ZDL horizontal chain grate steam boiler

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Installation and operation instruction

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Directory

This specification applies to DZL series horizontal chain grate steam boiler; Boiler capacity: 0.5 ~ 10t/h, pressure: ≤ 2.5mpa.

I、Foreword

Biomass is a kind of clean energy. Its popularization and application plays an important role in promoting the development of energy utilization technology, environmental protection and ecological improvement in China. It not only reduces the fuel cost, but also reduces the emission of pollutants, and has good energy saving and environmental protection benefits, in order to adapt to the market demand, my company has designed and developed the biomass chain grate steam boiler.

II、Brief introduction of boiler structure

I、Brief introduction to the structure

The new DZL series boiler is single pot cylinder vertical type water and fire tube shell boiler, and the burning equipment is chain grate. The water cooling wall of the left and right sides of the furnace is the radiation heating surface, the two wings of the furnace are the convection heating surface, the boiler cylinder is arranged in the convection heating surface of the threaded smoke pipe, the front and back arch adopts the new technology of heat-resistant concrete integral pouring and ramming, and the outer side of the boiler main engine is the three-dimensional protective plate shell.

This series of boiler adopts the latest scientific research results, such as: arch tube plate, screw pipe, eight figure row pipe, etc., to solve the boiler shell boiler tube plate crack, drum lower bulge, water wall tube burst, low thermal efficiency, output shortage, poor adaptability of biomass fuel and other problems.

II、The combustion process

Fuel since the hopper before on the front of the fire grate, with grate operation, after preheating dry distillation, ignition, combustion, state slag fall into slag bucket, row from time to time by the slag machine, smoke throat between before and after the arch can form vortex mixing with air, and heating before arch, improve fire condition, the upper arch export smokestack into two wings convection bank, through smoke box before into the threaded pipe, After economizer, dust collector, from the induced draft fan to the chimney discharge.

III、Technical characteristics

(1) The barrel is composed of arch tube-sheet and threaded smoke pipe, so that the cylinder is changed from quasi rigid body to quasi elastic body structure, and the tube-sheet area is cancelled to reduce the stress. The smoke pipe is changed from two return to single return, which solves the problem of tube plate crack.
(2) The bottom of the drum because of the arrangement of eight figure up pipe row and suction device, eliminate the dead water area at the bottom of the drum, so that the sludge is not easy to deposit, and avoid the drum directly by high temperature radiation, to solve the problem of the lower drum bulge.
(3) The use of high efficiency heat transfer threaded smoke tube, obtained the effect of heat transfer enhancement, to achieve the boiler temperature rise, pressure fast characteristics, improve the thermal efficiency of the boiler.
(4) Compact structure, compared with the same type of boiler, the external size is small, save the investment of boiler house infrastructure.
(5) Stable operation, convenient adjustment, and sufficient output. Has a certain overload capacity.
(6) The use of threaded smoke pipe to enhance heat transfer, improve the heat transfer coefficient and thermal efficiency, because the flue gas in the pipe has a disturbance, smoke pipe is not easy to ash, play a role in self-cleaning.
(7) In the furnace, the heat-resistant concrete integral casting of high efficiency and energy saving furnace arch is used to improve the fuel ignition conditions, and the independent air chamber is used to achieve reasonable air distribution, so that an aerodynamic field conducive to combustion is formed in the furnace, thus expanding the adaptability of fuel.
(8) The furnace arch and the outlet smoke window of the boiler have a certain dust removal function. The original dust concentration of the boiler is controlled below the standard, which ensures that the dust emission of the boiler reaches the target stipulated by the state environmental protection.

IV、Brief introduction of safety accessories

(1) The series of boilers are equipped with spring full opening safety valve parts.
(2) The series of boilers are equipped with water level gauge, water level control alarm, pressure gauge, electrode point pressure gauge, etc., effectively monitor and control water level and pressure, (should have high and low water level alarm and low water level interlock protection function; Boiler with rated evaporation capacity greater than or equal to 6t/h: with high and low water level alarm and low water level interlocking protection, overpressure alarm and overpressure interlocking protection function.

V、Factory briefing

(1) The series of boilers less than 6 tons are delivered as a whole, and the main engine and combustion equipment of boilers greater than or equal to 6 tons are delivered by parts and assembled on site.
(2) Blower, induced draft fan, slag remover, dust collector, economizer, electric

control table, platform escalator, valve, instrument, smoke duct pipe, etc., shall be delivered in accordance with drawings or contract provisions.
(3) Random documents include: Boiler foundation figure, general layout of the boiler, the boiler body figure, wall charts, instrument pipe valve figure, supply customer product list, boiler pressure parts strength calculation summary table, thermodynamic calculation summary table of summary tables, smoke wind resistance calculation of quality certificate, installation and operating instructions, boiler, boiler product safety and quality supervision, inspection certificate, energy-saving boiler design documents review. (Energy efficiency test report is attached for boiler products that have passed the energy efficiency test)

VI、Overview of system design

(1) The design of the boiler and its system shall meet the requirements of the relevant national energy conservation laws, regulations, safety technical specifications and corresponding standards. Boiler combustion equipment, furnace structure design is reasonable, and the design of fuel varieties, to ensure safe, stable and efficient combustion. The heating surface layout is reasonable. Select reasonable and economical flue gas flow rate and reduce flue gas resistance. The sealing structure of the maintenance door (hole), peephole and slag outlet is reasonably set to ensure that the leakage coefficient of the boiler is within the design requirements.
(2) Boiler room system design, on the premise of ensuring safety performance, fully improve the efficiency of energy use, reduce water, electricity, self-use heat and other consumption, promote heat recovery and ladder use. Boiler room equipment layout should be as far as possible to reduce the length of the pipe, smoke duct and the number of elbows, has reduced the flow resistance. The primary duct should adopt the prototype structure and consider its expansion and hanging support.
(3) When the user's heat load fluctuates greatly and frequently, load balancing measures should be taken to achieve effective regulation. The system of multiple boilers should be equipped with centralized control device to ensure the balance and economic operation of the boilers. The selection of boiler medium parameters should meet the requirements of use, should not make the rated outlet pressure and temperature of the boiler and the use of pressure, temperature difference is too large.
(4) The heat of boiler continuous discharge of sewage should be rationally used, and the continuous discharge expander should be set according to the total continuous discharge of boiler room. The boiler and its system shall put an end to running, running, dripping and leakage, make full use of the heat of condensate water, secondary steam and continuous sewage discharge, and take measures to improve the utilization rate of recoverable condensate water as far as possible.

VII、Energy saving management

(1) The boiler user shall be responsible for the energy saving management of the boiler and its system. Technical personnel engaged in energy conservation

management shall have professional knowledge related to boilers and be familiar with relevant national laws, regulations, safety technical specifications and their corresponding specifications.

