Steel & Ferroalloy Solution Provider

COMPANY PRODUCT BROCHURE

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English Russian

CNAS CE ISO SGS

Reliable, excellent, and trustworthy

PRODUCT BROCHURE CATALOG

CATALOG

COMPANY PROFILE

BSBSUCCEED

Founded in October 2003, BSBSUCCEED has experienced a rapid growth over the past 20 years. It now employs over 500 people and exports to more than 100 countries. With annual import and export volumes exceeding $650 million, the company successively ranks among the Top 50 Private Enterprises in Shaanxi province.

The Xi'an branch plays a crucial role in BSBSUCCEED's operations, featuring with two major subsidiaries:

2003
Establishment

500
Staff

100
Exporting countries

TOP 50
Private enterprises in Shaanxi Province

CHNZBTECH

CHNZBTECH serves as the group's international contracting arm, specializing in electric arc furnaces (EAF) for steelmaking and delivering energy-efficient solutions worldwide. Established in 2019 and certified by CE and ISO9001, CHNZBTECH offers a comprehensive range of products, including electric arc furnaces, ladle furnaces, VD/VOD units, continuous casting machines, rolling mills, and low-carbon ferrochrome furnaces. Its competitive edge lies in the reform and innovation of core technologies, emphasizing on high-quality designs and advanced 3D modeling simulations. CHNZBTECH is recognized for its involvement in significant projects, including the largest 350-ton electric arc furnace and a 330-ton refining furnace, solidifying its leadership in the industry. The company serves markets in Egypt, Türkiye, Algeria, Iran, Russia, and beyond, establishing a strong reputation for reliability and exceptional after-sales service.

XI'AN HONGXIN

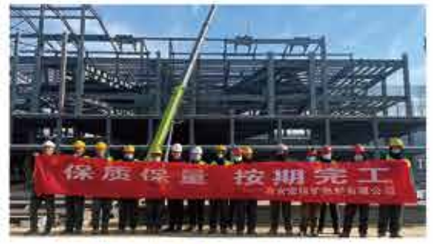
XI'AN HONGXIN focuses on comprehensive EPC (Engineering, Procurement, and Construction) solutions for ferroalloy production plants. The company offers services such as efficient raw material handling, precise batching and feeding systems, energy-efficient submerged arc furnaces (SAF), advanced dedusting systems, and waste heat recovery systems to enhance overall efficiency. With a modern 10,000m² fabrication facility and a skilled engineering team, XI'AN HONGXIN has completed over 300 projects both domestically and internationally. The company has partnered with renowned photovoltaic firms and earned strong client recognition. Notable projects include Oman's largest multicrystalline and monocrystalline silicon project (4x33MVA), India's largest silicon-chromium alloy project, and Iran's largest silicomanganese project (1x33MVA). XI'AN HONGXIN's holistic approach ensures seamless design, fabrication, installation, and commissioning, making it a trusted partner in the ferroalloy industry.

