

STEEL+ TECHNOLOGY

THE TECHNICAL MAGAZINE FOR IRON AND STEEL PROFESSIONALS AROUND THE WORLD



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Düsseldorf, Germany
April 13 - 17, 2026



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STEEL COMPANIES

World record for DRI plant output: 2.43 million t per year produced by a single module

RAW MATERIALS

Cold-agglomerated pellets produced from 100% Australian Pilbara iron ore

STEEL TECHNOLOGY

High-capacity rebar mill in Bangladesh is considered to be the fastest in the world

STEEL APPLICATION

Test track to be built for the TransPod high-speed public transport project in Canada



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The pace of transition is accelerating

In February, the US Supreme Court ruled against Trump tariffs, which was a major blow to the global economy – especially as the EU Commission was about to start a new round of negotiations with the US at the time. This was followed by several subsequent decisions by the US President regarding new tariffs, making it impossible to predict the situation when this issue of the magazine is published. What is clear is that companies worldwide are facing great uncertainty, and this is likely to continue for some time. These are troubling times for the steel industry, which relies on functioning international supply chains. In addition, ongoing conflicts in Ukraine and the Middle East continue to pose a risk. Therefore, we cannot simply carry on as if everything were fine in the outside world. Nevertheless, this magazine usually focuses on technical trends in the steel industry.

STEEL + TECHNOLOGY regularly reports on raw materials for sustainable ironmaking, with a particular focus on low-GHG pellets. In this issue, we report on the progress that has been made with cold agglomerated pellets (see page 33). For the first time, such pellets have been produced using iron ore from the Pilbara region in Western Australia, which has some specific characteristics.

However, this article only covers one aspect of the R&D activities being pursued in this area. The global expansion of direct reduction capacities is leading to an increasing demand for suitable raw materials. Iron ore agglomeration is crucial for producing the material needed for direct reduction processes, as well as for conventional blast furnace iron production. This is driving the devel-

opment of new pellet technologies, as well as reviving alternative direct reduction processes such as fluidised bed processes and rotary kilns, to name just two.

This trend has also been recognised by major technology suppliers, who are stepping up their efforts in this field. Last year, for example, the SMS group acquired the Ferrous Technologies division from Metso, thereby securing expertise in agglomeration technologies. Then, in December, Danieli announced that NewFer, a German engineering company, would become a wholly owned subsidiary of Danieli Corus (see page 14). With the addition of iron ore beneficiation and agglomeration expertise, Danieli Corus has bolstered its competencies in the upstream segment of integrated steelmaking.

The ongoing research and development of upstream technologies is fascinating, but we cannot go too deeply into it here. There are many other relevant steel topics to cover, which are presented on the following pages.



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Dipl.-Ing., Editor

Arnt Hannewald



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SGJT and Yukun are enjoying their QSP-DUE plants operating in coil-to-coil, semi-endless and endless mode, based on HRC market requests. The Nucor Steel QSP-DUE plant is under construction.



APERAM APPOINTS NEW CHIEF EXECUTIVE OFFICER

At Aperam, Sud Sivaji has officially assumed the role of Chief Executive Officer, effective 1 January 2026. He previously served as Aperam’s Chief Financial Officer.

Sud Sivaji brings 25 years of engineering, supply chain, and financial expertise to the new role. His industrial experience spans the steel, stainless, and aerospace sectors, providing a strong foundation to lead Aperam’s next phase of growth. His

appointment completes the leadership succession plan initiated in September 2025, following the retirement of Tim di Maulo at the end of 2025.

■ *Aperam*

Sud Sivaji is the new CEO of Aperam
(Picture: Aperam)



NEW PRESIDENT AND CHIEF OPERATING OFFICER AT NUCOR

Stephen D. Laxton is the new President and Chief Operating Officer of Nucor. He has been promoted from the roles of Chief Financial Officer and Executive Vice President.

