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CISDI

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CISDI launches USA subsidiary in Steel City

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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.

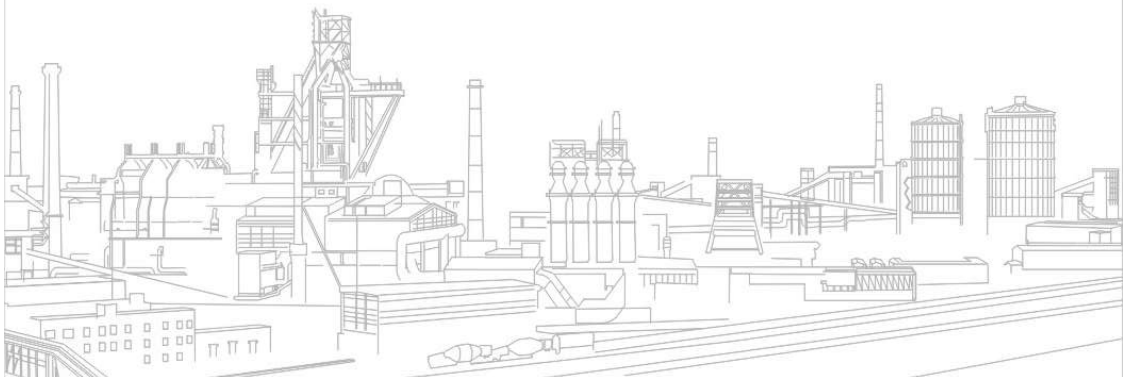


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CISDI launches USA subsidiary in Steel City

CISDI has announced a further leap in its international operations with the launch of a US subsidiary.

"As an inside window into the American steel industry, the subsidiary is expected to utilize CISDI's global resources to preempt the Americas' market," he commented.

metallurgy industry and its geographical importance. The centralised location of the State of Pennsylvania connects trade from east to west America.

YU Zhaohui, CEO of CISDI Group, attending the launch of the new office on October 22, detailed the operational role the Pittsburgh team would play in the company's global operations.

pioneering team will work in the metallurgy infrastructure arenas, on relationships with partners and promote to the American and NAFTA marketplace CISDI's multi-disciplinary expertise in upgrading and modernising, along with new equipment supply to existing steelworks to make them more productive and energy-efficient."

The subsidiary, which is based at One PPG Place in downtown Pittsburgh, is headed up by Robert Smith, CEO of CISDI USA Inc.

Are the aligned both ends of the paragraphs taken as a prevailing or preferred setting style in western publications? Or should it adopt left-side alignment for better catering western readers?

CISDI wins bid for Ningbo Steel's BF1 relocation and revamp

CISDI has won the bid to relocate and revamp Ningbo Steel's blast furnace project in China's Zhejiang province.

The BF1 will be relocated and rebuilt with a volume of 2,500m³ and will boast a production

addition, the service life of the stove can be extended to two campaigns of a blast furnace.

Long campaign

CISDI has developed a set of long campaign technologies which encompass the design, construction, drying off, production and maintenance processes. These technologies have been successfully integrated into Baosteel Shanghai's blast furnace 3. The blast furnace taps 15,700t of hot metal per unit volume, and has been running for 19 years, making it the longest campaign BF in China.

Environmental protection

Full 3D design optimization and flow field simulation technologies from CISDI enable the casthouse and related areas of BF process work to hit the strictest of environmental indicators.

benefit from CISDI's technologies, which reduce energy consumption and improve efficiency and the quality of production methods.

field, having successfully delivered over 170 blast furnaces in a wide range of volumes for clients in Brazil, India, Vietnam, Turkey and Malaysia as well as in its home country.

The energy and cost-saving blast furnace technologies developed by its research and development teams were awarded China's National Science and Technology Advancement prize in 2016.

High-efficiency, low consumption

CISDI's optimised profile design, simulation and big data mining technologies create the conditions for achieving a gas utilisation ratio of over 50% and below 485kg/t fuel ratio.

High blast temperature

CISDI technology enables the blast temperatures of top, external and internal combustion stoves to exceed 1,250°C.

The blast temperature of a top-combustion stove can be increased to 1,280 ~1,300 , while also giving 10%~30% savings on production costs. In



BF simulation technology



BF quick revamp technology



India's Aarti Steel entrusts special steel RHF & bar mill contract to CISDI

CISDI received a letter of intent from India Aarti Steel on September 12 for the special steel reheating furnace and bar mill package supply project.

