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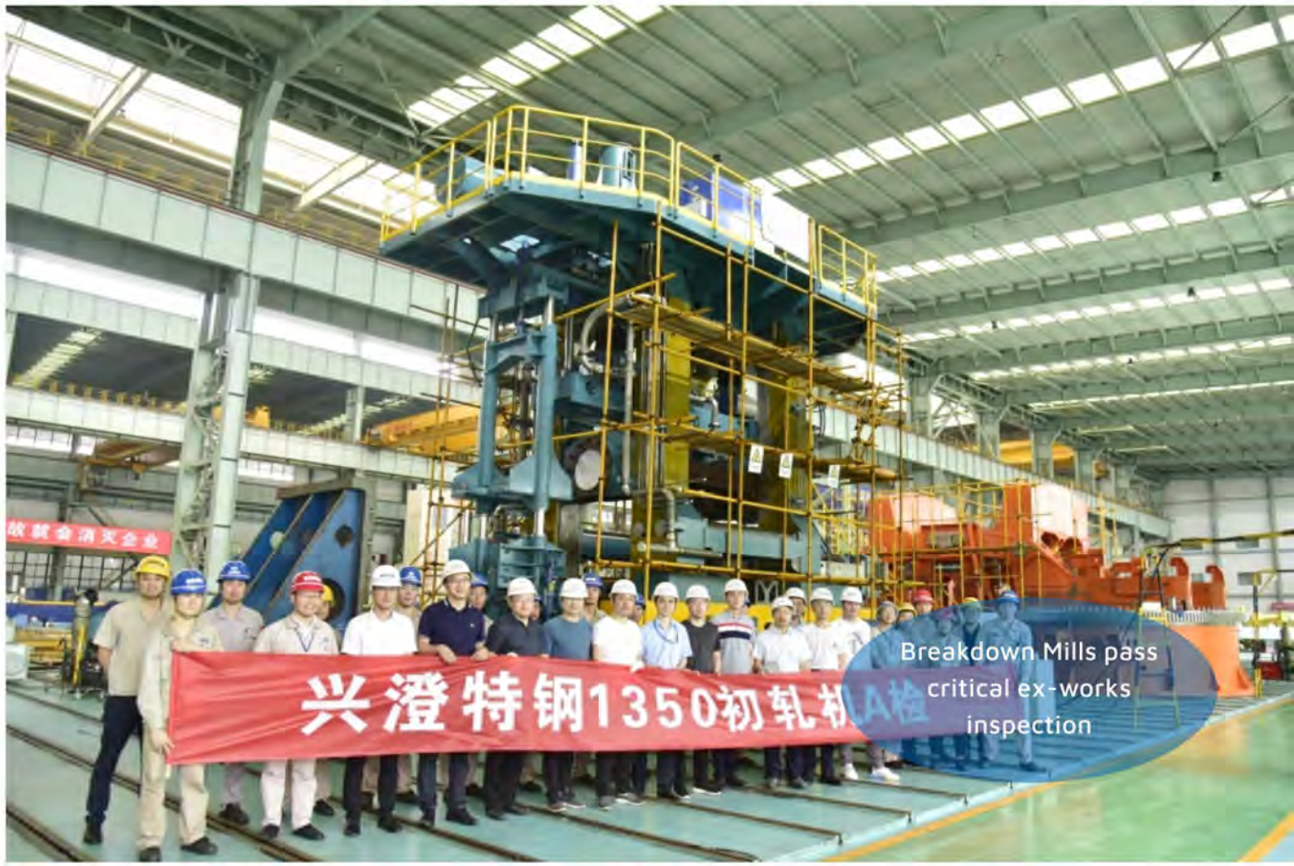

Breakdown Mills pass critical ex-works inspection

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- FHS LDG holder is successfully revamped
- CISDI pulls out all the stops for Anyang Steel's green energy plan

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's low-carbon EAF set to become a star product

A model for the CISDI's super green electric arc furnace

CISDI's super green electric arc furnace is about to see its first industrial application at a steel plant.