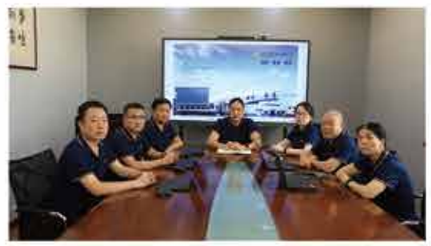
10,000m²
Office manufacturing site

300
Completed EPC projects

60
33 MVA SAF

DC SAF
45 MVA





STEELMAKING EQUIPMENT

350t EAF with Scrap Bucket Preheating System

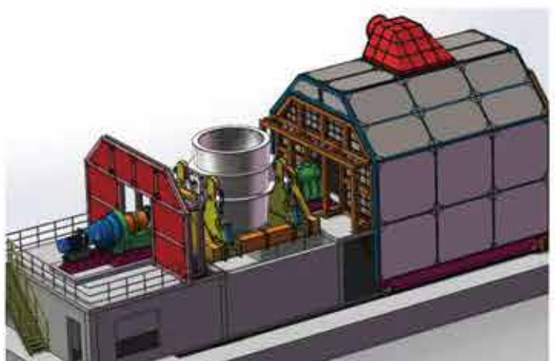
200t Ladle Turret Type LF

Continuous Charging 150t EAF

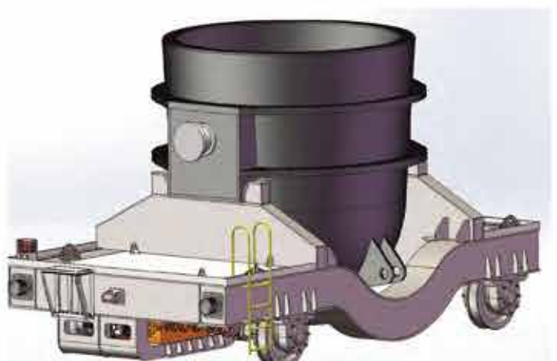
Vertical Charging 120t EAF

Tapping Spout 50t EAF

Tapping Spout 20t EAF



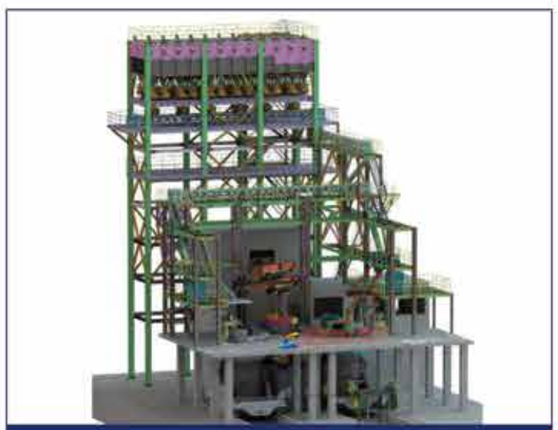
Patented & ECO Ladle Tilting Mechanism



Ladle Car

STEELMAKING EQUIPMENT

Overall Layout of twin-300t LF



Arm Rotating Type 300t LF

180t VOD with Mechanical Pump

STEEL SPARE PARTS

EAF Roof

EAF 350t Arm

Self-consuming Oxygen Lance

Side Wall Burner

Water-cooled Ducts

Water-cooled Lance

MANUFACTURING CAPABILITY

28m CNC Floor Type Boring and Milling Machine

64m CNC Double, Ganty Moving Boring and Milling Boring

MANUFACTURING CAPABILITY

Manufacturing Equipment

Gantry Boringand Milling Machine

28m CNC Vertical Lathe

Reheating Furnace

CNC Coordinate Type Cutting Machine

16m Floor Type Boring and Milling Machine

01

8m CNC Horizontal Lathe

02

10m CNC Vertical Lathe

03

8m CNC Milling Machine

04

23mx5.5m 8m CNC Milling Machine

STEELMAKING LINE

ELECTRIC ARC FURNACE

80t

150t

350t

TECHNICAL PARAMETERS OF ELECTRIC ARC FURNACE

FEATURES OF THE EQUIPMENT

An Electric Arc Furnace (EAF) is a furnace that heats materials using an electric arc. It consists of a large, refractory-lined vessel with a retractable roof, through which one or more graphite electrodes are inserted. The electric arc generated between the electrodes and the material creates intense heat, which melts the material for further processing.

The EAF operates by charging the furnace with scrap steel or other raw materials, then lowering the electrodes to create an arc.

EAFs are highly efficient and flexible, making them ideal for recycling scrap steel and producing various grades of steel. They offer precise control over the melting process, enabling the production of high-quality steel with specific properties. This makes EAFs a crucial component in modern steelmaking and metal recycling industries.

APPLICATION

EAFs are primarily used in steelmaking, where they melt scrap steel or direct reduced iron to produce new steel. This method is highly efficient and flexible, allowing for the recycling of steel scrap and the production of various steel grades with precise control over the chemical composition.

TECHNICAL PARAMETER FOR HX-STEELMAKING EAF

Model	Furnace Shell Inner Diameter	Capacity(T)	Transformer Parameter	Graphite Electrode Diameter
	(mm)	RATED/MAX	Rated Capacity(MVA)	(mm)
HX-0.5	1600	0.5/1.5	0.63	150
HX-1.5	2100	1.5/2.5	1.25	200
HX-3	2600	3/5	2.2	250
HX-5	3200	5/8	3.2	300
HX-10	3500	10/15	5-6.3	350
HX-15	3800	15/20	6.3-8	350
HX-20	4000/4200	20/25	8-12.5	400

