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CISDI NEWSLETTER

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Solid waste discharge eradicated at WISCO's Wuhan plant, thanks to CISDI

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CISDI

Technology and Solutions Partner for the Global Metals Industry

FULL-PROCESS SERVICES

CISDI provides full-process services from the bulk material handling yard to the final post-processing line of rolling 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 throughout the entire project life cycle and provides continuous after care services and support.

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CISDI wins award for excellence from supply chain partner Baowu

Aerial view of Baosteel Shanghai - China's most modernised steel enterprise, which was master-designed by CISDI

CISDI has received an award for excellence from Baowu Group.

Mr Peng Xiao, CEO of CISDI Group, received the award at Baowu's first suppliers meeting and green, intelligent supply chain forum.

Baowu's president, Wangming Hu, delivered a speech at the meeting, which was held at Shanghai's recently opened exhibition and cultural space, Blast Furnace - the Steel Convention and Expo Centre.

CISDI has a long-standing partnership with Baowu Group and is one of its most trusted service providers, having been involved in construction projects at Baosteel, WISCO, Zhanjiang Steel, Meishan Steel and other major plants.

A relationship has flourished and led to CISDI providing full process, full industrial chain services, including consulting, engineering, supplies and research and development.

A close partnership has also been consolidated with many of Baowu's core subsidiaries - Obei/Ouyeel Industrial Products, Baowu Clean Energy and Baowu Aluminium - and their standout projects have achieved green and intelligent results.

CISDI has pledged to continue its commitment to developing an optimal steel ecosystem for Baowu, with greener, smarter solutions and greater savings.

Baowu Shaogang

The Shaogang integrated, intelligent control platform is a global steel first

Baowu WISCO's intelligent control centre in Wuhan, built by CISDI

Baosteel Meishan's 280-tonne BOF, supplied by CISDI, features the largest tonnage and is the first of its kind in China. It applies CISDI's patented SACS expertise, operating with a 4-point linkage suspension system

Baowu Masteel's intelligent park and landscape upgrade projects (EPC-based services)

A star demo for the harmonious integration of industry and city

The award of excellence trophy and certificate CISDI received from Baowu in recognition of its supply chain services

An exterior view of Blast Furnace - the Steel Convention and Expo Centre

Aerial view of Baosteel Zhanjiang - the world's most-efficient, green carbon steel producer. Master-designed by CISDI, the site was awarded China's gold prize for top-level projects and was also a global FIDIC winner

Link »»»

The Blast Furnace – Steel Convention and Expo Centre in Shanghai opened in December 2020.

A former blast furnace ironmaking area at Shanghai Steel's Plant 1, later incorporated into Baosteel, has been transformed into an exhibition space celebrating Baosteel's steel heritage.

The old 2,500 cubic metre volume furnace had been designed by CISDI and operated from 1999 to 2016.

It has now been transformed into a stunning piece of modern architecture. Its external walls and roofs were completely removed and replaced with modern, artistically-designed structures.

The second floor of the centre features a time tunnel leading to the blast furnace's casthouse platform, which is now a sightseeing stand where visitors can learn about past steel achievements.

The centre's detailed design and EPC-based construction was carried out by CISDI, who strived to conserve as much of the industrial structures as possible while creating sufficient space for functions and events.

CISDI and Esri China unite to drive innovation

CISDI Group and Esri China Information Technology Co. are joining forces.

The Chinese giants recently signed a strategic partnership agreement at a ceremony at CISDI HQ in Chongqing.

The contract will lead to a pooling of knowledge and skills in technological innovation and flow manufacturing products and processes.

Mr Ning He, head of Esri, emphasised his company's determination to be innovative, user-centric and research-driven and its commitment to working with CISDI: "Our partnership will synergise our mutual strengths to create total solutions for customers seeking systematic, economic, sustainable and versatile competitiveness."

Xuewen Xiao, head of CISDI, commented: "CISDI's metallurgical achievements over more than 60 years have been empowered by its advances in intelligence and information tech.

The strategic partnership agreement is signed between CISDI and Esri China at CISDI HQ

"Esri's GIS specialisms, developed over three decades in China, deliver bespoke, tangible results. Our partnership will be mutually beneficial and will reinforce each other's fortes.

"Long-term and sustainable consolidation will ensure our collaborative innovations in GIS-based total solutions better serve the industrial eco-chain."

Link »»»

Esri, the global market leader in GIS, has been helping customers get results since 1969. Its locally-owned software companies across the world have decades of regional experience and deep expertise in local issues.

