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商用锅炉产品手册 / COMMERCIAL BOILER PRODUCT MANUAL

FIRSTD BOILER

- ▾ 商用容积式热水炉
Commercial Volumetric Hot Water Boilers
- ▾ 立式低氮商用热水炉
Vertical Low-Nitrogen Commercial Hot Water Boilers
- ▾ D系列全预混盘管商用热水炉
D Series Fully Premixed Coil Commercial Hot Water Boilers

新能源集成方案专家 >>>
EXPERT IN NEW ENERGY INTEGRATION SOLUTIONS



关于福士德 ABOUT FIRSTD COMPANY >>>

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.

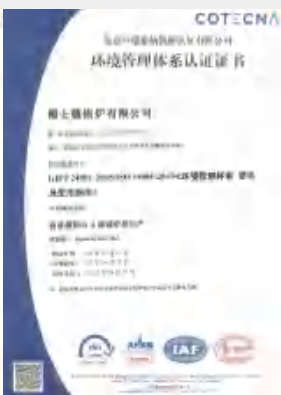
Firstd Boiler Co., Ltd. has established a sales network with over 300 cooperative dealers across various provinces and cities in China. Additionally, we have set up more than 100 24/7 after-sales service outlets throughout the country. Our products are guaranteed by China Ping An Property Insurance Co.,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

专业制造近 **30** 年 打造冷凝、节能、低氮、环保锅炉

With nearly 30 years of professional manufacturing experience, we craft condensing, energy-saving, low-nitrogen, and environmentally friendly boilers.

资质/装备 >>> QUALIFICATIONS/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



热效强劲 吸收充分
节能降耗
Energy conservation and consumption reduction



自主研发 专业制造
科技创新
Technological innovation



标准制作 做工精细
标准制作
Standard production



操作简单 人性化设计
操作简单
Easy to operate



商用容积式热水炉
Commercial Volumetric Hot Water Boilers



户外型商用容积式热水炉
Outdoor Commercial Volumetric Hot Water Boilers



立式低氮商用热水炉
Vertical Low-Nitrogen Commercial Hot Water Boilers



D系列全预混盘管商用热水炉
D Series Fully Premixed Coil Commercial Hot Water Boilers

LZS系列 LZS SERIES

商用容积式热水炉 COMMERCIAL VOLUMETRIC HOT WATER BOILERS



■ LZS-99(SY)

FIRSTD BOILER 商用容积式热水炉的优势

颠覆传统燃烧方式----不同于传统通常使用燃烧器的燃烧方式，福士德LZS系列商用容积式燃气热水炉采用民用燃气压力(2000pa-3000pa)直燃方式、两级点火装置进行加热，高效传热，为用户降低成本。

高质、安全、静音----采用燃气工业锅炉的制造工艺和检测手段，使用民用天然气就可以燃烧，不用专门开通商用燃气管道，为用户节约燃气开口费;可采用PVC管做烟囱，通过先进的控制系统，确保高质、安全、静音。

防腐、防垢----采用搪瓷内胆技术，耐腐蚀性强，使用寿命长，防腐、防垢性能强。

高效、节能、环保----换热面充足，烟气侧系统阻力小，可提高热能利用率8%以上，节省燃料近10%，烟温低于100℃，远远低于国家环保标准。

安装简单、方便----热水炉水不用经过换热器进行交换,可直接供用户采暖、洗浴，热水炉占地面积小，外形美观，根据需要就近安装，方便使用。

Subverting Traditional Combustion Methods: Different from the conventional combustion methods that usually use burners, the Firstd LZS series commercial volumetric gas hot water boiler adopts a direct combustion method with domestic gas pressure (2000pa-3000pa) and a two-stage ignition device for heating, achieving efficient heat transfer and reducing costs for users.

High quality, safety, and quiet operation: Utilizing the manufacturing process and testing methods of industrial gas boilers, it can be fueled by domestic natural gas, eliminating the need for a dedicated commercial gas pipeline, thus saving users the cost of gas connection fees. A PVC pipe can be used as a chimney, and an advanced control system ensures high quality, safety, and quiet operation.