A 40-tonne AC EAF at Pangang's Changcheng Special Steel is being transformed to a low-carbon, DC electric version by CISDI.

It will lower production costs and increase production capacity.

CISDI's tech solutions will reduce the tap-to-tap cycle and lower energy and electrode consumption required for melting when charging special raw materials and producing special steels.

CISDI has made multiple breakthroughs in process and equipment for EAF systems:

- integrating needle-bottom anode, graphite electrode top cathode and new-type insulated gate bipolar transistor (IGBT) technologies
- applying modular DC power supply to improve power reliability and furnace productivity.

These systematic innovations solve the problems of a full-scrap melting furnace:

- high energy and electrode consumptions, high impacts on grid
- conventional IGBT's capacity against impact, fault and loss and consumption.

The new-type modular IGBT enables melting's power factor to be higher than 0.95 and achieves step-less regulations for current and voltage, greatly reducing electrode and power consumption for melting.

As a result, the tap-to-tap cycle is shortened by 20 minutes.

Strong stirring of the DC arc strengthens the melting bath's stirring effect, bringing higher iron and alloy yields.

The super green EAF is now being manufactured at CISDI.

Its digital, smart and green features represent a new route for EAFs of the future, targeting enhanced quality and efficiency while reducing energy and consumption.

CISDI breaks into Europe with green stockyard plans for Turkey's Oyak

CISDI has made an important breakthrough into the European market with its innovative green stockyard expertise.

Its first European orders have been won at Oyak in Turkey.

Despite the pandemic causing unfavourable investment conditions around the world, Oyak is ploughing ahead with its commitment to greener steel production.

Two stockyards, one at Isdemir and the other at Erdemir under Oyak, will be transformed to meet modern, eco-friendly targets. CISDI will provide feasibility study reports for the rebuilds.

Isdemir made its initial approach as early as 2016, with CISDI dispatching an expert team to conduct a site survey and enter into discussions. But the project went on ice until 2019.

When Isdemir kickstarted its plans, the company turned to CISDI's latest eco-friendly, smart stockyard expertise and products.

Oyak had built trust in CISDI's expertise through co-working on a number of stove, refractory and spare parts supply projects.

When Isdemir awarded its stockyard rebuild feasibility study to CISDI, a spokesperson commented, "We trust your technology and your team to such an extent, we don't feel it's necessary to visit your green stockyard reference plant."

Erdemir was so impressed by Isdemir's faith in the Chinese company, it followed suit.

Wharf rebuild feasibility study

CISDI will partner with Hatch for Isdemir's wharf rebuild feasibility study.

Hatch has world-class wharf building expertise and this will be the company's first consulting contract in Turkey.

CISDI has a strong working relationship with Hatch.

Continuing supplies for refractory and spare parts

CISDI will continue its refractory and spare parts supplies for Isdemir's new blast furnace 1, opening a new trade channel for the supply of spare parts to the Turkish market.

FHS LDG holder is successfully revamped

CISDI is proud to report that a revamped LDG holder for Formosa Ha Tinh Steel in Vietnam has been delivered ahead of schedule and is now operating stably and achieving its projected indicators.

CISDI built the original gas holder on an EPC basis in 2017. It has a volume of 100,000 cubic metres.

The revamp has replaced worn rubber membrane seals, critical parts for this type of gas holder.

Cord fabrics are used as the gas holder's skeleton and are coated with a blend of neoprene and nitrile rubbers to create air-tight, strong, resilient and long-lasting structures.

CISDI's HQ and its subsidiary in Vietnam minimised the potential risks which can occur when construction takes place overseas by focussing on resource allocations and schedule plans.

The CISDI team made risk evaluations and verifications for the entire design, purchase, construction and commissioning stages. Breakdown schedule plans and work divisions were carefully identified.

The pandemic restricted the number of Chinese construction workers allowed on-site in Vietnam, so CISDI employed local Vietnamese builders, giving them the specialist training and instruction required for the complicated construction process.

