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真空锅炉产品手册 / Vacuum Boiler / Product Manual

## FIRSTD BOILER

- ↳ **WNS燃油气真空锅炉**  
WNS Fuel Gas Vacuum Boilers
- ↳ **WNS燃油气冷凝一体真空锅炉**  
WNS Integrated Fuel Gas Condensing Vacuum Boilers
- ↳ **F系列全预混丰能真空锅炉**  
F Series Fully Premixed High-Efficiency Vacuum Boilers
- ↳ **S系列水冷全预混真空锅炉**  
S Series Water-Cooled Fully Premixed Vacuum Boilers

新能源集成方案专家 >>>

EXPERT IN NEW ENERGY INTEGRATION SOLUTIONS

## 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系列丰能管低氮真空、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，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.

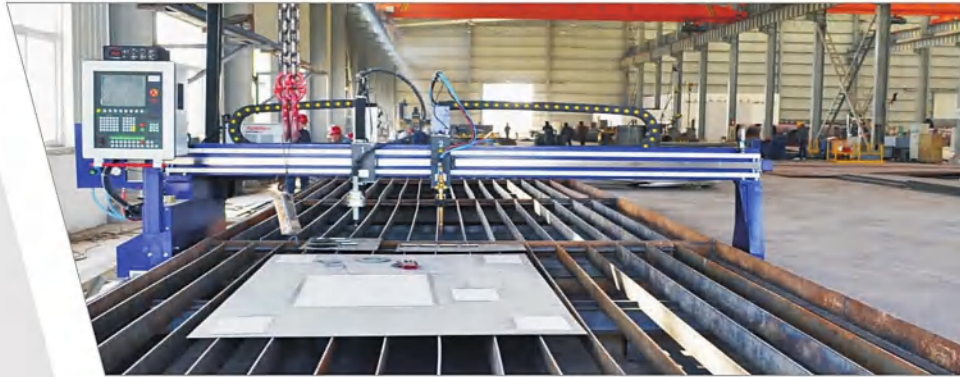


## 资质/装备 >>> EXCELLENT EQUIPMENT



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



△机器人焊接 Robot Welding



△激光焊接设备 Laser Welding Equipment



△埋弧自动焊 Automatic Submerged Arc Welding



△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



国际理念 领先技术  
设计合理  
Reasonable design



多项智能保护装置  
安全可靠  
Safe and reliable



热效率高 吸收充分  
节能降耗  
Energy conservation and consumption reduction



自主创新 专业制造  
科技创新  
Technological innovation



标准制作 精工细作  
标准制作  
Standard production



操作简便 人性化设计  
操作简单  
Easy to operate



WNS燃油气真空锅炉  
WNS Fuel Gas Vacuum Boilers



WNS燃油气冷凝一体真空锅炉  
WNS Integrated Fuel Gas Condensing Vacuum Boilers



F系列全预混丰能真空锅炉  
F Series Fully Premixed High-Efficiency Vacuum Boilers



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

## S系列 S SERIES

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



SZWRS-(350-14000)-Q

## FRSTD BOILER

### 水冷全预混真空锅炉的优势

#### Advantages of Water-Cooled Fully Premixed Vacuum Boilers:

采用精心设计的新型水冷全预混燃烧、全膜式壁结构水管式三级冷凝相变结构，无级变频风机与比例燃气阀联动控制，精确控制过量空气系数，时刻保持燃气与空气的混合比，确保完全燃烧的同时，再利用真空热水锅炉热媒水与燃烧器水冷式不锈钢翅片管循环冷却火焰的方式，独特的冷凝技术，能够迅速降低火焰根部温度，使燃气更加充分燃烧，正向冷焰燃烧，逆向换热，传热迅速，换热充分，呈现蓝焰状态，有效抑制了NOx合成，NOx在运行工况下排放量低至30mg/m<sup>3</sup>以下。

