azar nasim
AIR CONDITIONING COMPANY

HOT WATER BOILER

Introduction

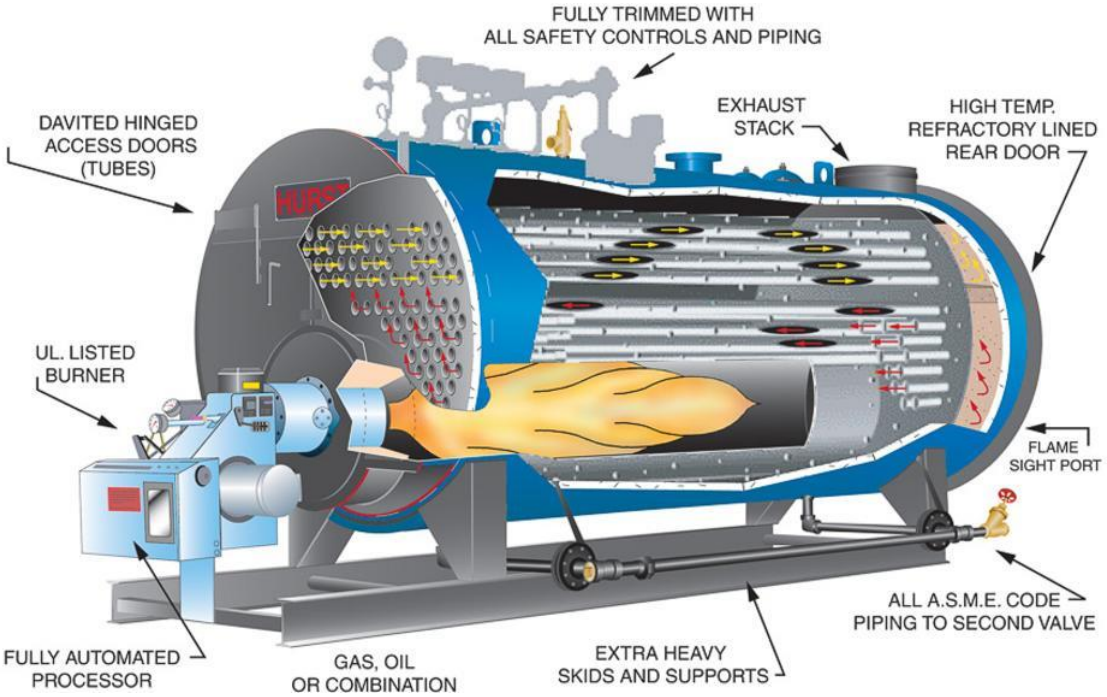
- ## Azar Nasim hot water boilers in short AN HWB

Using Azar Nasim hot water steel boiler you will be able to generate energy-efficient process heat in a wide range of pressure and temperature . Flexible and reliable in use for heat and hot water supply in domestic, commercial and industrial applications or as a base load, peak load and reserve boiler in district heating plants.

- ## Reliable Performance

The proven three-pass design provides highest quality, durability and operational safety. We manufacture the high- pressure hot water steel boiler according to customers' requirements for output capacities from 80000 up to 3000000 kcal/hr, based on BS2790-1992. In additional, we can optimize your boiler operation with perfectly matched components, such as fuel supply and return temperature increase.

These hot water boilers are conventionally-fired boilers based on a three-pass design, with an additional integrated smoke tube pass for waste heat utilization.



Possible Designs For Fire Tube Boilers

It is possible to vary the boiler design in several ways:
Wet back - the rear wall of the furnace is surrounded by a water jacket.
Dry back - the rear wall of the furnace is surrounded by a refractory sheet metal.

Features

1.Long working life

3-pass and wet-back are designed to avoid the damage of back tube sheet from the high temperature smoke.

2.Compact design

Threaded firetube and corrugated furnace are used to increase the heating area. That allows over 30% of the energy to be absorbed in the furnace. This means a shorter boiler overall. Definitely, it can reduce your boiler room construction costs.

3.Ease of maintenance

Everything is up front, adjustable and accessible.

4.New type economizer

It is made by finned steel tubes. The material is ND steel (09CrCuSb), which is acid-resistant and corrosion-resistant at low temperature. It is smaller but the heat exchanging area is bigger than normal. By calculation, It can save around 5% fuel.

5.Low emissions

Lowering emissions in the AN HWB series of boiler involves two key factors:

(1) advanced burner solution;

(2) the proper sizing of furnace to minimize nitrogen oxides and other contaminants from forming during the combustion process.

6.High Efficiency

Attaining high fuel to water efficiency in a boiler today requires a highly engineered package from a single source that is providing integrated burner, controls and the heat exchanging vessel. Azar Nasim AN HWB series of boilers is the premier package guaranteeing the highest efficiencies.

