



CISDI GROUP CO., LTD.

CISDI HEADQUARTERS

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

CISDI UK

Add.: CISDI HOUSE, 8 Furnival Rd, Sheffield, S4 7YA, UK
Tel.: +44 1142291067
Email: info@cisdigroup.com
Website: www.cisdigroup.com

CISDI TURKEY

Add.: 122, A3 Blok, Maslaktan, MASLAK MAHALLESİ, Istanbul, Turkey
Tel.: +90-6340137287
Email: jing.zhang@cisdigroup.com.cn

CISDI India

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

CISDI Malaysia

Add.: 5-9-6 Corinthian Condominium, Jalan Binjai, 50450 Kuala Lumpur, Malaysia
Tel.: +60 165626758 / +86 13508339926
Email: Shihong.Ma@cisdigroup.com.cn

CISDI USA

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

CISDI Brazil

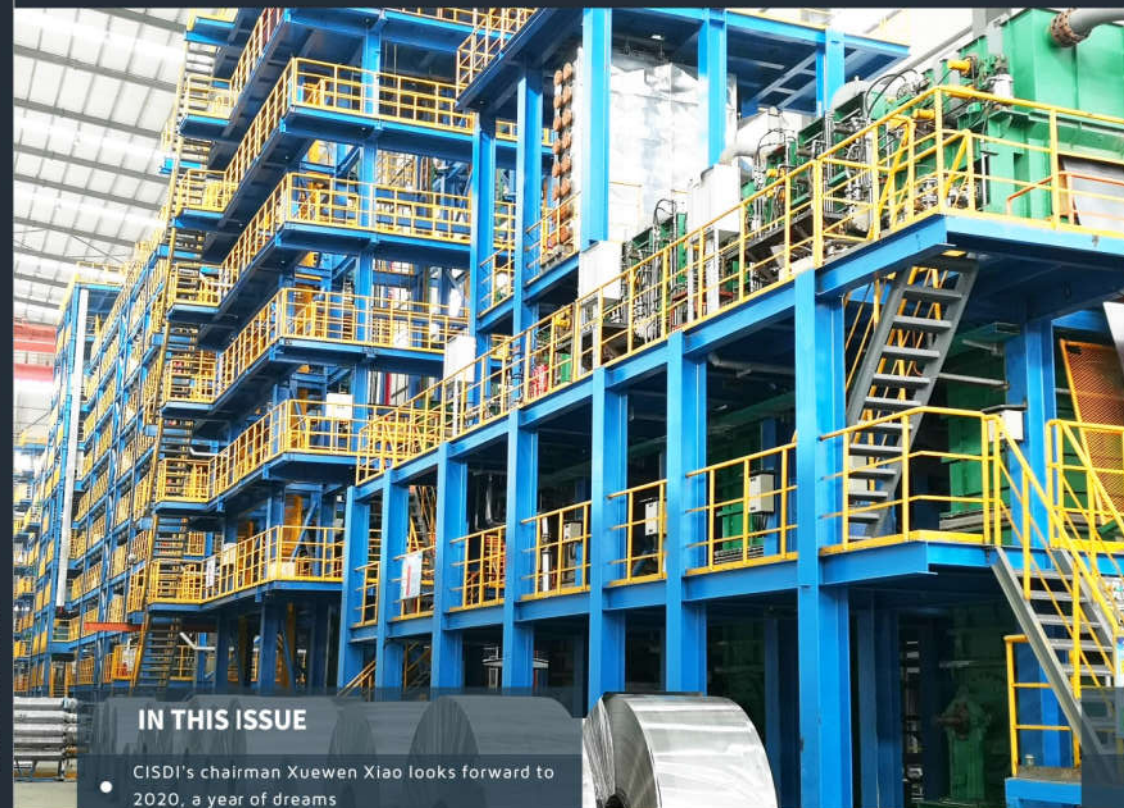
Add.: Rua Pernambuco 1002, Sala 902, Bairro Funcionarios, Belo Horizonte, CEP 30.130151, Minas Gerais, Brasil
Tel.: +55 31 34638880
Email: xin.yan@cisdigroup.com.cn

CISDI Vietnam

Add.: Phòng 2108 tòa nhà Charmvit Tower số 117 đường Trần Duy Hưng, Phường Trung Hòa, Quận Cầu Giấy, Thành phố Hà Nội, Việt Nam
Tel.: +84 0 2432007795 / +84 943482089
Email: xinbin.liu@cisdigroup.com.cn

CISDI NEWSLETTER

Vol. 01, 2020



IN THIS ISSUE

- CISDI's chairman Xuwen Xiao looks forward to 2020, a year of dreams
- World's first intelligent hot metal transport system up and running at Baowu Zhanjiang
- Top Chinese award for Malaysia's new steel giant
- CISDI's super-thick slab caster for Minmetals
- Yingkou looks set to be a world-leader

Handan Zhuoli ready to produce ultra-thin tin for food industry



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.

