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全预混水冷燃烧系列/产品手册

WATER-COOLED FULLY PREMIXED COMBUSTION SERIES/PRODUCT MANUAL

FIRSTD BOILER

- **水冷丰能管蒸汽锅炉**
  Water-Cooled High-Efficiency Tube Steam Boilers
- **水冷全预混真空锅炉**
  Water-Cooled Fully Premixed Vacuum Boilers
- **水冷全预混热水锅炉**
  Water-Cooled Fully Premixed Hot Water Boilers
- **水冷全预混低氮蒸汽发生器**
  Water-Cooled Fully Premixed Low-Nitrogen Steam Generators

行业内研发和生产全系列水冷全预混锅炉的生产商 >>>

A MANUFACTURER IN THE INDUSTRY THAT DEVELOPS AND PRODUCES A FULL RANGE OF WATER-COOLED FULLY PREMIXED BOILERS

关于福士德 ABOUT FIRSTD >>>

福士德锅炉有限公司是一家专业研发、制造节能环保锅炉的高新技术企业，作为绿智低碳能源集成运营服务商的福士德锅炉拥有标准的现代化生产基地，先进的自动化锅炉生产设备；公司注册资金1.02亿元，现为国家A级锅炉、压力容器制造单位，拥有国家A级安装改造维修资质和GC2工业管道安装资质，通过了ISO9001质量管理体系、ISO14001环境管理体系、ISO45001职业健康安全管理体系认证，入围《国家工业节能技术装备推荐目录》及《“能效之星”产品目录》，拥有专业的技术及精湛的工艺。

福士德锅炉有限公司主要生产燃（油）气SZS系列水管蒸汽锅炉、水管热水锅炉；烟气深度冷凝系统（深冷器）；内核三段式垃圾焚烧炉；WNS系列冷凝蒸汽、热水、真空锅炉；F系列卡能管低氮真空、热水锅炉；S系列水冷蒸汽、热水、真空锅炉、蒸汽发生器；D系列全预混低氮铸铝、全预混不锈钢冷凝锅炉、全预混商用热水机组及电加热系列蒸汽、蒸汽发生器、热水、真空、开水锅炉、高压电极锅炉；FSD全预混燃烧器和FSD双贫氧燃烧器等产品，产品热效率高、烟温低、配置高，主要辅机、配件均为原装进口或合资品牌，福士德锅炉的PLC控制系统可为客户实现集中和远程监测。福士德锅炉的远程监测系统，可以为客户实时提供增值服务，通过画面组态将锅炉的运行数据以生动形象的方式展现给客户。

福士德锅炉有限公司研发中心通过反复测试、实验，设计合理的炉膛结构和尺寸，匹配全进口和自主品牌低氮燃烧器，使用全预混、FGR烟气再循环、FIR双贫氧内循环燃烧技术，加上自主研发的PLC控制系统，使锅炉运行更加节能环保、安全可靠。通过测试数据显示，锅炉的NOx排放浓度可降至30mg/m³以下。

福士德锅炉有限公司已在国内各省市地区形成了拥有300多家合作经销商的销售网络，在全国各地区设置了百余个24小时全天候售后网点，本公司产品有中国平安财险股份有限公司予以担保，有效解除客户的后顾之忧。

福士德锅炉有限公司将继续以造福世界、以士为本、厚德载物为公司理念，为客户创造价值，提供更优质的技术、产品和服务。

Firstd Boiler Co., Ltd. is a high-tech enterprise specializing in the R&D and manufacturing of energy-saving and environmentally friendly boilers. As a green, intelligent and low-carbon energy integration and operation service provider, Firstd Boiler is equipped with a standardized modern production base and advanced automated boiler production equipment. With a registered capital of 102 million yuan, the company is a national Grade A boiler and pressure vessel manufacturer, possessing national Grade A installation, renovation, and maintenance qualifications as well as GC2 industrial pipeline installation qualifications. It has been certified for ISO 9001 Quality Management System, ISO 14001 Environmental Management System, and ISO 45001 Occupational Health And Safety Management System. The company has been included in the National Industrial Energy-Saving Technology and Equipment Recommendation Catalogue and the "Energy Efficiency Star" Product Catalogue, demonstrating its professional technology and exquisite craftsmanship.

Firstd Boiler Co., Ltd. mainly manufactures the following products: fuel gas SZS series water pipe steam boilers, water pipe hot water boilers, flue gas deep condensation systems (deep coolers), three-stage core waste incinerators, WNS series condensing steam, hot water and vacuum boilers, F series high-efficiency tube low-nitrogen vacuum and hot water boilers, S series water-cooled steam, hot water and vacuum boilers, as well as steam generators, D series fully premixed low-nitrogen cast aluminum boilers, fully premixed stainless steel condensing boilers, fully premixed commercial hot water units, electric heating series steam boilers, steam generators, hot water boilers, vacuum boilers, water boilers and high-voltage electrode boilers, and FSD fully premixed burners and FSD double lean-oxygen burners.. These products feature high thermal efficiency, low flue gas temperature and high configuration. All key auxiliary machines and accessories are originally imported or from joint-venture brands. Firstd Boiler's PLC control system enables centralized and remote monitoring for customers. Firstd Boiler's remote monitoring system provides real-time value-added services for customers, and vividly displays boiler operation data to customers through screen configuration.

The R&D center of Firstd Boiler Co., Ltd. has designed a reasonable furnace structure and dimensions through repeated testing and experimentation. It is equipped with fully imported and self-owned brand low-nitrogen burners, and adopts fully premixed technology, FGR (flue gas recirculation), and FIR (Flue gas Internal Recirculation) dual lean oxygen internal circulation combustion technology. Combined with the self-developed PLC control system, it ensures that the boiler operates with higher energy efficiency, better environmental performance, and enhanced safety and reliability. Test data shows that the NOx emission concentration of the boiler can be reduced to below 30 mg/m³.

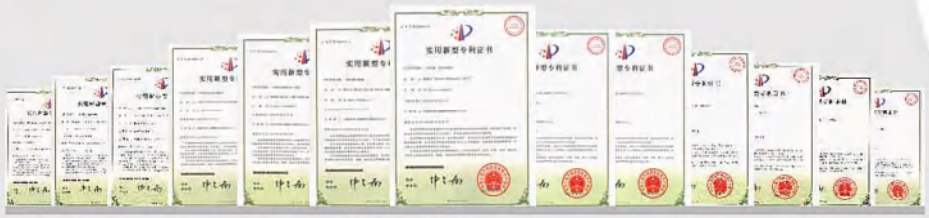
Firstd Boiler Co., Ltd. has established a sales network with over 300 cooperative dealers across various provinces and cities in China. Additionally, we have set up more than 100 24/7 after-sales service outlets throughout the country. Our products are guaranteed by Ping An Property and Casualty Insurance Company of China, Ltd., effectively eliminating any concerns customers may have.

Firstd Boiler Co., Ltd. will continue to uphold the corporate philosophy of Benefiting the World, People-oriented and Great Virtue Upholds All, creating value for customers, and providing superior technology, products, and services.

专业制造20年 打造冷凝、节能、低氮、环保锅炉

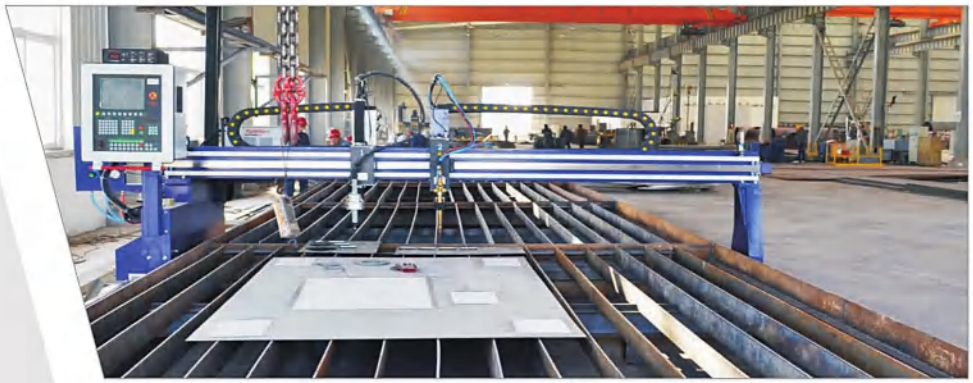
With 20 years of professional manufacturing experience,
we craft condensing, energy-saving, low-nitrogen, and environmentally friendly boilers.