Stephen D. Laxton succeeds David A. Sumoski, who has served as Chief Oper-

ating Officer since 2021 and retired after more than thirty years of service effective January this year. Stephen D. Laxton began his career with Nucor in 2003 as general manager of business development. The company will conduct a search for a new Chief Financial Officer, and Ste-

phen D. Laxton will continue to serve in the role until a successor has been appointed.

■ *Nucor*

TOM COX TO BECOME NEW HEAD OF SSAB AMERICAS



Tom Cox has been appointed Head of SSAB Americas and a member of the SSAB Group Executive Committee. He is currently serving as General Manager of SSAB Iowa.

Tom Cox has worked for SSAB for 24 years. He held a broad set of roles at SSAB Americas including technical services,

continuous improvement, and rolling, finishing and shipping operations management. He will succeed Chuck Schmitt, who earlier announced his retirement.

■ *SSAB*

Tom Cox will serve as the new Head of SSAB Americas (Picture: SSAB)

ANDRÉS RUBIO JOINS STEGRA BOARD OF DIRECTORS – MARKUS HOLM NEW CFO

Stegra has announced the appointment of Andrés Rubio as a new member of its board of directors. He brings more than 30 years of international board, management, investment and advisory experience. He is the founder and managing partner of IMAN Capital Partners and currently holds several board and investment committee assignments. Recent roles include president and CEO of Intrum AB. A US and Spanish national, Rubio is based in Stockholm, Sweden, and holds a bachelor of

science in foreign service from Georgetown University.

Markus Holm has been appointed as Chief Financial Officer, starting March 1, 2026. Holm joins Stegra with over 20 years’ experience from processing industry, green energy and start-ups. He will succeed Otto Gernandt, who is stepping down after more than five years with the company to pursue new opportunities. To ensure a smooth transition, Gernandt will remain with Stegra as a senior advisor.

Holm has a long background from CFO and executive roles in multinational companies as well as start-up firms, active in industries ranging from paperboard, tissue papers and pulp to pharmaceuticals and green energy. His most recent role is as CFO and Board Member of Elcogen Group, and before that CFO and COO of Sanoma Corporation.

■ *Stegra*

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PRIMETALS
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ALBANIA

Kurum to build micromill for endless casting and rolling

Kurum International has awarded Danieli the contract for a new micromill to be installed in Elbasan. The new plant will be designed to produce over 700,000 t/year of straight bars and spooled coils.

Danieli's scope of supply the MIDA-QLP micromill includes a meltshop featuring a

75-t EAF equipped with a continuous scrap-charging system, a 75-t ladle furnace, a material-handling system, and a fume-treatment plant. A 12-m radius continuous casting machine with octagonal mould will ensure consistent endless casting at speeds exceeding 7 m/min. The rolling mill will be comprised of housingless

stands and a high-speed finishing block to produce straight bars from 10 to 32 mm, and spooled coils from 8 to 25 mm, with customized weights up to 5 t. Startup is scheduled for the fourth quarter of 2027.

■ Danieli

AUSTRIA

voestalpine Wire Rod Austria to undergo major upgrade

voestalpine Wire Rod Austria has selected Danieli to lead a strategic upgrade of its mill in Donawitz. Originally supplied by Danieli in 2015, the mill will be revamped to process new billet formats.

Under a comprehensive contract covering engineering, supply, installation and com-

missioning, Danieli Centro Combustion will revamp the reheating furnace to handle both square and round formats, introducing a new kick-in machine, replacing internal riders, and upgrading Level 2 automation. Danieli Morgårdshammar will enhance the breakdown mill with a side-shiftable high-pressure descaler, a

stiffer billet pinch roll, and two additional rolling stands to ensure optimal reduction ratios for the new formats. Operation using the new billet sizes is scheduled to begin by early 2027.

■ Danieli

CZECH REPUBLIC

Nová Hut' plans strategic investments in Ostrava steel plant

Nová Hut' is planning the construction of an electric arc furnace with a capacity of up to 1.5 million t/year of steel as a key project of various strategic investments.

Nová Hut' has already received support for the preparation of the project from the Modernization Fund of the Ministry of the Environment, specifically from a program focused on increasing energy efficiency and reducing greenhouse gas emissions in industry.