Corrosion and scale prevention: Utilizing enamel lining technology, it exhibits strong corrosion resistance, long service life, and excellent corrosion and scale prevention performance.

Efficient, energy-saving, and environmentally friendly: With ample heat exchange surfaces and low resistance in the flue gas side system, it can increase heat energy utilization by over 8%, save nearly 10% of fuel, and maintain a flue gas temperature below 100℃, significantly lower than national environmental standards.

Easy and convenient to install: The hot water boiler does not require heat exchange through a heat exchanger, and can directly supply heating and bathing for users. The hot water boiler has a small footprint and an attractive appearance, and can be installed nearby according to needs, making it convenient to use.

商用容积式热水炉技术参数 TECHNICAL PARAMETERS OF COMMERCIAL VOLUMETRIC HOT WATER BOILERS

项目/型号 Item/ Model	额定工 作压力 Rated working pressure (MPa)	热效率 Thermal efficiency (%)	水容积 Water volume (L)	天然气 耗量 Natural gas consumption (Nm ³ /h)	电源 Power supply (V/Hz)	进水口 Water inlet (mm)	出水口 Water outlet (mm)	安全阀 出口 Safety valve outlet (mm)	安全阀 数量 Number of safety valves	排污口 Discharge outlet (mm)	烟囱 Chimney mm (φ)	外形尺寸 Overall dimensions (mm)			重量 Weight (kg)
												长 Length (L)	宽 Width (W)	高 Height (H)	
LZS- 99(SY)	1	95	330	10.4	220/50	DN40	DN40	DN25	1	DN40	150	960	730	1890	430

备注: 1、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。

2、天然气热值按8600Kcal/Nm³

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权利（包括外形、技术、内部结构等）具体以提供图纸为准。

Note:1. The fuel consumption figures are based on the boiler operating at full capacity, and the actual consumption may vary depending on different operating conditions.

2. The calorific value of natural gas is 8600Kcal/Nm³

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.

LZS系列 LZS SERIES

户外型商用容积式热水炉 OUTDOOR COMMERCIAL VOLUMETRIC HOT WATER BOILERS



■ LZS-99(SY)

FIRSTD BOILER

户外型商用容积式热水炉优势

Advantages of Outdoor Commercial Volumetric Hot Water Boilers:

户外型商用容积式燃气热水炉，可置于室外绿化带或建筑物楼顶等需要锅炉的地方。

活动性---可室外移动，可再次使用

快速组建---制作工期短，免建锅炉房

安全性---钢骨结构，防风、防雨、防震

耐久性---坚固耐用、耐腐蚀、不生锈、不龟裂，使用年限长

隔音隔热---外观整洁，经久耐用

Outdoor commercial volumetric gas hot water boilers can be installed in outdoor green belts, on the roofs of buildings, or other locations where boilers are required.

Mobility: Can be moved outdoors and reused

Rapid Setup: Short manufacturing period, no boiler room required

Safety: Steel-framed structure, windproof, rainproof, and shockproof

Durability: Sturdy and durable, corrosion-resistant, rustproof, crack-resistant, with long service life

Sound and Heat Insulation: Neat appearance and long service life



户外型商用容积式燃气热水炉直燃直供现场图

On-site Photo of Outdoor Commercial Volumetric Gas Hot Water Boiler with Direct Combustion and Direct Supply

LGS系列 LGS SERIES

立式低氮商用热水炉 VERTICAL LOW-NITROGEN COMMERCIAL HOT WATER BOILERS



LGS-99

FIRSTD BOILER

立式低氮商用热水炉的优势

Advantages of Vertical Low-Nitrogen Commercial Hot Water Boilers:

立式低氮商用热水炉采用顶置式大炉膛设计，满足NOx小于50mg/m³的排放要求；独特的不锈钢阻烟片设计强化传热，极大提升了换热效率。

产品优势

1、不锈钢阻烟片

独特的不锈钢阻烟片设计强化传热，极大提升了换热效率。

2、多重安全

保护采用特殊搪瓷内胆技术，为热水炉提供全方位的保护，对于商业用途的大量供水，更加防腐防垢。低水位保护，超温、超压保护等措施，确保热水炉安全稳定运行。采用温度压力双重保护，可同时控制水温和热水炉压力，保证热水炉不超温不超压，安全运行。