资质/装备 >>>
EXCELLENT EQUIPMENT



现代化标准厂房+自动化锅炉生产设备+专业的技术及精湛的工艺
自科技为先，精益求精，为您打造专业的产品。

It boasts modern standard factory buildings and automated boiler production equipment.
With professional technology and exquisite craftsmanship, we prioritize science and technology, strive for excellence, and create professional products for you.



△数控等离子切割机 CNC Plasma Cutting Machine

△数控四辊卷板机CNC Four-Roller Plate Bending Machine

△埋弧自动焊 Automatic Submerged Arc Welding

△机器人焊接 Robot Welding

△激光焊接设备 Laser Welding Equipment

△自动管板焊 Automatic Tube-To-Sheet Welding

△膜式壁生产线 Membrane Wall Production Line

△热工测试平台 Thermal Engineering Testing Platform

科技智领未来

感受科技 + 铸就冷凝 · 节能 · 低氮 · 环保锅炉

实现「低碳」排放 共创美丽中国

TECHNOLOGY LEADS THE FUTURE WITH INTELLIGENCE

Technology and craft a condensing, energy-saving, low-nitrogen, and environmentally friendly boiler
Achieve low-carbon emissions and jointly create a beautiful China

Reasonable design

Safe and reliable

Energy conservation and consumption reduction

Technological innovation

Standard production

Easy to operate

S系列水冷丰能管蒸汽锅炉锅炉
S-Series Water-Cooled High-Efficiency Tube Steam Boilers

S系列水冷全预混真空锅炉
S-Series Water-Cooled Fully Premixed Vacuum Boilers

S系列水冷全预混热水锅炉
S-Series Water-Cooled Fully Premixed Hot Water Boilers

S系列水冷全预混低氮蒸汽发生器
S-Series Water-Cooled Fully Premixed Low-Nitrogen Steam Generators

S系列 S SERIES

水冷丰能管蒸汽锅炉
WATER-COOLED HIGH-EFFICIENCY TUBE STEAM BOILERS

WNS(2-10)-1.25/1.6-Q

FIRSTD BOILER

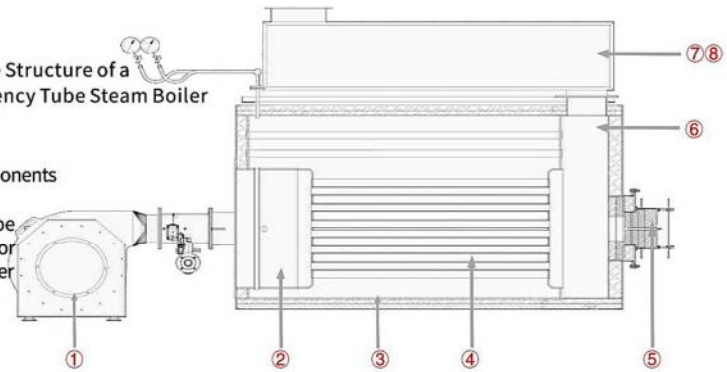
水冷丰能管蒸汽锅炉的优势
Advantages of Water-Cooled High-Efficiency Tube Steam Boilers:

- 1、锅炉水容积大大缩小，锅炉启动更为快速，为用户节约大量燃料;
- 2、创新性的采用了全预混、超低氮、高效水冷燃烧技术，超低排放，在全负荷段始终保持NOx≤30mg/m³;
- 3、采用专利技术(CN202021015816)丰能管传热技术，大幅提升了锅炉的传热效率;
- 4、采用烟气余热梯级利用，余热深度冷凝回收技术，提升锅炉运行效率;
- 5、多重安全保护系统。

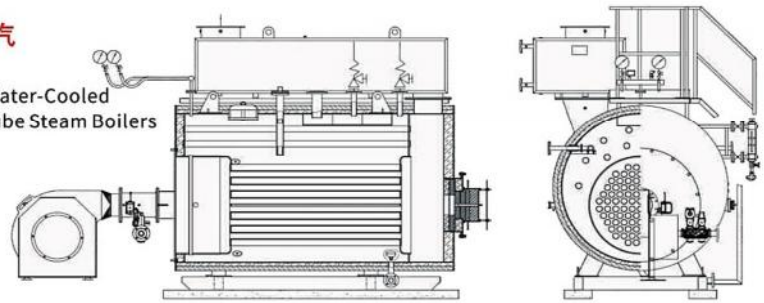
1. The boiler water volume is greatly reduced, enabling faster boiler startup and saving users a significant amount of fuel;
2. It innovatively adopts fully premixed, ultra-low nitrogen, and high-efficiency water-cooled combustion technology, featuring ultra-low emissions and maintaining NOx ≤ 30mg/m³ throughout the full load range;
3. It adopts patented technology (CN202021015816) — High-Efficiency Tube heat transfer technology, which has significantly improved the heat transfer efficiency of the boiler;
4. It adopts flue gas waste heat cascade utilization and waste heat deep condensation recovery technology to improve the boiler's operating efficiency;
5. Multiple safety protection systems.

水冷丰能管蒸汽锅炉结构示意图
Schematic Diagram of the Structure of a Water-Cooled High-Efficiency Tube Steam Boiler

① 燃烧器 Burner
② 炉胆组件 Boiler liner components
③ 锅壳 Boiler shell
④ 丰能管 High-efficiency tube
⑤ 防爆门 Explosion-proof door
⑥ 后烟室 Rear smoke chamber
⑦ 节能器 Economizer
⑧ 冷凝 Condenser



水冷丰能管蒸汽锅炉线条图
Line Diagram of Water-Cooled High-Efficiency Tube Steam Boilers



FIRSTD BOILER

水冷丰能管蒸汽锅炉安全保护功能

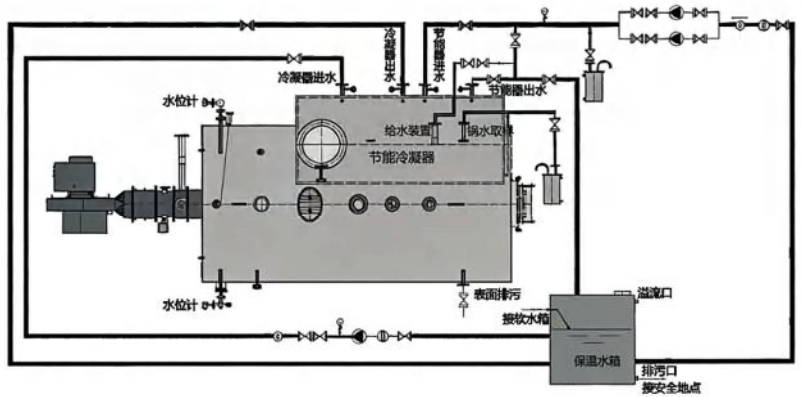
Safety Protection Functions of Water-Cooled High-Efficiency Tube Steam Boilers

- 1、本锅炉具有高、低水位报警和低水位连锁保护、超压报警和联锁保护功能。
- 2、本锅炉配套燃烧器采用全自动程序控制，自动化程度高，可使锅炉达到最佳的燃烧效果。
- 3、具有联锁保护装置：（1）点火前通风持续时间不低于28秒，当送风机断电时，能够自动切断燃料供应；（2）当燃气压力低于规定值时，最低燃气压力开关指示程序控制锁定燃烧器；（3）当点火失败或火焰突然熄灭时，通过空气压力开关切断燃料供应并锁定燃烧器，确保安全运行。
- 4、采用智能型电容液位计主要用于锅炉水位的全工况、高精度、连续液位检测，无论在锅炉起、停、运行等各种工况，实时输出真实液位值，无迟滞。
- 5、极低水位保护系统:直接在锅壳上设置极低水位检测装置，可有效防止水位报警器阀门误关，汽水连接管堵塞和假水位导致的故障现象，极大的提升了锅炉的水位检测安全。
- 6、采用工业级PLC控制系统，人性化动态运行画面，方便操作。

1. This boiler is equipped with high and low water level alarms, low water level interlock protection, overpressure alarms, and interlock protection functions.
2. The supporting burner of this boiler adopts fully automatic program control, featuring a high degree of automation and enabling the boiler to achieve the optimal combustion effect.
3. It is equipped with an interlock protection device: (1) The ventilation duration before ignition shall not be less than 28 seconds, and the fuel supply shall be automatically cut off when the supply fan is powered off; (2) When the gas pressure is lower than the specified value, the minimum gas pressure switch signals the program to lock the burner; (3) When ignition fails or the flame suddenly goes out, the air pressure switch cuts off the fuel supply and locks the burner to ensure safe operation.
4. The intelligent capacitive liquid level gauge is mainly used for full-condition, high-precision, and continuous liquid level detection of the boiler water level. It can output real-time and true liquid level values without delay under various working conditions such as boiler startup, shutdown, and operation.
5. Extremely Low Water Level Protection System: By directly installing an extremely low water level detection device on the boiler shell, it can effectively prevent the mis-closing of the water level alarm valve, the blockage of the steam-water connection pipe, and faults caused by false water levels, greatly improving the safety of boiler water level detection.
6. It adopts an industrial-grade PLC control system with a humanized dynamic operation screen, facilitating easy operation.