The special steel bar mill will be required to produce 200,000t/a production of round bar, square bar, spring flat and hexagonal bar, reserving the production of wire rod and heavy coil in the future.

CISDI has proposed incorporating into the project multiple core technologies and equipment such as its BDCD breakdown mill, NHCD short-stress path rolling mill, dedicated large-section flying shears, multi-functional cooling bed and its high-temperature efficient collection system.

In addition, CISDI's advanced automation control

models for micro-tension control, looper control, optimised shearing system and ghost rolling, and profile meter, cold shears and abrasive saw are being put forward for the scheme. All have been met with a favourable response from Aarti, who want their new, highly automated line to set new records for special bar production.

The project's matched 40t/h walking-beam reheating furnace will run on heavy oil fuel, and will produce alloy steel and bearing steel. It will be designed to hit high environmental standards thanks to CISDI's multiple core technologies for energy-saving furnaces, environmental-protection combustion and automation control technologies.

Pangang's upgraded hot strip mill hits Chinese production record within a week

A 14-year-old hot strip mill at Pangang Group's factory in Panzhihua has been so successfully upgraded that it broke Chinese production records within a week of start-up.

The 1,450mm hot strip mill automation system at Pangang Group Vanadium Titanium & Resources was upgraded in just 14 days. It was successfully hot tested on September 3 and just one week later was matching the line production of 499 hot-rolled coils weighing 9,326 tonnes.

The HSM's first production after its automation upgrade by CISDI hit two key targets - basic 8,370t and premium 9,000t. The achievement

came eight days ahead of original schedule - a new record for China.

The extensive upgrade was a challenging task for CISDI. It involved the installation and commissioning of electric rooms, pulpits, machine rooms, water supply and drainage systems, local ITVs at the roughing mill, finishing mill and coiler areas of the plant, and all had to be carried out in a very tight time frame.

Pangang wanted the entire project, which also had to align with technological advancements at the plant and downstream user quality requirements, completed in just 15 days - ten

days less than the average stoppage time for such an extensive technical upgrade.

To ensure work went to schedule, CISDI brought both the client and the builder together to formulate detailed and practical construction and commissioning plans and organise the necessary procedures.

During commissioning, the team worked closely together to meet the 15-day hot test target - and ended up bettering it by 22 hours.



Pangang 1,450mm HSM automation system upgrade



Site commissioning

CISDI breaking technological barriers in galvanizing line upgrade at Ansteel

CISDI is breaking technological barriers in its upgrading of Ansteel's No.5 galvanizing line.

This project will create the first galvanizing line capable of producing O5-level auto sheet which is reliant on Chinese technology.

The existing No.5 galvanizing line is a co-investment for Ansteel and Thyssenkrupp and produces domestic high-end automobile sheets.

But after years of operation, the thicker specification sheet was showing uneven thickness and surface quality needed to be improved. Ansteel and Thyssenkrupp offer the line upgrade up for global tendering and CISDI were triumphant about winning the contract.

Products should reach O5 standard with

Thyssenkrupp certification.

Key equipment has now been modified in the initial stage of the line upgrade programme - the zinc pot (AJAX), electromagnetic stabilizer (EMG) and air knife.

The present stage of the upgrade presents the challenges of a tighter-schedule and more complex tasks, including the ultra-high-temperature annealing furnace, the L-model furnace, direct flame furnace, cooling tower and post cooling section.

CISDI is formatting a series of IPR-based technologies which it hopes will earn it new contracts in the downstream high-end strip heat treatment sector.

CISDI creating ground-breaking new reheating furnace for Vietnamese combined bar and wire-rod mill

CISDI is undertaking the complex task of creating a dual-fuel, greener reheating furnace for the Hoa Phat Dung Quat Steel Joint Stock Company's bar and wire-rod mill in Vietnam.

The contract for the 120TPH reheating furnace was signed with CISDI Thermal & Environmental Engineering Company on September 8.

The furnace, one part of Hoa Phat's Phase I programme, relies on high-heat LPG fuel at the first stage and low-heat BFG at the second stage.