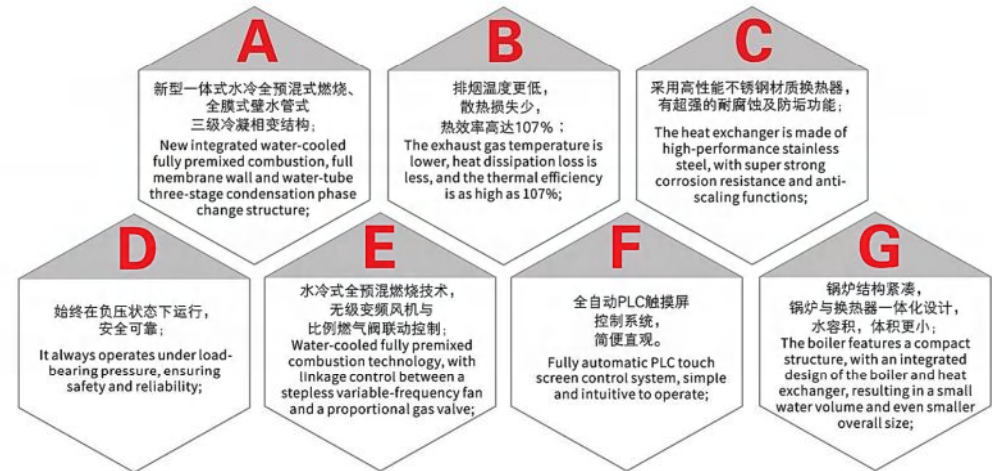
It adopts a carefully designed novel water-cooled fully premixed combustion technology, featuring a full membrane wall structure and a water-tube three-stage condensation phase change structure. A stepless variable-frequency fan is controlled in linkage with a proportional gas valve to precisely control the excess air ratio and maintain the mixing ratio of gas and air at all times. While ensuring complete combustion, the system utilizes the heat medium water of the vacuum hot water boiler and the water-cooled stainless-steel finned tubes of the burner to circulate and cool the flame through a unique condensation technology. This technology can rapidly reduce the temperature at the flame root, enabling more complete combustion of the gas. With forward cold flame combustion and reverse heat transfer, the heat transfer is rapid and sufficient, presenting a blue flame state, which effectively suppresses NOx synthesis. Under operating conditions, NOx emissions are as low as 30mg/m<sup>3</sup> or less.

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技术参数 Technical parameters of water-cooled fully premixed vacuum boiler

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 <sup>4</sup> kcal/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 <sup>3</sup> /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 method	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	Δt=10°C, 进/出口温度50/60°C或45/55°C, 适用于地暖、中央空调采暖循环。 Δt=10°C, 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 rate (m <sup>3</sup> /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	Δt=20°C, 进/出口温度40/60°C, 适用于卫生热水 Δt=20°C, inlet/outlet temperature 40/60°C, suitable for sanitary hot water.													
热水流量 Hot water flow (m <sup>3</sup> /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

备注: 1、最大件长度含燃烧器和冷凝器尺寸;  
2、机组换热器温度可根据用户要求定制, 例如70/95°C、60/85°C;  
3、天然气低位热值按8500kcal/Nm<sup>3</sup>计算;  
4、燃料耗量均为锅炉满负荷的耗量, 根据工况不同, 实际耗量将不同;  
5、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权利(包括外形、技术、内部结构等)具体以提供图纸为准;

Notes: 1. The maximum component length includes the dimensions of the burner and condenser;  
2. The temperature difference of the unit heat exchanger can be customized according to user requirements, such as 70/95°C, 60/85°C;  
3. Natural gas is calculated based on its lower calorific value of 8500 kcal/Nm<sup>3</sup>;  
4. The fuel consumption is based on the boiler operating at full capacity, and the actual consumption may vary depending on different operating conditions;  
5. 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;



# FIRSTD BOILER

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.

## WNS系列 WNS SERIES

### WNS燃油气冷凝一体真空锅炉 WNS INTEGRATED FUEL GAS CONDENSING VACUUM BOILERS



Z-WNS(0.35-21)-1.0/1.6/2.0-Y、Q  
Z-WNS(0.35-21)-1.0/1.6/2.0-Y、Q

## FIRSTD BOILER

### WNS燃油气冷凝一体真空锅炉的优势 Advantages of WNS Integrated Fuel Gas Condensing Vacuum Boilers:

#### 应用领域广泛:

Wide application areas:

集中供暖 Central heating

工业应用 Industrial applications

农业育种 Agricultural breeding

食用蒸煮 Edible steaming

中央热水 Central hot water

车间保湿 Workshop moisturizing

酿酒蒸馏 Liquor distillation

洗涤熨烫 Washing and ironing

冷凝一体真空锅炉不同于普通锅炉，该锅炉的热效率通过独特的设计以达到极限，使有害物质的排放量更低，在普通锅炉的基础上增加烟气热回收装置，结构紧凑，通过吸收高温烟气余热加热低温回水，从而提高热转换效率，节约燃气费，将锅炉的热效率发挥到极限，锅炉配备超低氮燃烧机，使NOx的排放量 $\leq 30\text{mg}/\text{m}^3$ 。

The integrated condensing vacuum boiler is different from conventional boilers. Its thermal efficiency is maximized through a unique design, resulting in lower emissions of harmful substances. Compared to conventional boilers, it is equipped with an additional flue gas heat recovery device and features a compact structure. By absorbing waste heat from high-temperature flue gas to heat low-temperature return water, it improves heat conversion efficiency, saves gas costs, and maximizes the boiler's thermal efficiency. The boiler is equipped with an ultra-low nitrogen burner, ensuring NOx emissions are  $\leq 30\text{mg}/\text{m}^3$ .

