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CISDI NEWSLETTER

Issue 7: July 2020

CISDI's Universal Mill for light rail is ready to roll

IN THIS ISSUE

- CISDI's digital delivery platform is smooth operator
- Fangchenggang Steel BF1 is blown-in
- Yingkou 475mm slab caster runs for mass production
- Dual-module reducing tech rolls to success

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 Universal Mill for light rail is ready to roll

China's first Universal Mill light rail rolling line is now ready for commissioning at Hebei Yongyang Special Steel in Handan City, China.

CISDI's Universal Mill technology has been applied. It is composed of two BDCD650 Breakdown Mill stands and seven UMCD300 Universal Mill stands.

Universal Mill expertise has more advantages over the conventional multi-pass rolling process, improving productivity, product dimensional accuracy and performance while also reducing energy consumption.

It is hydraulically operated and designed with a compact structure.

Yongyang Special Steel has already contracted a heavy rail rolling line from CISDI, which will enable China to meet the heavy rail requirements of its steel sector.

Transforming technology into products

Located at the Degan Industrial Park in the Jiangjin District of Chongqing, CISDI Equipment Co. manufactures the core products required for CISDI specialisms and innovations.

Assembled Universal Mill stands ready for delivery at CISDI Equipment Co.

• Equipment for long products and sections rolling:

A number of core technologies - the short-stress path rolling mill, cantilever mill, reducing mill and universal mill - have now been transformed into core products and are steadily growing in reputation, gaining market share around the world.

As an example, some 11 years of research went into CISDI's universal mill technology, which has been developed into a range of products for which 19 patents have been granted.

It is capable of producing multi-spec sections which meet the exacting requirements of steel for high-quality buildings.

Features include online automatic gap control for the strip. Screwdown precision is controlled to within plus and minus 0.1 millimetre.

The adjusting speed for its edger roll ranges from zero to 8 millimetres per second and its roll change time is less than 25 minutes.

• Blast furnace's no-bell top equipment:

Thanks to its simpler structure and safer operation, the BCQ no-bell top is now a sought-after product in the global market.

CISDI and its partners Baosteel and Qinye Heavy Machinery have developed this critical tech through lengthy design processes and by utilising a specially created 30-metre-high testing platform.

Based at CISDI Equipment Co., the platform is built to the actual size of a 5,000-cubic-metre blast furnace's no bell top equipment.

The BCQ no-bell top is now operational in a number of major projects and is assisting Baowu Group's Zhanjiang Steel and Vietnam's Formosa Ha Tinh Steel to reach world-leading performance figures.

• Full-process tech transformation to products

Innovative and highly-competitive on cost performance, CISDI Equipment Co. has taken the lead in advancing full-process core tech transformation. A number of highly-innovative core equipment items have been developed, manufactured and delivered - and notable Chinese steel sector firsts have been achieved - including the piercer mill for tube rolling, electro-hydraulic direct-driving vibration device for continuous caster's mould, the universal mill for strip rolling, the high-speed modular mill for bar and wire-rod rolling and the high-quality beam and rail rolling line.

World firsts include the small-calibre, mini-process sizing mill and the 3-roll mandrel mill, which is capable of creating the world's smallest dimension for tube rolling, plus the vertical-curved caster for producing the world's thickest slab.

Boom in demand from global customers

In the first half of this year, CISDI Equipment Co. received three orders for hot rolling equipment from the TATA Steel UK plant.

CISDI has now supplied core equipment to this World Top 50-ranked customer for four years in a row.

Elsewhere around the globe, CISDI has supplied a granulating drum, charger and discharger and cover manipulator for Formosa Ha Tinh Steel in Vietnam. FHS views CISDI as its most reliable partner and service provider.

CISDI's full-line critical equipment for high-speed bar and wire-rod rolling lines enabled Malaysia's ASSB plant to carry out a fast ramp and swiftly achieve satisfactory performance figures.