水冷丰能管蒸汽锅炉系统图

System Diagram of Water-Cooled High-Efficiency Tube Steam Boilers:



水冷丰能管蒸汽锅炉技术参数

Technical Parameters of Water-Cooled High-Efficiency Tube Steam Boilers

项目 /型号 Item/Model		WNS2-1.25/1.6-Q	WNS4-1.25/1.6-Q	WNS6-1.25/1.6-Q	WNS8-1.25/1.6-Q	WNS10-1.25/1.6-Q
额定蒸发量Rated evaporation capacity（t/h）		2	4	6	8	10
额定蒸汽压力Rated steam pressure（Mpa）		1.25/ 1.6	1.25/1.6	1.25/1.6	1.25/1.6	1.25/ 1.6
过热蒸汽温度Superheated steam temperature（℃）		193.3/ 204	193.3/204	193.3/204	193.3/204	193.3/204
热效率thermal efficiency (%)		> 98				
有效水容积Effective water volume(m^3)		2	3.9	4.8	5.9	7.9
柴油耗量diesel consumption（Kg/h）		/	/	/	/	/
天然气耗量natural gas consumption（Nm^3/h）		143.3	286.6	429.9	573.2	716.5
电源power supply（V/ Hz）		380/50				
主蒸汽口Main steam outlet (mm)		DN80	DN100	DN125	DN150	DN150
副蒸汽出口Auxiliary steam outlet（mm）		/	/	/	/	DN40
进水口water inlet(mm)		DN25	DN40	DN50	DN50	DN50
安全阀出口Safety valve outlet (mm)		DN50	DN50	DN65	DN65	DN80
安全阀数量Number of safety valves		1	2	2	2	2
排污口Discharge outlet (mm)		DN50	DN50	DN50	DN50	DN50
烟囱Chimney(mm)（φ）		325	426	500	600	700
运输尺寸 Shipping dimensions (mm)	长L	3210	3750	4640	6800	7100
	宽W	1925	2100	2425	2650	2850
	高H	2120	2330	2720	3710	3940

备注：1、燃料发热量按以下标准计算：柴油热值42900KJ/kg（即10248kcal/kg），天然气热值36000KJ/Nm^3(即8600kcal/Nm^3)，城市煤气16000KJ/Nm^3（即3800kcal/Nm^3）。
2、如气源为煤气，定货时请提供煤气热值，供气压力范围，海拔高度。
3、燃料耗量均为锅炉满负荷时耗量，根据工况不同，实际耗量将不同。
4、保留在不事先通知的情况下重新定义或更改产品信息的权利（包括外形、技术、内部结构）具体以提供图纸为准。

Note: 1. The calorific value of fuel is calculated according to the following standards: diesel has a calorific value of 42,900 KJ/kg (equivalent to 10,248 kcal/kg), natural gas has a calorific value of 36,000 KJ/Nm^3 (equivalent to 8,600 kcal/Nm^3), and city gas has a calorific value of 16,000 KJ/Nm^3 (equivalent to 3,800 kcal/Nm^3).
2. If the gas source is coal gas, please provide the calorific value of the coal gas, the range of gas supply pressure, and the altitude when placing the order.
3. The fuel consumption is the consumption at full load of the boiler, and the actual consumption may vary depending on different operating conditions.
4. We reserve the right to redefine or modify product information (including appearance, technology, and internal structure) without prior notice. Please refer to the provided drawings for specific details.

S系列 S SERIES

水冷全预混真空锅炉
WATER-COOLED FULLY PREMIXED VACUUM BOILERS

SZWRS-(350-14000)-Q

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水冷全预混真空锅炉的优势
Advantages of Water-Cooled Fully Premixed Vacuum Boilers:

锅炉配置水冷预混燃烧器，采用不锈钢火排、管内水冷的燃烧方式，火焰温度低，炉内温度场更趋均匀，有效避免了局部高温，抑制热力型NOx产生，当氧含量3.5%时NOx排放小于30mg。循环水强制冷却火排，杜绝高温回火；精确计算火孔尺寸及加工工艺，排列均匀、不回火、不堵塞。无需空气过滤系统，长久保持燃烧系统的稳定运行;内置不锈钢管换热器，表面洁净，污垢、锈蚀的影响较小，传热系数大，换热效率高;采用水冷型炉墙结构，散热损失小，效率更高。

The boiler is equipped with a water-cooled premixed burner, which adopts a combustion method of stainless-steel fire rows and water cooling inside the tubes. The flame temperature is low, and the temperature field inside the furnace is more uniform, effectively avoiding local high temperatures and suppressing the generation of thermal NO_x. When the oxygen content is 3.5%, the NOx emission is less than 30mg/m³. The fire rows are force-cooled by circulating water to prevent high-temperature backfire. The size and processing technology of the fire holes are accurately calculated, ensuring uniform arrangement, no backfire, and no blockage. No air filtration system is required, maintaining stable operation of the combustion system for a long time. It has a built-in stainless steel tube heat exchanger with a clean surface, minimal impact from dirt and rust, high heat transfer coefficient, and high heat exchange efficiency; A water-cooled furnace wall structure is adopted, resulting in low heat dissipation loss and higher efficiency.

水冷全预混真空锅炉的特点
Characteristics of Water-Cooled Fully Premixed Vacuum Boilers

A/安全、可靠 B/一机多能 C/体积小 D/寿命长 E/节能 F/环保 G/智能联控

A: Safe and reliable B: One machine with multiple functions C: Small size D: Long service life E: Energy-saving F: Environmental protection G: Intelligent joint control

A
真空机组始终在负压状态下运行，绝无爆炸的危险。
The vacuum unit always operates under negative pressure, with no risk of explosion at all.

B
一台锅炉上同时安装多个独立的换热器，可同时满足空调采暖、卫生热水的需要。
Multiple independent heat exchangers can be installed on one boiler simultaneously to meet the needs of air conditioning heating and domestic hot water.

C
结构紧凑，本体采用椭圆型筒体，大大减少了锅炉的宽度，使锅炉的占地面积大为减少。
It features a compact structure, and its body adopts an elliptical cylinder, which greatly reduces the width of the boiler and significantly minimizes its footprint.

D
体内的真空无氧环境消除了炉体内氧腐蚀，从而延长了机组的使用寿命。
The vacuum and anaerobic environment inside the unit eliminates oxygen corrosion in the furnace body, thereby extending the service life of the unit.

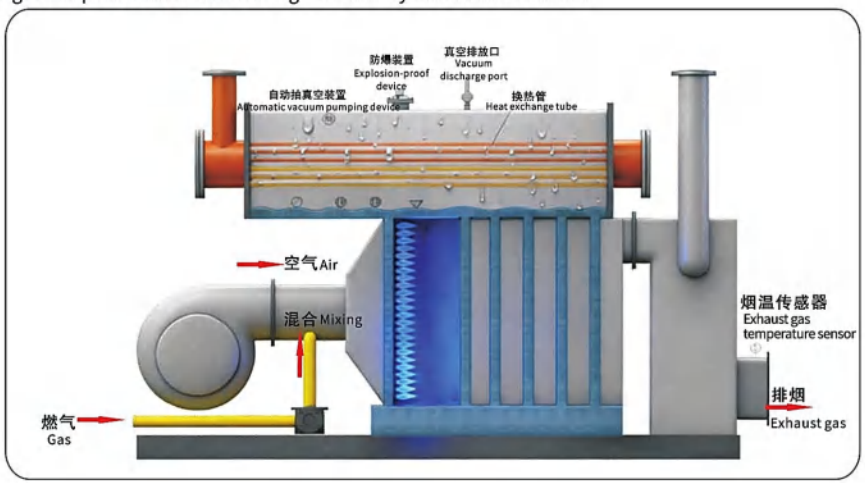
E
采用水管式布置，换热更充分，排烟温度可控制在回水温度+5~10C以内，燃烧效率达到极致。
It adopts a water-tube layout, enabling more sufficient heat exchange. The exhaust gas temperature can be controlled within 5~10℃ above the return water temperature, achieving the ultimate combustion efficiency.

