CISDI GROUP CO., LTD.

Chongqing Headquarters
Address: No.1 Shuanggang Road, Yuzhong District, Chongqing 400013, China
Tel.: +86 23 6354 5366
Email: OB@cisdi.com.cn
Website: www.cisdigroup.com.cn

CISDI UK
Address: CISDI HOUSE, 8 Furnival Rd, Sheffield, S4 7YA, UK
Tel.: +44 1142291067
Email: info@cisdi.co.uk
Website: www.cisdi.co.uk

CISDI India
Address: 503-504, 5th Floor, A-Wing, Galleria Building, Hiranandani Gardens, Powai, Mumbai, India. 400076
Tel.: +91-9702043402
+91 22-49701004
Email: yong.liu@cisdi.com.cn

CISDI Brazil
Address: Rua Pernambuco 1002, Sala 902, Bairro Funcionarios, Belo Horizonte, CEP 30.130151, Minas Gerais, Brasil
Tel.: +55 31 34638880
Email: hao.wu@cisdi.com.cn

CISDI Vietnam
Address: Thuy Hang Hotel, Ky Anh City, Ha Tinh Province, Vietnam
Tel.: +84 912485711
Email: haixiong.luo@cisdi.com.cn

CISDI USA
Address: One PPG Place, Suite 3100, Pittsburgh, PA 15222.
Tel: +44 (0)114 229 1067
Email: info@cisdiusa.com
Website: www.cisdiusa.com

Published By CISDI Corporate Culture Department

CISDI
NEWSLETTER
Vol. 7, 2018

ASSB STEELMAKING AND CASTING SHOP IS HOT COMMISSIONED

IN THIS ISSUE

CISDI

TOTAL SOLUTIONS AND TECHNOLOGY PROVIDER
PREFERRED BY GLOBAL METAL INDUSTRY

FULL-PROCESS SERVICES
CISDI provides full-process services from the bulk material handling yard to the post-processing line of the hot mill.

FULL-FUNCTION SERVICES
CISDI provides standard and customized consulting, execution and operations management services.

FULL-LIFE-CYCLE SERVICES
CISDI provides the FEED (front-end engineering & design), implementation, and production and operations management services through the entire project life cycle.

TABLE OF CONTENTS

BOSS OF CISDI USA GIVES KEYNOTE SPEECH AT NEW YORK STEEL FORUM

CISDI's expertise in full-process steel engineering and its range of intelligent products were recently showcased at the Steel Success Strategies forum in New York.

Robert Smith, the CEO of CISDI USA, gave a speech detailing how the company's intelligent and big data technology is playing a leading role in the transformation of the global steel industry.

Over 700 business leaders and company representatives attending the event, which focussed on global steel trends, raw materials pricing and technological breakthroughs.

WSD's CEO Philipp Englin, Nucor's chairman John Ferriola, JSW and Baosteel leaders were also speakers.

CISDI was the golden sponsor of the event for the second year running and is widening its networks around the world and enhancing its brand awareness as a result.

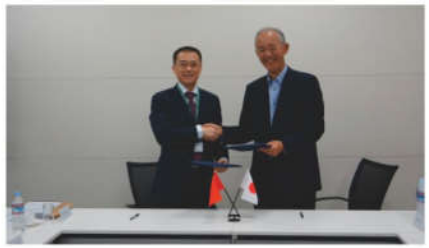
Its team also engaged with clients and partners from the United States, the United Kingdom, Canada, India and China via a interactive exhibition stand at the show.

Robert Smith addresses the forum on behalf of CISDI Group

CISDI's team attend the Steel Success Strategies forum in New York


Meeting clients at CISDI's show stand

SUCCESSFUL MISSION IN JAPAN FOR CISDI'S CEO


CISDI CEO Yu Zhaohui and NSENGI director and president Shinichi Fujiwara renew their blast furnace agreement

CISDI's leaders have returned from a successful business mission to Japan.

CISDI's CEO Yu Zhaohui headed up the delegation and visits were made to some of the country's most high-profile engineering organisations.

They included the Japan's Air Water Incorporation, Nippon Steel & Sumikin Engineering Co, Minmetals Japan Corporation and the Mitsubishi Corporation.

During the trip, multiple co-operation agreements and letters of intention were signed, all of which will expand CISDI's overseas partnerships.

AWI is a large-scale company located in Osaka which supplies to energy businesses in the industrial gas, chemical, drug, food and agriculture sectors.

One of its subsidiaries, Air Water Plant & Engineering, signed a letter of intention to work with CISDI on the testing and marketing of its industrial gas engineering equipment.