In addition, Nová Hut' will focus on implementing a number of smaller investment projects in 2026, such as the installation of a new defect detection machine at the tube plant and the use of waste heat in preheating furnaces. These investments will upgrade the technical condition of

assets and make production more environmentally friendly by reducing energy consumption.

Nová Hut' took over the main Liberty Ostrava plant from the insolvency administrator in October 2025, following the approval of the transaction by the Czech Competition Authority and the consent of the insolvency court.

The primary production facilities of the site – blast furnaces, steel plant and coking plant – are no longer in operation. However, the key units remain active: the tube plant, the flat rolling mill and the long products rolling mill. In connection with the takeover, intensive dialogue with trade unions led to the extension of the collective agreement until 31 March 2028. "We will continue production while also devel-

oping the potential of the site. This means the area will be divided into two parts – industrial and development. The site offers a wide range of opportunities for leasing and selling real estate as well as attractive investments," said Radek Strouhal, CEO of Nová Hut'.

The company will continue to operate under tolling financing. The tube plant and flat rolling mill will operate in cooperation with Vítkovice Machinery Trade, while the long products rolling mill will continue production in cooperation with Donquixote.

■ Nová Hut'

CZECH REPUBLIC

Třinecké Železárny completes partial hearth repair

The partial hearth repair of Třinecké Železárny's blast furnace 4, performed by SMS group, has been completed in just 42 days. SMS group replaced the carbon blocks and reprofiled the entire hearth with heat-resistant concrete.

Třinecké Železárny's furnace had been showing a high degree of wear in the hearth area, and the hearth linings in the tapping hole area were nearing their end of life. The targeted approach applied by SMS group prevented the need for a full rebuild and significantly reduced downtime, delivering a safe, durable hearth profile within the planned schedule.

The Paul Wurth technology applied – sectoral carbon block replacement combined with specialized heat-resistant concrete reprofiling – offers clients the ability to restore hearth integrity and serviceability with minimal operational interruptions. By limiting the scope to the worn sector and optimizing drying and follow-on activities, Třinecké Železárny benefited from a shortened repair window, reduced project risk, and lower overall downtime costs compared to a full hearth replacement.

■ SMS group



Repair work inside the blast furnace
(Photo: SMS group)

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FINLAND

SSAB to upgrade digital furnace control

SSAB has selected Fives to modernize the control system of the reheating furnaces at its Raahе site in Finland to enhance performance and reliability.

In view of growing production needs and the end of software support for the existing system, SSAB is implementing a new

Level 2 control system. The thermal optimiser, Virtuo™-R, proposed by Fives, will automate furnace control with precise regulation, significantly reducing manual intervention and ensuring consistent results.

SSAB will also deploy Smart Monitoring, a data-driven platform, which will consolidate operational data from Virtuo™-R

data through intuitive dashboards. This will provide real-time performance indicators to enable proactive process and quality monitoring, detect anomalies, and anticipate maintenance needs.

▮ *Fives*

FRANCE

ArcelorMittal kicks off electric arc furnace project at Dunkirk integrated steelworks

ArcelorMittal confirms the construction of an electric arc furnace (EAF) at its steelmaking site in Dunkirk. The strategic €1.3 billion investment marks a major step in the decarbonisation of the company's steel production in France.

"We now have the conditions in place to make this project a success," said Geert van Poelvoorde, chief executive officer of ArcelorMittal Europe. He added: "We will review the possibility of building further EAFs elsewhere in Europe." ArcelorMittal

also signed a contract with electric power company EDF group to secure a long-term supply of low-carbon, competitive electricity.

The start-up of this 2-million-t/year EAF is scheduled for 2029. It will produce steel with approx. three times less CO₂ compared with a blast furnace. Its funding will be supported by Energy Efficiency Certificates (CEE), a regulatory mechanism that promotes energy savings and CO₂ reduction. The amount of support will represent half of the €1.3 billion investment.