(2) Boiler application units shall establish, improve and implement relevant systems for energy conservation management of boilers and their systems. The energy conservation management system shall include at least the following contents:

1) Energy saving target responsibility system and management post responsibility system;

2) Daily energy saving inspection system of boilers and their systems, and make corresponding inspection records and archive;

3) Boiler fuel admission inspection analysis and management system, and the correct selection of fuel according to the design requirements;

4) Measuring instrument calibration and management system;

5) Boiler and its system maintenance system;

6) Boiler water (medium) quality treatment management system;

7) Energy saving training and assessment system for boiler operators and water treatment operators, education, training and assessment plan of boiler economic operation knowledge for boiler operators, and training and assessment records.

(3) Boiler users shall establish energy efficiency assessment, reward and punishment mechanisms, actively implement contracted energy management based on the actual situation of the unit, arrange regular energy efficiency tests, and timely rectify those that do not meet the energy conservation requirements.

(4) The boiler user shall regularly maintain the equipment, instruments, devices, pipes and valves included in the boiler and its system, and shall deal with and record any abnormal situation in time.

(5) Boiler users shall conduct daily inspection and monitoring of the energy efficiency of boilers and their systems. Key inspection and monitoring of the project, including the boiler use of fuel and design fuel compliance, fuel consumption, medium outlet temperature and pressure, boiler water supply and supply water temperature, exhaust temperature, furnace wall surface temperature, and whether the system is running, risking, dripping, leakage, etc.

(6) Boiler users shall strengthen energy testing, measurement and statistics. The use units of industrial boilers should regularly evaluate the energy efficiency of boilers and their systems, and the evaluation method should refer to the "Industrial Boiler Energy Efficiency Test and Evaluation Rules" (TSG G0003).

(7) The boiler user shall conduct a regular energy efficiency test of the boiler in use once every two years. The test should be carried out by the energy efficiency test institution determined by the General Administration of Quality Supervision, Inspection and Quarantine in combination with the external inspection of the boiler.

(8) Boiler operators should timely dispatch and adjust the number of boilers and the output of boilers according to the change of heat load of end users, and boiler rooms can install automatic boiler load regulating devices if conditions permit.

(9) The normal discharge rate of industrial boilers shall meet the following requirements:

1) No more than 10% of the industrial boilers that use softened water as supplement water or simply use boiler fake medicine treatment;
2) No more than 2% of industrial boilers with debrine as the recharge water.
(10) Boiler water quality treatment shall meet the requirements of boiler water quality treatment safety technical specifications and response standards.
(11) The boiler user shall, in accordance with the Provisions of the Measures for supervision and Administration of Energy Conservation of High Energy Consuming Special Equipment, establish the energy efficiency technical archives of high energy consuming special equipment. The user units where conditions allow shall centrally and uniformly manage the archives of boiler product energy efficiency technology, product quality archives and equipment use archives (one copy of the same part of the archives may be kept). Boiler energy efficiency technology archives shall include at least the following contents:
1) Delivery data of boiler products (including product energy efficiency test report);
2) Quality certification materials for auxiliary boiler and auxiliary equipment;
3) Boiler installation and commissioning report, energy saving transformation data;
4) Energy efficiency evaluation or energy efficiency test report of boiler installation, renovation and maintenance;
5) Regular test report of in-use boiler energy efficiency and annual operation energy efficiency evaluation report;
6) Daily energy saving inspection records of boilers and their systems;
7) Measuring and testing instrument verification certificate;
8) Boiler water quality treatment inspection report;
9) Fuel analysis report.

III、Installation instruction

For your rights and interests, before the installation and use of the boiler, please hold the relevant documents attached to the boiler, to the local boiler safety supervision agency for installation, use procedures.

I、Installation preparation

(1) Determine the installation unit. Installation unit must have the corresponding boiler installation qualification!!
(2) Handling notification procedures. Before the installation to the local market supervision and management department for installation informed procedures!!
(3) installation quality sectional acceptance and hydraulic test, by the boiler installation unit and the use of units jointly, the overall acceptance should also be boiler and pressure vessel safety supervision agency representatives attend!!
(4) after the installation and acceptance is qualified, the boiler user shall go through the boiler registration formalities with the boiler and pressure vessel safety supervision institution of the local market supervision and administration department by holding the relevant data, and obtain the boiler registration

certificate before it can be put into use!!
(5) the boiler must have the market supervision and management department examination qualified furnace personnel operation!!
(6) Organize staff to learn installation technical measures, safety technical measures, TSG 11-2020 "Boiler Safety Technical Regulations" (hereinafter referred to as "Boiler Regulations"), GB50273-2009 "Boiler Installation Engineering Construction and Acceptance Code", TSG G0002-2010 "Regulations for Supervision and Management of Boiler Energy-saving Technology", familiar with boiler drawings and related technical documents.
(7) Before the installation of the boiler, the boiler body, combustion equipment, parts, auxiliary machinery and accessories shall be checked and counted according to the technical documents, and the record shall be made well. If the boiler does not meet the relevant standards, it shall be put forward to the factory in time.

II、Hoisting of boiler and auxiliary machine

(1) Boiler body, combustion equipment, auxiliary machinery, accessory packing boxes, instrument packing boxes should be hoisted according to the hoisting position specified by the factory. If the hook is damaged in any position, the user shall be responsible for it.
(2) Heavy vehicles, lifting equipment, wire ropes and winches required for bundling must have sufficient load capacity, and should meet the technical specifications.
(3) Before lifting, please select lifting equipment according to the size and weight of large pieces marked in the technical specifications, and formulate corresponding safety precautions.

III、Boiler installation

(1) The boiler foundation shall be redesigned by the civil engineering department according to the local soil quality and the foundation drawing provided by the manufacturer.
(2) After the boiler foundation reaches strength, it should be checked and accepted according to the boiler drawing, and three datum lines for the whole boiler should be drawn:
1. Longitudinal reference line -- cylinder center or combustion equipment center.
2. Horizontal datum line -- center of front shaft of chain grate or center line of slag extractor.
3, elevation datum line -- can be selected around the foundation of a number of relevant locations are marked, the relative offset between each mark should not exceed 1mm.
(3) Before the boiler main engine is in place, the slag extractor and slag bucket are put into the slag pit, and then the boiler is in place according to the positioning center line of the drawing. After assembling the lower part of the boiler, the upper and lower parts should be assembled. The upper and lower parts should be aligned and cushied firmly, and the inside and outside should be poured twice.

(4) The deviation of installation position dimension and inspection method shall be carried out according to gb50273-2009 "Code for Construction and Acceptance of Boiler Installation Engineering".