To cater for these complex fuel requirements, CISDI Thermal has proposed an optimal combustion solution which accommodates both LPD and BFG. This dual-fuel device does not need system or equipment modification during switchover of fuels, which saves cost and avoids stoppage time.

CISDI Thermal's self-developed dual-fuel regenerative burner, evaporative cooling and combustion control technologies will be incorporated, creating a higher quality of reheating, a reduction in energy consumption, LOI and emissions. It is expected

that the reheating furnace will produce world-leading technical results.

Technological highlights of CISDI's high-efficiency, energy-saving and environment-protective reheating furnace:

Diversified models of furnace: walking-beam, rotary hearth, car bottom, etc.

Flexible combustion modes and adaptability to different heat values of fuel: low-NOx burner featuring energy saving and environment-friendly, regular and regenerative combustion, enriched and flame-less combustion, taking BFG, LDG, MG, COG, NG and LPG as fuels with high or low heat values

Smart control: fully automatic production and smart control, producing premium quality slab/billet

Advanced technical indicators: uniform temperature, stable pressure, high reheating efficiency, small temperature difference on cross section of material; unit consumption as low as at 1.124GJ/t; low amount of discharge of NOx, SO₂ and CO₂, NOx emission concentration <67mg/Nm³



3D model of reheating furnace

CISDI to introduce dry dedusting system to India

After successfully carrying out the basic engineering of Indian steel specialist JSW Group's stockyard in Dolvi, Maharashtra, CISDI has now been contracted to carry out the package supply of a dry bag filter dedusting system at the plant's blast furnace 2.

JSW is presently the largest and fastest growing private steel enterprise in India and is planning to double the size of its Dolvi plant from 5 Mt/a to 10Mt/a.

Its BF2, which has a volume of 5,000m³, is entrusted to NSENGI for technological leadership and NSENGI subcontracts the design and supply of some systems to CISDI.

India's blast furnace ironmaking plants prefer the conventional wet dedusting process and were not so open to the dry method. But CISDI set out to win over its client by taking Dolvi's team to witness one of the best dry dedusting systems currently operating in China, at Baosteel in Shanghai.

Any technical concerns were allayed by a host of impressive statistics achieved for specific process flow and gas temperature, pressure and medium consumption.

The contract for a dry bag dedusting system was awarded in September. It makes CISDI China's first package supplier of an exported dry dedusting system for a 5,000m³-level BF.

Compared with the wet process, the dry dedusting system to be supplied boasts higher dedusting efficiency and higher TRT generation while discharging zero pollutant.

It is greatly suited to India's predominantly arid climate and contains sophisticated technologies and equipment with world-leading indicators. CISDI foresees strong prospects for exporting to the overseas market.



Baosteel Zhanjiang BF dry bag dedusting site



Baosteel Shanghai's BF3 dry dedusting facility

CISDI Rolling Mill Automation

China now has a strong technical capability for producing metallurgical rolling automation and is producing to the standards foreign clients demand for Level 1 and Level 2 technology for hot mill, cold mill and post treatment.

CISDI is a world leader in automation advancement. The company has continually invested in automation research and development and has made major breakthroughs in multiple large-scale rolling projects.

Technological excellence

Yanshan Steel's 1,580mm Hot Strip Mill was started up on June 1 last year after CISDI commissioned the automaton in just six weeks. In the second month after startup, mill production had hit its monthly output target of 256,000t.

The following month, a stable 2.0mm thick specification production was achieved and the automation and mill were so well synched that zero faults were recorded during pilot production. Ramp-up and product expansion were swiftly achieved. The automation team worked non stop to achieve the successful automatic switch-on of Level 1, Level 2 and MES and to ensure load testing and combined testing performed

successfully.

All the 7-stand S-model rolls and the profile control model were put into operation and pressure control of the first coil was launched smoothly and produced a better coil shape. Yanshan Steel and trade experts spoke highly of these particular applications.

CISDI has carried out substantial research on hot mill core control, high-precision hot rolling control, high-precision profile control and laminar cooling control models.

Its high-precision HSM Full-process Model and Control Technology was awarded the second prize for Science and Technology advancements in 2016 from the China Metallurgical Construction Association.

These world-leading control technologies have been applied at JISCO's 1,700mm hot strip mill, Yanshan Steel's 1,780mm hot strip mill and Ningbo Steel's 1,780mm HSM.

