



河南永兴锅炉集团有限公司  
HENAN YONGXING BOILER GROUP CO., LTD.



## SHX型循环流化床锅炉

SHX CIRCULATING FLUIDIZED BED BOILER

### 产品简介 Product Introduction

SHX型循环流化床锅炉是永兴锅炉推出的一款双锅筒横置式循环流化床锅炉。它的炉膛内含有大量的物料，燃烧过程中，大量的物料被烟气携带到炉膛上部，经分离器将物料与烟气分开，并经过非机械式回送阀将物料送至床内，进行反复循环燃烧。在运行过程中，可通过向炉内添加石灰石，降低二氧化硫的排放浓度，从而达到国家环保政策的要求。

SHX型循环流化床锅炉，它是一款环保高效节能的新型锅炉。分离器和物料循环回料系统均采用膜式水冷壁结构，燃烧装置采用风帽密布，多孔形式，使得锅炉具有燃烧效率高、负荷调节性好、自动化程度高、灰渣利于利用等优势，在国内具有领先水平。尤其是旋涡内分离器采用特殊线型结构组成，分离效率大大提高，可达98%，最小分离粒径8-12um，减少了对锅炉受热面的磨损。

The SHX type circulating fluidized bed boiler is a double drum horizontal CFB which is introduced by our Yongxing Boiler. During boiler combustion, a large amount of materials inside furnace is carried by the flue gas to the upper part of the furnace. The material is separated from the flue gas by separator, and the material is sent to the bed through a non-mechanical return valve, with cycle combustion. During operation, the limestone can be added to the furnace to reduce the concentration of sulfur dioxide emissions, so that it can meet the requirements of the national environmental protection policy.

SHX type circulating fluidized bed boiler is a new type of environmental protection, efficient and energy-saving boiler. The separator and the material recycling and returning system all adopt the membrane water-cooling wall structure, and the combustion device adopts the wind cap densely and porous form, which makes the boiler have the advantages of high combustion efficiency, good load regulation, high automation degree, and good utilization of ash residue, and so on, owing advanced standard in China. In particular, the cyclone separator is composed of a special linear structure, and the separation efficiency is greatly improved, up to 98%. The minimum separation particle size is 8-12um, which reduces the abrasion on the heating surface of the boiler.

## 性能特点 Performance Characteristics

- 锅炉可在110%–30%的负荷范围内进行调整，可调整范围大
- 强制水循环的利用，使得锅炉运行起来更加可靠、安全
- 燃料燃尽率在98%以上，提高了燃烧效率，降低了损失
- 炉膛内布置的有旋涡分离器，降低了炉膛高度
- 采用双锅筒横置式结构，避免了锅筒直接暴露于炉膛而引起的过热鼓包现象，受热面布置也更加合理
- 分离器采用膜式壁结构，允许烟气中残炭在分离器内继续燃烧，不会引起结焦，提高分离效率
- 脱硫率达到90%左右，降低了SO<sub>2</sub>的排放量，保护了环境，符合国家的政策要求
- 自动控制系统的内部元器件一律采用国际名牌（西门子或德力西），提高了锅炉运行的可靠性

- The boiler can be adjusted within the load range of 110% to 30%, and the adjustable range is large.
- The forced use of water circulation makes boiler operation more reliable and safe.
- The fuel burnout rate is above 98%, which improves the combustion efficiency and reduces the loss.
- A vortex separator is arranged in the furnace to reduce the height of the furnace.
- The double boiler cylinder horizontal structure is adopted to avoid over-heating bumps of the cylinder which is directly exposed to the furnace, and the heating surface layout is more reasonable.
- The separator adopts the membrane wall structure, which allows the residual carbon in the flue gas to continue burning in the separator, won't cause coking, which can increase separation efficiency.
- The desulfurization rate reaches about 90%, reducing SO<sub>2</sub> emissions, protecting the environment and meeting the national policy requirements.
- The internal components of automatic control system all adopt international famous brands (Siemens or delixi), which improves the reliability of boiler operation.