福士德冷凝一体真空锅炉系列经河南省锅炉压力容器安全检测研究院测试，测试后出具锅炉能效测试报告：锅炉热效率高达103%以上，排烟温度低至75℃以下，NOx的排放量低至27.5mg/m<sup>3</sup>以下。

The Firstd condensing integrated vacuum boiler series has been tested by the Henan Provincial Boiler and Pressure Vessel Safety Inspection and Research Institute, and a boiler energy efficiency test report was issued after the test: the boiler thermal efficiency is as high as over 103%, the exhaust gas temperature is as low as below 75°C, and the NOx emissions are as low as below 27.5mg/m<sup>3</sup>.

### 冷凝一体真空锅炉独有的六大保护装置

#### Six Unique Protective Devices of Integrated Condensing Vacuum Boilers

锅炉燃烧控制具有可靠的程序控制，具有预吹扫、燃气低压，高压点火故障，燃气泄漏等多重保护功能，工作十分可靠。

The boiler combustion control system features reliable program control and multiple protective functions, including pre-purging, gas low-pressure protection, high-pressure ignition failure protection, and gas leakage protection, ensuring high reliability in operation;

锅炉具有温度传感器异常保护，每次开机后，锅炉控制系统首先检测传感器情况，如异常自动切断电源并报警。

The boiler is equipped with temperature sensor abnormality protection. After each startup, the boiler control system first detects the condition of the sensor. If there is an abnormality, it automatically cuts off the power supply and sounds an alarm;

锅炉具有缺水报警功能：当锅炉水位低于安全水位时，自动切断电源并报警。

The boiler is equipped with a water shortage alarm function: when the water level in the boiler falls below the safety level, it automatically cuts off the power supply and triggers an alarm;

锅炉具有二次过热保护功能：当锅炉外壳温度高于100℃，自动停机并报警。

The boiler features a secondary overheat protection function: when the temperature of the boiler casing exceeds 100°C, it automatically shuts down and triggers an alarm;

真空压力实时检测功能：当锅炉内真空度达不到要求，自动报警。

Real-time vacuum pressure detection function: When the vacuum level in the boiler fails to meet the requirements, it automatically triggers an alarm;

锅炉设置有防爆装置，安全可靠。

The boiler is equipped with an explosion-proof device, ensuring safety and reliability.

## WNS燃油气冷凝一体真空锅炉技术参数

Technical Parameters of WNS Integrated Fuel Gas Condensing Vacuum Boilers

项目/型号 Item/Model	Z- WNS 0.35	Z- WNS 0.7	Z- WNS 1.05	Z- WNS 1.4	Z- WNS 1.75	Z- WNS 2.1	Z- WNS 2.8	Z- WNS 3.5	Z- WNS 4.2	Z- WNS 5.6	Z- WNS 7.0	Z- WNS 10.5	Z- WNS 14	Z- WNS 17.5	Z- WNS 21	
额定供热量 Rated heat supply	10 <sup>4</sup> kcal/h KW	30 350	60 700	90 1050	120 1400	150 1750	180 2100	240 2800	300 3500	360 4200	480 5600	600 7000	900 10500	1200 14000	1500 17500	1800 21000
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												
轻油耗量 Light fuel consumption (kg/h)	32	63	94.5	124.2	155.4	186.8	248.7	311.5	371.8	484.9	609.8	926.4	1215	1518	1822	
天然气耗量 Natural gas consumption (Nm <sup>3</sup> /h)	36	69.2	101.3	137.8	172.3	206.6	274.8	346.1	414.2	551.5	689.3	1035	1372	1716	2059	
燃烧调节方式 Combustion regulation method	数字电子比例调节 digital electronic proportional regulation															
热效率 Thermal efficiency (%)	≥100															
烟囱外径 Chimney outer diameter φ(mm)	219	325	325	325	325	426	426	426	500	600	700	800	900	1000	1100	
运输净重 Shipping net weight (T)	1.6	2.2	2.6	3.4	4	4.8	5.4	6.8	7.4	9.8	11.6	17.6	22.7	29.3	37.8	
运行重(约) Operating weight (approx.) T	2.5	3.4	3.9	5.3	6.6	8	8.8	11.2	12.4	17.2	20.5	28.7	44.9	44.9	44.9	
A型换热器 Type-A heat exchanger	Δt=10°C, 进/出口温度50/60°C或45/55°C, 适用于地暖、中央空调采暖循环。 Δt=10°C, inlet/outlet temperature 50/60°C or 45/55°C, suitable for floor heating and central air conditioning heating circulation.														105/70°C	
额定供热量 Rated heat supply	10 <sup>4</sup> kcal/h	30	60	90	120	150	180	240	300	360	480	600	900	1200	1500	1800
热水流量 Hot water flow rate (m <sup>3</sup> /h)	30	60	90	120	150	180	240	300	360	480	600	900	1200	1500	1800	
接管口径 Connection diameter DN(mm)	65	100	125	125	150	150	200	200	250	250	300	350	400	500	500	
B型换热器 Type-B heat exchanger	Δt=20°C, 进/出口温度40/60°C, 适用于卫生热水。 Δt=20°C, inlet/outlet temperature 40/60°C, suitable for sanitary hot water.															
热水流量 Hot water flow rate (m <sup>3</sup> /h)	15	30	45	60	75	90	120	150	180	240	300	450	600	750	900	
接管口径 Connection diameter DN(mm)	50	65	80	100	100	125	125	150	200	200	250	300	350	350		
最大件外形尺寸 Overall dimensions of the largest part	长L	2680	2985	3125	3525	3590	4210	4420	4665	5135	5755	6405	6802	7776	8076	8376
	宽W	1380	1530	1550	1660	1830	1880	1900	2130	2130	2430	2580	2780	3180	3450	3700
	高H	2230	2405	2420	2605	2775	2895	2835	3035	3075	3310	3385	3837	3896	4186	4436