IV、Auxiliary installation

(1) Before the installation of the economizer, dust collector, induced draft fan and blower, the air damper, the air lock and the transmission part of the dust collector should be checked to be qualified before the installation. Check whether there are defects such as stuck and air leakage after installation. Finally switch on the power test, check whether the motor steering is correct, whether there is friction vibration phenomenon, whether the motor temperature is normal. In order to ensure good lubrication of induced draft fan bearing at high temperature, effective cooling measures should be taken for bearing seat and lubricating oil should be added regularly. When the induced draft fan starts in cold state test operation, the flue gas regulating door should be closed to prevent the motor from burning out due to excessive starting current. The longest running time in cold state should not exceed 5 minutes.
(2) If the smoke duct connected with the blower and induced draft fan is inconsistent with the design, the length, elbow and cross-sectional area change greatly, the smoke and wind resistance should be recalculated, the flow rate and pressure head of the blower and induced draft fan should be checked to meet the actual needs of the boiler.
(3) Step-down starter should be installed if the motor power of the boiler auxiliary engine exceeds 15KW.
(4) the installation of the economizer shall be carried out according to the smoke duct diagram, and the hydraulic test shall be carried out according to the relevant provisions after installation.

V、Installation of boiler piping meters

The installation of pipes, valves and instruments shall be in accordance with the requirements of automatic control (or electric control cabinet circuit drawing) and related drawings
The setting value of water level, pressure alarm and interlock protection shall be set according to the valve instrument.
1. The deviation between the water level gauge and the normal water level of the drum is ±2mm. The highest safe water level, the lowest safe water level and the normal water level shall be marked accurately.
2. The water level gauge should have a water discharge valve (or water discharge cock) and a water discharge pipe connected to a safe place.
3, the pressure gauge should be installed in the position convenient for observation and blowing, and prevent from being affected by high temperature, freezing and vibration.
4, the pressure gauge should have trap pipe, pressure gauge and trap pipe should be

equipped with cock, in order to blow and wash the pipeline, unloading and changing the pressure gauge.
5, the dial surface should be marked with red lines, indicating the boiler working pressure.
6, the safety valve should be equipped with exhaust pipe, exhaust pipe should be through to the safe place, and have enough cross-sectional area, to ensure the smooth exhaust steam. The bottom of the exhaust pipe of the safety valve should be equipped with a drain pipe connected to a safe place. Valves are not allowed to be installed on the exhaust pipe and the drain pipe.
7, per boiler should be independent drainage pipe, sewage pipe should reduce as far as possible elbow, ensure smooth drainage and received a safe place or outdoor drainage expansion tank, a few boilers periodic blowdown share a total drainage pipe, such as must have proper security measures, using pressure drainage expansion tank, sewage tank shall be equipped with safety relief valve.
8, the boiler blowdown valve, blowdown pipe is not allowed to use thread connection.

Ⅵ、Hydraulic test

Hydrostatic test should be done for assembled boiler after welding of pressure element is finished or after overhaul of pressure element. The economizer shall **be hydraulically tested separately.** The test pressure shall conform to the requirements in Table 1.

Table 1 Pressure test of steam boiler

The name says	Pan drum (shell) working pressure P	Try to check pressure
The boiler body	＜0.8MPa	1.5 times the cylinder (shell) working pressure, but not less than 0.2mpa
The boiler body	0.8～1.6MPa	Cylinder (shell) working pressure plus 0.4mpa
The boiler body	＞1.6MPa	1.25 times the working pressure of drum (shell)
Reheater.	Any pressure	1.5 times the working pressure of the reheater
Cast iron economizer	Any pressure	1.5 times the working pressure of economizer

Please refer to the boiler general drawing or boiler body drawing for the value of hydraulic test pressure
Hydrostatic test steps:
1, hydraulic test should be before the cylinder, collection box, pipe residue clean, and then close all valves, manhole, hand hole, open a safety valve, and then water.
2, the inlet temperature should be kept at 20 ~ 30℃, the temperature is too low to make the outer wall of the boiler dew, and the occurrence of water seepage and

other not strict situation will be confused, increase the difficulty of inspection, the temperature is too high energy to make water droplets evaporation and seepage should not be found.

3. When the water is full, gradually increase the pressure to 0.4mpa, and conduct a tightness check under this pressure. If necessary, tighten the bolts at the flange, manhole and hand hole, and pay attention to the pressure rise rate shall not exceed 0.15mpa per minute.

4. During the hydraulic test, the water pressure should rise and fall slowly. When the water pressure rises to the working pressure, the pressure should be suspended to check whether there is leakage or abnormal phenomenon, and then the pressure should be increased to the test pressure. The boiler shall be kept at test pressure for 20 minutes and then lowered to working pressure for inspection.

5, any leakage found in the test should be recorded, so that when the atmospheric pressure is reduced to repair, repair after the need for a new hydraulic test, should be based on the number of leakage and parts and other specific conditions.

6. After the hydrostatic test is completed, all the water should be discharged, and no water should be left in the boiler body, collecting box and pipe.

The hydrostatic test shall be deemed qualified if it meets the following conditions.

7. There is no water drop and water mist on the metal wall and weld of the water pressure element;

8. No residual deformation was found after hydrostatic test

Safety measures and Precautions:

1. It is strictly forbidden to tighten flange bolts when the pressure exceeds 0.4mpa.

2, in the hydraulic test site should have special marks to avoid irrelevant personnel to enter, in order to avoid danger.

3, when there is pressure, do not stand in front of the welding port, flange and valve.

4, the water pressure test should be carried out in the surrounding temperature is higher than zero 5℃, less than minus 5℃ must have anti-freezing measures.

IV、Operating instruction

Warning: water level, pressure alarm, interlocking protection device failure, may lead to boiler explosion, must not exit!

The stoker shall regularly check and test the water level alarm and interlock protection devices to ensure that they can function properly.

Warning: do not oven in accordance with the prescribed method, will make the furnace wall cracking, deformation, collapse, affect the safe operation of the boiler!