Successful revamp day for FHS's LDG holder in Vietnam

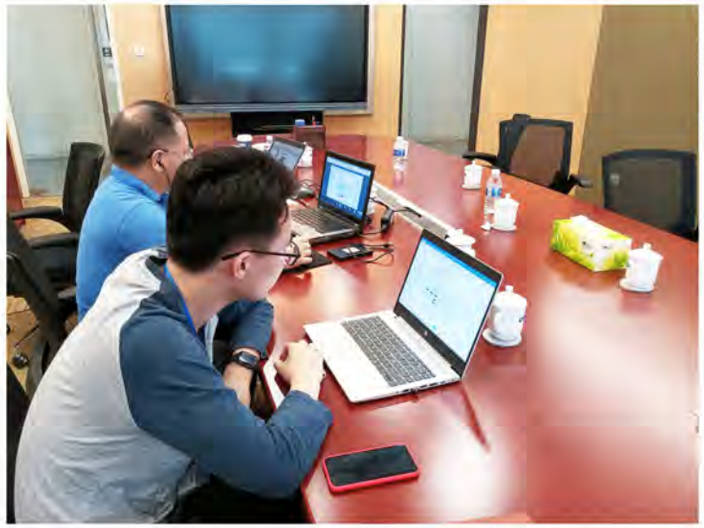
From start to finish, no site incidents or COVID-19 infections occurred during the revamp and premium quality was achieved during the acceptance test.

An FHS spokesperson commented, "CISDI has carried out a high-quality revamp. We have organised multiple groups of employees to visit the gas holder and learn from CISDI's construction management expertise."

Revamp opens a new door for CISDI's gas holder business.

Distance is no object when you can commission remotely!

Staff in China worked on BF2's automation system in India for JSW Dolvi



Distance is no object for these two engineers from CISDI Information Tech Co.

From a CISDI meeting room thousands of miles away, they are commissioning the automation system of a blast furnace at JSW's Dolvi Plant in India.

They are working online with Dolvi's engineers to test the CISDI-designed automation system.

Remote commissioning was created at CISDI as a practical option when the pandemic restricted international travel.

Plans for this method of working were discussed in detail by CISDI and Dolvi from April to May before final approval was given.

CISDI's team in China instruct and supervise while Indian engineers execute onsite commissioning at the plant.

The Level 2 automation process control system is part of CISDI's designs for the new 5,000m^3 blast furnace 2 at Dolvi.

CISDI is also in the process of supplying its coal injection and dry gas cleaning systems from China and its automation hardware from a local sub-supplier engaged by CISDI India.

Dolvi's blast furnace 1 was re-engineered and started up in 2016, with CISDI involved in its design.

Bolivia celebrates as work reboots at ESM Steelworks

Construction has recommenced at the EMPRESA SIDERÚRGICA DEL MUTÚN Steelworks in Bolivia.

Parties including CISDI signed a re-start agreement in March.

The steelworks applies blast furnace-based technological processes. It is the first of its kind in Bolivia and is a major BRI Initiative project in South America.

With a projected annual production capacity of 194,000 tonnes, the steelworks will meet the country's needs for long products, greatly reducing the need to import steel.

CISDI is providing total process engineering consulting for ESM.

The President of Bolivia, Luis Alberto Arce, attended the restart ceremony and commented, "ESM has a bright future in steel and is significant to our national economy. We are excited to see its re-start and will work together to ensure its operation by the end of 2023.

"Its production will boost our economies and will achieve industrialisation of our rich mineral reserves."

Other government officials present at the event included the Minister of Bolivia's Mining Department, the Mayor of Puerto Suárez City and members of Santa Cruz and German Busch Province.

The CISDI team has been onsite since the beginning of the global outbreak of COVID-19. Team members were invited to the meeting, and are fully committed to their construction supervision tasks.

The president of Bolivia, Mr Luis Alberto Arce, delivers his speech at the ESM Steelworks restart ceremony

CISDI's Engineering Consulting Team at the ceremony (the two engineers are pictured on the right)

CISDI pulls out all the stops for Anyang Steel's green energy plan

CISDI is to carry out two major green energy upgrades for Anyang Steel.