7.Control

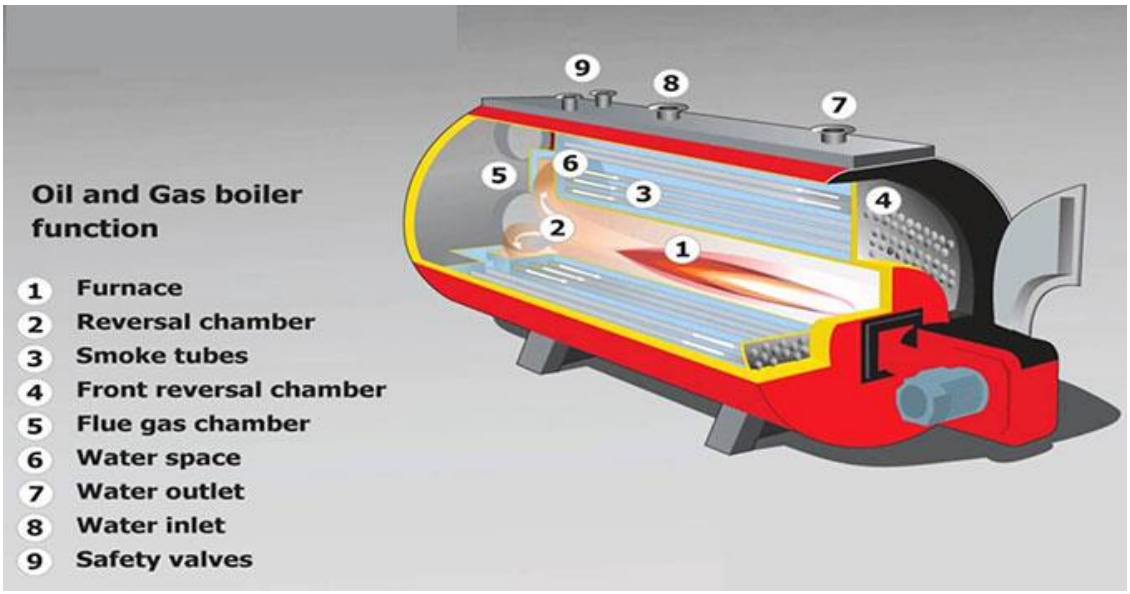
The boiler could be optionally equipped with PLC including different communication protocols such as Modbus, Profibus, etc., enabling boiler integration in any industrial process.

8. Welding Procces

The whole welding operations are performed by welders holding accreditation certificate based on WPS and PQR approved by the Standards Organization. All consumable electrodes are of the type E7018, this electrode has a flux coating with a very low hydrogen content, allowing a minimal amount of hydrogen into the weld puddle. The whole welding process is controlled by a team of quality control using methods of MT (Magnetic particles), UT (Ultrasonic), and RT (Radiography).

9. Burner And Valves

It is possible to equip the boilers with burner, valves and control devices.



Boiler Parts And Functions

- **Shell**

Many of a fire tube boiler parts are housed within a long cylindrical shell that serves as a pressure vessel. The shell is full of water with space at the top for steam liberation.

The shell is made of refractory steel sheet based on DIN 17155-17MN4 and covered by stainless steel sheet.

- **Tubes**

Tubes are selected from refractory seamless steel pipes based on st35.8. and pass from one end of the shell to the other end; this may occur once, or multiple times. The shell and tubes may be installed in a vertical or horizontal orientation, although the vertical orientation is less common.

Several of the tubes may have a thicker wall than the standard tubes, these tubes are referred to as 'stay tubes'. Stay tubes reduce the mechanical stresses placed upon the tube sheets when the boiler is pressurized; stay bars may also be used for this purpose.

- **Furnace**

The furnace is where combustion occurs; it is the place where the highest temperatures within the boiler are reached. Furnaces are usually corrugated to increase their mechanical strength, although non-corrugated furnaces are not uncommon.

The furnace is made of refractory steel sheet based on DIN 17155-17MN4.

- **Tube Sheets**

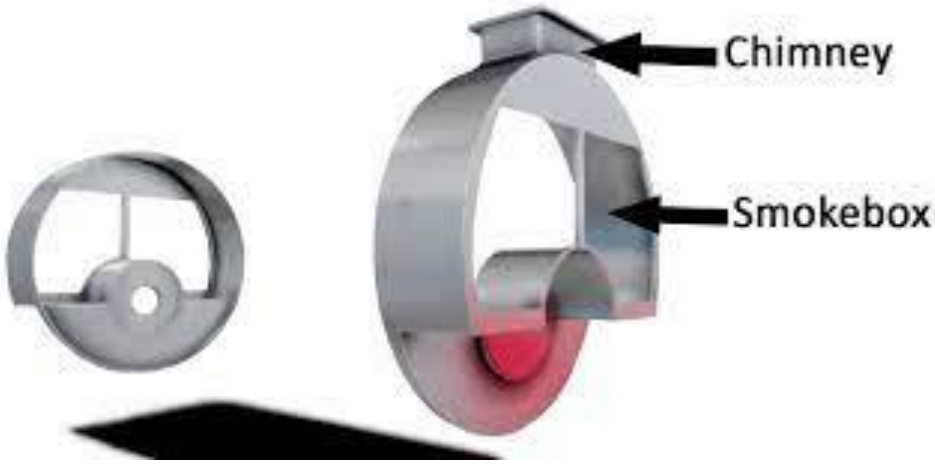
Tube sheets are made of refractory steel sheet and used to seal both ends of the shell and to provide a place for mounting of the tubes. Tube sheets will usually be connected to the shell via stay bars.