As a world-leading GIS-based service provider, Esri has been present in China for over three decades, making it the trusted leader in location intelligence across the region.

Its GIS platform research, sales, technical support and business solutions help customers of various sectors solve difficult problems by deeply understanding their challenges and opportunities and working together toward viable solutions.

Eris has become an important GIS product and service supplier in China, helping Chinese enterprises expand their digital transformation and innovation in public and commercial spaces.

Turkish steel giant fires up new, CISDI-supplied COG holder

Isdemir COG holder, supplied by CISDI, is now operating

All teams, including CISDI engineers and their manager, are pictured at the newly-operational gas holder at Isdemir in Turkey

Isdemir's new coke oven gas holder has gone into operation in Turkey.

CISDI's patented core product, featuring piston, oil-seal and cylindrical shell designs, has been applied.

The new POC gas holder, already achieving results for 70 per cent of the Chinese market, will bring the steel plant tangible energy and environmental benefits.

All CISDI's supplies met with Turkish technical standards and its technical assistance services were in line with Turkish constructional practices.

CISDI's team took technological control of the gas holder's construction and provided training and instruction for the operators.

Employing their expertise and a thorough understanding of the client's requirements, the team created a tailored solution for the equipment installation process, enabling welding and inspections to be implemented on the same operating platform.

This innovative method guaranteed mounting precisions and met western constructional safety regulations.

During the 30-month project, CISDI fulfilled all tasks, design reviews and ex-works delivery inspections to western standards.

There were numerous problems to overcome; Chinese supplies and onsite construction suspension were delayed by the pandemic, there was a spare parts shortage and workforce issues during commissioning.

The team kept onboard with the client and construction teams even when the pandemic restricted international travel.

Timeline of the Isdemir COG holder project:

- February 2019 - Order is placed
- November 2019 - Detail design reviews completed
- July 2020 - Last batch of equipment is delivered
- January 2021 - Gas holder's piston is successfully tested floating
- April 2021 - Gas holder is capped
- July 2021 - Commissioning starts
- October 2021 - gas holder is started up

Going smarter and greener: Revamp begins at Shaogang's blast furnace 7

CISDI's team, pictured at its onsite office. The team is pushing to deliver all work on-schedule and to the quality standards set for blast furnace 7 as it goes through green and energy-efficient upgrades

Peng Xiao is pictured with representatives of Shaogang and its partners at blast furnace 7's construction launch

After successfully creating Baowu Shaogang's blast furnaces 6 and 8 at its site in China's Guangdong Province, CISDI are now ploughing ahead with the rebuild of blast furnace 7.

CISDI's CEO Peng Xiao, present at the construction launch, said: "We will go all-out to revamp the furnace to the highest green and intelligent standards and quality requirements and increase its output and lifespan."

CISDI's expert team is applying BIM designs which, in addition to improving the project's digital levels, will also facilitate digital construction management.

The revamp will also focus on combining the latest intelligent manufacturing technology with conventional production technology. CISDI has designed an intelligent upgrade methodology which encompasses smart decision-making, operation control and production.

Peng Xiao stated CISDI's commitment to ensuring high-quality. Design and construction resources are well-organised, all drawings have been fully cross-checked, specialist technical assistance is being dedicated to the project and project management is painstakingly detailed.

Masteel's new silos are up and running

World-leading intelligent ECIA-E coal yard built by CISDI

The CISDI-built ECIA-E coal yard at Baowu Masteel has world-class indicators

New coal silos are now operating in the south of Masteel's coking plant, thanks to CISDI's expertise.

Known as the phase II project, it went live ten months after phase I became operational at the end of 2019.

CISDI was the EPC-based service provider for both phases, which have transformed the original open coal yard into a world-leading, intelligent ECIA-E integrated storage and blending demo.

Coal storage space has been reduced by 80 per cent and the loss of materials which normally happen at open yards during high winds and storms has been greatly reduced.

An advanced tech product, ECIA is CISDI's major innovation for handling bulk materials. Integrated, intelligent and adaptable, it transforms sites and boosts eco-friendly ratings, efficiency and competitiveness.

Masteel is delighted with the new silos. "Our coal coking plant is now working cleanly with smarter, more efficient and precise storage and blending."

CISDI had designed and built the silos' receiving, storage and blending, crushing and discharging systems.

They can now feed precisely-proportioned coals for six coke ovens.

Clean and intelligent handling tech has been applied, improving environments inside and outside the steel plant by minimising the risk of falling materials and blockages.

It was a challenging project for the team, who worked against complicated interfaces and a tight schedule.