备注: 1. 机组换热器温差可根据用户要求定制, 例如70/95°C、60/85°C;  
2. 天然气按低位热值8500kcal/Nm<sup>3</sup>计算;  
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. 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权利(包括外形、技术、内部结构等)具体以提供图纸为准;

## WNS燃油气真空锅炉技术参数

Technical Parameters of WNS Fuel Gas Vacuum Boilers

项目/型号 Item/Model	Z- WNS 0.35	Z- WNS 0.7	Z- WNS 1.05	Z- WNS 1.4	Z- WNS 1.75	Z- WNS 2.1	Z- WNS 2.8	Z- WNS 3.5	Z- WNS 4.2	Z- WNS 5.6	Z- WNS 7.0	Z- WNS 10.5	Z- WNS 14	Z- WNS 17.5	Z- WNS 21	
额定供热量 Rated heat supply	10 <sup>4</sup> kcal/h KW	30 350	60 700	90 1050	120 1400	150 1750	180 2100	240 2800	300 3500	360 4200	480 5600	600 7000	900 10500	1200 14000	1500 17500	1800 21000
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												
轻油耗量 Light fuel consumption (kg/h)	33.4	65.7	98.5	129.9	162.4	194.8	255.8	317	383.6	493	616	924	1232	1540	1848	
天然气耗量 Natural gas consumption (Nm <sup>3</sup> /h)	37.5	75	112.5	150	187.5	225	300	375	450	600	750	1125	1500	1875	2250	
燃烧调节方式 Combustion regulation method	数字电子比例调节 digital electronic proportional regulation															
热效率 Thermal efficiency (%)	92 ~ 98															
烟囱外径 Chimney outer diameter φ(mm)	219	325	325	325	325	426	426	426	500	600	700	800	900	1000	1100	
运输净重 Shipping net weight (T)	1.5	2	2.3	3	3.6	4.5	4.9	6	6.8	9.2	10.7	15.1	22	28.4	36.6	
运行重(约) Operating weight (approx.) T	2.4	3.2	3.6	4.9	6.2	7.7	8.3	10.4	11.8	16.6	19.6	26.6	37.3	40.5	50.7	
A型换热器 Type-A heat exchanger	Δt=10°C, 进/出口温度50/60°C或45/55°C, 适用于地暖、中央空调采暖循环。Δt=10°C, inlet/outlet temperature 50/60°C or 45/55°C, suitable for floor heating and central air conditioning heating circulation.														105/70°C	
额定供热量 Rated heat supply	10 <sup>4</sup> kcal/h	30	60	90	120	150	180	240	300	360	480	600	900	1200	1500	1800
热水流量 Hot water flow rate (m <sup>3</sup> /h)	30	60	90	120	150	180	240	300	360	480	600	900	1200	1500	1800	
接管口径 Connection diameter DN(mm)	65	100	125	125	150	150	200	200	250	250	300	350	400	500	500	
B型换热器 Type-B heat exchanger	Δt=20°C, 进/出口温度40/60°C, 适用于卫生热水。 Δt=20°C, inlet/outlet temperature 40/60°C, suitable for sanitary hot water.															
热水流量 Hot water flow rate (m <sup>3</sup> /h)	15	30	45	60	75	90	120	150	180	240	300	450	600	750	900	
接管口径 Connection diameter DN(mm)	50	65	80	100	100	125	125	150	200	200	250	300	350	350		
最大件外形尺寸 Overall dimensions of the largest part	长L	2680	2985	3125	3525	3590	4210	4280	4395	4935	5605	6220	6802	7776	8076	8376
	宽W	1380	1530	1550	1660	1830	1880	1900	2130	2130	2430	2580	2780	3180	3450	3700
	高H	1835	1990	2040	2210	2430	2433	2493	2768	2798	3013	3183	3837	3896	4186	4436