A secondary energy reutilisation upgrade at the Anyang Plant will see the installation of a 135MW ultra-high-temperature, subcritical power generator unit, a 200,000m^3 coke oven gas holder and one 150,000m^3 LDG holder. Three steam-driven blast furnace blowers will be modified to air-operated.

Anyang Plant's ultra-high-temperature, subcritical gas-fired power generation expertise will make it a state-of-the-art leader in China's steel sector.

It will result in a 25 per cent increase in internal power generation and reduce production costs.

Meanwhile a coking excess heat power generation project will be carried out for Anyang Steel's Zhoukou Plant.

CISDI Thermal Engineering & Environmental Protection Co. will install the most steam turbine generators it has ever done for one plant. The order includes eight fume excess heat boilers and four 65MW ultra-high-pressure, primary reheating steam turbine generators for coking excess heat reutilisation.

The emerging technology - coking excess heat recovery for power generation - will greatly improve internal power generation efficiency while reducing production costs for steel enterprises.

Anyang Steel's energy reutilisation programme is CISDI's first energy management project.

CISDI formed a consortium with Dongfang Boiler Co. under Dongfang Electric Group to win the contract.

This marks a strong partnership between the two neighbouring cities of Chongqing and Chengdu in the Sichuan Province and is in response to China's national strategy of building stronger, closer-knit economic relations in its western provinces.

Artist's impression of the coking excess heat power generation project at Anyang Steel's Zhoukou Plant

Demand soars for CISDI Electric's core products

HV frequency converters developed by CISDI Electric Co. in Beijing have become a sought-after product in China.

Orders placed in the first half of 2021 have already exceeded those for the entire 12 months of 2020.

Multiple of its core products are now operating successfully in Chinese steel plants.

CISDI Electric is committed to developing its HV frequency converter-based drive products. This expert arm of CISDI Group specialises in electric and automation research and development, project implementation and after-sale services.

HV frequency converters getting results at Puyang Steel

Puyang Steel is seeing major improvements in operations and efficiency thanks to the installation of CISDI's HV frequency converters in its descaling system.

While the system's remaining existing hydraulic coupling needed to stay in place at the early stage of start-up, CISDI team applied its self-developed HV frequency converters to solve a number of technological bottlenecks - heavy-load extreme acceleration and deceleration, accelerating over-current and decelerating over-voltage.

As a result, the descaling pump's acceleration time has been reduced from 20-50Hz to four seconds (regulating a speed by converting a frequency), meeting the descaling system's process requirement.

Thanks to CISDI's strong-performing HV frequency converters, Puyang will be able to remove the existing hydraulic coupling over a planned period.

CISDI's HV frequency converters in operation for Puyang Steel's descaling system

It will introduce a new method of regulating descaling system speeds instead of the single, inflexible method provided by the hydraulic coupling unit.

This will reduce the plant's maintenance costs.

The descaling water pump's service life will also be extended, and the pump will use less energy.

AC-AC frequency converters in action at Shougang Jingtang Steel

The main drive for Shougang Jingtang Steel's 3,500mm plate mill has been started up.

Its core part – an AC-AC frequency converters rebuild – was supplied and commissioned by CISDI.

All power elements were reused and the existing SIMADYND controller was replaced by a SL150 controller and the existing GE controller by excitation 6RA80 controller.

CISDI's team established benchmark standards for the programme commissioning, parameters and waveforms. The main drive's old and new problems were all solved.

Standardised, smooth performances of CISDI's AC-AC frequency converters won high recognition from Shougang Jingtang.

CISDI's AC-AC frequency converters in operation at Shougang Jingtang Steel's plate mill

Driving automation at Puyang Steel

CISDI has supplied an automation drive system for Puyang Steel's 2,500mm plate rolling line and technically assisted its commissioning.

The supplies include MVC1110 standard AC-AC frequency converters, DCD1100 DC speed regulation units and full-line auxiliary drives.