On June 8 last year, the first coil was automatically unloaded from the 1,450mm PL-TCM at Tangshan Guofeng Steel's #2 Cold Mill Plant.

CISDI's automation team completed the



Yanshan Steel's 1,580mm hot strip mill, designed, supplied and commissioned by CISDI



Tangshan Fengnan's #2 Cold Mill Plant 1, 450mm PL-TCM, built by CISDI

challenging task in an incredibly short time. It took just 42 days from the delivery of machinery on April 27 to the hot load test on June 8, 2016.

Thanks to the automation control system, the PL-TCM was rolling 0.28mm specification within two weeks and reached its optimal rolling speed of 1,200m/min and stepped into mass production.

Results recorded the classic cycle of commissioning, capacity of units and rate of product expansion as seen in similar large-sized wide mills.

The PL-TCM imposes a stringent level of automation control for the core process and modernised cold rolling production unit.

For many years, CISDI has been committed to ongoing research and development for the advancement of control technologies.

Combining theory with practice, the teams took projects at Tangshan Fengnan cold mill in 2009 and TCM at Zhejiang Concord Sheet Steel Technology in 2013 as opportunities to apply their cold rolling math model, high-precision gauge control, profile control and pickling control models. Multiple major subjects were satisfactorily concluded and resulted in top level performances.

Prizes for technological excellence were awarded to CISDI's Core Research and Application of Large-sized PL-TCM Package Supply and High-precision Cold-rolled Strip Control Model respectively in 2011 and 2014.



TCM of Zhejiang Concord Sheet Steel Technology

Tailor-made technology creating results for clients

Many leading producers are struggling to compete in a saturated marketplace, where there is more production capacity than there is demand.

If they have few technical differences or advantages over their competitors, times will be even leaner.

Foreseeing this issue, CISDI has become not only an equipment supplier, but also a full life cycle partner. It is with the client from concept and design through to supply and operation, and continues with service and spares provision. At each stage in a plant's life cycle, CISDI provide innovative, reliable technologies and products that give their clients the competitive edge.

Hot-rolled ultra-thin specification control technology

Yanshan Steel's 1,580mm hot strip mill produced 3.047Mt in one year after startup, and 90% of the products were to a specification of thinner than 4.0mm. These impressive results excel design capacity.

The HSM successfully rolled out its thinnest coil, at 1.2mm x 1,250mm, in its initial test run last November 11. The process was stable and smooth, and the coil product was of good quality. The achievement marked a new high for CISDI's automation control of ultra-thin specification hot rolling.

The 1.2mm specification product has been put into mass production and an even thinner product, at 1.0mm specification, can be rolled.

Due to the success of the startup, CISDI was then tasked with the operational management of the line, which included technical support and new product development. As a consequence, a further milestone was achieved on July 6 this year when high-strength, ultra-thin weather-proof coil

was produced at a size of 1.52mmx1,175mm. The weather-proof strip (SPA-H) achieved 590MPa ambient yield strength, equivalent to X80 strength (ambient yield strength 550MPa).

The successful delivery at Yanshan Steel illustrates CISDI's technological competitiveness in hot mill automation control on gauge, roll shape and strip profile, control of full-process temperature and control against off-tracking of strip, and also proves CISDI's OM specialisms in ultra-thin hot-rolled specifications and development competence in new variety and new specification.

CISDI will be completing a database of product development and production and employing artificial intelligence and big data to further enhance the company's hot rolling craftsmanship.



Thin specification coil of Yanshan Steel's 1,580mm HSM



1.2mm-thick coil as rolled by Yanshan Steel's 1,580mm HSM

Automation control model and quality control throughout full cold rolling procedures

A series of full-procedure control model and quality control technology has been developed by CISDI for cold rolling production. The projects show remarkable economical and technical indicators in application.



Guofeng cold mill loop

TCM math setup model

The model, which CISDI's multi-disciplinary teams have been developing since 2007, was put into application for the first time at Zhejiang Concord Sheet Steel Technology plant's TCM.

With the addition of Tangshan Guofeng's #2 cold mill, there are now six references for CISDI's TCM math set-up model.

The model calculates load distribution strategy for optimised rolling and control of ultra-thin specification and high-tensile steel, and product specification range is expanded.