Notes: 1. The temperature difference of the unit heat exchanger can be customized according to user requirements, such as 70/95°C, 60/85°C;  
2. Natural gas is calculated based on its lower calorific value of 8500 kcal/Nm<sup>3</sup>;  
3. The fuel consumption is based on the boiler operating at full capacity, and the actual consumption may vary depending on different operating conditions;  
4. 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;

## F系列 F SERIES

### 全预混丰能真空锅炉 FULLY PREMIXED HIGH-EFFICIENCY VACUUM BOILERS

丰能管系列锅炉采用“锅”与“炉”深度融合的精细化设计理念，通过全结构、全流程数值模拟和数字化控制等措施不断优化结构，在能效、排放和电耗方面达到合理匹配。

The high-efficiency tube series boiler adopts a refined design concept that deeply integrates the "boiler" and "furnace". Through measures such as full-structure and full-process numerical simulation and digital control, the structure is continuously optimized, achieving a reasonable match in terms of energy efficiency, emissions, and power consumption.

引进全预混平面燃烧技术，产品在满足高效传热性能的同时，体积缩小到极致，减少用户占地面积，降低用户基础建设投资成本。

By introducing fully premixed flat combustion technology, the product not only meets the requirement of efficient heat transfer performance but also reduces its volume to the extreme, thereby reducing the footprint for users and lowering their infrastructure investment costs.

各设备的内置设计，使得该产品的调试在出厂前即可完成，在用户现场只需连接出水管、天然气管、烟囱和通电即可使用，不但缩短了安装时间，也节省了相对安装费用。

The built-in design of each device allows for the debugging of the product to be completed before it leaves the factory. At the user's site, all that is needed is to connect the water outlet pipe, natural gas pipeline, chimney, and power on, and the product is ready to use. This not only shortens the installation time but also saves relative installation costs.



■ FZWRS(350-2800)

## FIRSTD BOILER

### 全预混丰能真空锅炉的优势

Advantages of Fully Premixed High-Efficiency Vacuum Boilers:

预混式燃烧技术，每台产品出厂前均经过热态调试和检验。

It adopts premixed combustion technology, and each product undergoes hot commissioning and inspection before leaving the factory.

智能模块化系统，用模块化控制系统，节能降耗。

It adopts an intelligent modular system and uses a modular control system to achieve energy saving and consumption reduction.

热效率高达107%。  
The thermal efficiency is as high as 107%.

分管内烟气，形成独立的缝隙式换热区域，每个分管面上凹凸槽设计充分加大管内受热面。

The flue gas within the tube is divided to form independent slit-type heat exchange zones. The design of concave and convex grooves on each dividing surface significantly enlarges the heating surface within the tube.

超低的氮氧化物排放  
NOx < 30mg/m<sup>3</sup>  
Ultra-low nitrogen oxide emissions  
NOx < 30mg/m<sup>3</sup>

丰能管设计  
High-Efficiency Tube Design

极简的安装方式。  
It features a minimalist installation method.

整装设计，厂内调试，现场安装水、电、气即可使用

It adopts a fully assembled design, is factory-tested, and is ready for use upon on-site installation of water, electricity, and gas

1、冷凝器采用硅铝合金材质的丰能管，耐烟气环境腐蚀，经久耐用；

1. The condenser adopts high-efficiency tubes made of silicon-aluminum alloy, which are resistant to corrosion in flue gas environments and durable;

2、丰能管的换热方式和结构设计，使烟气深度冷凝，换热效率高；

2. The heat exchange method and structural design of high-efficiency tubes enable deep condensation of flue gas, resulting in high heat exchange efficiency;

3、丰能管冷凝器的冷却水在管外流通，不易结垢且清理方便，对水质要求低；与传统冷凝器设计思路相反，传统冷凝器的冷却水在管内流通，极易结垢，且清理困难，对水质要求极高；

3. The cooling water of the high-efficiency tube condenser circulates outside the tubes, making it less prone to scaling and easier to clean, with lower water quality requirements. In contrast to traditional condenser design concepts, where the cooling water circulates inside the tubes, it is highly prone to scaling, difficult to clean, and requires extremely high water quality;

4、冷凝器采用烟气和水换热，传热系数高，排烟温度与给水温度温差在5℃之内（80℃/60℃工况、60℃/50℃工况）；

4. The condenser utilizes heat exchange between flue gas and water, boasting a high heat transfer coefficient. The temperature difference between the exhaust gas temperature and the feedwater temperature remains within 5°C (under both 80°C/60°C and 60°C/50°C operating conditions);

5、充分利用冷凝器的内部和外部空间，减少了锅炉总体积。

5. By fully utilizing the internal and external space of the condenser, the overall volume of the boiler is reduced.

### 丰能管 HIGH-EFFICIENCY TUBE

专为烟气工况而设计的高效冷凝传热元件，具有优秀的传热性能，可以在较短长度内使得烟气迅速得到冷凝。传热系数为普通钢管的5-6倍。

The high-efficiency condensation heat transfer component, specifically designed for flue gas conditions, exhibits excellent heat transfer performance, enabling rapid condensation of flue gas within a relatively short length. Its heat transfer coefficient is 5-6 times that of ordinary steel pipes.