I、Oven

Newly installed, relocated, overhaul or long-term use of the boiler, its furnace and flue furnace wall is very wet, once contact with high temperature flue gas, water will rapidly evaporate, make the furnace wall, arch crack or deformation, even

collapse. Therefore, before the boiler is put into operation, the furnace wall and arch must be slowly baked and dried, so that the water in the furnace wall and arch will slowly evaporate and escape. This slow drying method is called an oven.

a、The following conditions should be met before the oven:

1. The boiler and its auxiliary devices have all been assembled and passed the hydrostatic test.
2, anti-corrosion and insulation end, and check whether the debris in the flue is clean.
3, the thermal instrument of the boiler should be verified.
4. The test run of the auxiliary engine required by the boiler has been completed, and all parts are ready for safe start.

b、Oven method:

For the first three days of the oven, wood is baked. Lumber should be stacked in the middle of the grate, accounting for about 1/2 of the grate area. After the wood is lit, it is roasted over a low fire. Open the flue baffle about 1/6 ~ 1/5 for natural ventilation, so that the flue gas flows slowly and the temperature of the pot water is maintained at 70 ~ 80℃. After three days, small amounts of fuel can be added to the burning wood to gradually replace the wood ovens. At this time, appropriate to open the flue baffle, and start the induced draft fan to strengthen ventilation, the pot water temperature can reach a slight boiling.
The temperature rise rate in the oven process should be controlled according to the smoke temperature after the superheater; The boiler without superheater is controlled by the smoke temperature between the first and second firewalls. For the heavy duty furnace wall, the temperature rise on the first day should not exceed 50℃, and the temperature rise every day after that should not exceed 20℃, and the maximum smoke temperature in the later stage of the oven should not exceed 220℃. For light brick furnace walls, the temperature rise on the first day should not exceed 80℃, and the temperature rise every day after that should not exceed 25℃, and the smoke temperature in the later period should not be higher than 160℃. For the heat-resistant concrete furnace wall, the oven temperature rise should not exceed 10℃ per hour, the later smoke temperature should not be higher than 160℃, in the maximum temperature range, the duration should not be less than one day and night.

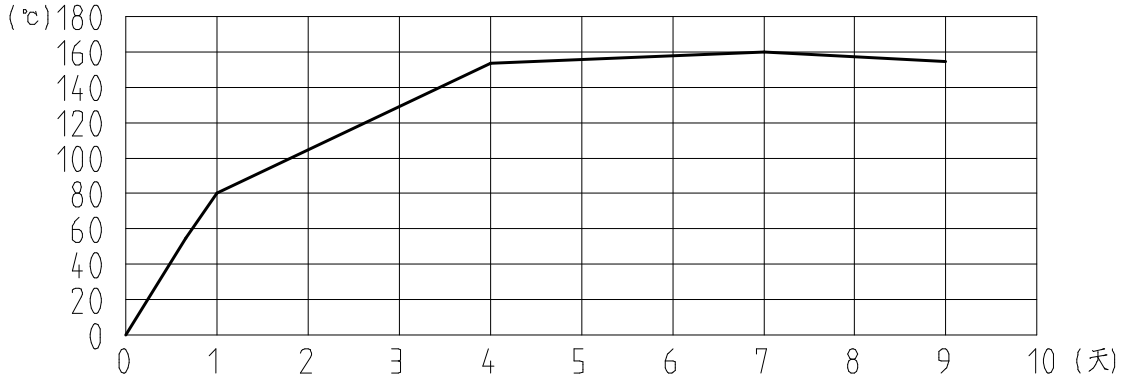
c、Qualification standards of ovens:

Oven, furnace wall, furnace arch should not appear cracks, deformation, but also should reach one of the following provisions, only qualified.
1, in the middle of the furnace on both sides of the wall above the grate 1.5 ~ 2.0m and the superheater on both sides of the wall, the mortar sample at the t-shaped cross seam of refractory brick and red brick is 50g, if the moisture content is less than 2.5%, the oven is qualified. When the moisture content of refractory brick mortar

reaches 7%, and that of red brick mortar reaches 7% ~ 10%, the oven can be started without a separate oven, and the heat of the oven can be used for the oven.
2. On both sides of the wall of the furnace, the red brick wall at 1.5 ~ 2.0m above the middle grate faces the temperature at 100mm inside to 50℃, and continues to maintain the cooking furnace within 48h.

d、The oven matters needing attention are as follows:

1, do a good job before the oven oven organization work, and according to the furnace structure and installation manual, develop the operating procedures of the oven.
2. In the oven process, the drying degree of the furnace wall and the changes of each part of the furnace wall should be frequently checked to find cracks, deformation and concave and convex defects in time.
3. At the beginning of the oven, the furnace wall and arch should be baked evenly at a low temperature, and then slowly raise the baking temperature. Avoid impatience and improper increase of the fire. The temperature of the furnace must be in accordance with the stipulated time and temperature of the oven temperature rise to grasp the speed of temperature rise, do not allow high and low, more do not allow the interruption in the middle; The flame should be evenly distributed to prevent local heating of the furnace wall too fast.
4, oven water level should be kept normal. The pot water is allowed to boil slightly at the later stage of the oven. If the boiling is more severe, exhaust should be carried out and timely water replenishment should be carried out.



(Baking curve of light brick furnace wall)

II、Cooking stove

Warning: boiler does not meet the requirements, will make the quality of steam deterioration, steam water co-transpiration, corrosion pipe fittings, box and other parts, harm the safety and economic operation of the boiler, affect the service life of the boiler!

(1) The purpose of the boiler is to add NaOH and Na3Po4 in the boiler for chemical treatment, the use of alkaline boiler, the oil and rust in the pot to remove, to ensure that the boiler heating uniform, normal operation.

(2) The dosage of the boiler should meet the requirements of the technical documents of the equipment. If there is no requirement, it should meet the requirements in the following table:

Drug name	Dosage (Kg/m3 water)	
	Rust thin	Rust thicker
Sodium hydroxide.	2～3	3～4
Trisodium phosphate (Ha3Po4)	2～3	2～3

Note: 1.The drug is calculated according to 100% purity.

2.When there is no trisodium phosphate, sodium bicarbonate can be used instead, and the amount is 1.5 times that of trisodium phosphate.

3.Use sodium carbonate cooking stove alone in real time, add 6kg sodium carbonate per cubic meter of water.

(3) When dosing, furnace water should be at low water level.

(4) The boiler pressure should be kept at about 75% of the working pressure at the end of the cooking furnace, and the cooking time is generally 2-3 days.

(5) During the cooking period, take the furnace water regularly for analysis, and the basicity of the furnace water should not be lower than 45mmol/L, otherwise, supplement should be added.

(6) After the boiler is finished, the sediment in the drum and the collection box should be cleaned, the valve inside the boiler and the liquid medicine should be washed, and the sewage should be checked whether it is blocked.

(7) The following requirements shall be met after cooking:

1. There should be no oil on the inner wall of the drum and collecting box.

2. There should be no rust on the metal surface after rubbing off the attachment.

(8) The boiler work can be carried out at the later stage of the oven.

III、Relief valve adjustment

Warning: do not adjust the safety valve according to the regulations, will affect the safe operation of the boiler!

(1) The sealing test should be carried out after the oven and cooking furnace are qualified.

1. When the pressure is increased to 0.3 ~ 0.4mpa, tighten bolts of flanges, manholes,

hand holes and other connecting parts in a hot state within the scope of the boiler.
2. Continue to increase the pressure to the working pressure state for the following inspection:
A, each manhole, hand hole, valve, flange and gasket sealing.
B. Expansion of drum, collecting box, pipeline and support.
(2) After the above inspection is qualified, the safety valve should be adjusted, and the adjustment should meet the requirements in the following table.