"Since construction began in May 2018, our engineers have been optimising their technical solutions. They have brought green, intelligent innovation onboard along with our wealth of experience in engineering and operational support," said a CISDI spokesperson.

"The pandemic and threatened typhoons never held the team back. Advance-planning meant they could continue accelerating the project.

All targets were met and a high-standard of construction was achieved which is bringing world-leading results for Masteel.

Solid waste discharge eradicated at WISCO's Wuhan plant, thanks to CISDI

WISCO's iron-bearing sludge recovery installations

A rotary hearth furnace 1 built at WISCO, one of 2020's major engineering projects in China's Wuhan City, is operating with stable indicators.

CISDI designed the RHF plant and supplied the critical equipment.

A sludge pre-treatment line and two rotary hearth furnaces, each with a projected annual capacity of 200,000 tonnes, were built to recover the steel plant's iron-bearing resources.

The rotary hearth furnace features direct reduction tech and was exclusively developed by CISDI Thermal & Environmental Engineering Co. It is a highly effective solution for turning waste products into energy.

Iron-bearing solid wastes are recovered and reused in production procedures instead of generating secondary pollution. Zero solid waste is discharged from the steel complex, which makes a valuable contribution to the urban circular economy.

The construction met severe challenges during the pandemic. The first known infections from COVID-19 were discovered in Wuhan, the capital of Central China's Hubei province.

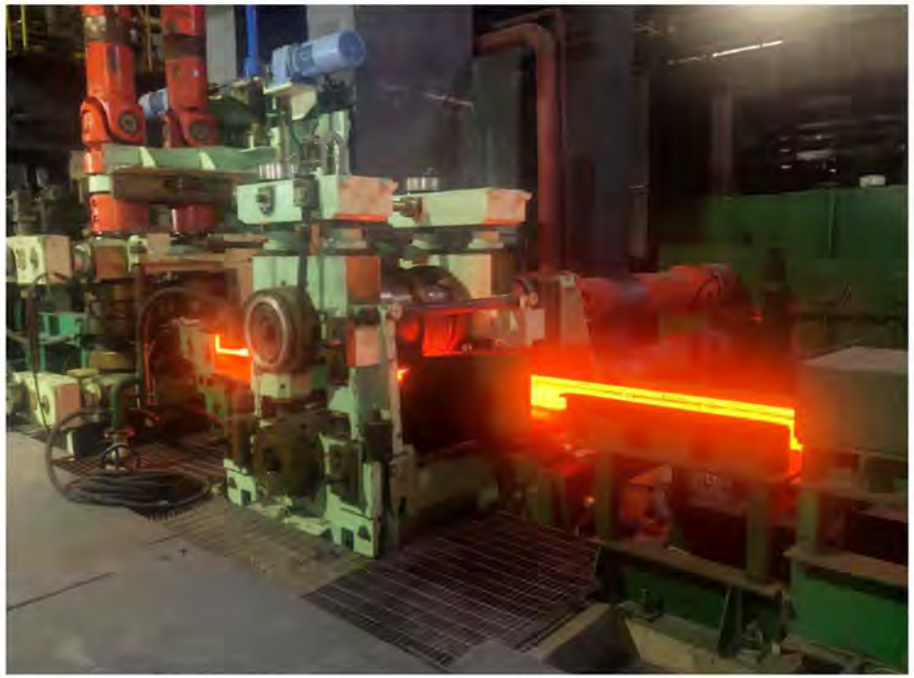
Our team stayed committed to their duties onsite and collaborated with WISCO and the builders after lockdown restrictions ended.

Scientific approaches to plans and controls ensured the project met all quality standards and completed on-schedule.

CISDI is proud to be playing a part in helping the Baowu WISCO plant, which is in Wuhan's Qingshan District, develop eco-friendly measures which protect the city's environment.

The plant's green production credentials now match those at Baowu's Zhanjiang and Shanghai bases, where CISDI's rotary hearth furnaces are already running smoothly.

EIC upgrade for Pangang Steel and Vanadium



Pangang's rolling line has been upgraded with an advanced EIC system, supplied and technically supported by CISDI Electric Technology Co.

Pangang's bar and wire-rod rolling lines have been upgraded with new electric, instrumentation and computer systems.

CISDI contributed to the design, supply and technical assistance. Commissioning took about a month and was carried out alongside other equipment commissions.

The rolling lines are now producing high-quality products for Pangang Steel and Vanadium Co. in the Sichuan Province.

"CISDI is our close partner and projects we work on together are consistently successful. Their design quality, commissioning support and control of scheduling are indispensable to our upgrading targets," commented a Pangang spokesman.