Zhejiang Concord's TCM has now achieved a stable, high-rate mass production of thin strip with ultra-heavy screw-down (product thickness below 0.3mm, screw-down ratio above 90%).

It provides the client with differentiated

production process and control technology. Thanks to multi-point setup and variable specification incremental setup technology, this model is improving rolling stability and product quality in the full coverage of strip lengths and rolling speeds.

The automation control effect is so satisfactory that the rolling force set deviation can be controlled within $\pm 10\%$ and dynamic variable specification out-of-tolerance length is less than (\leq) 10m.



Cold mill L2 model

Turbulence pickling model

In line with the trend for using thinner specification and higher strength hot-rolled strip in preference to cold-rolled strip, the pickling quality of commercial hot-rolled strip has become the KPI of pickling line.

Sensitive to the needs of the market, CISDI has taken the lead in developing a pertinent pickling model, which was applied to Baotou Steel's 2,030mm continuous pickling line.

There are currently four references for the pickling model, including Tangshan Guofeng's #2 cold mill.

The pickling model continuously cleans scale off the strip surface and dramatically reduces pickled defects at pickling speeds over 30m/min. This highly effective model saves acid consumption, guarantees good pickling quality and reduces the

transient length of variable specification - reducing costs while increasing yield.



Main display screen of pickling model

Strip temperature control model at annealing furnace

This model had mostly been imported from the annealing furnace supplier as required by medium and high-level configuration.

CISDI has organised an internal study of theoretical analysis, simulation and data optimisation, and worked out the model accordingly.

By using this model, the annealing furnace production and control setup parameters are acquired, and extensive manual operation mode is renovated. Meanwhile, the transitional time for variable specification can be shortened, helping the client to save energy consumption and reduce emissions.

Quality control technology

Over a decade of research and progress in quality control technology have come together in a multi-tiered system to actualise CISDI's world-leading QC targets.

This includes cold-rolled thin specification 0.3mm, control accuracy $\pm 2\mu$ and strip profile control accuracy $\pm 8IU$, high-speed annealing furnace internal steady tension control accuracy $\pm 2\%$ and strip temperature control accuracy ± 5 .

The multi-tiered QC system embraces the high-precision rolling gauge control, strip profile control, high-precision annealing combustion control and high-speed annealing furnace tension control technologies in combination with control models.

Enterprising workforce

CISDI's enterprising rolling automation team has



CISDI engineers working at Ningbo Steel's hot mill site

many years of R&D training and experience. The well-organised team includes veteran experts and researchers as well as enquiring young minds. All are valued for the capabilities which enable the company to stride forward. A training framework enables engineers and researchers to work together in a down to earth and open working relationship as they explore ways of combining automation control with technological process and equipment.



CISDI team for cold mill L2 model

BF IPMS: Intelligent Model + Big Data

The new-generation blast furnace expert system, intelligent production management system (IPMS), has been developed by CISDI through years of research while maintaining a focus on the core factors of cost, environment and safety.

The latest generation of the IPMS has been installed and put into operation at Xingcheng Special Steel and Anyang Steel, where it has demonstrated its advantages with systematic, reliable and accurate operation.

It has resulted in a stable furnace operation and has achieved optimal performance indicators. The IPMS system has also been combined with CISDI's 'big data' technology to better serve the operations management.

● Meeting the needs of developing BF intelligent system

As early as 2010, CISDI set about the IPMS development by forming a team of multi-disciplined engineers with majors in the ironmaking process, automation and computer science to address the development of a BF expert system from the combined perspectives of metallurgy, control theory, engineering mathematics, data mining and artificial intelligence.

Two years later, as part of the large BF energy system project with Xingcheng Special Steel, CISDI made an in-depth study on modules of furnace thermal control, abnormal furnace condition, hearth erosion and internal burden tracking at the same time - laying a solid foundation for the further study of gas flow and furnace condition diagnosis programmes.

The conventional partial or regional modules were abandoned; instead, process modules were introduced for innovating the concept and

development of solutions.

Another two years later, for the Anyang Steel BF project, CISDI developed modules of hot metal cost, working profile, stove optimised combustion and intelligent report. The operation and management of the BF expert system were merged to form the official IPMS.

Since going into operation, the IPMS has been working stably as the means for operators to make diagnoses and decisions on the furnace operations and its conditions. The Anyang Steel BF3 superintendent remarked in his final acceptance report: "The IPMS has played an important role in furnace production decision and elaborate management".