3、智能控制

- 多级权限设计，方便热水炉运行管理。
- 人性化操作界面。
- 历史数据、历史故障查询。
- 燃烧自动调节，保证热水炉内水位稳定，运行安全。
- 数据分析和曲线显示检测参数，历史报警记录检查方便。
- 多台热水炉并联运行，自动均衡热水炉负荷，负荷调节范围更大，出水温度更加恒定。

The vertical low-nitrogen commercial hot water boiler adopts a top-mounted large furnace design, which meets the emission requirement of NOx<50mg/m³. The unique stainless steel smoke barrier design enhances heat transfer and greatly improves heat exchange efficiency.

PRODUCT ADVANTAGES

1. Stainless-steel smoke barrier

The unique stainless steel smoke barrier design enhances heat transfer and significantly improves heat exchange efficiency.

2. Multiple safety

The protection system adopts special enamel furnace tube technology to provide comprehensive protection for the hot water boiler, featuring enhanced corrosion and scale resistance for large-scale water supply in commercial applications. Measures such as low water level protection, overtemperature and overpressure protection ensure the safe and stable operation of the hot water boiler. Dual temperature and pressure protection is adopted to simultaneously control the water temperature and the pressure of the hot water boiler, ensuring that it operates safely without overtemperature or overpressure.

3. Intelligent control

- The multi-level permission design facilitates the operation and management of the hot water boiler.
- User-friendly operation interface.
- Historical data and historical fault query.
- The automatic combustion adjustment ensures stable water level and safe operation inside the hot water boiler.
- Data Analysis and Curve Display can show detection parameters, and historical alarm records are easy to check.
- Multiple hot water boilers operate in parallel, which automatically balances the load of the hot water boilers, providing a wider load adjustment range and more stable outlet water temperature.

立式低氮商用热水炉技术参数 TECHNICAL PARAMETERS OF VERTICAL LOW-NITROGEN COMMERCIAL HOT WATER BOILERS

项目/型号 Item/ Model	额定工作 压力 Rated working pressure (MPa)	热效率 Thermal efficiency (%)	水容积 Water volume (L)	天然气 耗量 Natural gas consumption (Nm ³ /h)	电源 Power supply (V/Hz)	进水口 Water inlet (mm)	出水口 Water outlet (mm)	排污口 Discharge outlet (mm)	烟囱 Chimney mm (φ)	外形尺寸 Overall dimensions (mm)			重量 Weight (kg)
										长 Length (L)	宽 Width (W)	高 Height (H)	
LGS-99	0.6	96.1	320	10.3	220/50	DN40	DN40	DN40	108	1005	800	2110	450

备注: 1、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。

2、天然气热值按8600Kcal/Nm³

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权利（包括外形、技术、内部结构等）具体以提供图纸为准。

Note: 1. The fuel consumption figures are based on the boiler operating at full capacity, and the actual consumption may vary depending on different operating conditions.

2. The calorific value of natural gas is 8600Kcal/Nm³

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.

D系列 D SERIES

全预混盘管商用热水炉
FULLY PREMIXED COIL COMMERCIAL HOT WATER BOILERS



DLPS-99

FIRSTD BOILER

全预混盘管商用热水炉的优势
Advantages of Fully Premixed Coil Commercial Hot Water Boilers:

具有可靠的智能控制系统，采用高分辨率的液晶显示屏，实时动感的显示产品的运行状况及使用情况等，产品的实时自诊断功能将会确保其稳定运行。

独特的螺旋盘管式结构，精确的热水直供技术，让热水系统更加稳定，更加节能；内置牺牲阳极镁棒保护，炉体采用搪瓷内胆，盘管内外全部搪瓷，防腐抗垢，大大延长了锅炉的使用寿命。自主品牌的全预混表面燃烧系统，燃气和空气经过文丘里混合，形成燃烧火焰，火焰温度1000度以下、燃烧无极调节，NOx排放小于30mg/m³；独特的螺旋盘管式受热面，由于受热后的热胀冷缩作用，使得水垢难以在盘管外壁上集聚，长久有效的保持高效的换热效率；热效率高达102.1%。