F
排烟完全符合国家一类地区的要求，林格曼等级为零。
The flue gas emission fully meets the requirements of Class I regions in the country, with a Ringelmann scale of zero.

G
自主设计开发的PLC全自动智能控制系统触摸屏操作，更加简便直观。
The independently designed and developed PLC fully automatic intelligent control system adopts touch screen operation, which is more convenient and intuitive.

热效率更高
NOx排放浓度可降至30毫克
The NOx emission concentration can be reduced to 30 milligrams with higher thermal efficiency.

水冷全预混真空锅炉工作原理
Working Principle of Water-Cooled High-Efficiency Tube Steam Boilers



水冷全预混真空锅炉智能互联：
Intelligent Interconnection of Water-Cooled High-Efficiency Tube Steam Boilers:

公司拥有完全知识产权自主设计开发的PLC全自动智能控制系统，采用机电一体化控制设备和可编程逻辑控制器(PLC)联合控制方式。以先进的可编程逻辑控制器(PLC)为控制系统的“中央处理器”。控制系统通过触摸屏进行操作，使锅炉自动化控制程度和运行可靠程度大大提高，操作更加简便直观。

Firstd Company possesses a fully automatic intelligent PLC control system independently designed and developed with complete intellectual property rights. It adopts a joint control mode combining electromechanical integration control equipment and programmable logic controller (PLC). The advanced programmable logic controller (PLC) serves as the "central processing unit" of the control system. The control system is operated via a touch screen, which greatly improves the automation control level and operational reliability of the boiler, and makes the operation more convenient and intuitive.

彩色触摸屏 Color touch screen

中央处理单元 CPU Central Processing Unit (CPU)

水冷全预混真空锅炉技术参数
Technical Parameters of Water-Cooled Fully Premixed Vacuum Boilers

项目/型号 Item/Model		SZWRS -350	SZWRS -700	SZWRS -1050	SZWRS -1400	SZWRS -1750	SZWRS -2100	SZWRS -2800	SZWRS -3500	SZWRS -4200	SZWRS -5600	SZWRS -7000	SZWRS -10500	SZWRS -14000
额定供热量 Rated heat supply	10^4kcal/h	30	60	90	120	150	180	240	300	360	480	600	900	1200
	KW	350	700	1050	1400	1750	2100	2800	3500	4200	5600	7000	10500	14000
换热器工作压力 Heat exchanger operating pressure (MPa)		1.0/1.6/2.0												
电源 Power supply (V/Hz)		220/50		380/50										
天然气耗量 Natural gas consumption (Nm^3/h)		33.9	67.8	101.7	135.6	169.5	203.4	271.2	350	406.8	542.4	678	1035.4	1372.4
燃烧调节方式 Combustion regulation mode		数字电子比例调节. Digital electronic proportional regulation												
热效率 Thermal efficiency (%)		≥104												
烟囱外径 Chimney outer diameter φ(mm)		219	273	325	325	325	426	426	426	500	900	900	1000	1200
运输净重 Shipping net weight (T)		1.6	2.1	2.9	3.4	4	4.5	5.7	7.2	8.4	10.4	11.4	21.6	31.8
运行重量(约) Operating weight (approx.) T		1.8	2.5	3.4	4	4.7	5.3	6.8	8.5	10	12	13	30.1	45.6
A型换热器 Type-A heat exchanger		△t=10℃，进/出口温度50/60℃或45/55℃，适用于地暖、中央空调采暖循环。△t=10℃, inlet/outlet temperature 50/60°C or 45/55°C, suitable for floor heating and central air conditioning heating circulation.												
热水流量 Hot water flow (m^3/h)		30	60	90	120	150	180	240	300	360	480	600	900	1200
接管口径 Connection diameter DN(mm)		DN65	DN100	DN125	DN125	DN150	DN150	DN200	DN200	DN250	DN250	DN300	DN350	DN400
B型换热器 Type-B heat exchanger		△t=20℃，进/出口温度40/60℃，适用于卫生热水 △t=20°C, inlet/outlet temperature 40/60°C, suitable for sanitary hot water.												
热水流量 Hot water flow (m^3/h)		15	30	45	60	75	90	120	150	180	240	300	450	600
接管口径 Connection diameter DN(mm)		DN50	DN65	DN80	DN100	DN100	DN125	DN125	DN150	DN200	DN200	DN200	DN250	DN300
最大件外形尺寸 Overall dimensions of the largest part	长L	3020	3185	3445	3445	4500	4500	4920	5490	5490	6410	6750	7540	9000
	宽W	1100	1150	1330	1300	1530	1630	1780	1980	2130	2800	2800	3150	3500
	高H	1710	2025	2240	2490	2515	2515	2670	2930	3005	2705	2900	3450	4050

注：1、燃料发热量按以下标准计算:天然气热值36000KJ/Nm^3(即8600kcal/Nm^3)
2、燃料耗量均为锅炉满负荷时耗量，根据工况不同，实际耗量将不同。
3、保留在不事先通知的情况下重新定义或更改产品信息的权利包括外形、技术、内部结构)具体以提供图纸为准。

Note: 1. The calorific value of fuel is calculated according to the following standard: natural gas calorific value of 36000KJ/Nm^3 (i.e. 8600 kcal/Nm^3)
2. The fuel consumption is the consumption at full load of the boiler, and the actual consumption will vary depending on the operating conditions.
3. We reserve the right to redefine or modify product information, including appearance, technology, and internal structure, without prior notice is reserved. Please refer to the provided drawings for specific details.

S系列 S SERIES

WNS水冷全预混热水锅炉
WNS WATER-COOLED FULLY PREMIXED HOT WATER BOILERS

SCWNS-（350-4200）

FRSTD BOILER

水冷全预混热水锅炉的优势
Advantages of Water-Cooled Fully Premixed Hot Water Boilers:

锅炉配置水冷预混燃烧器，采用不锈钢火排、管内水冷的燃烧方式，火焰温度低，炉内温度场更趋均匀，有效避免了局部高温，抑制热力型NOx产生，当氧含量3.5%时NOx排放小于30mg。循环水强制冷却火排，杜绝高温回火;精确计算火孔尺寸及加工工艺，排列均匀、不回火、不堵塞。无需空气过滤系统，长久保持燃烧系统的稳定运行; 采用水冷型炉墙结构，散热损失小，效率更高。

The boiler is equipped with a water-cooled premixed burner, which adopts a combustion method of stainless-steel fire rows and water cooling inside the tubes. The flame temperature is low, and the temperature field inside the furnace is more uniform, effectively avoiding local high temperatures and suppressing the generation of thermal NOx. When the oxygen content is 3.5%, the NOx emission is less than 30mg/m³. The fire rows are force-cooled by circulating water to prevent high-temperature backfire. The size and processing technology of the fire holes are accurately calculated, ensuring uniform arrangement, no backfire, and no blockage. No air filtration system is required, maintaining stable operation of the combustion system for a long time. A water-cooled furnace wall structure is adopted, resulting in low heat dissipation loss and higher efficiency.

超低氮水冷燃烧技术
Ultra-Low Nitrogen Water-Cooled Combustion Technology:

锅炉配置水冷全预混低氮燃烧器，实现锅炉的高效、自动燃烧。采用低氮燃烧技术可满足严格的排放标准。

The boiler is equipped with water-cooled fully premixed low-nitrogen burners to achieve efficient and automatic combustion of the boiler. The adoption of low-nitrogen combustion technology can meet strict emission standards.

安全可靠 Safe and reliable:

先进完善的控制技术，性能稳定的元器件，确保锅炉运行安全可靠。智能故障自诊断系统，锅炉具备远程监控功能。

Advanced and comprehensive control technology and stable-performance components ensure the safe and reliable operation of the boiler. Equipped with an intelligent fault self-diagnosis system, the boiler has a remote monitoring function.

清洁环保
Clean and environmentally friendly:

广泛采用高效清洁燃烧技术。锅炉采用特殊的炉膛设计，降低燃烧强度，减少氮氧化物NOx等的生成，使NOx排放<30mg同时有利于高效燃烧。

Efficient and clean combustion technology is widely adopted. The boiler adopts a special furnace tank design to reduce combustion intensity, decrease the generation of nitrogen oxides such as NOx, reduce NOx emissions to less than 30mg/m³, and facilitate efficient combustion.