NSENGI I, an important global partner for CISDI in the blast furnace sector since 2012, renewed their agreement for strategic co-operation.

Since 2012 the two companies have successfully won contracts for blast furnace construction in India and Japan. The refreshed agreement will also encompass finding markets for CISDI's anti-shock expertise for steel structures.

Minmetals Japan Corporation, one of Minmetals' most powerful overseas subsidiaries which has specialised in mining, nonferrous metals and cast products since 1986, met with CISDI to discuss how to build on the mother company's solid overseas platform and how to utlise local experts to make further inroads into the Japanese market.

Mitsubishi Corporation, a significant long-term partner for CISDI, also renewed its co-operation agreement. Both parties will focus on bids which are currently in progress and investigate future joint projects.


CISDI and AWI are pictured signing a letter of intention for co-operation in Osaka


CISDI and Mitsubishi Corporation renew their agreement

ASSB STEELMAKING AND CASTING SHOP IS HOT COMMISSIONED

The first heat of liquid steel is produced

Qualified billets being cast by Caster 2 at ASSB

ASSB's steelworks in Malaysia is now on track to produce 3.50 million tonnes of high-end wire rods, bars and H sections for the ASEAN and surrounding markets.

Its BOF1 and Continuous Caster 2 were successfully hot-commissioned in mid June.

The completion of the production chain from Blast Furnace 1 to BOF 1 and Caster 2 marks the successful building of all units supplied by CISDI on an EP basis. The whole line now enters its pilot production stage.

Steelmaking shop: Having designed and built over 100 BOFs for steelmaking clients, CISDI used its vast experience to ensure dramatically improved efficiency, guaranteed equipment performance and a well-run project schedule at ASSB.

Applications include CISDI's self-adaptive constraint system, the 4-Point Linkage Suspension System. Its advantages include the ability to absorb a large degree of deformation. It has lightweight facilities, simple structures and is easy to maintain.

Continuous casting shop: The hot-commissioned caster 2 is a seven-strand billet caster which adopts a hot-charge process.

Billet is cut at a high temperature and charged into the hot mill by the high-speed roller table.

This direct hot charge and rolling process reduces heat loss, and means billet does not need to be reheated by the reheating furnace.

Other installations feature a high degree of automation and improve safety and product quality - including tundish continuous temperature measurement, automatic control of the mould level, automatic addition of mould's protective slag, secondary cooling automatic control and strand's surface temperature measurement.

ASSB Steelmaking and Casting Shop has thanked CISDI for the effectiveness of its project team, who had to manage a tight schedule and the complex co-ordination of overseas partners.

CISDI's site supervision services team at ASSB

CISDI'S ROLE AT TATA'S PHASE II DEVELOPMENTS AT KALINGANAGAR

CISDI are designing TSK's Blast Furnace 2, which will be the world's largest

CISDI attended the launch of TATA Steel's second phase of developments at their Kalinganagar steelworks in India's Jaipur region.

Work began in late June on Phase II, which is expected to see the plant reach a final production capacity of 16 million tonnes a year.

The new scheme consists of stockyard, rolling plants, pellet, coking, blast furnace, steelmaking and casting and will be constructed in four phases. The first, once completed, will achieve an output of three million tonnes a year, and the second will create an additional five million tonnes a year.

Headed by Hu Zhichun, the vice president of CISDI Engineering, a CISDI team joined other main suppliers at the meeting.

CISDI is implementing the engineering design for TSK Phase II's Blast Furnace 2, which has a volume of 5,873 cubic metres and an annual output of 4.375 million tonnes.

Due to start-up in October 2020, it will have the world's largest volume for new-builds and is designed as a fully-digital product.

CISDI attending the meeting for start of TSK Phase II

CISDI EQUIPMENT CREATES COLD MILL FOR TANGSHAN'S GANGLU STEEL PLANT

CISDI Equipment Company has completed the manufacturing of a five-stand tandem cold mill for Tangshan Ganglu Steel.

The mill, delivered to the site at the end of June, is designed with six-hi stands and has multiple special features. In work rolls' positive and negative bending, intermediate rolls' positive bending, intermediate rolls' shifting, rolls' skew rolling, and hydraulically automatic gap control (AGC). These actions work in conjunction to optimise the set-up of roll gaps.

The shifting function of the intermediate rolls can adapt to different widths of strip, and ensures a high lateral rigidity of the mill. As a result, it facilitates to roll strips by a large screw-down volume and in a stable way. and a good strip profile and controlled edge thinning can be achieved.

The mill is capable of producing products ranging in thickness from 0.2mm to 2.5mm, and from 700mm to 1,300mm in width.