## 辅机配置 Auxiliary Equipment Configuration

辅机系统 Auxiliary Equipment System	辅机系统机器组成 Machines Of Auxiliary Equipment System
• 化水供水系统 Softening And Supply Water System	软水、除盐水系统、除氧器、给水泵、水箱、加氨装置、加药装置 Water Softener, Desalting System, Deaerator, Feed Water Pump, Water Tank, Ammonia Device, Dosing Device
• 蒸汽（热水）系统 Steam (Hot Water) System	分汽（水）缸、减温减压器 Steam Header, Water Header, Temperature And Pressure Reducer
• 燃料供应及制备系统 Fuel Supply System	上煤机、皮带输煤机、破碎机、振动筛、电子皮带秤、电磁除铁器、双犁式卸料器、（煤仓、石灰石仓）、炉前给煤机等 Coal Feeder, Belt Conveyor, Crusher, Vibrating Screen, Electronic Belt Scale, Electric Magnetic Iron Remover, Unloader (Coal Bin, Limestone Bin), Coal
• 烟风系统 Flue Gas And Air System	鼓风机、引风机、烟囱等 Forced Draught Fan, Induced Draught Fan, Chimney, Etc.
• 排污（汽）系统 Blow Down System	连排、定排、取样器、消音器 Continuous Blow Down, Intermission Blow Down, Sampler, Silencer
• 电控系统 Electric Control System	普通控制、PLC控制、DCS控制 Normal Control, PLC Control, DCS Control
• 烟气净化系统 Flue Gas Cleaning System	除尘器、脱硫装置、脱硝装置、气力输灰（灰仓）等 Dust Remover, Desulphur Device, Denitration Device, Ash Bin
• 出渣系统 Slag Removing System	出渣机、输渣皮带、（渣仓）等、锅炉房内其它设备：换热器或发电设备 Slag Remover, Belt Of Slag Remove, Slag Bin, Other Equipment In Boiler Room: Heat Ex-Changer/Generator



## 技术参数 Technical Parameters

### • 蒸汽锅炉 Steam Boiler

型号规格 Model And Specification Unit	锅炉容量 Boiler Capacity (T/h)	工作压力 Working Pressure (MPa)	额定蒸汽温度 Rated Steam Temperature (°C)	给水温度 Feed Water Temperature (°C)	适用煤种 Applicable Coal	设计效率 Designed Efficiency (%)
SHX10-1.25-AI	10	1.0-2.5	194-225	105	各种煤、 矸石、 生物质、 垃圾、 污泥  Various Kinds Of Coal, Gangue, Biomass, Garbage And Sludge	89
SHX10-1.60-AI	10					89
SHX10-2.50-AI	10					89
SHX15-1.25-AI	15					89
SHX15-1.60-AI	15					89
SHX15-2.50-AI	15					89
SHX20-1.25-AI	20					89
SHX20-1.60-AI	20					89
SHX20-2.50-AI	20					89
SHX25-1.25-AI	25					89
SHX25-1.60-AI	25					89
SHX25-2.50-AI	25					89
SHX30-1.25-AI	30					89
SHX30-1.60-AI	30					89
SHX30-2.50-AI	30					89
SHX35-1.25-AI	35					91
SHX35-1.60-AI	35					91
SHX35-2.50-AI	35					91
SHX65-1.25-AI	65					91
SHX65-1.60-AI	65					91
SHX65-2.50-AI	65					91
SHX75-1.25-AI	75					91
SHX75-1.60-AI	75					91
SHX75-2.50-AI	75					91

### • 热水锅炉 Hot Water Boiler

型号规格 Model And Specification Unit	锅炉容量 Boiler Capacity (MW)	工作压力 Working Pressure (MPa)	出水温度 Outlet Water Temperature (°C)	回水温度 Return Water Temperature (°C)	适用煤种 Applicable Coal	设计效率 Designed Efficiency (%)
SHX7-1.0/115/70-AI	7	1.0-1.6	115/130	70	各种煤、 矸石、 生物质、 垃圾、 污泥  Various Kinds Of Coal, Gangue, Biomass, Garbage And Sludge	89
SHX10.5-1.0/115/70-AI	10.5					89
SHX14-1.0/115/70-AI	14					89
SHX17.5-1.0/115/70-AI	17.5					89
SHX21-1.25/115/70-AI	21					89
SHX29-1.25/130/70-AI	29					91
SHX46-1.25/130/70-AI	46					91
SHX58-1.25/130/70-AI	28					91

## 相关案例 Related Project



2017.01 安徽缘酒酿造有限公司30吨循环流化床锅炉  
2017.01 30t/h CFB boiler in Anhui Yuan wine brewing plant



2016.12 河北保定能和电力厂50吨SHX型循环流化床锅炉  
2016.12 50t/h SHX type CFB boiler in Baoding Nenghe Power plant



2012.12 内蒙古大唐国际新能源厂35吨SHX型循环流化床锅炉  
2012.12 35t/h SHX type CFB boiler in Inner Mongolia Datang International new power plant



2011.01 河南周口龙源纸业25吨循环流化床锅炉  
2011.01 25t/h CFB boiler in Zhoukou Longyuan Paper factory

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