智能控制 Intelligent control:

福士德锅炉自主研发的燃控控制系统可为客户实现集中和远程监测，用户可以通过福士德网站网页查看自己锅炉的运行状态。

The combustion control system independently developed by Firstd Boiler can realize centralized and remote monitoring for customers. Users can view the operating status of their own boilers through the webpage of the Firstd official website.

FIRSTD BOILER

水冷全预混热水锅炉的优势

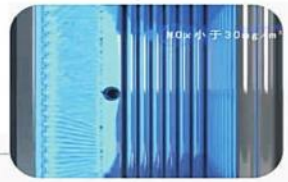
Advantages of Water-Cooled Fully Premixed Hot Water Boilers:

水冷预混燃烧技术

Water-cooled premixed combustion technology

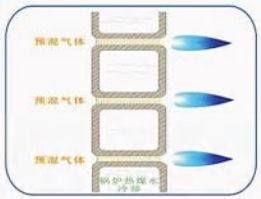
水冷预混燃烧器

Water-cooled premixed burner



采用20水管和高频焊翅片管相结合的结构型式，将炉体体积缩小至极致。

The structure combines 20 water pipes and high-frequency welded finned tubes to reduce the volume of the furnace to the extreme.



采用不锈钢火排、管内水冷的燃烧方式，火焰温度低，炉内温度场更趋均匀，有效避免了局部高温，抑制热力型NOX产生,当氧含量3.5%NOX排放小于30mg。循环水强制冷却火排，杜绝高温回火。

It adopts a combustion method of stainless-steel fire rows and water cooling inside the tubes. The flame temperature is low, and the temperature field inside the furnace is more uniform, effectively avoiding local high temperatures and suppressing the generation of thermal NOx. When the oxygen content is 3.5%, the NOx emission is less than 30mg/m³. The fire rows are force-cooled by circulating water to prevent high-temperature backfire.

水冷全预混热水锅炉智能互联

Intelligent Interconnection of Water-Cooled Fully Premixed Hot Water Boilers

公司拥有完全知识产权自主设计开发的PLC全自动智能控制系统，采用机电一体化控制设备和可编程逻辑控制器(PLC)联合控制方式。以先进的可编程逻辑控制器(PLC)为控制系统的“中央处理器”。控制系统通过触摸屏进行操作，使锅炉自动化控制程度和运行可靠程度大大提高，操作更加简便直观。

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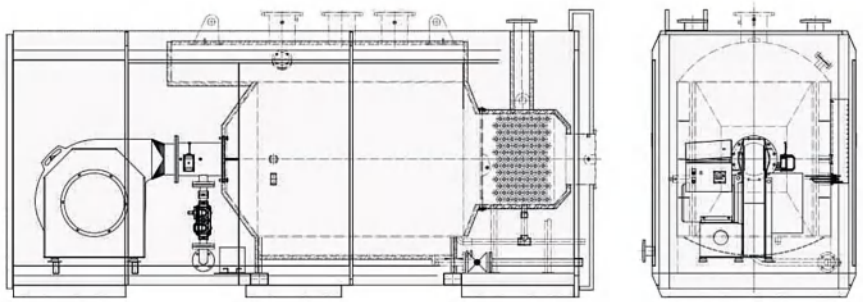
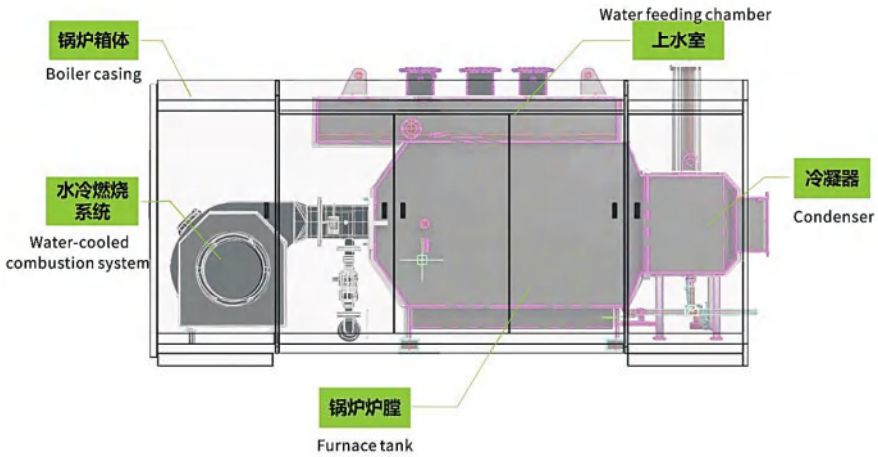
彩色触摸屏
Color touch screen

中央处理单元
CPU Central Processing Unit (CPU)

水冷全预混热水锅炉线条图
Line Drawing of Water-Cooled Fully Premixed Hot Water Boilers



水冷全预混热水锅炉产品结构示意图
Schematic Diagram of Product Structure for Water-Cooled Fully Premixed Hot Water Boilers



水冷全预混热水锅炉技术参数
Technical Parameters of Water-Cooled Fully Premixed Hot Water Boilers

项目/型号 Item/Model		SCWNS-350	SCWNS-700	SCWNS-1050	SCWNS-1400	SCWNS-1750	SCWNS-2100	SCWNS-2800	SCWNS-3500	SCWNS-4200
额定功率 Rated power (MW)		0.35	0.7	1.05	1.4	1.75	2.1	2.8	3.5	4.2
额定供回水温度 Rated supply and return water temperature (°C)		85 / 70	85 / 70	85 / 70	85 /70	85 / 70	85 / 70	85 / 70	85 / 70	85 / 70
水容积 Water volume (m^3)		0.32	0.5	0.67	0.78	0.85	0.87	1.1	1.62	1.94
循环水量 Circulating water volume (m^3/h)		20	40	60	80	100	120	160	200	240
取暖面积 Heating area (m^2)		3750	7500	11250	15000	18750	22500	30000	37500	45000
Δt=25℃热出水量 Δt=25℃ Hot water output (m^3/h)		12	24	36	48	60	72	96	120	144
热效率 Thermal efficiency (%)		未配置冷凝器94～96%，配置冷凝器99%以上. 94%-96% without condenser, over 99% with condenser								
天然气耗量 Natural gas consumption (Nm^3/h)		36.3	72.6	108.9	145.2	181.5	217.8	290.4	363	435.6
电源 Power supply (V/Hz)		220 /50		380 /50						
供回水口 Supply and return water inlet (mm)		DN65	DN80	DN100	DN125	DN125	DN150	DN200	DN200	DN200
通大气口 Atmospheric vent (mm)		DN65	DN80	DN100	DN125	DN125	DN150	DN200	DN200	DN200
排污口 Discharge outlet (mm)		DN50	DN50	DN50	DN50	DN50	DN50	DN50	DN50	DN50
烟囱 Chimney mm (φ)		219	273	325	325	325	426	426	426	500
外形尺寸 Overall dimensions (mm)	长L	3020	3185	3440	3440	4500	4500	4920	5490	5490
	宽W	1100	1150	1300	1300	1450	1550	1700	1900	2050
	高H	1650	1945	2145	2345	2395	2395	2445	2595	2595
重量Weight(t)		1.5	1.9	2.6	3	3.5	3.9	4.9	6	6.8

注：1、天然气按低位热值取8600kcal/Nm计算；
2、燃料耗量均为锅炉满负荷时耗量，根据工况不同，实际耗量将不同；
3、上述参数仅供参考，保留在不事先通知的情况下重新定义更改产品信息的权利(包括外形、技术、内部结构等)具体以提供图纸为准；

Note: 1. Natural gas is calculated based on its lower calorific value, i.e., 8600 kcal/Nm;
2. The fuel consumption is the consumption at full load of the boiler, and the actual consumption will vary depending on the operating conditions;
3. The above parameters are for reference only. We reserve the right to redefine and modify product information (including appearance, technology, internal structure, etc.) without prior notice. Please refer to the provided drawings for specific details;

S系列 S SERIES

水冷全预混低氮蒸汽发生器
WATER COOLED FULLY PREMIXED LOW-NITROGEN STEAM GENERATORS

SLSS(0.5-1)-1.0-Q

FRSTD BOILER

水冷全预混低氮蒸汽发生器
Water Cooled Fully Premixed Low-Nitrogen Steam Generators:

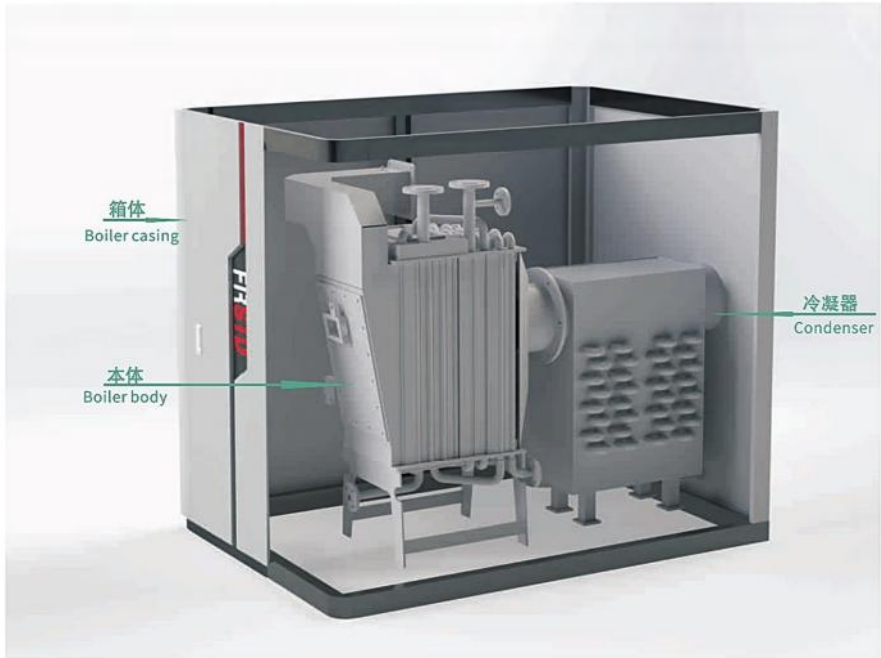
水冷式全预混低氮蒸汽发生器，采用先进的水冷式全预混燃气燃控系统，由匀气室、布风板、水冷炉排、点火组件等组合而成，火焰范围宽，稳定性高，循环水强制冷却，不会发生回火现象。

空气与天然气在燃烧前充分混合，增压后通过激光焊不锈钢翅片管排在炉膛内微正压燃烧，管排内的炉水吸收火焰热量从而降低火焰温度，抑制NO_x产生。温烟气在炉膛内进行辐射换热后通过对流受热面对流换热后进入冷凝器，吸收汽化潜热后，排入大气。本系列炉型采用计算机辅助设计，优化了各受热面，使炉体结构更加合理。采用硅酸铝多层保温，热损失少;喷塑工艺包装，外型美观。

The water-cooled fully premixed low-nitrogen steam generator adopts an advanced water-cooled fully premixed gas combustion control system, which is composed of an air distribution chamber, air distribution plate, water-cooled grate, ignition components, etc. It features a wide flame range and high stability, with forced circulating water cooling to prevent tempering.

Air and natural gas are fully mixed before combustion, pressurized, and then burned at micro-positive pressure in the furnace through laser-welded stainless-steel finned tube banks. The boiler water inside the tube banks absorbs the flame heat, thereby reducing the flame temperature and suppressing NOx generation. After radiative heat transfer in the furnace, the warm flue gas undergoes convective heat transfer through the convective heating surfaces before entering the condenser. After absorbing the latent heat of vaporization, it is discharged into the atmosphere. This series of furnaces adopts computer-aided design to optimize each heating surface, making the furnace structure more reasonable. Aluminum silicate multi-layer insulation is adopted, resulting in minimal heat loss; spray coating process is used for packaging, ensuring an attractive appearance.

水冷全预混低氮蒸汽发生器结构示意图
Schematic Diagram of The Structure of Water-Cooled Fully Premixed Low-Nitrogen Steam Generators



FIRSTD BOILER

水冷全预混低氮蒸汽发生器特点

Characteristics of Water-Cooled Fully Premixed Steam Generators:

- 1、炉体采用GB/T5310水管和一体式翅片管相结合的结构型式，将炉体体积缩小至极致。
- 2、免锅检、免操作证。
- 3、采用变频静音风机，无噪音。
- 4、结构紧凑，设备整装出厂，便于安装。
- 5、采用水冷型炉墙结构，散热损失小，效率更高。
- 6、高效节能，设有专门吸收烟气余热(显热和潜热)的冷凝式受热面，大大降低锅炉排烟温度。锅炉效率高达106%，为用户节约燃料费用。
- 7、人性化工业外观设计一外观设计美观紧凑，占地面积小，整体化设计，安装、维修、操作极其方便。
- 8、多台模块化并联使用，根据负荷变化启动不同台数，系统可节能10%;根据需求开启不同数量设备，合理轮换使用，更好的延长设备寿命。
- 9、检测、调节、联锁保护功能齐全。

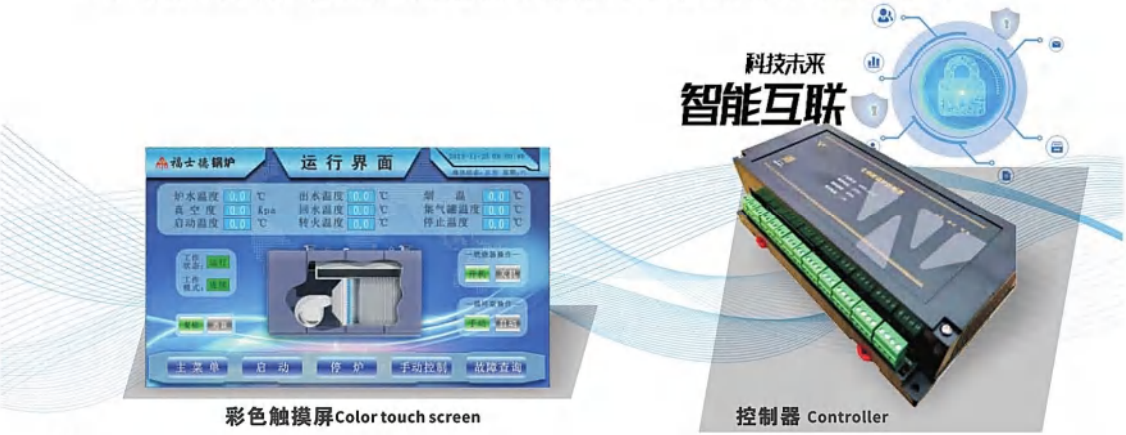
1. The boiler body adopts a structure combining GB/T5310 water pipes and integrated finned tubes, minimizing the volume of the furnace body to the maximum extent.
2. No boiler inspection or operation certificate is required.
3. A variable-frequency silent fan is adopted, with no noise.
4. It features a compact structure, and the equipment is delivered fully assembled for easy installation.
5. A water-cooled furnace wall structure is adopted, resulting in low heat dissipation loss and higher efficiency.
6. It is efficient and energy-saving, equipped with a condensing heating surface specifically designed to absorb waste heat (sensible heat and latent heat) from flue gas, greatly reducing the boiler exhaust temperature. The boiler efficiency is as high as 106%, saving fuel costs for users.
7. Humanized industrial appearance design: The appearance is beautiful and compact, with a small floor area and an integrated design, making installation, maintenance, and operation extremely convenient.
8. Multiple modular units can be used in parallel, with different numbers of units started according to load changes, enabling the system to save 10% energy; Different quantities of equipment can be activated according to demand, and reasonable rotation of use can better extend the equipment service life.
9. It is equipped with complete detection, adjustment, and interlocking protection functions.

水冷全预混低氮蒸汽发生器智能互联

Intelligent Interconnection of Water-Cooled Fully Premixed Low-Nitrogen Steam Generators:

福士德公司拥有完全知识产权自主设计开发的单片机全自动智能控制系统，采用机电一体化控制设备和可编程逻辑控制器联合控制方式。以先进的可编程逻辑控制器为控制系统的“中央处理器”。控制系统通过触摸屏进行操作，使锅炉自动化控制程度和运行可靠程度大大提高，操作更加简便直观。

Firstd Company has independently designed and developed a single-chip microcomputer fully automatic intelligent control system with complete independent intellectual property rights, which adopts a joint control method combining mechatronic control equipment and programmable logic controllers. It uses an advanced programmable logic controller as the "central processing unit" of the control system. The control system is operated through a touch screen, which greatly improves the automation control level and operational reliability of the boiler, and makes the operation more convenient and intuitive.