CISDI's product quality, project management and technical services have been applauded by the customer.

CISDI's MVC1110 standard AC-AC frequency converters in operation for Puyang Steel's 2,500mm plate rolling line

Breakdown Mills pass critical ex-works inspection

Representatives from China's Xingcheng Special Steel and Hebei Yongyang Special Steel attended the ex-works inspections for their new breakdown mills.

The inspections were carried out at CISDI Equipment Co. in Chongqing's Jiangjin District under joint witness of both customer and manufacturer, according to contractual terms.

The customers agreed they were satisfied with the mills.

CISDI has developed its own range of standardised breakdown mill products (BDCDs) in 21 specifications.

Since its first BDCD supply to Xingtai Steel in China's Hebei Province in 2007, the company has made continuous improvements to its standardised rolling mill design, calculations, software development, manufacturing and after-care service.

Mills supplied to special steels and sections manufacturers in China are playing a part in the country's intelligent, green, low-carbon and more efficient metallurgical developments.

Xingcheng Special Steel's Breakdown Mill

The Breakdown Mill passes critical inspection at CISDI's shop

Along with CISDI's team, Xingcheng Special Steel's representatives took part in the tests at the general assembly shop of CISDI Equipment Co.

They inspected the checklist points – mill's top and bottom bearing chock locking devices, balancing devices, screwdown clutches and the mill roll change unit. Certificates of the materials and equipment documentation were also inspected.

The breakdown mill, in a diameter of 1,350mm, is a core part of CISDI's services for upgrading mechanical, electrical and hydraulic systems for equipment from approaching roller table to runout roller table.

These upgrades will enable Xingcheng to produce large cross sections of work pieces - ranging from 700mm x 530mm squares and Φ700mm and Φ800mm rounds.

These rebuilds are critical to the improvement of the entire rolling line.

The expanded work pieces will play a strong role in boosting the competitiveness of the line's final heavy bar product and its downstream processing lines.

The new mill will be delivered to the rolling plant in China's Jiangsu Province. CISDI put forethought into the design and manufacture to ensure it will match with existing equipment and installation and commissioning will run smoothly.

Yongyang Special Steel's Breakdown Mill

The CISDI-supplied breakdown mill for Yongyang Special Steel's quality rail and beam rolling line

The mill, in a diameter of 1,350mm, was put through its roll pushing, lifting and locking movements. The tests resulted in all parameters meeting customer requirements.

CISDI has been contracted to supply the integrated mechanical, electrical and hydraulic equipment for Yongyang's rolling lines - patented BDCD, UMCD and horizontal gantry-type and vertical straightening mills - involving the blooming, universal rolling, straightening, rail and section finishing lines.

Baosteel Zhanjiang's BFG pipeline works safer after de-acidifying

Stable, effective acid removal indicators are being achieved at Zhanjiang Steel thanks to a new, CISDI-developed blast furnace gas system for the blast furnace 2 sprinkling tower.

The 5,050 cubic metre furnace is five years old and the new BFG de-acidifying system was built during its short, four-monthly repair periods.

The rebuild increases the PH value of condensate water from 3.4 to 5.4 for the BFG's pipeline network. The problem of acid corrosion has been eradicated, increasing plant safety.

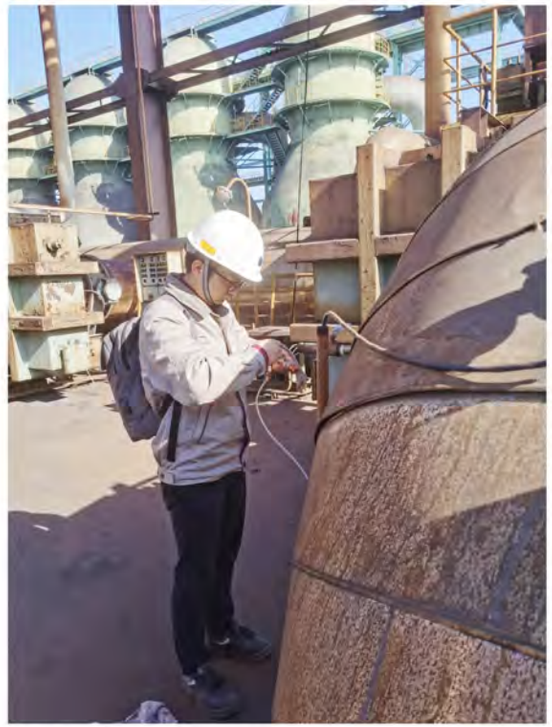
BFG pipelines are subjected to condensate water acid corrosion when dry bag filter technology is applied to the BFG cleaning system, although plus top gas recovery turbine for power generation can create huge economic and social benefits.