耐用可靠-- 采用特殊搪瓷内胆技术，为热水炉提供全方位的保护，对于商业用途的大量供水，更加防腐防垢。

低氮环保-- 该产品独有的全预混燃烧系统，保证了空气和燃气的充分混合比例，合理控制火焰状态，从而在提升产品效率的同时，大大降低了CO、NOx的排放，产品更加环保。

智能控制-- 具有可靠的智能控制系统，采用高分辨率的液晶显示屏，实时动感的显示产品的运行状况及使用情况等，产品的实时自诊断功能将会确保其稳定运行。并且可实现多台联动群控。

安全可靠-- 电火花点火，小负荷启动；温控器、高温极限、超温保护、温度压力安全阀四重防护，确保运行安全；承压能力高达1.0MPa，从容应对管网水压波动。

使用寿命长-- 特殊搪瓷内胆，特别防腐抗垢；先进的电子阳极棒，为内胆提供更加持。

安装方便-- 热水炉不用经过换热器进行交换，可直接供用户采暖、洗浴，室内即可安装，体积小巧，可连接为平衡式排烟，无需消耗室内空气。

Equipped with a reliable intelligent control system and a high-resolution LCD display, it dynamically displays the product's operational status and usage in real time. The product's real-time self-diagnostic function ensures its stable operation.

The unique spiral coil structure and precise direct hot water supply technology make the hot water system more stable and energy-efficient. Equipped with built-in sacrificial anode magnesium rod protection, the boiler body adopts an enamel furnace tube, and both the inner and outer surfaces of the coil are fully enameled, featuring corrosion and scale resistance and significantly extending the service life of the boiler. Our proprietary fully premixed surface combustion system mixes gas and air through a venturi to form a combustion flame with a temperature below 1000°C; the combustion can be infinitely adjusted, and the NOx emission is less than 30mg/m³. The unique spiral coil heating surface, due to thermal expansion and contraction after being heated, makes it difficult for scale to accumulate on the outer wall of the coil, thus effectively maintaining high heat exchange efficiency for a long time; the thermal efficiency is as high as 102.1%.

Durable and Reliable: Adopting special enamel furnace tube technology, it provides comprehensive protection for the hot water boiler, featuring enhanced corrosion and scale resistance for large-scale water supply in commercial applications.

Low-Nitrogen and Environmentally Friendly: This product is equipped with a unique fully premixed combustion system, which ensures a sufficient mixing ratio of air and gas and reasonably controls the flame state. This not only improves product efficiency but also significantly reduces CO and NOx emissions, making the product more environmentally friendly.

Intelligent Control: Equipped with a reliable intelligent control system and a high-resolution LCD display, it dynamically shows the product's operating status and usage in real time. The product's real-time self-diagnostic function ensures its stable operation. Additionally, it can realize multi-unit linkage group control.

Safe and Reliable: It adopts electric spark ignition and small-load start-up; quadruple protection including thermostat, high-temperature limit, overtemperature protection and temperature-pressure safety valve ensures safe operation; the pressure-bearing capacity is up to 1.0MPa, which can easily cope with water pressure fluctuations in the pipe network.

Long Service Life: It adopts a special enamel furnace tube with excellent corrosion and scale resistance; the advanced electronic anode rod provides more durable protection for the furnace tube.

Easy to Install: The hot water boiler can directly supply heating and bathing for users with out passing through a heat exchanger. It can be installed indoors, is compact in size, and can be connected for balanced smoke exhaust without consuming indoor air.