TABLE OF CONTENTS

» **NEW YEAR MESSAGES**

CISDI's chairman Xuewen Xiao looks forward to 2020, a year of dreams 02

» **CISDI News**

World's first intelligent hot metal transport system up and running at Baowu Zhanjiang 07
Top Chinese award for Malaysia's new steel giant 08

» **Project Status**

CISDI's super-thick slab caster for Minmetals Yingkou looks set to be a world-leader 09
Handan Zhuoli ready to produce ultra-thin tin for food industry 11

» **S&t**

CISDI innovation results in ultra-low emissions at Shandong Longsheng Steel and Shanxi TISCO 12



New Year messages



CISDI's chairman Xuewen Xiao looks forward to 2020, a year of dreams

We usher in 2020 full of hope and dreams for our company, our friends and associates. 2019 witnessed a number of highly successful developments. Corporate revenue reached a new high and CISDigital products gained momentum in the Chinese market.

We performed strongly in both the Chinese and overseas steel markets. And on behalf of CISDI Group, I would like to extend my heartfelt thanks to you all for your trust and support.

The year ahead will present more opportunities for CISDI's innovative, reliable solutions. CISDI branches around the globe are joining hands with customers and partners, helping them to enhance their efficiency and competitiveness and improve their products, their green credentials and working conditions for their staff.

CISDI wishes all customers and partners ever-greater success in 2020.



John Lester, managing director of CISDI UK, looks forward to a year of growth

As the New Year gets underway, CISDI UK would like to take the opportunity to wish all its customers, suppliers, partners, friends and colleagues across the globe a successful and prosperous journey in 2020.

It is fair to say 2019 brought both many challenges and opportunities and we greatly appreciate the time and effort given by everyone to our team from the UK.

We look forward to continuing and strengthening our friendships throughout 2020, taking opportunities to grow our business and at the same time growing and adding value to the businesses of our customers.

Last year CISDI UK grew substantially and we look forward to creating new friends and partners as we continue our growth and further globalisation in 2020.



General manager of Overseas Business Division Yong Liu thanks CISDI clients

CISDI made significant progress in overseas markets last year and I would like to thank our customers and partners for their continued support.

Our order book now covers all of the major overseas market and our subsidiaries are deeply rooted in different corners of the world,

their local knowledge enhancing our communication with clients and enabling us all to grow together.

I wish you even greater success this year, a time when CISDI will be focused on developing ever-more competitive products and solutions for our customers and partners.



Robert Smith, CEO of CISDI USA, aims to increase presence in North America

Heading into the first quarter of 2020, we take this opportunity to extend our appreciation to our clients and customers in support of their businesses and operations.

For CISDI USA, the previous year of 2019 brought numerous challenges and opportunities within the North American market. The company has stayed focused on the main integrated producers, expanding our client base not only in the USA but also into Canada. We have won an important order for a new customer in the USA with the opportunity to highlight CISDI Group's process technical know-how and expertise. This project will be completed within the next month having the expectation to fulfill all the project's technical requirements and demands.

CISDI USA remains focused on modernizations and upgrades for capital projects and

replacement parts. In addition, the consulting services for engineering and feasibility studies are a main objective for new business and order intake for 2020.

In 2020, CISDI USA looks to expand our market presence through continued collaboration with our customer base by tailoring CISDI's technical expertise specifically for the North American market and its relative client requirements.

Our main areas of concentrated efforts will be CISDI Intelligence, high-level analysis from our Consulting Services, and a strong push to win orders for the Replacement Parts business.

We will remain committed to full flexibility and cooperation to our clients, increasing CISDI's presence and elevating our reputation and commitment within the North American market.



CISDI Vietnam MD Xinbin Liu looks forward to 2020 success

CISDI Vietnam, founded in Hanoi in 2019, assists steel companies in the Indo-China Peninsula.

We bring to this region CISDI's years of experience and research for the full life-cycle of steel manufacturing, including consulting services, engineering expertise, equipment supply,

construction, EPCM and operational services.