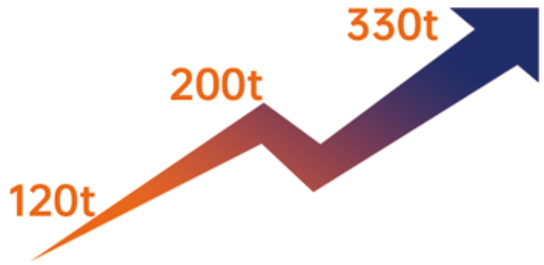
TECHNICAL PARAMETER FOR ULTRA-HIGH POWER ELECTRIC ARC FURNACE

Model	Furnace Shell Inner Diameter	Capacity(T)	Transformer Parameter	Electric Reactor Capacity	Graphite Electrode Diameter
	(mm)	RATED/MAX	Rated Capacity(MVA)	(KVar)	(mm)
HX-30	4600/4800	30/45	25-32	7000	450
HX-60	5400	60/70	45-55	9000-11000	500
HX-70	5600	70/80	55-65	11000-12000	500
HX-80	5800	75/85	60-70	13000-14000	500-550
HX-100	6200	100/120	75-85	15000-17000	550-600
HX-120	6400	120/140	90-110	18000-22000	600-650
HX-150	6800	120/170	120-130	23000-25000	650

STEELMAKING LINE

LADLE REFINING FURNACE (LF FURNACE)

OUR PRODUCTS

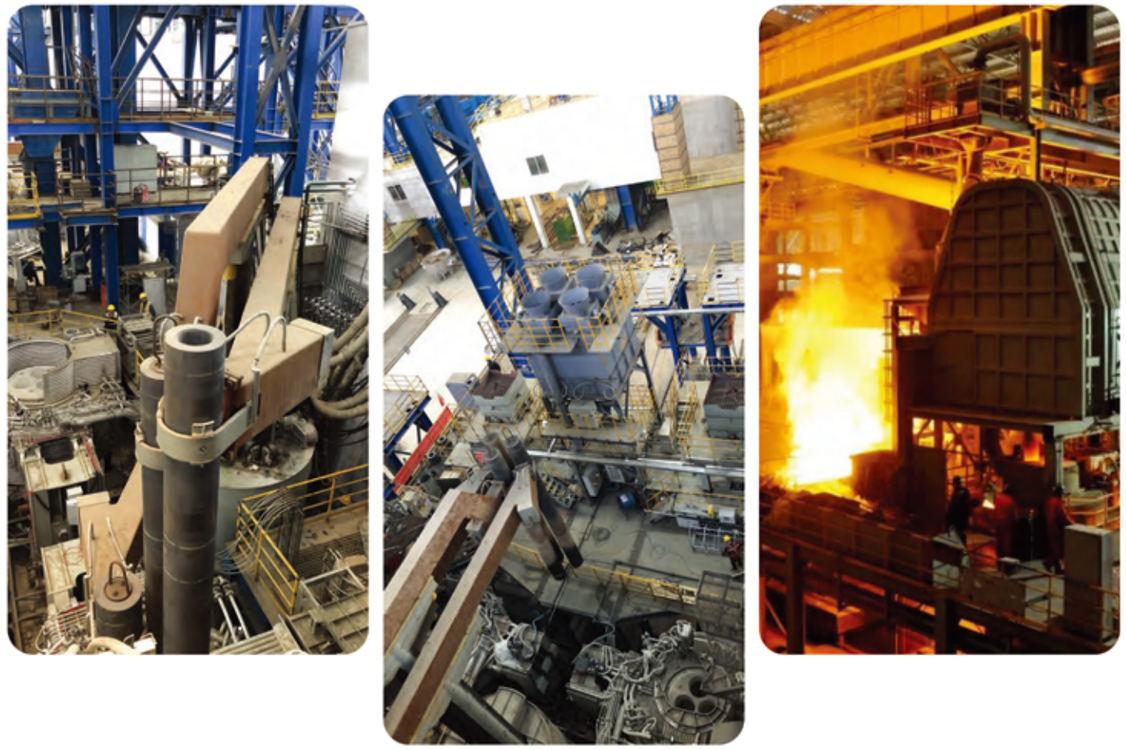


FEATURES

Electrode rotation dual station
Ladle turret dual station technology
Online wire feeding technology
Automatic temperature measurement and sampling technology
The technology of adding scrap steel to refining furnace
Argon blowing automatic control technology

APPLICATION

Ladle Furnaces are essential in the secondary metallurgy process, where they are used to refine and adjust the composition of molten steel after it has been initially melted in a primary furnace, such as an EAF or a BOF. They allow for precise control over the temperature and chemical composition of the steel, enabling the removal of impurities and the addition of alloying elements. This results in high-quality steel with specific properties tailored to various applications, including construction, automotive, aerospace, and manufacturing industries. The use of LF enhances the overall efficiency and quality of steel production, making it a critical component in modern steelmaking.