The assembled short-stress path rolling mills, about to be delivered by CISDI Equipment Co.

Core supplies to India include a granulating drum for TATA Steel Kalinganagar plant's new blast furnace, which has the world's largest volume, and the short-stress path rolling mill, tension leveller, breakdown mill and tilter for Aarti Steels' alloy steel bar rolling line. The line has been started up and is hitting its performance targets.

Thailand's Qunfeng Steel plant is shortly to receive 56-stand mills which will be installed for a bar and wire-rod rolling line.

Success in the face of adversity

In the pursuit of perfection in intelligent and lean manufacturing solutions, CISDI Engineering Co. is constantly improving quality and costs.

The manufacturing company restarted its production and marketing in mid February during China's pandemic lockdown.

Strict health and safety policies were implemented and all staff were able to work to schedule in safety.

Despite the difficulties, new contracts reached an historic new high – package supplies for 16 production lines were won (220 per cent up from last year). Among them were orders for 574 sets of short-stress path rolling mills (up by 32 per cent on last year).

Core equipment supplies for multiple major projects have passed ex-works inspection.

A product-based corporate system has been established from research to design, manufacture and integration. The production and supply chain can adapt to product development and demands.

To ensure quality, CISDI Equipment Co. holds over 200 sets of advanced manufacturing equipment and more than 100 sets of inspection equipment.

An internationally-advanced, 5-axis sectional positioning and machining centre, the only one of its kind in southwest China, is based at the manufacturing workshops. It can reach 0.015 millimetres of resetting precision, just one per cent of the width of a human hair.

It has been used for hundreds of core products delivered to customers in China and overseas - flying shears, 5-hi PL-TCM stands, 6-hi 3-roll mandrel mills, RSCD modular mills and UMCD universal mills.

A busy workshop at CISDI Equipment Co.

CISDI's digital delivery platform is smooth operator

CISDI has successfully developed a steel digital design, integration and delivery platform, the first of its kind in China.

This platform enables steel enterprises to achieve full life-cycle, 3-dimensional and visualised data management.

Project design, construction, procurement, commissioning and operations management are all digitalised. Design results are released, combined, used, shared and applied on this platform.

It achieves smooth, stable performances and lays a solid foundation for the future integration of production and OM data, and for ops management services. The digital design deliverables have been highly praised by customers.

The platform has been applied to KPO's blast furnace 2 design for TATA Steel in India, the PCI system basic design for LPS steelworks in Australia and Baosteel Shanghai's blast furnace 2 revamp design in China.

Platform characteristics

→ Based on the Browser/Server Architecture, BIM model and other design data can be viewed via the browser of a PC or a mobile device. Installation of professional BIM software is not required.

Designers work online with access to models of different disciplines and coordinate with each other to detect problems or optimise the design. Managers can check the project schedule online, which improves efficiency.

→ A project's work breakdown structure and steel engineering categories are embedded.

It integrates the 3D coordinated design platform, construction schedule data and commissioning plans. As a result, 3D designs are examined and controlled, construction and commissioning schedules are simulated and construction costs are kept on track.

→ Data integration is based on components. Query time for model drawings, data and reports can be greatly saved for their association with the components. Now a QR code is added to further facilitating the query.

This screenshot shows an integration of attribute data for factory objects - design, procurement, construction and ops management

This screenshot shows an integration of document data for factory objects - design deliverables, supplier's data and maintenance instructions

Rizhao Steel and CISDI form strong working bond

Rizhao Steel's president Xu gives management training to the team at CISDI's HQ in Chongqing

Intelligent solutions for energy conservation and reducing emissions were among the hot topics when Rizhao Steel president Kaibing Xu met with the heads of CISDI.

The meeting, attended by CISDI's chairman Xuewen Xiao and president Peng Xiao, forged the way for closer collaboration on green and intelligent developments.