## 全预混丰能真空锅炉技术参数

### Technical Parameters of Fully Premixed High-Efficiency Vacuum Boilers

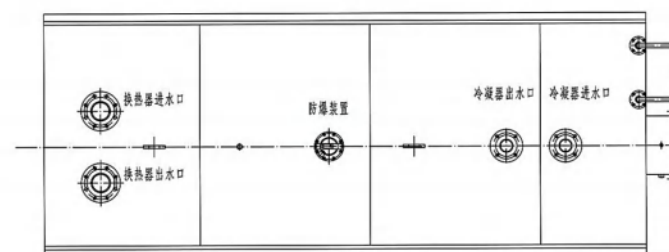
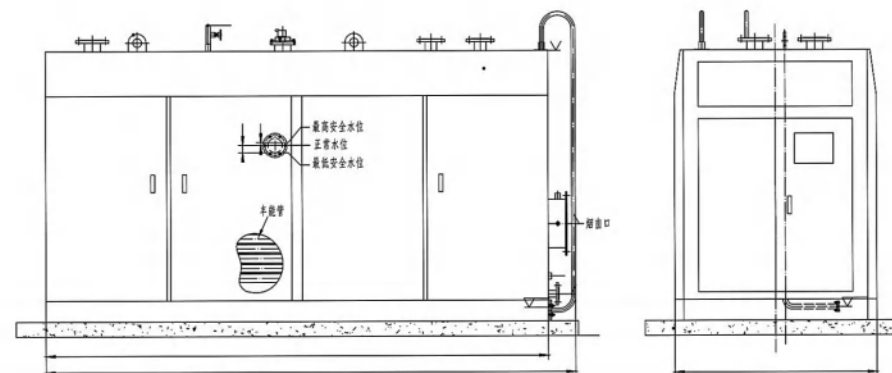
项目/型号 Item/Model	FZWRS-350	FZWRS-700	FZWRS-1400	FZWRS-1750	FZWRS-2800	
额定供热量 Rated heat supply	10 <sup>4</sup> kcal/h	30	60	120	150	240
	KW	350	700	1400	1750	2800
换热器工作压力 Heat exchanger operating pressure (MPa)	1.0/1.6/2.0					
电源 Power supply (V/Hz)	220/50		380/50			
天然气耗量 Natural gas consumption (Nm <sup>3</sup> /h)	33.9	67.8	135.6	169.5	271.2	
燃烧调节方式 Combustion regulation method	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	325	325	325	426	
运输净重量 Shipping net weight (T)	1.96	2.79	4.07	5.05	7.02	
运行重量(约) Operating weight (approx.) T	2.47	3.6	5.85	6.83	9.26	
A型换热器 Type-A heat exchanger	Δt=10°C, 进/出口温度50/60°C或45/55°C, 适用于地暖、中央空调采暖循环。 Δt=10°C, inlet/outlet temperature 50/60°C or 45/55°C, suitable for floor heating and central air conditioning heating circulation.					
额定供热量 Rated heat supply 10 <sup>4</sup> kcal/h	30	60	120	150	240	
热水流量 Hot water flow rate (m <sup>3</sup> /h)	30	60	120	150	240	
接管口径 Connection diameter DN(mm)	65	100	125	150	200	
B型换热器 Type-B heat exchanger	Δt=20°C, 进/出口温度40/60°C, 适用于卫生热水。 Δt=20°C, inlet/outlet temperature 40/60°C, suitable for sanitary hot water.					
额定供热量 Rated heat supply 10 <sup>4</sup> kcal/h	30	60	120	150	240	
热水流量 Hot water flow rate (m <sup>3</sup> /h)	15	30	60	75	120	
接管口径 Connection diameter DN(mm)	50	65	100	100	125	
最大件外形尺寸 Overall dimensions of the largest part	长L	2475	3310	4460	4660	5590
	宽W	1120	1380	1470	1620	1750
	高H	1660	1980	2325	2450	2580

备注: 1、最大件长度含燃烧器和冷凝器尺寸;  
2、机组换热器温差可根据用户要求定制, 例如70/95°C、60/85°C;  
3、天然气按低位热值8500kcal/Nm<sup>3</sup>计算;  
4、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;  
5、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;