CISDI proposed the inclusion of EIC systems with multiple optimised control strategies in the rolling line modifications. This idea was strongly supported by CISDI during collaboration on constructions and commissionings.

Anyang Steel's gas recovery power generation project breaks ground

Representatives at the ground-breaking event for Anyang Steel's gas recovery power generation project

Construction has begun at the site of Anyang Steel's new gas recovery power generation project.

A ground-breaking event was attended by the company's president, Runsheng Liu, CISDI Group's CEO Peng Xiao, Dongfang Boiler Group's CEO Zhaochuan Liu and government representatives from China's Yindu District.

This project will achieve zero gas bleeding and transform the plant's energy efficiency ratings.

Partnering with Dongfang Boiler Group, CISDI will be applying China's state-of-the-art, subcritical-performance power generator unit, building a new gas holder and upgrading three existing steam-driven blowers and a 220kV substation.

This is a major step in accelerating the replacement of Anyang Steel's old growth drivers.

The steel plant will see an essential enhancement of its overall energy efficiency and become one of China's greenest steel plants.

Artist's view of Anyang Steel's gas recovery power generation project

The 'Iron Man' moves seamlessly into place

Successful delivery of CISDI-made mega 3-roll cross tube mill

The 3-roll cross mill stands are being installed at a Chinese steel plant. Manufactured by CISDI, they feature the largest calibre of their kind in China.

CISDI's Jiangjin manufacturer in Chongqing has delivered the huge critical upper and lower stands made for a mega 3-roll cross rolling mill.

They will be installed at a Φ720mm tube mill upgrade plant in China.

The mill will have the largest calibre in China, a total weight of around 485 tonnes and a total height of around ten metres.

Its complex equipment, which looks like a giant iron man, is the most important part of the rolling line. It is designed to produce seamless steel tubes with a specification ranging from Φ273mm to Φ508mm, and achieve an annual 300,000-tonne output.

The 'iron man' has been created by CISDI Equipment Co's vast expertise in technology, rivet welding, machining, assembly and quality control, and many hours of labour.

By closely monitoring the manufacturing flows from rivet welding to machining and assembly, the team ensured all schedules and quality targets were met.

Welding and machining procedures were skillfully completed in the face of heatwaves in the Chongqing region and onsite welding preheating temperatures reaching over 150 deg.C.

Other difficulties to overcome included the tilting of huge pieces of equipment and tuning the eccentric gravity centre for manufacturing.

To smooth the assembly process for the giant equipment, preparations were made a month beforehand. Reliable, precise and safety-conscious solutions were exactingly planned by the product design, HSE and shop teams. This ensured the successful lifting of a 150-tonne upper stand and tilting it by 90 degrees at an elevated position.

The auxiliary facility's assembly and painting teams kept on-target with every task.

The delivery team made their transportation plans for the two massive stands at the beginning of the project after consulting with multiple carriers to select the correct truck and route, draft a barrier removal plan and apply for transport permits.

The entire manufacture and delivery at CISDI Equipment Co. was precisely organised and implemented and the giant equipment reached the steel plant safely.

The lower stand of the 3-roll cross mill, being loaded onto a truck before heading to the steel plant

Yongyang installs heavy rail rolling equipment

Yongyang Special Steel is installing its heavy rail rolling equipment and preparing for commissioning.

Once completed, it will be China's first self-developed universal mill-centred heavy rail production line.

The equipment has been manufactured at CISDI Equipment Co. in Chongqing's Jiangjin District.

The order, placed in June 2020, includes supplies of CISDI core equipment - the BDCD breakdown mill, 3-stand reversible UMCD universal mill and portal horizontal and cantilever vertical straighteners.

Building on CISDI's existing standardised universal rolling tech and equipment, the heavy-rail rolling mills and units have been internally tested and their innovative designs and manufacturing skills verified.

Highlights and achievements:

- High-rigidity housing structures
- State-of-the-art technology control system, integrating the automatic roll gap control and the hydraulic position control
- Intelligent, high-precision universal mill
- Improved automation level and productivity
- Enhanced product quality

The CISDI-supplied 3-stand reversible universal mill has already been installed at Yongyang Special Steel. It will be the first heavy rail rolling line to be developed solely in China.

The CISDI-supplied breakdown mill train 1 (BD1), installed at Yongyang's heavy rail line

The cantilever vertical straightener fitted into place

The portal horizontal straightener in place at Yongyang heavy rail line

Yongyang is close to the end of installing combined straighteners, consisting of a portal horizontal straightener and a cantilever vertical straightener. This is another first, achieved through CISDI's independent research, development, design and manufacture.