全预混盘管商用热水炉技术参数
TECHNICAL PARAMETERS OF FULLY PREMIXED COIL COMMERCIAL HOT WATER BOILERS

项目/型号 Item/ Model	额定工作压力 Rated working pressure (MPa)	热效率 Thermal efficiency (%)	水容积 Water volume (L)	天然气耗量 Natural gas consumption (Nm³/h)	电源 Power supply (V/Hz)	进水口 Water inlet (mm)	出水口 Water outlet (mm)	排污口 Discharge outlet (mm)	烟囱 Chimney (mm) (φ)	外形尺寸 Overall dimensions (mm)			重量 weight (kg)
										长 Length (L)	宽 Width (W)	高 Height (H)	
DLPS-99	1	102.1	440	9.7	220/50	DN40	DN40	DN40	108	990	900	2080	500

备注: 1、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。
2、天然气热值按8600Kcal/Nm³
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权利（包括外形、技术、内部结构等）具体以提供图纸为准。

Note: 1. The fuel consumption figures are based on the boiler operating at full capacity, and the actual consumption may vary depending on different operating conditions.
2. The calorific value of natural gas is 8600Kcal/Nm³
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.

搪瓷内胆介绍 INTRODUCTION TO ENAMEL FURNACE TUBE



搪瓷内胆锅壳
Enamel Furnace Tube Boiler Shell

搪瓷内胆成品
Finished Enamel Furnace Tube



FIRSTD BOILER

搪瓷内胆的优势

Advantages of Enamel Furnace Tube:

搪瓷内胆是在碳钢表面喷涂玻璃质釉，经高温焙烧而成，具有耐腐蚀性好，不易结垢，光洁、透明、卫生、环保、不沾物料、清洗方便的特点。

蓝色钛金钢内层的高档瓷釉具有超强的耐高温、无污染、有韧性等特点，面釉可以防油污，低釉可以防生锈。

搪瓷内胆属于高新技术产品，通过在加厚钢板表面进行搪瓷镀膜，可以承受较大范围内的温度变化，一般为：-60~+450°C的温度变化范围，可以能够承受高温骤变。物理特性上，具有抗压、抗张、有弹性、电绝缘、无污染；化学特性上，耐酸、耐碱、耐高温、耐水蒸汽，各种离子均不能渗透其表层，可以有效地保证水质不受污染。

The enamel furnace tube is made by spraying glassy glaze on the surface of carbon steel and firing it at high temperatures. It features good corrosion resistance, is not prone to scaling, and is smooth, transparent, hygienic, environmentally friendly, non-stick to materials, and easy to clean.

The high-grade enamel on the inner layer of blue titanium steel features super high temperature resistance, non-pollution, and toughness. The surface enamel can prevent oil stains, while the bottom enamel can prevent rust.

The enamel furnace tube is a high-tech product. By applying enamel glazing on the surface of thickened steel plates, it can withstand a wide range of temperature changes, typically from -60 to +450°C, and can endure sudden high-temperature variations. Physically, it has compression resistance, tensile strength, elasticity, electrical insulation, and non-pollution; chemically, it is resistant to acids, alkalis, high temperatures, and water vapor. Various ions cannot penetrate its surface, effectively ensuring that the water quality is not polluted.