"We are committed to providing global steel companies with our core tech, intelligent products, ops management services and total solutions," emphasised chairman Xiao.

"We relentlessly apply scientific methods to improve production and management techniques and combine industrial tests and applications".

"We appreciate Rizhao Steel's trust in our teams and its openness to collaboration. From now on, we can work together on the product restructuring, systematic optimisation, green and intelligent development.

"Our innovative methods, platforms and tech will create tailored services for Rizhao Steel."

Impressed by CISDI's references in the steel, urban, green and intelligence sectors, Mr Xu spoke highly of CISDI's research and development strengths and its forte for package supply, intelligent solutions and big data platforms.

"My first visit to CISDI changed my understanding of an engineering company. Your unique strength lies not only in your strong research and development skills but in the way the results are applied to projects and industrialisation."

During the visit Mr Xu, a Chinese steel sector management expert, shared his knowledge on management flows, project controls and incentive and disincentive mechanisms with the team at CISDI HQ.

Fangchenggang Steel BF1 is blown-in

Blown-in blast furnace 1 at Fangchenggang Steel

Blast furnace 1 at Fangchenggang Steel for Liuzhou Steel has been blown in, marking another successful CISDI EPC-based reference for mega blast furnaces at coastal greenfield steel plants.

CISDI has already created mega furnaces at Baowu Group's Zhanjiang Steel, Vietnam's Formosa Ha Tinh Steel and Malaysia's ASSB.

Master design and core tech for green, intelligent and long-campaign blast furnaces

The master design of blast furnace 1 and 2 will:

- **Achieve** the most competitive overall economic and technical targets;
- **Optimise** the general layout and transportation design for the ironmaking plant and individual blast furnace system;
- **Allocate** space for installations required in the future.

Based on systematic iron, mass, energy, discharge and information flows, both blast furnaces share their stockhouse, water pump house, central control building and elevated ramp.

In this way, a large portion of the land area is saved, production capacity is ensured and production procedures are integrated smoothly.

Projected operation costs will be reduced. Allocating space for the blast furnace's future installations, needed for technological development, will ensure the project's systematic, cost-effective and sustainable competitiveness.

CISDI has applied big data expertise, graphite blocks and lean production tech to both blast furnaces. The profile, refractory and the coolers have been optimised. Both furnaces will be operating to green, intelligent and long-campaign targets.

Green results:

Thanks to ultra-clean emissions and intensified dedusting tech, the dust concentration at furnace 1's casthouse and stockhouse is less than 10mg/m^3.

Top gas equalising and recovery tech greatly reduces gas emissions.

Soft water closed, parallel recycle tech improves the water reutilisation ratio.

Intelligent solutions:

Bringing big data expertise to traditional ironmaking production enables an intelligent production management system to operate, which enhances production efficiency.

A soft water monitoring system enables automatic exhaustion, water make-up, leakage detection and pressure stabilising functions.

Hearth's refractory and hot load monitoring system enables a more effective temperature measurement and monitors the cooling stave's inlet and outlet temperatures and hot loads at the hearth's "elephant foot" area.

Long service life:

A low-shaft blast furnace design has been applied, the optimised profile for intensified smelting.

To extend the one-generation campaign life, a number of core tech inventions are playing crucial roles:

Cooling staves with a large specific surface area at the furnace's bosh and belly

Optimised refractory structure and thicker refractory installed at hearth's critical positions

Aerial view of Fangchenggang Steel Plant under construction

Graphite blocks featuring a high thermal conductivity added between cooling stave and carbon block for greater safety protection.

Advanced management and digital design - boosting efficiency and quality

CISDI's turnkey services met the challenges posed by huge quantities of work, complicated interfaces and natural conditions, plus the Covid-19 pandemic.

An internationally-aligned, advanced project management and full-process control system operated throughout the project (data, spreadsheet and information technology-based).

CISDI led multi-disciplinary design and management teams, two construction companies and more than 90 sub-suppliers during the 19-month construction period.