Notes: 1. The maximum component length includes the dimensions of the burner and condenser;  
2. The temperature difference of the unit heat exchanger can be customized according to user requirements, such as 70/95°C, 60/85°C;  
3. Natural gas is calculated based on a lower calorific value of 8500 kcal/Nm<sup>3</sup>;  
4. The fuel consumption is based on the boiler operating at full capacity, and the actual consumption may vary depending on different operating conditions;  
5. 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;

## 全预混丰能真空锅炉外型图

### Outline Drawing of Fully Premixed High-Efficiency Vacuum Boilers





**感受科技 + 手机智能操控**  
Technology + Smartphone Intelligent Control

**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,安全可靠,及时性高,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,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.

**单台锅炉控制**  
SINGLE BOILER CONTROL:

**操作界面直观简捷,运行状态一目了然。**

- 1、采用高分辨率的单色液晶屏或彩色触摸屏(选配);
- 2、全自动运行,操作轻松自如。

**多方案的控制功能选择和丰富的扩展功能,让客户更多选择。**

- 1、智能可编辑控制积木式的扩充模块和充足的预留端口,减少了用户对特殊需要开发的重复投资;
- 2、可方便地与目前的办公自动化网(WINDOWS9X、WINDOWSNT、NOVELL等)、工厂自动化控制网络互联,实现锅炉运行状况的远程监视功能;
- 3、可选配电脑作为监控画面。

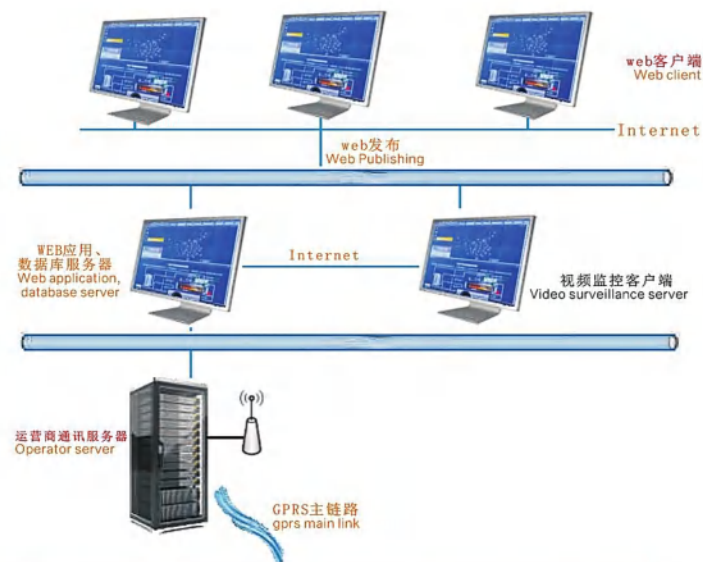
(部分功能为选配)

**The operation interface is intuitive and simple, with the operating status clear at a glance.**

1. Adopting a high-resolution color touch screen;
2. Fully automatic operation, enabling easy and effortless operation.

**Multiple control function options and abundant expansion features provide customers with more choices**

1. Intelligent editable controllers feature modular expansion modules and sufficient reserved ports, reducing users' repeated investment in developing customized functions;
2. It can be easily interconnected with current office automation networks (WINDOWS9X, WINDOWSNT, NOVELL, etc.) and factory automation control networks, realizing the remote monitoring function of boiler water quality and boiler operating conditions;
3. A computer can be optionally equipped as a monitoring screen. (Some functions are optional)



DTU

**远程监测实时曲线图**

Real-Time Curve Graph for Remote Monitoring

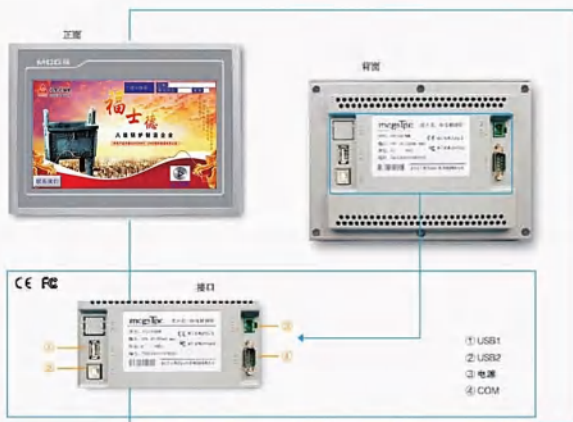


## 全自动智能控制系统 >>>

### FULLY AUTOMATIC INTELLIGENT CONTROL SYSTEM

福士德公司拥有完全自主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络，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.