● Introduction of big data technology

Practice makes perfect. Xingcheng Special Steel and Anyang Steel projects have showcased the world-leading performance indicators of the IPMS, as can be demonstrated by a 3kg/t to 5kg/t reduction in fuel ratio, a hearth thermal prediction hit rate greater than 90% and a reduction in hot blast stove gas consumption of 2% ~5%.

As an example, at the Anyang Steel BF project, which produces 3.50Mt/a hot metal, using IPMS results in a coke saving of 10,648 t/a, a PCI saving of 4,437 t/a, and economical savings amounting to somewhere in the region of RMB 15 million (USD 2.28 million). Additionally, carbon emissions are reduced by more than 40,000t/a. The IPMS has applied for 8 patents and issued 10 technical papers. IPMS has taken the lead in development and innovation of the blast furnace process control model.

In 2015 a forward-looking decision was made to introduce big data technology to solve production issues in a blast furnace.

It took several months to develop a system for analysing the BF production process. Big data helps by overcoming data processing, algorithm, reasoning and other technical bottlenecks. The system has since been installed and put into operation at Shagang, TISCO, Masteel, Baosteel Zhanjiang and HBIS Handan Steel, where it has contributed to remarkable profits. Shagang has been able to reduce fuel ratios by around 20kg/t.

● Data communication link

Formosa Ha Tinh blast furnaces one and two have been built by CISDI on an EPC basis, China's first mega blast furnace export project. The IPMS is integral to the blast furnaces' production decision and information systems.

FHS BF IPMS involves the core technologies of data platform, raw material tracking, furnace thermal control, profile management, stove optimized combustion and hearth long campaign.

It assists the end user in diagnosing the different furnace conditions, especially the mid and long-term operations.

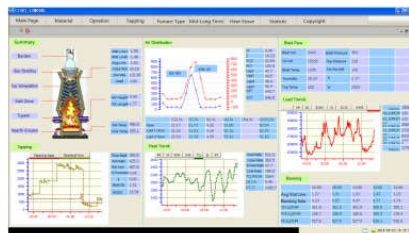
The data platform is an effective means for elaborate management; big data technology works well for furnace condition trend analysis and acts as a helping hand in making proper and scientific production decisions.

The IPMS is conducive to achieving high performance and environment-friendly blast furnace operations while maintaining low consumption and an extended service life.

FHS put a high emphasis on information technology and demanded the exacting build of a smart system and information systems. The IPMS proposed would communicate with six external systems and collect thousands of I/O data.

To ensure smooth and accurate communications of data, CISDI organised repeated tests of the interfaces with the external systems, especially the interface with the MES (manufacturing execution system), which should upload all the production details of blast furnaces and even communicate directly with the FHS' managing director's office.

A large number of tests were done with protocols, data and functions, and adjusted to the end-user's various requirements. The result was a smooth operation of IPMS for FHS BF1 (started up in 2017, and BF2 under construction).



Typical screen of CISDI-developed IPMS



CISDI engineers test IPMS on a site survey

CISDI high-speed billet casting technology contributes to plant cost reduction and performance enhancement

CISDI's IIPR-based patented technologies, which includes high-speed continuous casting key technologies, represent the cutting edge of billet casting development.

Their implementation has created the highest ever casting speed at a domestic caster at Minmetal's Yingkou Plant.

In a specific study of high-speed billet casting, CISDI approached the theoretics of high-speed mould copper tube and section cavity, high-speed mould nozzle and flow field, and high-speed casting strengthened secondary cooling.

The issue of uneven heat transfer during strand and mould at the high-speed casting state has now been solved with the development of an innovative design method for the mould cavity and taper.

The mould is known as the "heart" of the billet caster system and is a key piece of equipment for successful high-speed casting operation.

CISDI has committed large resources into researching the taper of the mould copper tube, cavity and water cooling structure, and made major breakthroughs.

A lamina calculation model has been established to analyse solidification and shrinkage rules of strands under different casting speeds and steel grade conditions.

As a result, the taper curve of copper tube has been optimised under high casting speeds, the thermal coupling model has been established and thermal resistance dynamic tracking has been adopted to simulate and calculate the thickness of solidified shell in a more proficient way.