Digital design contributed greatly to efficiency and quality:

BIM tech to the furnace proper's design resulted in higher construction quality and implementation efficiency;

Digital design of the cooling stave shortened the furnace proper system's design time; without this process the construction schedule could not have been ensured, as staves should have been the earliest equipment to arrive and be installed. They are the largest portion of the project and require a large amount of work onsite.

Digital design enabled critical data – the height, thickness, calibre, angle and bill of materials - to be highly accurate under the standardised and modularised design environment, which improved equipment quality.

Experienced in building coastal steel plants, CISDI initially carried out a HAZOP (hazard and operability) study on the process, equipment and facilities.

It embodies an intrinsic safety principle that essentially strengthens the blast furnace's capability for resisting coastal acid corrosion, typhoon and storm damage and soft foundations.

The centralised control room for blast furnaces at Fangchenggang Steel Plant

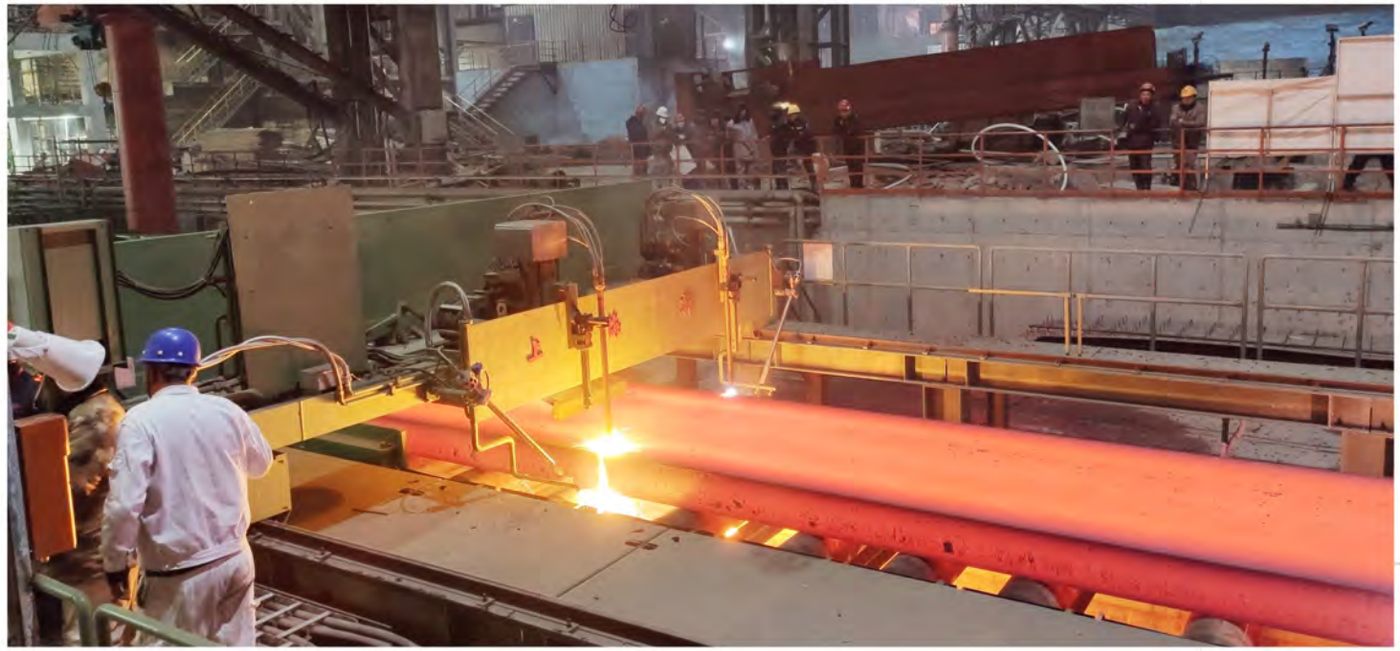
Teams from CISDI and Fangchenggang work on BF1's casthouse

Meeting the challenges

Constructing both blast furnaces simultaneously at Fangchenggang Steel meant double the difficulties. The construction team was faced with huge quantities of work, complicated interfaces, an unfavourable climate and the situation caused by the Covid-19 pandemic.

