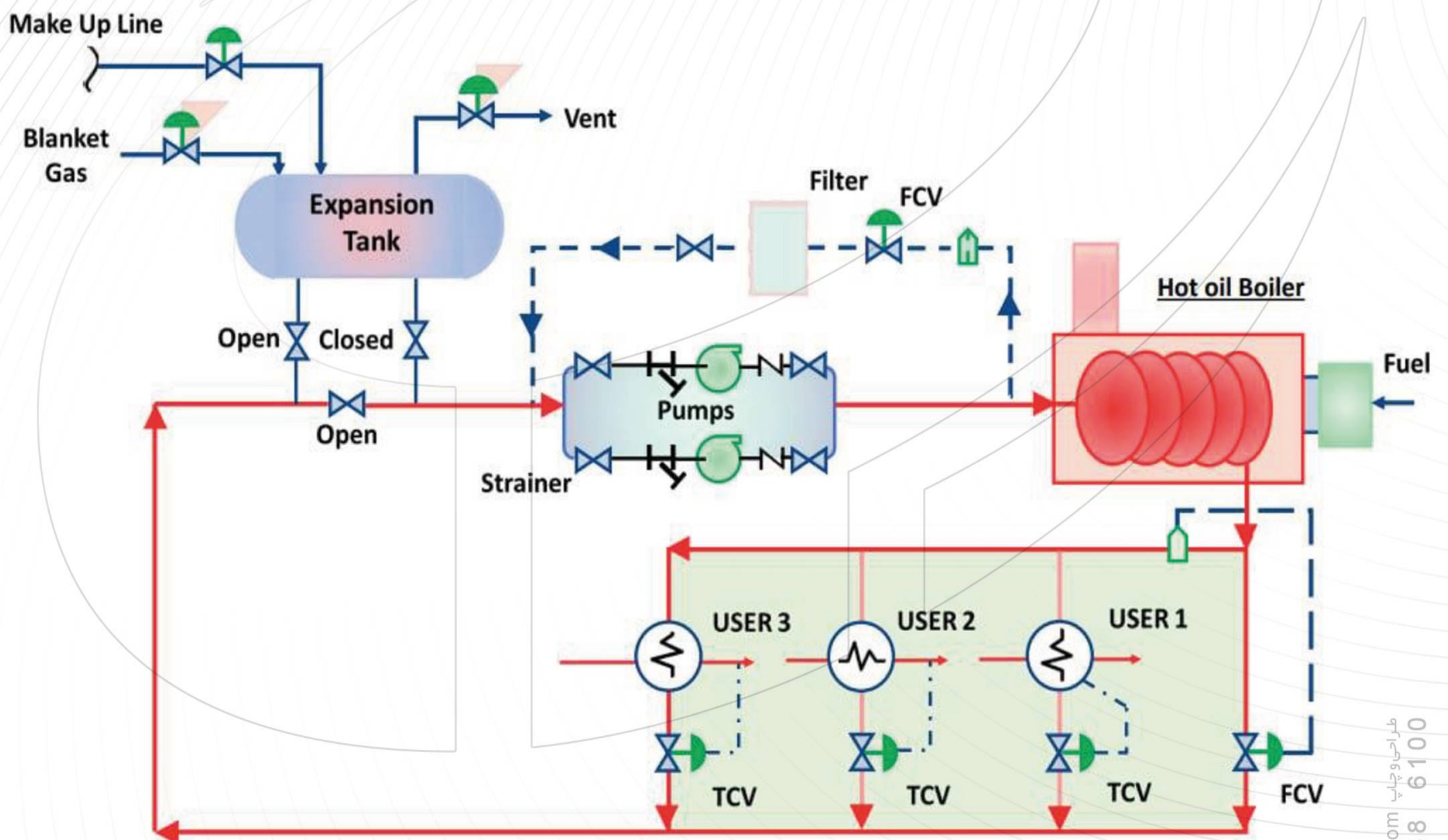
Advantages of the Hot Oil Boiler compared to Steam Boiler

- Providing high temperature at low working pressures
- No sedimentation and no decrease in heat transfer
- No corrosion due to the chemical structure of thermal oil
- No need for hardener
- Low and easy maintenance
- Higher safety and reliability
- Longer life
- Easier operation



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