The name of the	Rated steam pressure (MPa)	Setting pressure of relief valve
Steam boiler	≤0.8	Working pressure + 0.03mpa
		Working pressure + 0.05mpa
	0.8＜P≤5.9	1.04 times the working pressure
		1.06 times the working pressure

The setting pressure of boiler safety valve is shown in the pipe instrument system diagram.
Note :(1) there must be a safety valve on the boiler to adjust to the lower set pressure shown in the chart.
(2) The working pressure in the table refers to the working pressure at the place where the safety valve is installed.
(3) the safety valve should have no leakage and shock phenomenon.
(4) the setting pressure of the safety valve of the economizer is 1.1 times of the working pressure of the installation site.
(5) After the above qualified work, the boiler should be tested continuously for 4~24 hours at full load. During the test run, attention should be paid to check that all parts and auxiliary equipment are running normally as qualified.

IV、The fire

Warning: the temperature should not be raised too fast when the fire, to avoid uneven heating of each component, produce excessive stress, affect the service life of the boiler!

(1) before the fire, the boiler should be comprehensively checked :(including fans, pumps, valves, instruments and electrical instruments, etc.) whether the equipment is normal, open the safety valve on the drum to discharge the air in the boiler, close all the water valve, and then the treated water is slowly injected into the boiler, the water temperature is generally not higher than 40℃. Check the boiler inside and outside, there is no left tools and other sundries in the drum and box, there is no welding lump or sundries in the furnace, and the temporary separator and plug set up on the main steam pipe, water supply pipe, sewage pipe and other pipelines should be removed completely; Manholes, hand holes and other cover plates have been installed, and the screws have been tightened, furnace wall, furnace arch without cracks, deformation or collapse, furnace wall and drum, collecting box and other contact parts have enough expansion gap, in its internal according to the requirements of filling. Furnace door, ash door and inspection door are flexible and

tightly closed. Drum, induced draft fan air regulating door, air regulating performance is good.

(2) protection of economizer when boiler starts. For a boiler equipped with an economizer, bypass waterways and recirculation pipes shall be installed or protective measures shall be taken to start the economizer.

(3) Check the main safety accessories. Water level gauge, pressure gauge, safety valve, drain valve and so on should meet the requirements of "pot regulation"; Whether there is leakage in pipes, valves, manholes, hand holes, flange connections, etc. If there is leakage, it should be eliminated.

(4) door open when the fire ignition, placed in grate front wood such as kindling, it is strictly prohibited to nail) ignition, driving the induced draft fan damper, increase the natural ventilation, ignition and burn, the small flue gas damper, intermittent open induced draft fan, after being ignited material burns, began to manually add fuel, it can be open air blower. When the fuel burns high, you can close the ignition door, add fuel to the hopper, open the grate intermittently, and strengthen the observation of the fire at the right side of the fire door, appropriate fire, until the front arch burning fuel can be continuous fire, adjust the drum air volume, the negative pressure of the furnace is maintained at 20-30Pa, so that the combustion is becoming normal.

(5) after the fire, the water level of the steam boiler will gradually rise, and should be observed at any time. The normal water level can be maintained by releasing water.

(6) When the pressure rises to 0.05-0.2mpa, the water table should be washed, when the pressure rises to 0.15-0.2mpa, the pressure gauge elbow should be washed, and pay attention to the pressure indication.

(7) When the boiler pressure rises to 0.2-0.3mpa, check whether the manhole and hand hole cover leak, tighten the manhole, hand hole and flange bolts.

(8) When the boiler is put into normal operation, then check each part of the boiler again to find out whether the condition of each part is normal.

V、The steam supply

When the steam pressure in the boiler is close to the working pressure, the fire should be slow when preparing for external steam supply, and the water level in the furnace before steam supply should not exceed the normal level.

Steam supply when the main steam valve should be slightly open, let warm trace steam pipe, open drain valve in the line at the same time, the condensed water, drainage to warm tube time according to the pipe length, diameter, steam temperature, and so on and so forth, generally not less than half an hour, warm pipe pipe supports should be paid attention to when, if found to have abnormal should stop warm tube, and eliminate the fault and defect, stay tube has been hot, After the condensate water on the pipeline is gradually reduced, the total steam valve can be fully opened, open slowly, and pay attention to whether there is a special sound in each part of the boiler. If there is, it should be checked immediately. After the total steam valve is fully opened, the total steam valve handwheel should be returned to

half a circle to prevent the defect that the steam valve can not be rotated after thermal expansion. After the boiler steam supply should be again check the auxiliary parts, valves, instruments have leakage, etc., whether the work is normal.

VI、Warm pipe and steam

a、Warm pipe

The so-called warm pipe is to use steam to slowly heat the steam pipe, valve and flange at room temperature, so that the temperature is evenly increased, and the condensate water in the pipeline is driven out to prevent water hammer and damage to the pipeline, valve and flange when steam is delivered. The warm pipe is generally carried out when the steam pressure of the boiler rises to two thirds of the rated working pressure, and the length of the time should be determined according to the length and diameter of the pipe, steam temperature, seasonal temperature and so on. General working pressure in 0.8mpa below the boiler, the warm tube time should not be less than 30min.

1, the operation procedure of the warm pipe

For a single operating boiler, the scope of the warm pipe is the steam pipe before the main steam valve outlet to the steam equipment. Before the warm pipe, open all traps on the main steam pipe to discharge the condensed water accumulated in the steam pipe, and then close it until the official steam supply. Then slowly open the bypass valve on the main steam valve about half turn, let a small amount of steam into the pipeline, until the pipeline is fully preheated, and then the main steam valve fully open.

When several boilers are running at the same time, they share a steam pipe. The scope of the warm pipe is the section of pipe and pipe accessories before the main steam valve of the new boiler is started. The newly put into operation of the boiler, if there is a connection between the main steam valve and steam mother pipe isolation valve, isolation valve and boiler between the pipeline also need to warm pipe. Before the warm pipe, first open the main steam valve and all traps before the isolation valve, eliminate condensate, slowly open the main steam valve, using the steam generated in the process of boiler pressure to slow preheat, the pipeline with the boiler pressure rise temperature and pressure rise temperature at the same time, so as to save the warm pipe time, and safe and convenient. After the end of the warm pipe, close the trap on the pipeline, steam supply and boiler can be carried out.

2. Matters needing attention when heating pipe

When the pipe is warm, if it is found that the pipe is expanded or the support and hanger is abnormal, or the pipe is shaken or water struck, it indicates that the warm pipe is heating up too fast, and the steam supply speed must be slowed down, that is, the main steam valve is turned down to reduce the steam flow, and the warm pipe time is extended. If the vibration noise is too large, the main steam valve should be closed immediately and the steam trap should be opened to stop the warm pipe.