To ensure design, equipment control, construction, safety and quality control for both furnaces went smoothly, the team organised online meetings with Fangchenggang and the builder and resumed onsite work with ensured safety 10 days ahead of the customer's schedule.

The team met each milestone on time – assembly of the automation system, stove heat-up, combined commissioning and BF pressure test.



Yingkou 475mm slab caster runs for mass production

A super-thick slab caster 2 at Minmetals Yingkou Steel is now mass-producing 475mm slabs - the thickest in the world.

Supplied by CISDI, it is a vertical-curved caster designed to produce super-wide and super-thick slabs, ranging from 335mm to 375mm and 475mm in thickness and from 2,000mm to 2,400mm in width.

The slab's surface and internal quality are meeting production targets. These results officially designate this type of caster as a critical thick slab producer.

Steel grades range from quality carbon steel, high-rise building steel, bridge steel, shipbuilding steel, pipeline steel, weather-proof steel, pressure vessel steel and die steel.

Annual output will reach 1.30 million tonnes.

The caster's smooth mass production relies upon CISDI's patented super-thick casting process model, mould's online width adjustment, mould's expert system, composite electromagnetic intervention, dynamic soft and heavy screw-down and energy-efficient dry cooling tech.

A particular specialism is 2,000-tonne heavy screw-down forces for each segment, a new record for similar equipment.

CISDI also foresees the requirement for a heavy screw-down function for fully-solidified slab in the future, to enable new, high-end steel grades to be produced and for process optimisation.

Mass production of 475mm slab, the world's thickest specification, happening at the Minmetals Yingkou vertical-curved caster, supplied by CISDI

New meltshop success for Minmetals Yingkou Plant

Achieving record figures for China: 12.6Pa vacuum degree and 0.84ppm hydrogen content of refined liquid steel

The RH 2 refining at Minmetals Yingkou meltshop

The final step in the rebuild of Minmetals Yingkou Steel Plant's meltshop has now been achieved.

The RH 2 has successfully been hot-tested at the plant, which is based in northeast China.

The Covid-19 pandemic made life harder for the team from CISDI. But with strict health and hygiene controls in place, it took 85 days to complete all equipment installation, accelerating provisions for the hot test.

Working on an EPC basis, CISDI had already built a new ladle furnace, KR desulphurisation plant and a super-thick slab caster at the plant, and rebuilt three BOFs before setting up and testing the RH vacuum refining process.

This new RH 2, with a nominal vessel capacity of 120 tonnes, has an annual production capacity of 900,000 tonnes.

The main steel grades it will process are laminar tearing resistant steel, bridge steel, shipbuilding steel, armour steel, advanced pipeline steel, boiler steel, quality carbon steel and low-alloy high-tensile structural steel.

Refined liquid steel will be charged into the downstream super-thick slab caster, which is now achieving mass production.

A major refining procedure for clean steel production, the RH process relies on a low vacuum and hydrogen content. Yingkou RH 2 has achieved a 12.6Pa ultra-low vacuum degree and 0.84ppm hydrogen content in refined liquid steel. Both hot test results break records in China.

The steel ladle ready to rise up into the RH 2

A number of CISDI specialist products have been applied:

- SCAP multi-functional top lance - capable of a long range of oxygen blowing and a strong aggregation, it enables burning with a long, stable flame. The lance's powder injection is far-reaching and the injected particles show a good permeability.
- Patented immersion tube - an integrated body able to expand the inner diameter, prevent liquid steel from splashing and protect the vacuum channel from blocking. As a result, the gas flow becomes larger, reducing the melting time.
- Vacuum pump system - consisting of a steam pump plus a water circulating pump, this enables 20 per cent of the meltshop's excess steam to be reused by the pump system.

