



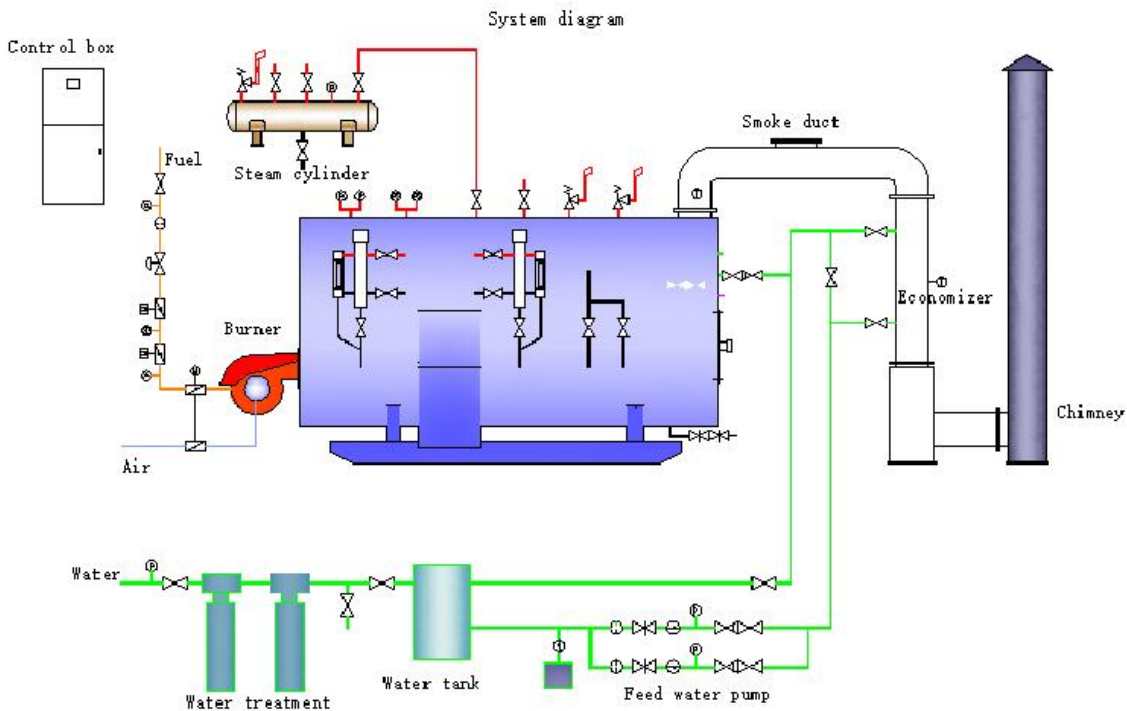
Steam Boiler Parts and Function

A steam boiler is a thermal equipment that uses the heat energy released after fuel combustion or the waste heat from industrial production to transfer heat to the water in the container, so that the water reaches a certain pressure of steam. It is a complete body composed of "pot" (that is, the water pressure part of the boiler body), "furnace" (that is, the combustion equipment part), accessory instruments and auxiliary equipment. The boiler is carried out simultaneously in the two parts of the "pot" and the "furnace", and after the water enters the boiler, the absorbed heat is transferred to the water on the heating surface of the boiler in the steam system, so that the water is heated into steam at a certain temperature and pressure, which is led out steam to supply workshops. In the combustion equipment part, fuel combustion continuously releases heat, and the high-temperature flue gas generated by combustion transmits heat to the heating surface of the boiler through the propagation of heat, and the temperature itself gradually decreases, and finally is discharged out by chimney.



CN Boiler has 26 years of supply and after-sales experience in Steam boiler and boiler systems. In the selection of boiler accessories, we have rich experience. Choosing us will not only provide you with high-quality boilers, but also present you with a cost-effective steam boiler system, so that you will have no worries about the operation and maintenance of the boiler in the running stage.

Industrial steam boiler auxiliary equipment includes burner, water pump, control cabinet, energy saver, condenser, steam cylinder, boiler water treatment equipment, instrument valves and so on. The parts and functions of the steam boiler are as follows:



★ Burner

The burner and the corrugated furnace constitute the combustion



system of the gas steam boiler. The burner adjusts the reasonable ratio of fuel and air to provide the heat for the boiler. The combustion system supplies fuel to the boiler for heat generation. Gas/Oil fired steam boilers' combustion system equips with burner and fuel device according to the fuel properties, steam capacity and pressure of the boiler.