TECHNICAL PARAMETER FOR LADLE REFINING FURNACE

Model	Ladle Shell Inner Diameter	Capacity(T)	Transformer Parameter	Heating Rate Of Molten Steel	Graphite Electrode Diameter	Circle Diameter Of Electrode Center
	(mm)	RATED/MAX	Rated Capacity(MVA)	(°C/min)	(mm)	(mm)
LF-15	2000	15-18	3	⩾3	250	460
LF-20	2500	20-30	4	⩾3	250	460
LF-30	2700	30-40	6	⩾4	300	550
LF-40	2900	40-50	8	⩾4	300	550
LF-50	3000	50-60	10	⩾4	350	620
LF-60	3150	60-70	12.5	⩾4	350	620
LF-70	3200	70-80	13.5	⩾4	400	680
LF-80	3300	80-90	14	⩾4	400	680
LF-90	3400	90-100	16	⩾4	400	680
LF-100	3600	100-115	18	⩾4	450	740
LF-130	3700	130-145	20	⩾4	450	740
LF-150	3900	150-170	25	⩾4	450	740
LF-200	4200	200-220	30	⩾4	450	740
LF-250	4400	250-270	35	⩾4	500	810

STEELMAKING LINE

VD/VOD VACUUM REFINING FURNACE

01 Main Types

VD/VOD vacuum refining furnace can adopt either single or dual station. Overheaded, pit or vehicle-mounted arrangement can be selected for vacuum tank. Unscrewing and vehicle-mounted movement are optional for the movement of the vacuum tank.

02 Composition

Vacuum tank, vacuum tank cover and lifting mechanism of the cover, steel ladle, oxygen lance mechanism, vacuum charging device, temperature measurement and sampling and observation system, oxygen system, argon system, cooling water system, vacuum pump system, etc.

03 APPLICATION

VD vacuum refining furnace can conduct vacuum degassing for molten steel, alloy composition trimming and argon stirring in vacuum. VOD vacuum refining furnace carries out oxygen blowing, decarburization, vacuum degassing and alloy composition trimming in vacuum, mainly used for refining ultra-low carbon stainless steel, electric pure iron, etc.

50t VD Vacuum Refining Furnace

Vacuum Mechanical Pump

120t VD Vacuum Refining Furnace

Steam Injection Pump

80t VD Vacuum Refining Furnace

TECHNICAL PARAMETER FOR VD/VOD VACUUM REFINING FURNACE

Rated Capacity	Ladle Shell Inner Diameter (mm)	Vacuum Pump Suction Capacity (kg/h)	Working Vacuum Degree (Pa)	Size of Vacuum Tank (mm)
VD-15	2200	150	65	3800*4100
VD-25	2600	180	65	4000*4600
VD-30	2700	200	65	4200*5175
VD-40	2900	250	65	4800*5300
VD-50	3000	280	65	5300*5400
VD-60	3150	360	65	5300*5500
VD-70	3200	380	65	5400*5600
VD-80	3300	380	65	5500*5700
VD-90	3400	380	65	5600*5800
VD-100	3500	400	65	5600*5800
VD-120	3600	420	65	6200*6400
VD-150	3900	450	65	6300*6600

STEELMAKING LINE

CONTINUOUS CASTING MACHINE

01 We can design and manufacture the up-to-date billet continuous casting machine in accordance with the user's steelmaking capacity, billet size, steel grades and the user's field conditions. The detailed design mainly includes:

a
1. Equipment foundation and civil works
2. Steel structure platform
3.Casting radius, strand number

b Ladle support, Turret, Ladle car, Fixed support, Tundish, Tundish car, Tundish roaster, Mould, Oscillation device, Secondary cooling system, Dummy bar, Dummy bar storage device.

c Withdrawal straightening machine, Approach roller table, Automatic cutting machine, Transmit roller table, Cooling bed, Pusher, Hydraulic system, Computer and PLC system.