After the cause is found out and the fault is eliminated, the warm pipe should be continued.
Each steam valve should be turned half a turn after full opening, to prevent the steam valve because of heat expansion and stuck, can not be flexible switch.

b、Parallel steam

Parallel steam is also called parallel furnace, that is, when two or more boilers are running at the same time, the newly put into operation boiler supplies steam to the steam mother pipe that is supplying steam. When the newly put into operation boiler has completed the steam pipe before the separation cylinder isolation valve warm pipe, boiler equipment and steam pipe operation normal, stable combustion, steam supply can be prepared.
1. Before mixing steam, the boiler pressure should be slightly lower than the steam pipe pressure, so as not to cause the rapid evaporation of the pot water due to the sudden drop of the pressure during the mixing steam.
2, before steam should make the boiler water level at the lowest safety level, so as to avoid steam with water.
3, steam before steam analysis, steam quality should be qualified.
4. The bypass valve of parallel steam valve should be opened first, and then the parallel steam valve should be opened. Open the valve slowly, and then close the bypass valve and steam valve bypass valve, steam valve trap, superheater trap.
5, in the process of steam should pay close attention to the change of pressure, temperature and water level.
6. Open the flue baffle of the economizer after steam mixing. For boilers without bypass flue, close the valve of economizer recirculation tube to make economizer run normally.
7. Open the continuous drain valve. When the boiler reaches 70% of the rated load and the water level is normal, the automatic adjusting device for feed water and combustion is put into operation.

VII、Operating instructions for normal economic operation of the boiler

Warning: improper operation and management of pressure gauge, water level gauge and safety valve will affect the safe operation of the boiler!

Qualified installed boilers must be operated according to **TSG G0002-2010 "Regulations for Supervision and Management of Boiler Energy Saving Technology" :**
(1) The prescribed normal water level must be maintained during the operation of the boiler, **and the water level is not allowed to be lower than the lowest safe water level or higher than the highest safe water level.**
(2) Constant attention should be paid to the working pressure, so that it is maintained at the normal steam pressure. The specified working pressure of the

boiler shall be marked with red line on the pressure gauge of the boiler.
(3) Each shift shall carry out at least the following work:
1, rinse the glass water level gauge once.
2, check the tightness of drum, collecting box, blowdown valve and trap.
3, according to the boiler water quality, all the blowdown valve blowdown one to two times.
4. Whether all the pumps are in good condition or not should be tested when taking over the shift, and the work of each feed pump should be checked by the short-time start-up operation method.
5, equipped with direct reading water table should check the direct reading water table and glass water table is consistent.
(4) the pressure gauge should be checked once every ten days, (the pressure gauge must be checked with the standard pressure gauge in general half a year).
(5) Often pay attention to the relationship between wind pressure and combustion, and must control the negative pressure at the exit of the combustion chamber for 20-30Pa, so that the boiler does not spray flue gas to the outside.
(6) Often patrol around the boiler, such as found in the furnace wall, furnace door gas leakage situation, should be repaired immediately, and listen to there is no special sound, these sounds may be the boiler water leakage, steam leakage situation, must pay attention to eliminate.
(7) Every one hour to the boiler body, electrical equipment, water pump, all kinds of valves, all kinds of instruments and auxiliary equipment for a circuit inspection.
(8) When opening the valve or cock, the sledgehammer or other objects are prohibited to knock, and the valve handle is not allowed to be extended to open forcefully.
(9) in order to prevent the adhesion of the valve disc and valve seat of the safety valve, the safety valve should be regularly carried out manual and automatic steam release test.

VIII、Sewage

Warning: not according to the provisions of sewage discharge, will lead to drum drum drum, collection box and water wall pipe blockage, cause pipe explosion until the boiler over burning, crack, affect the safe operation of the boiler!

Each shift at least one or two discharge, discharge rate ≤5%. Each boiler should be equipped with independent sewage pipe, sewage pipe should be as far as possible to reduce elbow, to ensure that the discharge of unimpeded and connected to the outdoor safe place.
(1) Continuous sewage discharge or water discharge is to make the furnace water basicity does not exceed a certain concentration, in line with the furnace water basicity requirements. Sewage discharge and water discharge should be controlled by adjusting the opening of the drainage valve or water discharge valve according to the results of chemical analysis.

(2) Regular sewage or water discharge is to eliminate the sediment in the drum, and the salt content of the furnace water can be adjusted to meet the requirements of the salt content of the furnace water.
(3) Regular sewage discharge should be carried out at low load, and the time should be as short as possible, so as not to affect the water cycle.
(4) The boiler water should be discharged at high water level when discharging, and the water level in the drum should be paid close attention to when discharging, and the water level in the drum should be reduced by 25-50mm every time.
(5) Sewage discharge operation procedures are as follows:
First completely open the second valve (since the drum or header direction, then the first valve slightly open, to preheat the drainage pipeline, to open the first valve (no impact on the sewage pipe should be sound at this moment, if there is any impact sound should turn down the first valve to impact sound disappeared, then slowly open), pay attention to control emissions. The procedure for closing is the opposite of the above.
(6) If two or more than two boilers use the same sewage main, and there is no check valve on the sewage pipe, two or more groups of sewage valves are prohibited to work at the same time.
(7) Do not use lever to extend the handle to open the drain valve.
(8) If the end of the sewage pipe is not through to the sewage box or sewage well, and there is no protection equipment, it must be sure that no one near the end of the sewage pipe can be discharged, so as to avoid accidents in the discharge.
(9) After the discharge is finished and the blowdown valve is closed, the blowdown valve should be checked whether it is tight. The inspection method is to close the blowdown valve, after a period of time, in the pipeline leaving the second blowdown valve by hand to test whether it is cooled, if not cooled, there is leakage at the blowdown valve.

IX、Water quality requirements

Warning: The water quality does not meet the requirements, will make the sediment sediment bucket, the lower part of the box and form scale, damage to the water circulation, the pipe overheating, deformation, pipe explosion, and even the boiler shell over-burning lead to cracks, affecting the safe operation of the boiler!