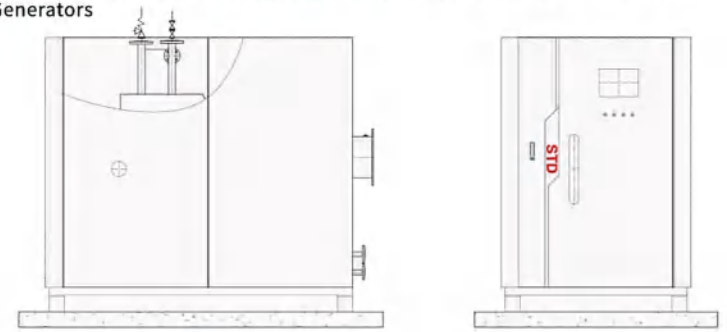


彩色触摸屏Color touch screen

控制器 Controller

水冷全预混低氮蒸汽发生器结构示意图

Schematic Diagram of The Structure of Water-Cooled Fully Premixed Low-Nitrogen Steam Generators



水冷全预混蒸汽发生器技术参数

Technical Parameters of Water-Cooled Fully Premixed Steam Generators

项目/型号 Item/Model		SLSS0.5- 1.0-Q	SLSS1- 1.0-Q
额定蒸发量 Rated evaporation capacity (t/h)		500	1000
额定蒸汽压力 Rated steam pressure (MPa)		1	1
额定蒸汽温度 Rated steam temperature (℃)		184	184
有效水容积 Effective water volume (m^3)		< 30	< 30
热效率 Thermal efficiency (%) 天然气 Natural gas (%)		> 98	> 98
排烟温度设计 Exhaust gas temperature design (℃)		90	90
天然气耗量 Natural gas consumption (Nm^3/h)		37.4	74.8
产出蒸汽时间 Steam production time (min)		3	3
进水口 Water inlet (mm)		DN25	DN25
蒸汽口 Steam outlet (mm)		DN40	DN40
安全阀口 Safety valve port (mm)		DN40	DN40
排污口 Discharge outlet (mm)		DN25	DN25
烟囱 Chimney mm (φ)		273	273
外形尺寸 Overall dimensions (mm)	长L	2160	2160
	宽W	1250	1250
	高H	1810	1810
重量 Weight(t)		1020	1020

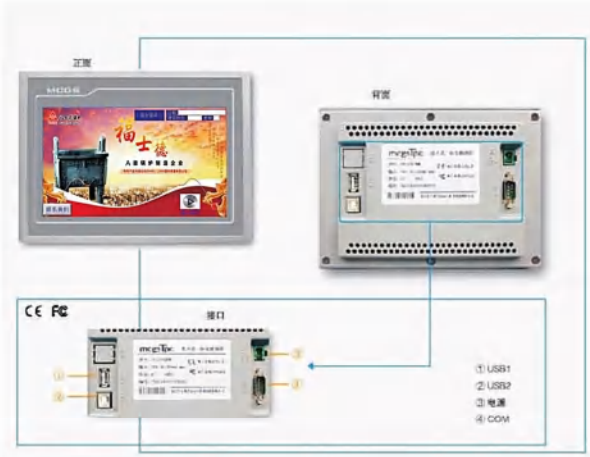
注: 1、燃料发热量按以下标准计算:天然气热值36000KJ/Nm^3(即8600kcal/Nm^3)
2、燃料耗量均为锅炉满负荷时耗量，根据工况不同，实际耗量将不同。
3、保留在不事先通知的情况下重新定义或更改产品信息的权利包括外形、技术、内部结构)具体以提供图纸为准。

Note: 1. The calorific value of fuel is calculated according to the following standard: natural gas calorific value of 36000KJ/Nm^3(i.e. 8600 kcal/Nm^3)
2. The fuel consumption is the consumption at full load of the boiler, and the actual consumption will vary depending on the operating conditions.
3. We reserve the right to redefine or modify product information, including appearance, technology, and internal structure, without prior notice is reserved. Please refer to the provided drawings for specific details.

全自动智能控制系统 >>>
FULLY AUTOMATIC INTELLIGENT CONTROLLERS

福士德公司拥有完全知识产权自主设计开发的PLC全自动智能控制系统，采用机电一体化控制设备和可编程逻辑控制器(PLC)联合控制方式。以先进的可编程逻辑控制器(PLC)为控制系统的“中央处理器”。控制系统通过触摸屏进行操作，使锅炉自动化控制程度和运行可靠程度大大提高，操作更加简便直观。

Firstd Company possesses a fully automatic intelligent PLC control system independently designed and developed with complete intellectual property rights. It adopts a joint control mode combining electromechanical integration control equipment and programmable logic controller (PLC). The advanced programmable logic controller (PLC) serves as the "central processing unit" of the control system. The control system is operated via a touch screen, which greatly improves the automation control level and operational reliability of the boiler, and makes the operation more convenient and intuitive.



该产品 是一套的已嵌入式低功耗CPU为核心（主频400MHz）的高性能嵌入式一体化触摸屏。该产品设计采用了高亮度TFT液晶显示屏（分辨率800×480），四线电阻式触摸屏（分辨率4096×4096）。同时还预装了MCGS嵌入式组态软件（运行版），具备强大的图像显示和数据处理功能。

PLC触摸屏的控制系统，具备通讯接口，通过协议与上位机软件，可实现集中和远程监控，上位机适时监控锅炉运行参数及负载变化，更可组成多台锅炉控制网路，实现根据负载变化自动选择锅炉运行台数。

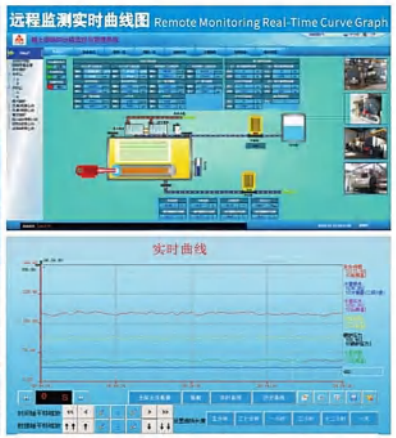
This product is a high-performance embedded all-in-one touch screen centered on an embedded low-power CPU (with a clock frequency of 400MHz). It is designed with a high-brightness TFT LCD display (resolution: 800×800) and a four-wire resistive touch screen (resolution: 4096×4096). Additionally, it comes pre-installed with MCGS embedded configuration software (operational version), featuring powerful image display and data processing capabilities.

The control system of the PLC touch screen is equipped with a communication interface. Through a protocol with the host computer software, it can realize centralized and remote monitoring. The host computer can monitor boiler operating parameters and load changes in real-time, and can also form a control network for multiple boilers, realizing the automatic selection of the number of operating boilers based on load changes.

锅炉远程控制
REMOTE CONTROL OF BOILERS:

采用先进成熟的GPRS DTU模块为远程数据传输模块,依托稳定可靠的中国移动GPRS网络, 组成一套无线数据传输网络的实时监控系统, 安全可靠, 及时性强,通过画面组态将锅炉的运行数据以生动形象的方式展现出来, 同时通过WEB发布功能将监控画面发布到网络上面, 工作人员通过登录APP查看用户设备锅炉运行状态, 工作人员根据用户锅炉的排烟温度、进出水温度、燃烧机的启停等数据，对异常情况进行告警，避免产品出现严重故障问题，对用户提出合理的建议，保证锅炉安全、高效的运行，用户可以通过登录APP查看自己的锅炉运行状态。

An advanced and mature GPRS DTU module is adopted as the remote data transmission module, which relies on the stable and reliable China Mobile GPRS network to form a real-time monitoring system of a wireless data transmission network. It is safe, reliable and highly timely. Through screen configuration, the operating data of the boiler is displayed in a vivid and intuitive way; at the same time, the monitoring screen is released to the network through the WEB publishing function. Staff can check the operating status of the user's boiler equipment by logging in to the APP. Based on the user's boiler data such as exhaust gas temperature, inlet and outlet water temperature, and burner start-stop status, the staff can issue alarms for abnormal conditions, avoid serious product failures, put forward reasonable suggestions to users, and ensure the safe and efficient operation of the boiler. Users can also check the operating status of their own boilers by logging in to the APP.