- **Reversal Chamber**

There may be a single, or multiple, reversal chambers. Reversal chambers change the direction of the exhaust gasses as they exit one pass and are directed into another. Reversal chambers located away from the burner named 'rear reversal chambers' whilst those closest to the burner named 'front reversal chambers'.

- **Smokebox**

The smokebox is the final part of the boiler that the exhaust gas passes through before exiting to the chimney.



- **Access doors**

There are a man hole and some of the hand hole to access and service.

- **Insulation**

Insulation is include 2inch double-layer rockwool.

- **Accessories**

Walkway with ladder and railing on boiler top for an easy and safety access, made of carbon steel profiles painted with rustproof special paint.

Hot Water Boiler

Model	Capacity (kCal/h)	Fuel Consumption		Dimensions (mm)			Connections						Water Content Volume (Lit)
		Oil (kg/h)	Gas (m^3/h)	Length	Width	Height	Water Return(In)	Water Supply(In)	Safety Valve (In)	Drain(In)	Expansion Tank (In)	Recommended Chimney Dim.(mm)	
AN-HWB-80	80000	8	14	1250	1000	1200	2	2	3/4	1	1	Φ 150	200
AN-HWB-100	100000	10.5	16	1500	1000	1300	2	2	3/4	1	1	Φ 210	245
AN-HWB-125	125000	13	19	1500	1000	1300	2	2	3/4	1	1	Φ 210	310
AN-HWB-150	150000	16	22	1800	1000	1500	2 1/2	2 1/2	1	1	1	Φ 230	360
AN-HWB-175	175000	19	26	1900	1100	1500	2 1/2	2 1/2	1	1	1	Φ 230	400
AN-HWB-200	200000	22	29	1950	1100	1500	2 1/2	2 1/2	1	1	1	Φ 230	440
AN-HWB-250	250000	28	35	1950	1100	1500	3	3	1 1/4	1	1 1/4	Φ 250	490
AN-HWB-300	300000	37.5	43	2100	1150	1500	3	3	1 1/4	1	1 1/4	Φ 270	550
AN-HWB-350	350000	45	52	2200	1250	1650	3	3	1 1/4	1	1 1/4	Φ 300	700
AN-HWB-400	400000	52.5	61	2200	1300	1700	4	4	1 1/4	1 1/4	1 1/4	Φ 300	900
AN-HWB-500	500000	60	69	2200	1300	1800	4	4	1 1/2	1 1/4	1 1/4	Φ 350	1000
AN-HWB-625	625000	80	89	2500	1500	1900	4	4	1 1/2	1 1/4	1 1/4	200 × 360	1350
AN-HWB-750	750000	95	110	2600	1500	2000	4	4	2	1 1/4	1 1/2	200 × 360	1650
AN-HWB-875	875000	110	126	2700	1600	2000	4	4	2	1 1/4	1 1/2	200 × 360	1800
AN-HWB-1000	1000000	120	139	2700	1750	2100	5	5	2	1 1/4	1 1/2	260 × 380	2250
AN-HWB-1100	1100000	130	156	2750	1750	2150	5	5	2	1 1/4	1 1/2	260 × 400	2350
AN-HWB-1250	1250000	150	174	3200	1850	2150	5	5	2	1 1/4	1 1/2	260 × 400	2870
AN-HWB-1500	1500000	178	206	3500	1900	2150	6	6	1 1/4	1 1/4	2	300 × 400	3280
AN-HWB-1700	1700000	200	234	3700	1900	2300	6	6	1 1/2	2	2	320 × 400	3760
AN-HWB-2000	2000000	237.6	275	3800	2000	2400	8	8	2	2	2	320 × 400	4250
AN-HWB-2500	2500000	300	347	2600	2200	3800	8	8	2	2	2	370 × 450	4320
AN-HWB-3000	3000000	356	412	3900	2200	2600	8	8	2	2	2	390 × 500	6450

Note:
1.Rated dimensions based on 90 psi working pressure.
2.Design pressure and test pressure are 115 and 135 psi respectively.

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