The feed water of the boiler should be free of sediment and other sediments, and the water quality should meet the requirements of GB/T1576-2018 "Industrial Boiler Water Quality" standard. **The water quality of natural circulation steam boiler treated with external water should comply with the following table:**

Distinguish	Rated steam pressure: MPa	P≤1.0	1.0＜P≤1.6	1.6＜P≤2.5	2.5＜P＜3.8

sh betw een	Type of recharge water		Demin eralize d water	In add itio n to the bri ne	Demin eralize d water	In add itio n to the bri ne	Demin eralize d water	In add itio n to the bri ne	Demin eralize d water	In add itio n to the brin e
Feed wate r	Turbidity FTU		⩽5.0							
	Hardness mmol/L		⩽0.03							⩽ 5.0 ×10 -3
	pH（25℃）		7.0 ～ 10.5	8.5 ～ 10. 5	7.0 ～ 10.5	8.5 ～ 10. 5	7.0 ～ 10.5	8.5 ～ 10. 5	7.0 ～ 10.5	8.5 ～ 10. 5
	Electrical conductivity （25℃） μS/cm		——	— —	⩽ 5.5×1 02	⩽ 1.1 ×10 2	⩽ 5.0×1 02	⩽ 1.0 ×10 2	⩽ 3.5×1 02	⩽ 80. 0
	Dissolved oxygen (do) amg/L		⩽0.10			⩽0.050				
	Oil mg/L		⩽2.0							
	Iron mg/L		⩽0.30					⩽0.10		
wate r	Total alkalinity b mmol/L	No super heate r	4.0 ～ 26.0	⩽ 26. 0	4.0 ～ 24.0	⩽ 24. 0	4.0 ～ 16.0	⩽ 16. 0	⩽12.0	
		Have a super heate r	——	— —	⩽14.0		⩽12.0			
	Phenolp hthalein alkalinity mmol/L	No super heate r	2.0 ～ 18.0	⩽ 18. 0	2.0 ～ 16.0	⩽ 16. 0	2.0 ～ 12.0	⩽ 12. 0	⩽10.0	

		Have a superheater	——	——	≤10.0		
	pH（25℃）		10.0～12.0			9.0 ～ 12.0	9.0 ～ 11.0
	Electrical conductivity （25℃） μS/cm	No superheater	≤6.4×102		≤5.6×102	≤4.8×102	≤4.0×102
		Have a superheater	——	——	≤4.8×102	≤4.0×102	≤3.2×102
	Dissolve solidsmg /L	No superheater	≤4.0×103		≤3.5×103	≤3.0×103	≤2.5×103
		Have a superheater	——	——	≤3.0×103	≤2.5×103	≤2.0×103
	Phosphoric acid root c mg/L		——	10～30			5～20
	D sulfited mg/L		——		10～30		5～10
	The relative basicitye		＜0.2				

Note 1: for boilers with a rated steam capacity of less than or equal to 4t/h and a rated steam pressure of less than or equal to 1.0Mpa, the conductivity and dissolved solids specifications can be shown in table 2.

Note 2: For the boiler with rated steam pressure less than or equal to 2.5mpa, the supplement water is desalinated, and the feed water conductivity is less than 10μS/cm, the lower limit of pH (25℃) can be controlled not less than 9.0 and the sulfate group is not less than 5 mg/L

A The oxygen content of the boiler feed water for the steam turbine should be less than or equal to 0.050mg/L.
B for boilers with low steam quality requirements and no superheater, the upper limit of total alkalinity of pot water can be appropriately relaxed, but the pH value of pot water should not exceed the upper limit after relaxation.

X、Normal economic operation management of chain grate

Attention: often observe whether the grate operation is normal, such as deviation, fracture should be adjusted and replaced in time!

(1) Should check the mechanical transmission of the chain grate and the sound of the gear box is normal, whether the parts are clean, whether the oil pipe is blocked, all oiler and oil cup should be filled with enough lubricating oil, and should be refueled regularly, check whether the operation of the cooling equipment is normal.
(2) Check whether the lifting of the coal gate and the transmission of the air regulating door of the air chamber are stuck or abnormal.
(3) check whether the grate is broken, falling off the grate and other debris.
(4) check whether the safety clutch (or safety shaft) spring of the speed regulating machine is screwed too tight or too loose, so it can not be safe.
(5) check whether there is fuel in the coal scuttle of the boiler, and avoid the grate exposure and the occurrence of deignition and other phenomena during operation.
(6) The thickness of the fuel layer is generally between 80-120mm. According to the fuel quality and combustion condition, the thickness of the fuel layer can be adjusted by lifting the coal gate. When the load changes, it is appropriate to adjust the grate speed to adapt to the load.
(7) The combustion of fuel should generally start at about 200 ~ 300mm from the sluice gate. Under no circumstances is burning allowed under the sluice gate.
(8) The amount of air required for the combustion of each air chamber should be controlled by the switch air damper according to the combustion of the fuel.
(9) The ash and fuel debris in the tribal ash hopper before the grate should be regularly removed. The ash removal door at the lower left side of the boiler should be opened twice in each shift to remove the ash in the air chamber and ensure that the air chamber is not blocked.
(10) When the grate is stuck in operation, it should immediately shut down the speed regulating electromechanical machine and stop running.
Causes of grate sticking:
1, the front and rear axle is not parallel, the grate runs off.
2, grate breaking or the pin loose loose, stuck grate.
3, the fuel has metal debris or slag stuck grate.
4, grate on both sides of the anti-coke box plate deformation, and stuck grate.
5, grate chain is too loose or bad bite with the main shaft sprocket.
6. The spring clearance of the safety clutch is not enough after the spring is pressed.

7, grate lower guide rail and upper friction plate damage deformation and stuck.
(11) Check whether the lubrication and temperature of each transmission part are normal. Generally, the temperature is not allowed to exceed 60-70℃.

XI、Matters needing attention of economizer and dust collector

(1) Should often check whether the insulation material of the economizer is in good condition. If there is any damage, repair it in time.
(2) It is strictly prohibited to have air leakage at the flange connection of the economizer, dust collector and smoke wind pipeline.
(3) Each shift should clean the ash at the bottom of the economizer and dust collector.
(4) protection when economizer starts: Because at the beginning of the start of the boiler, are often discontinuous feed water, and when the water stops, the water in the economizer is in not flow state, high temperature flue gas heat, can make the part water gasification, the generated steam attached to the wall or on a rally in the economizer, partial wall overtemperature caused damage, therefore in the process of boiler start-up or boiler without water, The water supply can be sent to the water tank through the backwater pipeline to prevent overheating and boiling, and then play the role of protecting the economizer.

XII、Stop the furnace

Boiler shutdown is generally divided into three cases:
1, encountered grate stuck or grate fracture, in order to quickly remove the fault, should be temporary fault stop furnace (also known as short time pressure fire).
2, inspection or repair, the boiler water should be completely stopped when released.
3. Emergency furnace shutdown in special circumstances.
Due to the different conditions of the above three types of furnace shutdown, the specific steps are described as follows:

a、Temporary furnace shutdown:

Temporary fault stop furnace, first close the blower, slightly open the induced draft fan, stop the grate operation, remove the fuel under the coal gate, prevent burning coal gate, quickly deal with the fault. If the fault can not be solved within 1-2 hours, it should be turned into a temporary shutdown of the furnace to continue to solve the fault. Attention should be paid to the water level change of the boiler.

b、Temporarily stop the furnace:

In addition to paying attention to safety and proper maintenance of equipment, keep the normal water level of the boiler when temporarily stopping the furnace.