CISDI to build a 3-strand slab caster for Jinxi Steel

Jinxi Steel in China's Hebei Province has placed an order of a 3-strand slab caster with CISDI.

This caster will produce 2.30 million tonnes of slabs ranging from 180 to 200mm in thickness and 610 to 750mm in width. Low carbon steels will be cast.

The 3-strand slab caster is CISDI's unique core equipment product, developed to match its upstream large-tonnage BOF, which Chinese steel enterprises are now seeking to install.

Jinxi Steel is CISDI's second reference for the caster, with the first running successfully at Ruifeng Steel, which also lies in China's Hebei Province.

Features:

- Large tundish with a controller
- Highly-reliable tundish car
- Gap-less segments
- Innovative and highly-efficient secondary cooling system
- Fully-enclosed, powerful-drafting secondary cooling's steam exhaustion system

CISDI Piercer Mill meeting Changbao's expectations

A piercer mill being manufactured for Changbao Precision Tube has now passed inspection at CISDI Equipment Co.

Changbao's mill is the third of this type to be supplied by CISDI. Previous examples are in operation at China's Dalipal and Chengde tube rolling lines.

Changbao has a wealth of tube rolling experience and had exacting requirements for the mill's design and manufacture. Teams from CISDI HQ and its manufacturing company made multiple optimisations on the mill's design during continuous coordination with the customer.

The design team was closely involved throughout the manufacturing process. Critical components and procedures were studied and clarified internally. Inspection plans were prepared in advance. Care was taken to ensure workers understood drawings before every stage of operation and assembly. A specially treated coating was applied to all surfaces of this huge cast equipment, which weighs over 70 tonnes.

Fine workmanship resulted in a high-standard of manufacturing, exacting assembly precision and a successful inspection.

A critical piece of equipment for the tube rolling line, a piercer mill has to be inspected to the strictest standards by both manufacturer and customer.

The joint team carefully checked the underside for levelness, the stand's verticality and its alignment with the centreline.

Tests were carried out on movements of the hydraulically-driven left and right guides, top and bottom cross beams and screw-up and screw-down devices.

All inspections met design requirements.

The Piercer Mill manufactured by CISDI for Changbao

Inspection of Changbao's new Piercer Mill takes place at CISDI's manufacturing shop

Test highlights:

- The coaxiality between housing and drum is deviated by less than 0.5mm, far surpassing the customer's 1mm requirement
- The levelness between left and right guides differed by less than 0.15mm/m
- The error between left and right guides along the pass line is within +/-0.2mm
- The gap deviation between inlet and outlet of the left and right guides is within +/-0.2mm.

Ladle turret for Ruifeng Steel gets stamp of approval

CISDI-patented short-arm, 4-link-rod structures, world-leading ratio of equipment weight to bearing capacity

The CISDI-manufactured ladle turret for a 3-strand slab caster

The ladle turret for Ruifeng Steel's 3-strand slab caster has passed joint inspection at CISDI Equipment Co. and will now be delivered to the project site.

Both customer and manufacturer witnessed the inspection to ensure it met all design requirements.

The ladle turret's innovative, patented structure features short arms and four link rods, which enables a total load-bearing capacity of 900 tonnes (2x450t) and gives a 6,500mm rotating diameter.

Arms A and B are separate structures, making manufacture, installation, commissioning and maintenance easier.

With an equal-strength design concept, CISDI conducted Finite Element Analysis, minimising the stress load on main components. The ratio of equipment weight to its bearing capacity is a world-class indicator and improves the safety and reliability of the overall equipment.

Baowu Steel Expo Centre refurnish steel culture

The sprawling site of a former steelworks in Shanghai is to be transformed into an urban space which places its industrial heritage centre-stage.