The stress field of solidified shell is calculated and analysed to get the optimised section cavity under high casting speeds and the water cooling structure has been optimised to enhance heat transfer efficiency of the mould copper tube and meet the heat transfer needs of solidified shell under high casting speeds.

Dozens of different working conditions were compared and analysed to identify the best structure and model of copper tube cavity and section. The IPR-based CHC-M high-speed mould copper tube that was developed solves the heat transfer problem inside the mould solidification under high casting speeds.

Numerical simulation has identified the root causes of safety threat to high-temperature strand shell at the foot roller area and a bulging problem downstream of the mould, issues which previously had to be tackled with only experience and description as a guide.

A strengthened secondary cooling of high-speed billet casting has been developed in response to the high strand temperature, thin solidified shell and fast cooling speed. This powerful secondary step supports strand discharging from the mould and creates a uniform and efficient cooling effect.

The heat transfer boundary condition in the secondary cooling zone was studied under high casting speeds, and a 3D secondary cooling calculation model has been developed for high-speed billet casting.

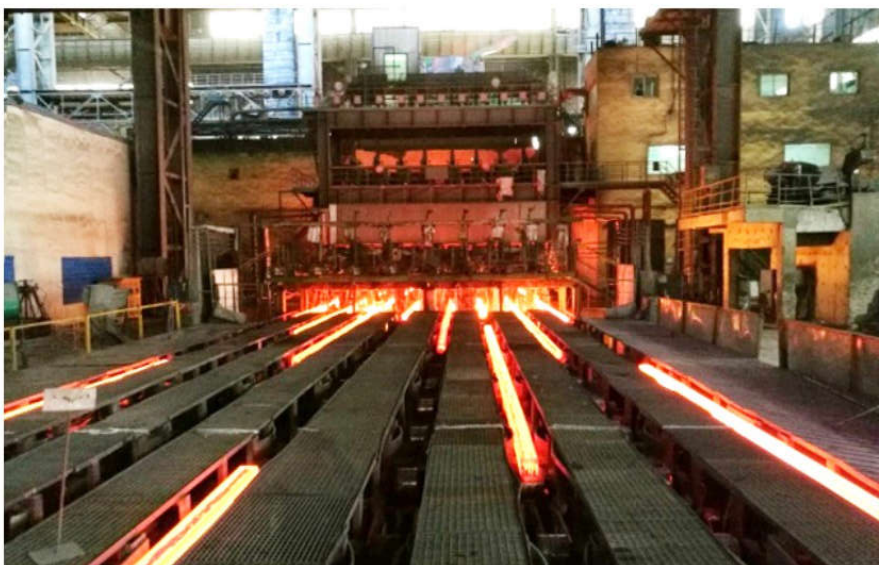
The quantity and length of secondary cooling divisions, cooling strength and water proportioning were studied at the CCM5 at Yingkou Plate Mill Plant and since application, the

plant has seen an improvement in its high-speed billet casting operations.

In May 2017, CISDI performed a high-speed casting industrial test at the CCM5 of Yingkou Plate Mill and the results exceeded expectations.

The results of the computer simulation of the 3D secondary cooling calculation model got reflected in measured results of solidification end point,

local temperature and desired quality during the high speed test. The casting speed of SAE1008Cr 160mmx160mm billet reached 3.9m/min and the casting speed of HRB400 160mmx160mm billet achieved 4.2m/min - both ranking as the highest casting speeds for domestically engineered billet casters, representing an increase of over 30% on the current industry standard.



CISDI conducts the high-speed casting test at Yingkou Plant's CCM5



CISDI's team at Yingkou's high-speed billet casting test

CISDI GROUP CO., LTD.

CISDI Equipment Co., Ltd.

- A subsidiary of CISDI Group, dedicated to equipment manufacture
- Established as CISDI's R&D pilot centre, core product manufacturing base and equipment manufacture and integration base
- Annual production of more than 30,000t of equipment and products
- Providing a life-cycle support for total equipment solutions
- Synergising the process from equipment research, development and design to manufacture, incorporating smart, information and control technologies in core equipment



CISDI's equipment manufacture center



Guofeng Steel's 5-stand tandem cold mill, designed, manufactured, installed and commissioned by CISDI



Jiangsu Chengde Steel 3-roll multi-stand pipe mill incl. sizing mill, a world first designed, manufactured and commissioned by CISDI

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