Specific steps: before stopping the furnace, according to the heating situation, can stop the fuel supply 20-30 minutes in advance, grate speed to the slowest, open the ignition door, so that the fuel on the grate left the coal gate 200-300mm, stop the grate rotation, the coal gate down, to prevent a large number of cold air into. Let the fuel burn out and finally stop the blower.

c、Complete furnace shutdown:

Complete shutdown is planned, the general operation 1-3 months should stop the furnace once, stop the furnace pay attention to safety and maintenance equipment, according to the steps of temporary shutdown.

d、Emergency furnace shutdown:

Warning: once the boiler water shortage accident, do not feed water to the boiler, otherwise, it will lead to the boiler explosion!

When one of the following situations occurs in the operation of the boiler, the boiler should be stopped immediately and the relevant departments should be notified.

1. The boiler water level is lower than the lowest visible edge of the water level gauge;
2. Continuously increasing water supply and other measures, but the water level continues to drop;
3, the boiler water level exceeds the highest visible water level (full water), the water level can not be seen after water discharge;
4, feed water pump all failure or feed water system failure, can not feed water to the boiler;
5, water level gauge or safety valve all failure;
6, set in the steam space pressure gauge all failure;
7. Boiler components are damaged and endanger operation personnel;
8. Damage of combustion equipment, collapse of furnace wall or red burning of boiler hook rack are serious threats to the safe operation of boiler;
9. Other abnormal conditions endanger the safety of the boiler

e、Steps of emergency furnace shutdown:

1. Stop blowing and then stop blowing.
2. Reduce the furnace gate to the lowest point, quickly eradicate the fuel in the coal scuttle, and open the ignition door to remove the fuel accumulated on the upper part of the grate.
3, with the fastest speed to make the grate rotation, unburned fuel in the furnace through the slag eliminator all removed, and finally stop the grate rotation.
4, because of water shortage accident and emergency stop the furnace, is strictly prohibited to the boiler water supply, and shall not raise the safety valve exhaust steam, to prevent the boiler by sudden temperature or pressure change and expand the accident. If there is no water shortage phenomenon, can take alternating water and sewage depressurization measures.

XIII、Maintenance and maintenance

If the alarm or interlock protection device is damaged, it should be repaired in time, and the boiler can run after repair.

(1) It is not allowed to smoke positive pressure combustion in the furnace to prevent burning coal gate, fire door, fire door, etc.

(2) If the front arch is found to be broken and fallen off, the furnace should be stopped for repair within 24 hours.

(3) Each shift should check the lubricating oil in the front and rear shaft oil cups, fans and reducer bearing seats of the chain grate, and the oil should be refueled in time in case of oil shortage.

(4) Each fan has violent vibration, should be stopped for inspection, generally caused by internal impeller wear, should be replaced.

(5) It should check whether the slag machine is stuck, and not allow too much slag in the slag bucket.

(6) The bottom of the boiler on the ground can not be water, to prevent moisture corrosion base.

(7) The new furnace should be checked once after 2-3 weeks of operation, and the boiler should be stopped for inspection once in 2-3 months of operation.

Check content:

1. Remove the dust from the upper part of the rear arch and the flue on both wings, and the dirt on the surface of the pipe on the heating surface.

2. Open the smoke box to remove the soot in the smoke pipe, and look at the wear of the smoke pipe. Whether the insulation layer of the smoke box falls off, if any damage should be repaired in time.

3, before and after the arch crack or fall off.

4, grate idling, check whether the grate is broken, side guard plate is burned out, deformation.

5. Open the manhole and hand hole, remove the sediment such as scale in the drum and box, and check the inside of the pipe on the water cooling wall of the heating surface of the furnace. If the scale thickness is more than 2mm, it should be manually removed or chemically cleaned.

6. The driving part of the auxiliary machine is cleaned and refueled.

(8) long-term maintenance method of boiler: there are two dry method and wet method, dry maintenance method should be used for more than a month, wet maintenance method can be used for less than a month:

1. Dry maintenance method:

After the boiler is stopped, put cold water, and clean the internal dirt thoroughly. With micro fire in the chamber of a stove or furnace drying (note that do not use fire, and then 10 to 30 mm of massive quicklime (CaO) place the plate installed inside the drum, not make contact with the metal calcium lime, lime, the weight of the drum volume 8 kilograms per cubic meter of the calculation, and then put all the manhole, hand hole, pipe valve closed, checked every three months at a time. If the quicklime is broken into powder, it must be replaced

immediately. Remove quicklime and tray when boiler is in operation again.
2, wet maintenance method:
After the boiler is stopped, the water is put out of the oven, the internal dirt is completely removed, washed clean, and the treated water is re-injected to the full, the pot water is heated to 100℃ so that the gas in the water is discharged out of the oven, and then all the valves are closed. Wet maintenance is not easy to be used in cold climates, in order to avoid damage to the boiler by freezing water.

XIV、The use of new DZL series boiler characteristics

New DZL series boiler because of the use of a series of new scientific research results, a new breakthrough in technology, in order to ensure the correct implementation of these characteristics, in the use of the boiler is also different from the general, the following aspects hope users to pay attention to the use.
(1) Because the boiler has the characteristics of high furnace heat load, temperature rise and fast pressure boost, so the water quality requirements are also stricter. In general, the use of untreated water or unqualified water into the boiler is strictly prohibited, and the content of suspended solids and sediments in the water is strictly controlled.
(2) the water wall tube in the furnace should be regularly checked, such as surface over-burning, deformation or internal scaling, should be replaced or removed immediately, and timely adjust the heat load of the boiler, to prevent the occurrence of blockage, tube explosion accident.
(3) This series of boilers adopts threaded smoke pipe and energy saving furnace arch, so there are requirements on the fan, especially the pressure head and flow rate of induced draft fan. In the flue design, the flue length should be shortened as far as possible, the elbow should be reduced, and the cross-sectional area of the circulation should be increased. If it cannot be avoided, the smoke wind resistance should be calculated, and the pressure head and flow rate of the fan should be checked.
(4) The design of the boiler requires that the boiler itself has a certain dust removal performance. Therefore, the upper part of the boiler back arch, the furnace exit window, the front smoke box two wings of the flue entrance are all ash, often to these parts of the ash.
(5) The boiler steam space is limited in height. In order to ensure the quality of steam, boiler feed water as far as possible to use continuous feed water.

XV、Explanation

a、Query problems

1. If the customer needs to inquire the technical information about the boiler from the manufacturer, the contract number and general drawing number shall be explained.

2, for the boiler manufacturing quality query, should indicate the boiler number (on the boiler nameplate).

b、 Boiler transfer problem

If the boiler is transferred, all technical documents must be transferred at the same time.