In 2020 we are looking forward to providing our advanced technology and experience gained from successful projects carried out around the world to our existing customers and clients, and forming new relationships throughout the Indo-China Peninsula.



Immense opportunities ahead, says Hatee Ram Pattanayak, MD of CISDI India

Today CISDI is known in India as a world-leader in the design, manufacture and supply of a full range of environmentally-friendly technological solutions for the iron and steel industry.

CISDI India's role is to introduce CISDI's latest technology and products to the rapidly expanding Indian market.

There are immense opportunities for CISDI to tap. India is poised to increase its crude steel-making capacity from 140 to 300 metric tonnes a year by 2030-31.

Our team members have relationships with eminent Indian steel-makers including TSL, JSW, Essar and JSPL, and medium-scale steel enterprises such as TSIL, ASL, AISRM.

In 2020, we at CISDI India are gearing up to achieve business targets in a very dynamic and competitive market, executing CISDI's ongoing blast furnace and rolling mill projects at TSL, JSW & Aarti Steels and exploring potential partnerships with Indian agencies for local products and services which enable it to be even better on price.



A memorable year, reports Shihong Ma, MD of CISDI Malaysia

2019 was a memorable year for us - CISDI Malaysia was founded and ASSB's full-line was started up.

CISDI undertook the master design and equipment supply for the award-winning project, which raised CISDI's profile in Southeast Asia and beyond.

The project won China's Overseas Lu Ban Prize 2018-2019. (Read more about the award win in our CISDI News section).

Major progress was also made at the Wen'an Samalaju Intelligent Steelworks in Malaysia. And in Indonesia, CISDI's operations management project at GUNUNG's Steel Plant commenced.

CISDI Malaysia anticipates a promising 2020, applying intelligent products and services at Wen'an Samalaju Steel and continuing with high-quality, steel-focused services for ASSB and other key clients in Malaysia, Indonesia and the Philippines.



We are celebrating nine years of success, says CISDI Brazil MD Xin Yan

The dawn of 2020 marked nine successful years for CISDI DO BRASIL and my team would like to thank our customers for giving us the opportunity to work with them.

In 2020 we hope to provide steel enterprises in Brazil with more CISDI services and

innovations, enabling them to share the success experienced in China and other countries.

Our aim is to promote economic exchanges between Brazil and China and contribute to the further development of the two countries.



Even more to achieve in 2020, says Jing Zhang, head of CISDI Turkey

Since launching four years ago, CISDI Turkey has provided leading technology and services to a number of major steel complexes in Turkey.

Our clients include the OYAK Group, Russia's Severstal Steel and the GHP Group.

We have promoted our IPR-based POC-type gas holder to European customers and carried

out the feasibility study for a new integrated steel plant in Russia, laying solid foundations for further market development.

Looking forward in 2020, we hope to achieve yet more results in Turkey, the Middle East, the CIS and Africa, providing more customers with our high-quality services.

World's first intelligent hot metal transport system up and running at Baowu Zhanjiang



CISDI team and representatives from Zhanjiang Steel are pictured at the launch of two world firsts - the operational intelligent hot metal transport system and the opening of the Intelligent Logistics Centralised Control Platform

CISDI's intelligent hot metal transport system, the first of its kind in the world, is now running smoothly at Baowu Group's Zhanjiang Plant.

The site's all-weather, manpower-reduced wharf system, another CISDI innovation, has been integrated into the new transportation system. Both are operated via Zhanjiang's Intelligent Logistics Centralised Control Platform.

It was back in July that the first autonomous hot metal locomotive ran on the system; now eight locomotives and 28 ladle cars are in use and an intelligent systematic operation has been achieved - from single points to an entire production line.

This leapfrog in intelligence development harvests numerous breakthroughs in expertise - self-adaptive anti-slip parking, automatic coupling, smart electric charging, high-precision aligning, unmanned driving and smart locomotive scheduling.

The creation of Zhanjiang's intelligent hot metal transport project began in late 2016. In early 2019 CISAI Tech - CISDI and Sinovation Ventures, a quasi-unicorn company for AI, joined the team.

CISAI Tech is dedicated to the research and development of the autonomous locomotive and applies AI and intelligence to industrial scenarios in the pursuit of deeper fusion.

The locomotive system features CISDI's real-time, self-learning, self-adaptive, high-precision control model, in addition to CISDI's all-weather environmental perception and digital twin expertise.