02 This type of CCM can be designed as curved and vertical-bended according to the user's requirements. It can cast carbon steel, alloy steel and special steel, such as stainless steel, automatic hydraulic control, automatic secondary cooling water distribution, and compressed air-water cooling system.


Ladle Turtet


Square Billet Caster


Roller after Withdrawl


Slab Caster


Roller after Withdrawl

Rolling Machine

We design and manufacture a comprehensive line of precision rolling mills, which are used in the metal rolling process. Our equipment encompasses the entire rolling production process, including main equipment, auxiliary equipment, lifting and transport equipment, and accessory equipment. The rolling mill mainly consists of roller, rolling mill house, package bearing, workbench, rolling guide, rail chair, roller adjustment device, top roll balance device and roller change device, driving device, cooling bed, finishing facilities with cold shear, bundling system with bar counter and wire tying machines, etc.


Rolling Mill

Cooling Bed

Reheating Furnace

Transfer System

FERROALLY PRODUCTION EQUIPMENT
SUBMERGED ARC FURNACE

Description

A submerged arc furnace (SAF) is a specialized heating system utilized to produce a range of iron alloys using electric power. The smelting process within the SAF is energy-intensive, making a significant portion of the total production cost closely linked to energy consumption.

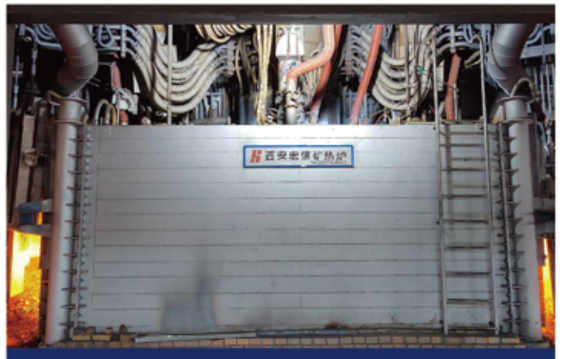
Key Parameters

Parameter	Description
Furnace Type	Submerged Arc Furnace (SAF)
Rated Power	For example: 20-45 MVA
Lining Material	Refractory bricks or castable materials
Production Capacity	10,000-50,000 tons of alloy per year
Power Supply Type	Three-phase AC/DC
Electrode Type	Graphite electrode/Self-baked Electrode/Carbon Electrode
Furnace Temperature	1600°C - 2000°C
Furnace Diameter	6,000-12,000 mm
Cooling System	Water-cooled or air-cooled
Charging Method	Mechanical or manual
Control System	PLC automatic control
Metling Category	Silicon manganese alloy, silicon chromium alloy, ferrosilicon, silicon metal, ferrovanadium, and other ferroalloys

Silicon Metal SAF

SiMn SAF

Ferrosilicon SAF



High-carbon FeCr SAF

Notes

The above parameters are examples and can be adjusted based on the specific equipment model and customer requirements.

The submerged arc furnace can be integrated with dedusting systems, waste heat recovery systems, and other equipment to enhance overall energy efficiency and environmental performance.

FERROALLY PRODUCTION EQUIPMENT
RAW MATERIAL BATCHING & FEEDING SYETEM

Description

In the operation of a Submerged Arc Furnace (SAF), the preparation and feeding of raw materials are crucial for efficient smelting and optimal production of alloys. The raw materials typically include ores, carbon sources, and fluxes, which must be precisely batched and fed into the furnace to maintain the desired chemical composition and optimize energy consumption.

The batching and feeding system consists of several components, including:

Raw Material Storage

Silos or bins that store the various raw materials.

Weighing and Batching System

Automatic scales and batching equipment ensure accurate measurements of each material.

Feeding System

Conveyors, hoppers, or feeders transport the mixed materials into the furnace. This system is designed for controlled and continuous feeding to maintain a consistent operation.

Control System

Advanced PLC systems monitor and adjust the feeding rates, ensuring the proper mix and timing of materials.