They will be commissioned in unison with the universal mill.

CISDI wins CSF's first-ever award for metallurgical tech

Blast furnace simulation model wins S&T innovation prize

CISDI's blast furnace simulation model development, and its application to upstream-ironmaking big data-based integrated control, has received a major accolade in China.

It won second place for scientific and technological innovation from the China Simulation Federation at the 33rd CSF Convention in Beijing.

It is the first innovation in metallurgical tech to win, and the award was made in recognition of CISDI's simulation research and development and applications in the simulation sector.

The tech constitutes a deep integration of simulation in the steel industry. A full-furnace simulation model has been established against complicated settings. Production's intelligent analysis and operational forecast and diagnosis models have also been developed, based on the furnace model.

A screen image mirroring the blast furnace stack captured from CISDI's upstream-ironmaking big data-based integrated control platform

Thanks to its innovative models, the black box metallurgical production within the blast furnace can be further unfolded, significantly enhancing the digital control of production.

The tech has been successfully applied at a number of steel plants around the world, which are showcasing world-class performances.

A screenshot of a blast furnace expert system from CISDI's upstream-ironmaking big data-based integrated control platform

New application of CISDI's online strand quality evaluation system

Screenshots from CISDI's CQE system HMI

Xianfu Steel in the Yunnan Province's Yuxi City, has placed an order for CISDI's online strand quality evaluation system.

Strand's quality real-time forecast is a hot research and development topic globally, and presents an important indicator for a continuous caster's equipment level.

CISDI's CQE system combines quality control and forecasting based on long-term studies of secondary cooling dynamic distribution and soft reduction models. Predictive algorithms are introduced for working out the evaluation system.

The CQE system functions:

- acquires caster's control data and operator's operation data
- makes real-time forecasts on strand quality based on forecasting model
- enables timely detection of problems, removing quality defects or regulating process parameters
- optimises continuous casting production process
- enhances product pass rate
- helps to reduce carbon from the casting procedure

CISDI Intelligent and Green Stockyard

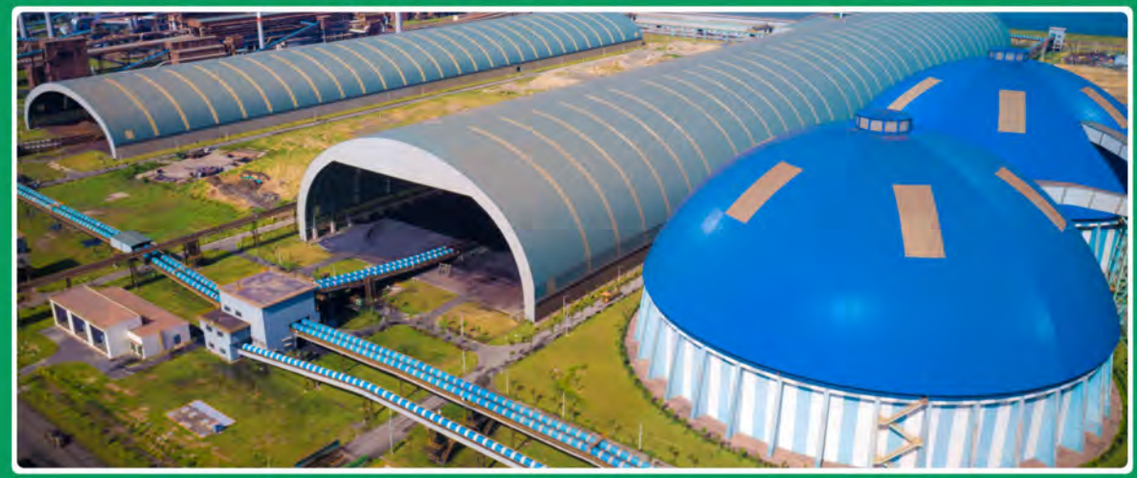
Over the last decade, our world-leading stockyard solutions have helped 70 per cent of the steel world's stockyards to operate with greater efficiency, improved economics and green credentials.

The 170-plus new and rebuilt stockyards created through CISDI's expertise have a total production capacity of nearly 500 million tonnes a year.

They feature eco-friendly storage, clean production methods and intelligent control.

The stockyard at Formosa Ha Tinh Steel in Vietnam, the new and the largest green stockyard beyond China

Baosteel Shanghai's green stockyard rebuild, the largest of its kind in the world



Baosteel Zhanjiang's coastal stockyard, the world's most intelligent and greenest

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