Autonomous locomotive transportation features such as all-weather environmental perception, all-obstacle precise identification, automatic coupling between the locomotive and ladle car and precision positioning remove the need for manual workers in unsafe site conditions.

Hot metal transportation efficiency is improved and costs are greatly reduced.

A major innovation in driverless expertise for industry, the intelligent system sets a benchmark for China's industrial development and for speeding up the formation of an intelligent steel ecosystem.

Top Chinese award for Malaysia's new steel giant



An aerial view of ASSB Kuantan in Malaysia

Malaysia's biggest and most advanced steelworks has won a top award.

ASSB's 3.5-million-tonne plant is situated on the Belt and Road Initiative route and has created many local jobs. It has now been awarded China's Lu Ban prize for overseas construction achievement.

The award is named after an ancient Chinese master carpenter who was the originator of Chinese architecture.

CISDI was the master designer and core equipment package supplier for the steelworks. The first project implemented on the Malaysia-China Kuantan Industrial Park, it fills a void in Malaysia's steel sector.

The plant features the country's first integrated mill and is a prime example of trade co-operation between Malaysian and Chinese governments, suppliers and constructors.

ASSB is meeting its performance and quality indicators and achieving world-leading levels.

Its current production capacity is surpassing design targets and its environmental emissions are much lower than Malaysia's standard levels. Targets for zero liquid discharge and the



The CISDI team, pictured at the entrance to MCKIP

comprehensive re-utilisation of scrap have been achieved.

CISDI has already been awarded the prize for China's Excellence in Metallurgical Surveys and Engineering for its systematic, cost-effective master plan for ASSB, which was tailored to the steelworks' sustainable development and created a compact integrated mill plant.

Production units at the 710-acre site are arranged as two blast furnaces, each with a 1,080-cubic-metre volume, two BOFs, each with 120 tonnes, three continuous casters and four long products mills.

The plant features many of CISDI's innovation-driven, core products – the eco-friendly and intelligent stockyard, high-efficiency and low-consumption blast furnace technology, a one-ladle hot metal transport system, direct hot rolling system and plant-wide intelligence.

CISDI's multi-disciplinary integrated capacity and leading techs have contributed to improvements in overall competitiveness and green and intelligent manufacturing levels and have won CISDI two customer-awarded accolades – Best Designer and Best Package Supplier.

CISDI's super-thick slab caster for Minmetals Yingkou looks set to be a world-leader



The first super-thick strand is pictured being cast at Minmetals Yingkou Plant

CISDI has played a major role in creating what could be a new world-leader for super-thick slab casting.

A new caster at Minmetals Yingkou Plant features CISDI's patented and highly-advanced core technologies for strand soft reduction, heavy reduction at the end of solidification and robot-controlled automatic distribution.

During successful hot-testing, Q235 slab with a cross-section of 320mm x 2,030mm was produced at a casting speed of 0.6 metres per minute.

Equipment installation and commissioning had to be carried out at Yingkou's existing workshop while production continued.

It took only 50 days to complete the

project, thanks to close co-ordination from the CISDI team, the client, construction and supervision companies.

The slab caster is designed as a vertical-curved type. It can achieve a maximum production thickness of 470 millimetres and slab width ranging from 2,000 to 2,400 millimetres.

Online width adjustment expertise enables it to produce cut-lengths ranging from 2,400 to 4,800 millimetres.

The caster is capable of producing peritectic steel, high-carbon and medium-carbon steel, low-alloy and alloy steel.

Handan Zhuoli ready to produce ultra-thin tin for food industry

— CISDI's cold rolling EIC is successfully applied to food packing industry



The Tin-CAL at Handan Zhuoli

Handan Zhuoli Fine Plate Co. has successfully hot-commissioned its high-speed tin plate continuous annealing line in China's Hebei Province.

CISDI supplied the electric, instrument and computer system for the Tin-CAL, China's first with an EIC system designed and supplied by a Chinese company.

The ultra-thin tin plate produced is a new material for the food industry. Its thickness ranges from 0.17 to 0.55 millimetres and its width from 700 to 1,050 millimetres.

Production technology and technical indicators are the best in China. The maximum process speed is 500 metres a minute - more than double the speed of conventional lines - and the plant is capable of producing 250,000 tonnes a year. Sheet tension can be well-controlled during production.



Tin coil produced from Zhuoli CAL, which is destined for the food-packing sector

CISDI's EIC package includes design and supply of the electric drive and automation - basic automation system (L1), instrumentation and process computer system (L2) software programming and commissioning.