The condensate water's strong acidity - a PH value of lower than 1.7 - had been a long-term problem and affected safety during operation of the gas pipeline network, the TRT power generation unit and the hot stoves.

This problem has long been a challenge for the blast furnace ironmaking sector and in early 2020 CISDI put together a dedicated team to research and develop BFG de-acidifying technology.

The team visited Zhanjiang to investigate the deterioration problem and verify the de-acidifying effects.

Their solutions enabled production to continue uninterrupted and have been granted multiple patents through combined TRIZ, BIM and collaborated design means.



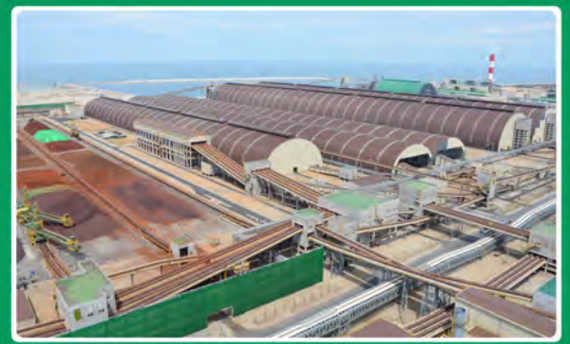
A CISDI engineer monitors BFG acidity at Baosteel Zhanjiang's blast furnace 2

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.

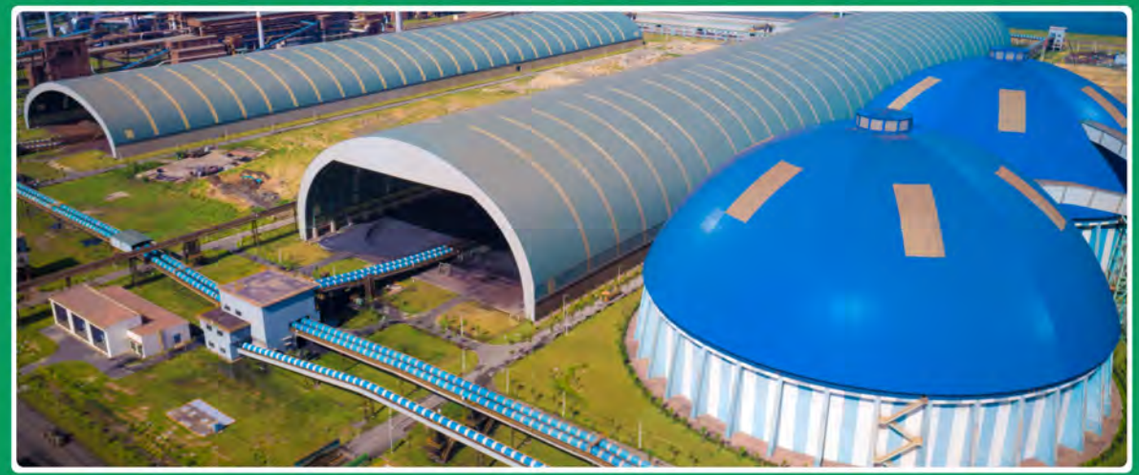
The 170-plus new and rebuilt stockyards created through CISDI's expertise have a total production capacity of nearly 500 million tonnes a year.

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

CISDI GROUP CO., LTD.