The tandem mill is the core equipment of a pickling line and its machining accuracy sets a precedent for other Chinese steel manufacturers.

The CISDI Equipment team is pictured assembling the housing under stringent quality and accuracy controls

The mill housing weighs 80.5 tonnes and is 9.3m high, a record weight for a single CISDI-manufacture component. The accuracy of the housing's flatness, parallelism and squareness had to be to within 0.05mm per metre, which posed many challenges during machining, assembly, lifting and inspection.

The five-stand six-hi tandem cold mill is delivered on schedule

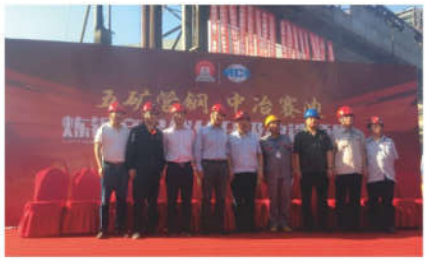
To ensure accuracy, engineers and quality assurance inspectors from CISDI Equipment worked on-site to track manufacturing, handling and assembly. Multiple discussions were held to plan the safe lifting of the housing for certain procedures and specific ropes were bought for safety assurance.

Thanks to such rigorous quality and accuracy operation procedures, the housing's installed squareness was to within 0.03mm per metre, and the gap between the housing and base plate is less than 0.02mm.

This is the second five-stand tandem cold mill supply for Tangshan Steel. The first package supply was delivered to Tangshan's Guofeng Steel Plant in 2015 and the company were very satisfied with its high quality.

THE TRANSFORMATION BEGINS AT MINMETALS YINGKOU

Upgrades which will transform Minmetals' Yingkou Steelmaking Plant, into a more competitive and sustainable operation are now underway.



Minmetals Yingkou Steel and CISDI, who are working on upgrades at the steelmaking plant

CISDI has been appointed the EPC contractor for upgrades to the basic oxygen furnace, slab caster and utilities.

The BOF will improve the quality of the liquid steel being produced, and will also become more environmentally friendly.

A state-of-the-art 450mm slab caster will be installed, which will greatly improving slab quality.

The upgrades will place Minmetals Yingkou in China's top three plate rolling bases.

CISDI'S COMMITMENT TO ENERGY CONSERVATION AND ENVIRONMENTAL PROTECTION

CISDI is committed to developing total solutions which bring greener manufacturing to the steelmaking industry and improve the environment.

Its services and products rigorously follow global eco-friendly developments and substantially increase energy efficiency, develop waste to energy solutions and reduce emissions, enabling businesses to ensure their production processes adhere to governance.

Expertise in intelligent large blast furnace energy conservation

CISDI's bosh-gas-index-based intel igent blast furnace energy conservation technology was listed in the *National Key Energy-saving and Low-carbon Technolcgical Promotion Directory 2017*, the only steel subject to achieve such recognition.

For large blast furnaces, the technology can achieve an ideal fuel ratio of under 485kg per tonne and a gas utilisation efficiency of no less than 52%. It has been applied to 21 large blast furnaces with volumes of over 4,000m^3 and 24 medium-sized blast furnaces with volumes range from 2,000m^3 to 4,000m^3.

Baosteel Zhanjiang's twin 5,050m^3 blast furnaces

Applying CISDI's energy conservation expertise can result in an annual energy saving of 396,000 tce, a reduction in carbon emission of 1.045Mt CO_2, and an annual economic benefit of $50million from saving energy.

Intelligent stockyard expertise

Ruifeng Steel's eco-friendly stockyard
ECIA - highly competitive, integrated and adaptable, built by CISDI to EP+CM mode

CISDI's bulk material storage and enclosed stockyard technology has been granted a patent by Japan's Patent Office.

This innovative technology won a Chinese patents award in 2017 for its excellence in promoting energy efficiency, consumption and cost reduction and green online rebuilds.

It addresses common stockyard problems such as lack of available space, limited storage capacity and variety, and inferior adaptability of materials' property.

CISDI's environmental-protection stockyard expertise has been successfully applied to more than 40 projects both at home and abroad.

Application targets achieved:

Ruifeng Steel's eco-friendly stockyard's storage capacity is now 250,000 tonnes a year over an area of 21,000 square metres, meeting the stock demands of a hot metal output of 3.95 million tonnes a year.

An annual reduction in material loss of 30,000 tonnes has been achieved, and dust emissions have reduced by over 90%, saving labour by a minimum of 40% and conserving land use by 65%.