Technical Parameters

Name	Parameters
Raw Materials	Silicon manganese ore, silicon chromium ore, carbon sources (e.g., petroleum coke), and fluxes (e.g., lime)
Storage Capacity	Varies depending on the facility (e.g., 100-500 tons for each material)
Batching Accuracy	± 0.5% for each material
Feeding Method	Automatic conveyor or gravity feeding
Control System	PLC-based automation with real-time monitoring
Operational Flexibility	Ability to adjust batch compositions based on production requirements

Material Distribution System

Batching System

Material Belt Converter

Inclined Material Charging

Notes

Accurate raw material batching and feeding are essential to achieving the desired alloy quality and improving overall energy efficiency.

The integration of modern technology in the batching and feeding process enhances operational reliability and reduces manual intervention.

DUST COLLECTION SYSTEM

For Steel Plant

Steel making plant dust collection system captures dust from processes like smelting and casting to ensure air quality and compliance. It uses fans and ducts to direct dust to filtration units (baghouses, ESPs, cyclones) that remove particles and release clean air. Collected dust is stored for disposal or recycling. The system is energy-efficient and regularly maintained to optimize performance and protect the environment and worker safety.

For Submerged Arc Furnace

A dust collection system is essential for the efficient and safe operation of a submerged arc furnace (SAF). These furnaces, used in producing ferroalloys like ferrosilicon and ferromanganese, generate significant dust and fumes. A well-designed dust collection system captures and removes these particulates, ensuring compliance with environmental regulations and protecting worker health. Additionally, it enhances operational efficiency by preventing dust buildup that can disrupt processes and degrade product quality. Overall, the dust collection system is crucial for maintaining a clean, safe, and efficient production environment in submerged arc furnace operations.

For Raw Material and Crashing Workshops

Raw material and crushing workshops dust collection system captures dust from material handling and processing. Using fans, ducts, and filtration units like baghouses, cyclones, or ESPs, it traps particles and releases clean air. Collected dust is stored for disposal or recycling. The system is energy-efficient, with adjustable fan speeds and regular maintenance to optimize performance, reduce environmental impact, and ensure worker safety.

32000KVA FeCr Negative Pressure Dust Collection System →

Dust Colletion ←

Workshop Dust Removal system →

Dry Method Electric Dust

The Negative Pressure Dust Collection System for Titanium Slag SAF ←

STEELMAKING LINE

ELECTRICAL AUTOMATION CONTROL SYSTEM

Electrode Automatic Release & Control system

In Submerged Arc Furnaces (SAF), electrode automatic control is crucial for maintaining optimal operating conditions, improving energy efficiency, and ensuring consistent product quality. The system controls the position and movement of electrodes within the furnace to stabilize the arc, keep the electrode tips at an ideal distance from the charge, and regulate the electrical current.

Electrode Positioning

The system uses hydraulic or electric lifting mechanisms to adjust electrode height precisely.

Current and Voltage Monitoring

Automatic controls adjust electrode height based on current feedback to maintain stability, while voltage monitoring assists in fine-tuning arc length for steady power input.

Load Balancing and Fault Detection

The system balances current distribution across electrodes to minimize wear. It can also detect anomalies such as short circuits and open circuits, triggering alarms or shutdowns when necessary.

Temperature Control

Thermocouples monitor furnace temperatures, and the system adjusts electrode positions accordingly to maintain target temperature ranges. Heat loss is also accounted for, adapting to the thermal properties of different materials.

Automation Algorithms and AI Integration

Advanced systems use adaptive algorithms and machine learning to optimize electrode control based on historical data, improving efficiency and adapting to varying conditions.

Integrated with SCADA systems

Electrode automatic control enables remote monitoring, data logging, and analysis, maximizing automation benefits and reducing manual intervention.

Power Distribution Cabinet | Automation and Control Unit | Current and Voltage Regulator | Signal Processing and Feedback Loop

FERRO-ALLOY PRODUCTION LINE

SUBMERGED ARC FURNACE
For Ferro-alloy

APPLICATION

Submerged arc furnace will be mainly applied for reduction of metallurgical ore to produce the FeSi, FeMn, FeCr, Ferrotungsten, SiMn and Titanium slag alloy, which will be the important material for metallurgical and chemical industries.