To ensure it became the most competitive line in China, CISDI applied tailored expertise featuring the cleaning section's tension control, the multi-tower vertical looper's tension and leveling control, the vertical annealing furnace's tension and temperature control, flying shear's control and material precision tracking.

To greatly improve the line's production continuity and stability, CISDI came up with a technological breakthrough - a unique tailored solution which enables the motor drive unit for the furnace rollers to switch between two vector control modes: In the event of an

encoder failure, the motor can switch to a vector control mode which has no encoder.

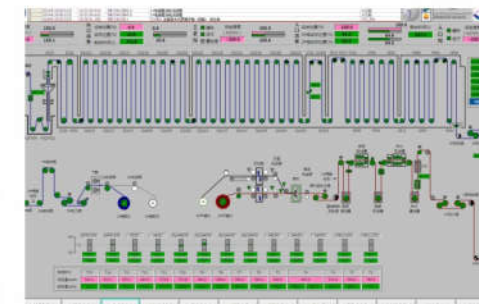
Zhuoli's Tin-CAL is CISDI's first successful application of its cold-rolling expertise for the food packing sector. It comes on the heels of two major successful applications for the high-end automobile and home appliances sheet industry.

CISDI has become a major player for developing cold-rolled products which create more precise, refined and better-quality production.

It lists China's Pangang, WISCO, Guofeng Steel, Bayi Steel and Ganglu Steel as clients. CISDI has created EIC systems for the continuous galvanizing line at Vietnam's TDA works, the CGL for Indonesia's Sunrise plant and TATA Metal, also in Indonesia.



CISDI's team, pictured with hot-tested tin coil at Zhuoli Tin-CAL



A screenshot from CISDI's cold rolling control HMI for Zhuoli Tin-CAL

The CAL is configured with the following equipment

- ❖ Dual payoff reels
- ❖ Automatic welder
- ❖ Multi-stage cleaning units
- ❖ Multi-tower vertical looper
- ❖ Gas/electric-heating vertical annealing furnace
- ❖ Water quenching unit
- ❖ Flying shear
- ❖ Dual re-coiler

CISDI innovation results in ultra-low emissions at Shandong Longsheng Steel and Shanxi TISCO

Shandong Longsheng Steel and Shanxi TISCO are now producing ultra-low emissions thanks to the installation of CISDI's wet electrostatic precipitator.

Measurements taken by a third party institution have recorded discharged fume dust concentration of less than $10\text{mg}/\text{m}^3$ - a much lower emission than China's ULE standard.

The measurements have been carried out at six BOFs after two months of running with the wet electrostatic precipitator, a clean production measure.

A crucial technology for achieving ULE targets, CISDI's wet precipitator for BOF primary dedusting works by:

- Electrostatic absorption of negative charges accumulated in dusts from BOF fumes

- An electric field force collects charged dust particles onto the collecting board

- Dusts are flushed off from the board into a dust hopper and then discharged

The wet precipitator can be built while production is running and can be easily switched into the production system.

It features a small footprint, is easy to operate and maintain and generates little resistance.

In response to complicated BOF fume conditions and the high risk of explosion, CISDI has developed a Data Wizard which provides scientific guidance for BOF melting. It enables real-time calculation, evaluation and pre-judgment on the gas explosive risk.

Over 1,000 heats show the Data Wizard has an important role in ensuring a safe and stable operation of the wet electrostatic precipitator.

TISCO's BOF dedusting rebuild, which features CISDI's wet electrostatic precipitator

CISDI GROUP CO., LTD



INTELLIGENT MANUFACTURING SOLUTION

Baosteel Shaogang upstream-BF integrated intelligent control platform



CISDI is implementing the EPC-based construction for Shaogang's Intelligent Centre, a benchmark of China's steel intelligence levels. An upstream-BF integrated intelligent center has been put into use, a world's first implementation of steelworks' trans-procedure, cross-area and long-distance (over 5km) endless coordination and big data decision-making.

Critical technologies

- Data center and big data platform
- AI-based math model
- Integrated intelligent control
- Big data-based production and dynamic optimization of operation
- Systematic optimization and production consulting
- Remote safety control
- Machine vision

Results and returns

- Reducing 40% staff working at the onsite central control room for the integrated intelligent control center
- Increasing productivity by around 30%
- Creating an annual economic benefit of \$2.24 million through innovations in organization, flow and management
- Achieving a cost saving of \$1.5 per tonne of hot metal