Burner brand: Baltur, Riello, Weishaupt, Hofamat, Honeywell, Ecoflam, Cavallo and so on.



★ Control Cabinet

Function: control the boiler instrument, and then control the boiler switch, start and stop, monitor the boiler water level, pressure, temperature, the parameters are controlled within the safe range.

Boiler control system is a collection of boiler electrical control components, a center for collecting and processing boiler operating signals, and an operation platform for sending execution instructions to



each execution unit of the boiler.

Core control mode of the steam boiler: integrated controller (All-in-one PLC,not programmable), PLC control(programmable), PLC+PC control, DCS control



★ Energy saver, condenser

Function: save energy,reduce fuel cost.

The energy saver and condenser is the energy-saving device of the steam boiler. They are straight-through structure, less boiler back pressure. The energy-saving device of the boiler reduces the exhaust



temperature and increases the boiler water temperature.

★ Steam Cylinder

Function: The steam cylinder is used for diverting steam to different production workshop.

The steam cylinder is a pressure equipment, belonging to a pressure vessel, and its bearing capacity and capacity should correspond to the supporting boiler. The main pressure components of the cylinder are: head, shell material, etc.

★ Feed water pump

Function: Feed water to the boiler, according to the control instructions to deliver the required water to the boiler in time.

★ Steam Boiler Instrument and Valve

The primary valve instrument of the steam boiler plays a protective role for the pressurized steam boiler, and ensures the safe and efficient operation of the boiler through the control of pressure, temperature and liquid level.

Boiler primary valve instruments include pressure sensors, water level sensors, temperature sensors, safety valves and other auxiliary



measuring instruments.



- **Pressure Sensor**

Function: pressure protection, ensure the safe operation of the boiler.

When the boiler pressure exceeds the rated value, interlock protection is required: the method is to stop the boiler, the combustion system can stop working, or the burner can also be changed, single-stage or double-stage combustion, and the oil /gas volume can also be adjusted to reduce the pressure and ensure the safe operation of the boiler.



Commonly used pressure sensors: pressure gauge, pressure controllers, pressure transmitters.

- **liquid level gauge**

Function: Measure steam boiler liquid level, reduce the pressure and ensure the safe operation of the boiler. Measure the storage water tank liquid level, Ensure that sufficient water can be supplied to the boiler through the water pump.

The liquid level gauge used on the boiler drum is a key equipment of the boiler. The liquid level in the steam drum is observed by it. Some people call it the "eye" of the boiler. If there is a problem with the "eye", the boiler equipment and supply the steam system is in a dangerous state. It mainly measures the real-time liquid level in the boiler and transmits the liquid level information in the boiler in time.

Commonly used pressure gauge: Dual-chamber balance container + differential pressure transmitter, magnetic float type level gauge, photoelectric liquid level meter, capacitive fluid level sensor, electrode water level sensor + flatbed liquid level gauge and so on.

- **Temperature sensor**

Function: Protect boiler, and supply high quality steam for the workshop.



Temperature protection is an important procedure in the safe operation of boilers. It is especially important for the adjustment and protection of steam boiler temperature. Too high or low steam temperature will have a certain impact on production. The commonly used temperature protection device for boilers is a bimetallic temperature controller, which mainly measures the boiler outlet smoke temperature, exhaust gas temperature, feed water temperature, etc.

Commonly used temperature sensors: pt100, E type thermocouple, K type thermocouple, explosion proof thermocouple, etc.

- **Safety Valve**

Function: Exhaust steam to ensure the steam boiler and parts safety.

The safety valve is the last line of defense in boiler protection. When the boiler pressure exceeds the limit, it will exhaust steam and relieve pressure according to the set pressure of the safety valve design to ensure the safety of the boiler and its accessories.

- **Other Boiler Accessory Meters (Optional)**

Function: transmit real-time data, display boiler dynamics, precise control, multiple protection

Optional meters: flowmeter, totalizer, electric control valve, absolute



pressure transmitter, zirconia oxygen content analyzer, TDS blowdown,
etc.