第一步 涂 搪

内胆的涂搪喷涂，涂搪一般是将釉浆注入制件内，通过往复摆动的喷涂机来达到釉浆均匀挂在制件表面，多余的釉浆通过工艺口排出后回收再利用。

第二步 干 燥

湿的瓷釉层在烧成前必须加以干燥，否则在烧成的时候很容易脱落。干燥后的瓷釉层成为干燥瓷层。

第三步 焙 烧

将涂搪好的内胆制件悬挂在吊架上，通过900摄氏度以上的高温窑炉，实现对制件的搪瓷烧成。

Step 1: Enamel coating

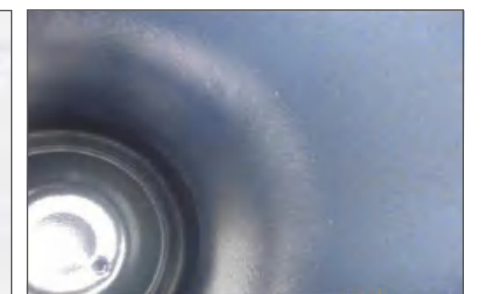
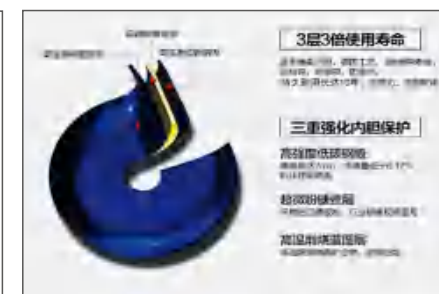
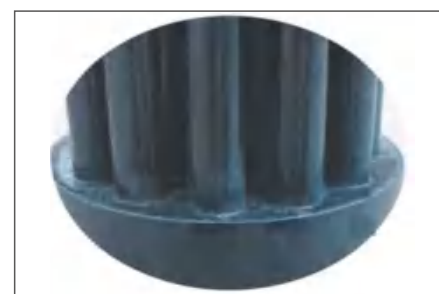
The enamel coating process for the furnace tube typically involves injecting enamel slurry into the workpiece, and a reciprocating spraying machine is used to ensure that the enamel slurry is evenly adhered to the surface of the workpiece. Excess enamel slurry is discharged through a process port and recycled for reuse.

Step 2: Drying

The wet enamel layer must be dried before firing; otherwise, it is prone to chipping during firing. The dried enamel layer becomes a dry enamel layer.

Step 3: Roasting

Hang the enameled furnace tube workpieces on a hanger and pass them through a high-temperature kiln at over 900°C to achieve enamel firing of the workpieces.





感受科技 + 手机智能操控

Technology + Smartphone Intelligent Control

锅炉远程控制 REMOTE CONTROL OF BOILERS:

采用先进成熟的触摸屏4G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 4G Touch Screen 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。

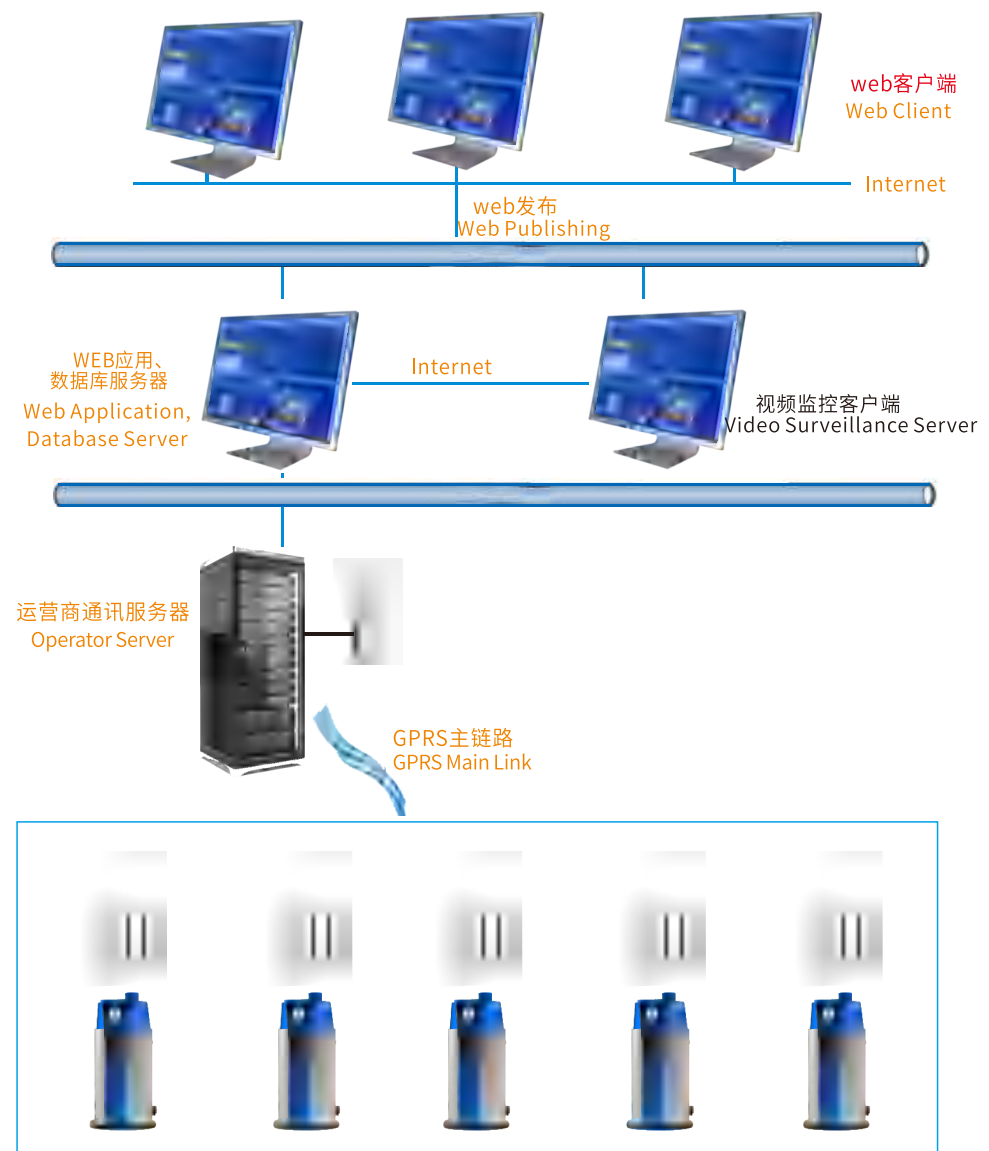
- 1、智能可编辑控制器积木式的扩充模块和充足的预留端口,减少了用户对特殊需要开发的重复投资；
 - 2、多台锅炉联网使用,无须设置主控制台即可使控制系统根据用户的设定温度自动选择锅炉运行台数和分配每台锅炉的负荷；
 - 3、可方便地与目前的办公自动化网(WINDOWS9X、WINDOWSNT、NOVELL等)、工厂自动化控制网络互联,实现锅炉运行状况的远程监视功能；
 - 4、可选配电脑作为监控画面。
- (部分功能为选配)