Further Example:

An online rebuild for environmental benefits in Handan City resulted in a 20% reduction in land use while doubling storage capacity, a minimum 80% reduction in flying dusts and material losses - and a $15 million reduction in operating costs.

The environmental-protection stockyard at HBIS Handan Steel

CISDI's Green EAF

A national S&T-programme-supported project: pictured is an 80 tonne EAF with scrap preheating
Its features include penetrative preheating expertise for scrap melting, inclined bin feeding, a tap-to-tap cycle of 50 minutes, and an electric consumption of 320kWh per tonne.

CISDI's new-generation development Green EAF is achieving significant energy savings and environmentally-friendly benefits for the steel industry.

First applied in 2017, it uses 100% scrap for smelting, effectively reducing power consumption to 300-340 kWh per tonne, and electrode consumption to less than 1.2kg per tonne. The generation of dioxin is controlled, the tap-to-tap cycle can be shortened to 40-50 minutes and productivity can be improved by 10-30 per cent.

CISDI took the lead in establishing China's first Green and Smart EAF Industrial League, aiming to build brand awareness for the country's electric arc furnace industry.

A 3D model of CISDI's Green EAF

Waste-to-energy expertise

CISDI's rotary hearth furnace direct-reduction technology makes a major contribution to cost savings by converting solid waste to energy.

Solid wastes are graded and processed according to their different compositions and iron, zinc and carbon are fully recovered.

No wastes are discharged from the steel plant and product cost is greatly reduced. World-leading operation indicators of de-zincification (over 85% ratio) and metalisation (over 70% ratio) are achieved.

CISDI has been granted over 50 patents for its rotary hearth furnace technology.

The solid waste treatment centre at Baosteel Zhanjiang Plant

CISDI's rotary hearth furnaces solve the problem of treating Fe and Zn-bearing dusts and OG dusts. Their smooth operation and fast ramp-up enable the blast furnace's Zn load to be stabilised below 150g per tonne of hot metal, contributing greatly to a smooth running blast furnace.

Water treatment expertise

CISDI's design-research-simulation platform and advanced process gives total solutions for industrial water systems.

Raw water structure, supply water quality, structure and flow rate are optimised, which reduces water consumption and conserves and protects water resources.

The water resources integrated security unit at Baosteel's Zhanjiang Plant

Being China's largest rainwater re-use facility and a world-leading seawater desalinisation facility, it is a strong example of urban water integrated reutilisation for incorporating cascade water recycles and reclaimed water reuses.

The zero-liquid-discharge project for Hebei Jingye Group

It employs a combined means for testing, CAE (computer aided engineering) plus lab test. Starting from a pilot plant and finally reaching fill commercialisation.

This comprehensive waste water treatment solution modifies biochemical treatment, preassembled/integrated facility treatment, deep processing and recycling to realise zero liquid discharge.

THREE NATIONAL STANDARDS ARE RELEASED IN CHINA

Three national standards for China's steel industry will be implemented from January 2019.

They were chaired by CISDI's Electric Arc Furnace Institute for compilation and revision, and are named as:

- GB/T 10067.414-2018 Basic Technical Conditions for Electric Heating and Electromagnetic Treatment Devices: Part 414 – Industrial Jewel Furnace
- GB/T 13338-2018 General Rules for Determination and Calculation of Industrial-Fueled Furnace Heat
- GB/T 30839.47-2018 Energy Consumptions for Industrial Electric heaters: Part 47 – Electric Heating Bath Furnace

Their release further completes the standardisation system for electric heaters, with enhanced co-ordination and applicability.

China new national standards will provide more references and guidance for stakeholders and play an important role in promoting industrial developments, smart and green manufacture standardisation and the industrial electric heater industry.

The National Industrial Electric Heaters Standardisation Commission has requested the involvement of CISDI's Electric Arc Furnace Institute - as editor-in-chief and for revision work - for 77 standards.

CISDI BUILDS CHONGQING MUNICIPAL GREEN METALLURGICAL EQUIPMENT AND SYSTEM ENGINEERING CENTRE

Mid June saw the launch of the Chongqing Municipal Green Metallurgical Equipment and System Engineering Centre at CISDI Equipment Co.

One of China's 75 key municipal engineering research centres in 2017, the centre sets new and more stringent requirements for green metallurgical equipment research, design, development and manufacture.

As a solid prop for CISDI Group's steel sector, CISDI Equipment welcomes this organization as an opportunity for consolidating scientific and technological innovation, renovating the innovation system and pursuing breakthroughs in green and smart manufacture.

It offers China's state-owned enterprises a new development path as they explore higher-quality developments.