Baowu Group's Shanghai stainless steel plant will become a shining example of an industrial to urban development.

It will feature housing, parkland and an international steel conference and exposition centre which will attract steel companies from around the world.

CISDI and Shanghai Baoye Group will partner up for the project, which lies in the 20km^2 Wusong Innovation City site at Baoshan.

With a wide understanding of the steel sector and 62 years of engineering experience, CISDI will be involved in the full-process design, from proposal and construction drawings to technical services.

The largest buildings at the steelworks will be redeveloped to ensure knowledge of the region's industrial heritage is preserved for future generations.

A conference centre covering 42,000 square metres will be built on the 3.78 hectare site of an old blast furnace and will become a showcase of China and Baowu's skills and specialisms.

Wusong will also renovate 47,000 square metres of the old steel plant into a park and landscaped urban area with housing.

Artist's impression of the Baowu Steel Expo Centre, which is to be created from an old steelworks

Standards release

CISDI has recently chaired and taken part in the revisions and drafting of multiple international, national and association standards for the steel sector.

The following have recently been released:

Two international standards:

- IEC 60519-8:2020 Section 8 – Special Requirements on Electroslag Remelting Furnace for *Safety of Electric Heating and Electromagnetic Processing Units*
- IEC 60779:2020 Testing Methods of Electroslag Remelting Furnace for *Electric Heating and Electromagnetic Processing Units*

The electroslag remelting furnace is a resistor furnace which uses the heat energy of currents flowing through the high-resistance slag to re-melt metals. It has a significant role to play in numerous industrial sectors. China is a leading manufacturer and a chairing country for its related international standards.

The latest release of the two standards is the third revision. The first two, carried out under CISDI's chair, were awarded China's first 'IEC 1906' prize in 2005.

Two national standards:

- GB/T 5959.12-2020 Section 12 – Special Requirements on Infrared Electric Heater for *Safety of Electric Heating and Electromagnetic Processing Units*
- GB/T 10066.12-2020 Section 12 – Infrared Electric Heater for *Testing Methods of Electric Heating Units*

These two standards will come into effect from October 1. They will improve the national industrial electric heater's standard system, providing scientific, compatible and applicable guidance for stakeholders.

An association standard, T/CSM1-2020 *Cascade Continuous Feeding for Electric Arc Furnace*, has been approved for release by the Standardisation Commission of The Chinese Society for Metals.

Dual-module reducing tech rolls to success

enabling wire-rod mill's rolling speed to increase from 55m/s to 62m/s

Wire-rods being produced at Xinxing Ductile Iron Pipe Co.'s rolling line with CISDI's dual-modular reducing mill

CISDI's dual-module reducing mill has achieved its rolling targets during commissioning at the Xinjiang steel plant operated by Xinxing Ductile Iron Pipe Co.

Wire rod with a diameter of 10 millimetres can now be rolled at a speed of 62 metres a second - a dramatic increase on 55 metres a second - thanks to the mill.

The entire rolling line's speed and output will eventually be improved.

Manufacture of the equipment for Xinxing Ductile was carried out during challenges posed by the Covid-19 pandemic. Swift rearrangements to working patterns were made and all equipment was delivered to site on schedule.

The technical services team - made up of process, equipment, electric and automation and hydraulic engineers - were on site day and night and completed all the specifications commissioning on schedule.

Startup of the mill resulted in immediate ramp-up. Production capacity has increased in output by the following ratios: specification Φ8.0mm by 12.1%, Φ12.0mm by 20%, Φ6.0mm by 15%, Φ10.0mm by 12%.