42000kVA FeSi Submerged Arc Furnace


42000kVA FeSi Submerged Arc Furnace

Working Characteristics

Submerged Arc Furnaces (SAFs) operate by submerging electric arcs within the charge material, ensuring efficient energy transfer and high thermal output. Designed for continuous operation, SAFs maintain stable temperatures and high energy densities, reaching up to 3,000 ° C. Carbon or graphite electrodes gradually wear, with automatic adjustments to maintain arc stability.

DEVELOPMENT DIRECTION

The development of Submerged Arc Furnaces (SAFs) focuses on improving energy efficiency, automation, and environmental sustainability. Key advancements include better heat recovery, AI-driven process optimization, and advanced off-gas cleaning. SAFs are becoming more adaptable to various raw materials, including recycled ones, and innovations in electrode materials extend lifespan and reduce costs. Integration with other processes and the ability to handle new alloys further enhance their efficiency and versatility for future industrial needs.




SPARE PARTS














SPARE PARTS

FOR STEEL MAKING

Carbon-oxygen Lance for EAF ▶
Self-consuming Oxygen Lance ▶
EAF 350t Arm ▶

Hydraulic Valve Stand for Rolling Mill

Robot Automatic Thermometry Sampler System

Automatic Extension Equipment for Electrode

Exparsion Pad Type Clamper Pressure Ring

Oil cylinder for Electrode Lift

Vacuum Steam Pump

SPARE PARTS

FOR STEEL MAKING

Copper Double-deck Pressure Ring

Furnace Transformer

Hydraulic Brake for SAF

Water-cooled Roof

Rotating System

Charging System

Ladle Car

Holding System after Assemble

20t Induction Furnace

15t Induction Furnace

FOR STEEL MAKING

ELECTRIC CONTROL CABINET

Specializing in designing, manufacturing, installation, commissioning, after-sales service for electrical automation(PLC control system, computer control system, etc.), electric drive (AC drive system, DC drive system, servo control system, etc.) computer application (integration of management and control, production process management, production process execution and management, monitoring system, etc.)

High-voltage Switchgear

KYN61-40.5 AC metal enclosed switchgear

Low-voltage Integrated Switchgear (CCC Certification)

MNS, GGD2, GCS, DKG power distribution cabinet, non-standard control cabinet, transmission cabinet, computer cabinet, etc.

The low-voltage cabinet adopts the Rittal cabinet/GGD cabinet, and uses the nine-fold profile as the frame. The polyurethane foam sealing ring is used to match the water-proof edge of the door frame. The overall protection grade is up to IP54, which is suitable for the electrical automation control field of the metallurgical industry.

L.V Inverter and Elements With International Famous Brands

Siemens, ABB, Schneider.
On-load tap changer use international famous brand:
ABB, MR.