触摸屏

#### Touch Screen

智能可编程控制器全触摸液晶屏，采用中文操作、动态图形化显示，设备可实现自动化运行及手动运行，使操作简单轻松。

The intelligent programmable controller features a full-touch LCD screen, allowing for Chinese-language operation and dynamic graphical display. The device can operate automatically or manually, making the operation simple and easy.

远程  
监控

#### Remote Monitoring

标配RS485通讯接口，通过协议与上位机软件，可组建多台锅炉联动的控制网络，上位机适时监控锅炉运行参数及负载变化，根据实时负载变化，自动选择运行台数，控制系统终端可实现集中控制和远程控制。

Equipped with a standard RS485 communication interface, a control network for multiple boiler linkage can be formed through a protocol and host computer software. The host computer monitors boiler operating parameters and load changes in real time, automatically selects the number of operating boilers based on real-time load changes, and the control system terminal can achieve centralized control and remote control.

优质  
配件

#### Premium Accessories

触摸屏标配昆仑通态，控制使用智能可编辑控制器。

The touch screen is equipped with Kunlun Tongtai as standard, and the control system utilizes an intelligent editable controller.

## 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！

在对所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

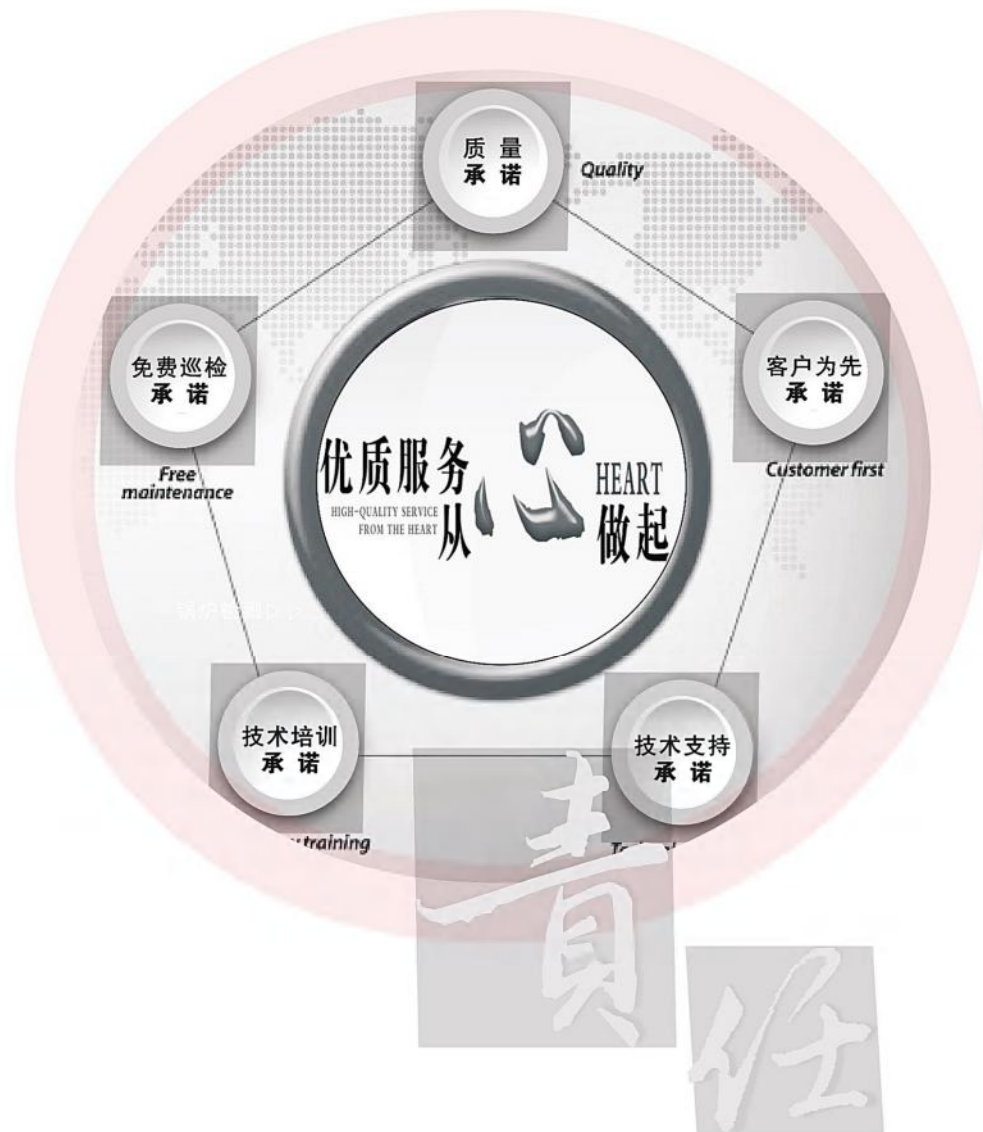
On Call: Professional Service

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，定制化的解决方案。

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.