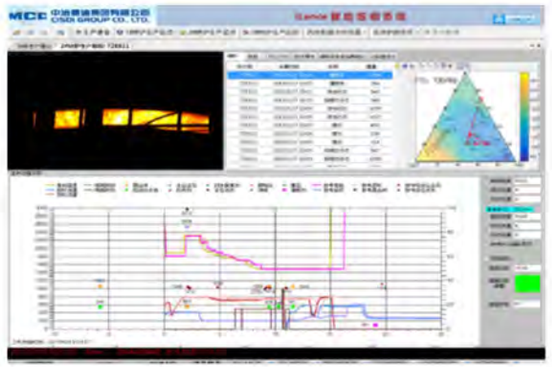
CISDI began development of its dual-module reducing mill in 2015. Continuous innovation and optimisations created an independently-driven, green, low-consumption and modularised reducing mill.

It is now used widely in China by companies who previously had no option but to import reducing mills for their high-speed bar and wire-rod rolling lines.

"We greatly appreciate the specialism and craftsmanship demonstrated by CISDI's team throughout the design, installation and commissioning of our rolling line," Xinxing Ductile Iron Pipe Co. said in a letter of thanks to CISDI.

"The high-quality equipment has boosted our production capacity quickly and successfully."

First strike for CISDI's groundbreaking iLance



A screenshot of CISDI's iLance

CISDI's iLance hardware and software will be applied to Chongqing Steel's 80-tonne basic oxygen furnace.

The first application of this core product will upgrade the BOF's intelligent control level.

It will enhance stability during the melting process and at its end point, reduce production costs and improve product quality and operation safety.

iLance has newly-developed intelligent perception elements and applies big data analysis expertise. It conducts dynamic controls on the operation process.

It improves melting end-point's stability, estimates the BOF's operation and control plans, runs splashing prevention and melting monitors, and enables the oxygen lance to operate automatically.

Multiple iLance patents have been granted and CISDI's tailored iLance solutions will soon be helping customers facing challenges such as severe splashing, endpoint control problems and manual operation deficiencies.

iLance's image recognition feature shows the in-BOF melting status

CISDI's Consulting Expertise

Driving the Competitiveness of Steel Enterprises

CISDI's consulting services provide end-to-end solutions for the full life-cycle of steel projects, from planning and design to construction and operations.

The Core Concepts of CISDI's Consulting Services

Systematic approach: five-flow based systematic optimization of your process (mass, iron, energy, information and emission flows)
Systematic optimization guides all proposals and designs.

Economic: cost-effective investment and operations solutions to enhance your competitiveness

Cost efficiency is a priority in evaluating technical proposals.

Sustainability: strategic analysis of raw material and fuel trends, plus steel sector developments, to enable sustained business growth
Sustainability is the foundation underpinning your proposals and designs.

Where CISDI's consulting total solutions have reaped results

Baowu Group's Zhanjiang Steel (10MTPA) plant in China's Guangdong Province
CISDI led Zhanjiang Steel's front-end planning, master plan and feasibility studies.

Results achieved
- Four revisions of feasibility studies reduced CAPEX by approximately 40 per cent.
- OPEX per tonne of crude steel approximately $42 lower than those achieved at Baowu Group Shanghai, a steelworks renowned for its outstanding overall competitiveness.

ASSB Steelworks (3.5MTPA) in Malaysia's Pahang State
CISDI systematically optimized ASSB's equipment configuration, general layout, logistics and energy system to establish ASSB plant in Kuantan City as ASEAN's benchmark producer of long products.

Results achieved
- CAPEX reduced by $22.6 per tonne of crude steel
- OPEX reduced by $13.8 per tonne of crude steel

Formosa Ha Tinh Steel (10MTPA) in Vietnam
CISDI implemented FHS's master plan, bankable feasibility study and integrated consulting services (ICS).

Results achieved
- Efficient project construction based on the master plan
- The bankable feasibility study was recognized by *Manual for the Preparation of Industrial Feasibility Studies* issued by the United Nations Industrial Development Organization. Market-specific models, methodology and tools were aligned with international practices
- Achieved CAPEX savings of around $84.7 million