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. When multiple boilers are used in a network, the control system can automatically select the number of operating boilers and distribute the load of each boiler based on the user's steam consumption, without the need for a main control console;
3. 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;
4. A computer can be optionally equipped as a monitoring screen. (Some functions are optional)



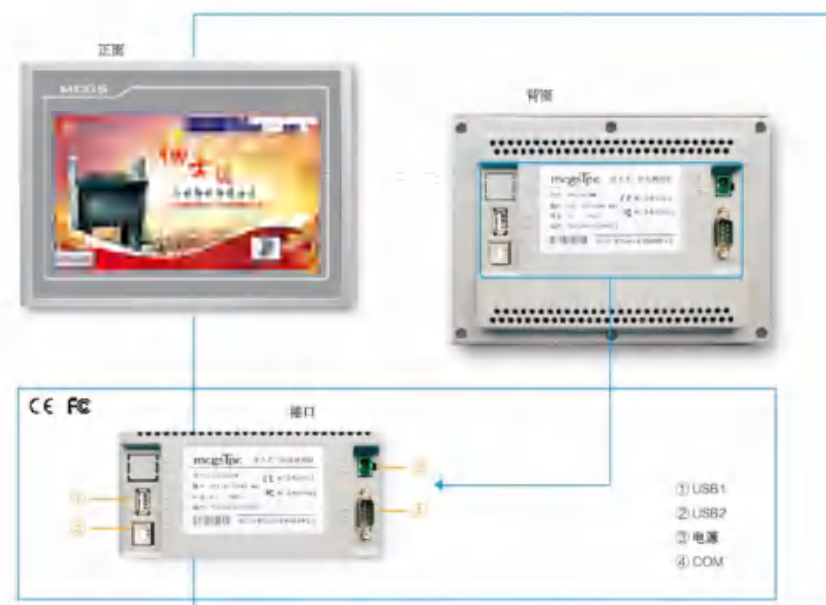
远程监测实时曲线图 Real-Time Curve Graph for Remote Monitoring



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



优质服务 >>> HIGH-QUALITY SERVICE



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!

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.

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.