Internationally renowned brand

SIEMENS 西门子电器 | ABB POWER CONVERSION | Schneider Electric 施耐德电气

Electrode Control Cabinet

H.V Cabinet

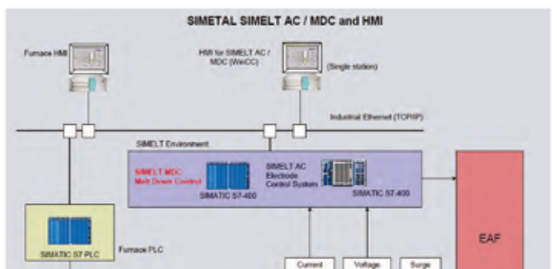
L.V Cabinet

CNC Bus Punching, Shearing and Folding Equipment

CNC Shearing Equipment

CNC Punching and Folding Equipment

Switch Cabinet Assembly Line



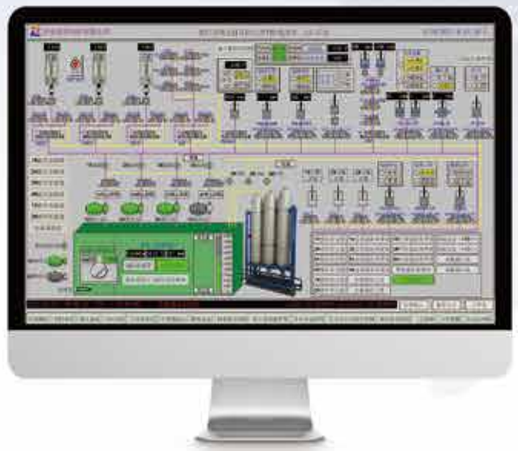
Electric Control System

Monitored Control System

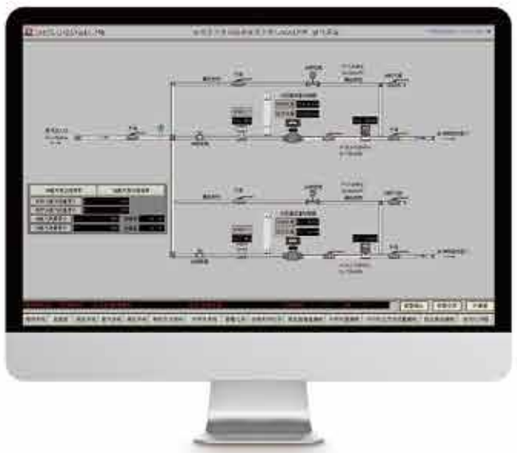
EEECTRIC CONTROL CABINET

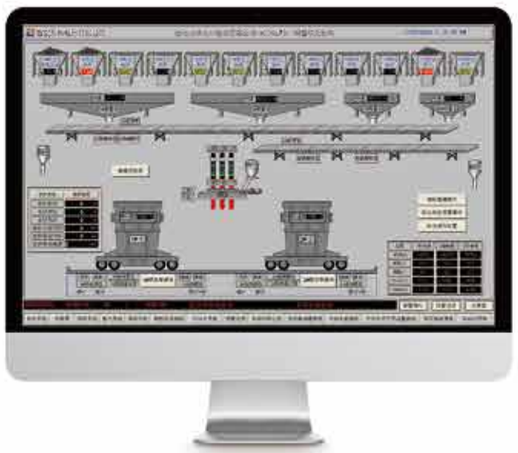
COMPUTER OPERATION

Interface



ELECTRIC ARC FURNACE





LADLE REFINING FURNACE

VD VACUUM REFINE FURNACE

VOD VACUUM REFINE FURNACE

CASES

DC Arc Furnace

Reheating Furnace

27000kVA FeSi SAF

Charging System

30000kVA FeMn Plant Layout

Ferroalloy Matrial Mixing

EPC On-site Construction

80t Ultra-High Power EAF

33MVA Silicon Furnace

Belt Converor Corridor

Cooling Water Pipe Row

Ferroalloy Material Batching

CASES

100t Ladle Refining Furnace

Continuous Charging EAF

27MVA FeSi SAF

100t Ultra High Power EAF

60t VD

Scrap Continuous Charging Syetem

150t Continuous Charging EAF

80t VD

80t Ladle Furnace

120t Consteel EAF

White Corundum Furnace

60t EAF

OUR PARTNERS

PROJECTS		CUSTOMERS
Metal Silicon	4×33000kVA SAF	Xinjiang Eastern Hesheng Silicon Industry Co., Ltd
Silicomanganese	4×25500kVA SAF	Western Hesheng Silicon Industry Co., Ltd
Ferromanganese	2×25500kVA SAF	Fujian Xingheng Silicon Industry Co., Ltd
Metal Silicon	2×30000kVA SAF	Tengchong Kangde Shuncheng Silicon Industry Co., Ltd
Silicomanganese	1×33000kVA SAF(EPC)	Iran AHVAZ ADIMISHK FERRO CO.
Ferrosilicon	2×30000kVA SAF(EPC)	Shaanxi Sanxin (Industrial) Group Co., Ltd
Silicomanganese	2×45000kVA SAF	DC Fugu County Kaifeng Industry and Trade Co., Ltd
Metal Silicon	4×33000kVA SAF(EPC)	OMAN GERRO FERRO ALLOY CO.
Electric Arc Furnace	70t(63000KVA)	IRAN NATANZ-STEEL CO.
EAF(CONSTEEL Type)	120t(110000KVA)	Chongqing Pan Steel Co., Ltd.
Ladle Refining Furnace	330t(70000KVA)	Korean Hyundai Steel
Electric Arc Furnace	350t(320000KVA)	ATS METALURJI MAKINA İNŞAAT SANAYI VE TICARET LIMITED ŞIRKETI
Ladle Refining Furnace	350t(90000KVA)	Turkey Habas Steel CO.
Vacuum Degasser	120t(Steam pump)	Henan Jiyuan Steel Group Co., Ltd.