优质服务 >>>
HIGH-QUALITY SERVICE

高效.安全.专业
Efficient, Safe and Professional

优质的产品更需要优质的服务
High-quality products require even higher-quality services

出现故障的时候，您是否需要快捷、专业的帮助，因为故障意味着昂贵的成本！
在对既有的系统进行更新升级的时候，您是否需要支持！
福士德技术将随时待命，
为您提供高效、安全、专业的服务！

When a malfunction occurs, do you need prompt and professional assistance? Because malfunctions mean high costs!

Do you need support when updating and upgrading your existing system?

Firstd Technology will be on standby at all times to provide you with efficient, safe, and professional services!

33个客服中心
200个服务网点
33 Customer Service Centers
200 Service Outlets

全国布局客服中心,服务更便捷
Nationally Distributed Customer Service Centers Ensure More Convenient Service

只有站在顾客的角度为顾客着想，才能赢得市场。福士德严格按照国家规定的三包政策做好售后服务。在全国设立了33个客户服务中心，200多个售后服务网点,全程支持您在使用过程中遇到的任何问题。

Only by standing in the customers' shoes and thinking for them can we win the market. Firstd strictly adheres to the three-guarantee policy stipulated by the state to provide quality after-sales service. We have established 33 customer service centers and more than 200 after-sales service outlets across the country, providing full support for any issues you may encounter during use.

工程师
在线技术支持
Engineers' Online
Technical Support

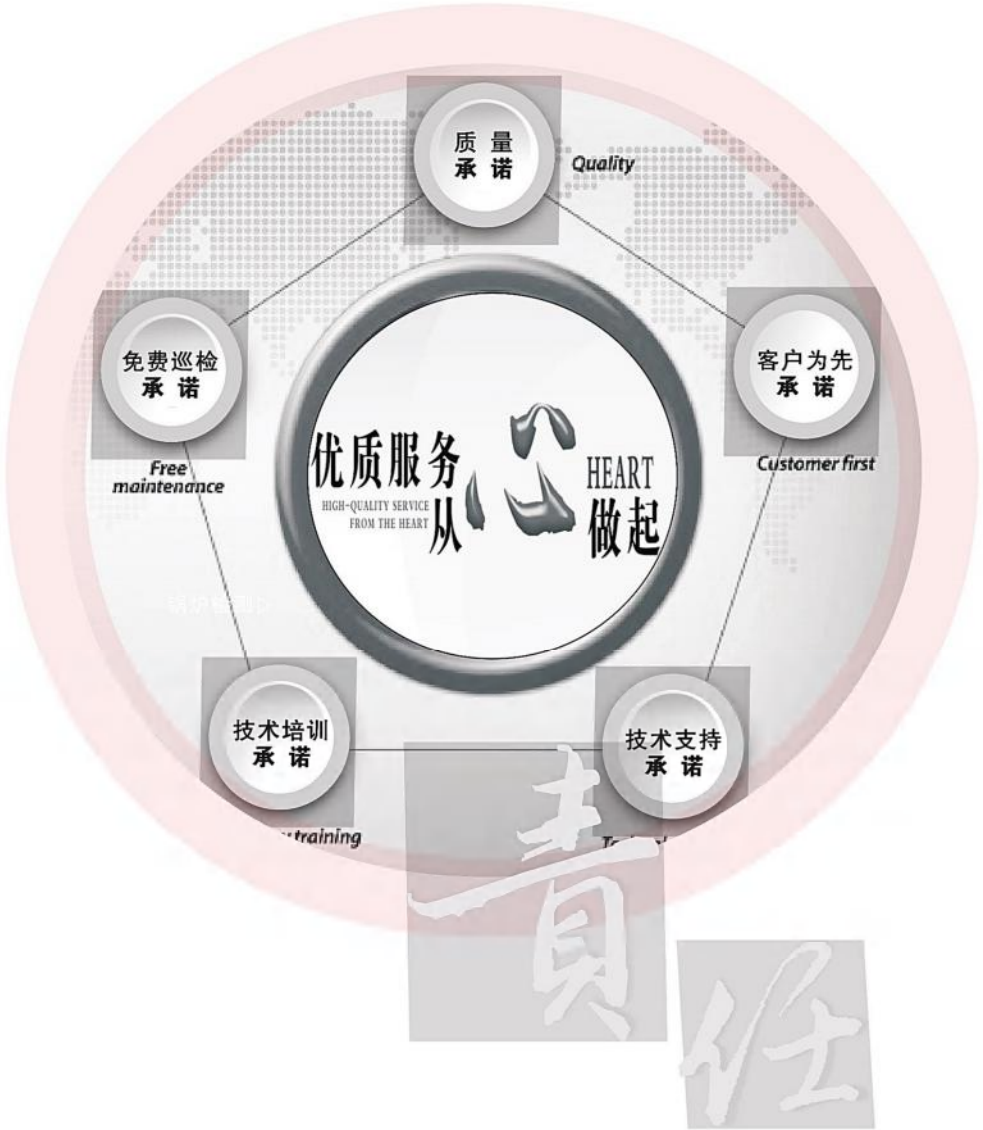
随时待命：专业的服务
On Call: Professional Service

我们的客户服务每天24小时时刻待命。得益于我们精心编织的服务区域网络，我们能够确保最短的反应时间，除了维护服务，故障跟踪和维修，我们还为您提供系统常规检查支持，如果您不确定您的系统是否稳定，是否依旧高效运转，那么我们也将十分乐意协助您，我们将会对您的系统进行分析，如果需要的话，还会对其进行更新升级。

在正常的工作时间内，您可以直接联系当地的客户服务工程师，直接与当地的客户服务工程师联系，可以为您节省大量宝贵的时间。当地客户服务工程师解决不了的问题，客户可以拨打我们的24小时：服务专线400-180-1966，我们将通过电话对于您的问题给予专业的、合理化建议，定制的解决方案。

Our customer service is available 24/7. Thanks to our meticulously established service area network, we can ensure the shortest response time. In addition to maintenance services, fault tracking and repairs, we also provide you with regular system inspection support. If you are unsure whether your system is stable and still operating efficiently, we will be more than happy to assist you. We will analyze your system and, if necessary, perform updates and upgrades.

During regular working hours, you can directly contact your local customer service engineer, which can save you a significant amount of valuable time. If the local customer service engineer is unable to resolve the issue, you can call our 24-hour service hotline at 400-180-1966. We will provide professional and reasonable suggestions as well as customized solutions for your problems over the phone.



合作客户 >>>

COOPERATIVE CLIENTS

20年来，我们以卓越的产品质量、优质的全方位服务、合理的产品价格不断赢得客户的信赖，产品远销到非洲、欧洲、大洋洲等十几个国家和地区，累计销售锅炉10000多台/套。

Over the past 20 years, we have continuously earned the trust of our customers with our excellent product quality, high-quality comprehensive services, and reasonable product prices. Our products are exported to more than a dozen countries and regions in Africa, Europe, Oceania and other regions, with a cumulative sales volume of more than 10,000 boilers/units.

吉利汽车 GEELY AUTO
长城汽车
中国一汽
CATL 宁德时代
SVOLT 蜂巢能源
HTHIUM 海辰新能源
远航锦锂
CHINACAS 中国燃气
ENN 新奥
ZHEJIANG ENERGY 浙江能源
HNEC 河南能源
港华燃气 Towngas
万达集团 WANDA GROUP
正大集团 CP GROUP
MUYUAN
海大集团 HAID GROUP
the mixc 萬象城
OCT 華僑城地产
世贸中心
新乡国际商务中心
红星·美凯龙 MACALLINE 全球家居品牌典范
鑫邦集团 XINBANG GROUP
西安地铁 XI'AN METRO
郑州地铁
北京丰台火车站
中铁武汉局
郑州铁路局
中国石化 SINOPEC
中国石油
1905 延长石油

中铁 CREC
中国华能 CHINA HUANENG
中国铁建 CRCC
中国建筑
DTP 大唐国际
中国电信 CHINA TELECOM
China unicom 中国联通
中国人寿
中国建设银行 China Construction Bank
中国银行 BANK OF CHINA
中国农业银行
ICBC 中国工商银行
中国烟草 CHINA TOBACCO
国家电网公司 STATE GRID CORPORATION OF CHINA
SINOPHARM 中国医药集团
1952
1952
1905
MUYUAN
SHANXI NORMAL UNIVERSITY
JIANGNAN UNIVERSITY
1902
1910
ANYANG NORMAL UNIVERSITY
1905
如家酒店集团
汉庭酒店 汉庭 HOTEL
MOTEL Super 莫泰连锁旅店
HAPPY VALLEY 欢乐谷
古北水镇