In its Mardyck plant close to Dunkirk, ArcelorMittal is also starting up a new electrical steel strip production unit in the first quarter of 2026. This €500 million project represents the group's largest investment in Europe in the last 10 years, excluding decarbonisation. ArcelorMittal is thus expanding its product offering in Europe to support the electrification of uses in the industrial and automotive sectors.

▮ *ArcelorMittal*

Gravithy, Elyse Energy and Marcegaglia to develop industrial synergies in Fos-sur-Mer

Gravithy, Elyse Energy and Marcegaglia have signed a Memorandum of Understanding (MoU) formalizing their shared ambition to explore and develop industrial synergies within the Fos sur Mer industrial-port area.

The three companies are developing complementary industrial projects to promote low-carbon transition: Gravithy is developing a low-carbon hot briquetted iron production plant with a capacity of 2 million t/year

by 2030. Elyse Energy, through its NeoCarb project, aims to produce and distribute low-carbon molecules such as e-methanol and e-SAF from 2030 to support the decarbonization of maritime and aviation sectors, and Marcegaglia is advancing the Mistral project, a modernized production unit for low-carbon steel, starting in 2028.

The MoU establishes several thematic working groups to identify and assess potential synergies, such as joint road and rail access management, shared use of

Marcegaglia's rail terminal; capture and reuse of CO₂ from Marcegaglia processes for Elyse Energy's synthetic fuels; and shared site services.

▮ *Gravithy / Elyse Energy / Marcegaglia*

GERMANY

GMH Gruppe consolidates open-die forging group

GMH Gruppe is combining Kind & Co. and Buderus Edelstahl into a single open-die forging group together with Schmiedewerke Gröditz. This step constitutes a central element of the group's transformation strategy and is intended

to strengthen its position in Europe's tool steel and open-die forging markets.

The consolidation focuses on coordinated production planning, metallurgy, logistics, and sales across the three entities. GMH

Gruppe expects efficiency gains through joint capacity management, aligned processes, and the consolidation of interfaces.

The integrated group assigns each company a defined industrial focus. Kind & Co. will focus on hot-work, premium, and

remelted tool steels for technically demanding applications, with a strong focus on end-user business, including technical application support and vacuum hardening services. Schmiedewerke Gröditz will specialize in elaborated open-die forgings, rolled rings, engineering steels, and engineered forged components for plastic moulding, as well as stainless steel and remelted steel (ESR). Buderus Edelstahl will act as full-ser-

vice tool steel provider for large components, plastic moulding, tool holders and die bolsters, with high machining depth and engineering steels. Together, the three companies cover the full tool steel and open-die forging value chain, from scrap and melting to remelting, forging, machining, heat treatment, and distribution.

■ *GMH Gruppe*

GERMANY

GMH Gruppe secures molybdenum sourcing

GMH Gruppe has signed a memorandum of understanding with Greenland Resources for long-term molybdenum supply.

Greenland Resources is a Canadian company focused on the development of its 100% owned primary molybdenum deposit located in central east Greenland. The MoU is setting the path for a long-term sup-

ply agreement covering ferro-molybdenum, molybdenum-oxide and briquettes produced from molybdenum ore extracted in Greenland. It will provide GMH a stable and responsibly sourced long-term secured molybdenum supply with high sustainability standards and low scope 1 and scope 2 emissions from an EU associate country.

■ *GMH Gruppe / Greenland Resources*

Rogesa to renew blast furnace staves

Rogesa, a joint subsidiary of Dillinger and Saarstahl, has awarded SMS group the order to replace existing copper staves at blast furnace No. 5 with new Paul Wurth cast iron staves and a number of new copper staves.

Rogesa's blast furnace No. 5 has a production volume of around 2.5 million t/year of hot metal. The existing Paul Wurth copper stave lining installed in 2010 delivered a service life of 16 years. Cast iron staves are

used in the upper furnace areas, where they provide efficient and durable furnace cooling, protect the blast furnace shell against thermal loads, and optimize production efficiency. The new staves will be installed during the planned summer 2026 shutdown.

■ *SMS group*

ITALY

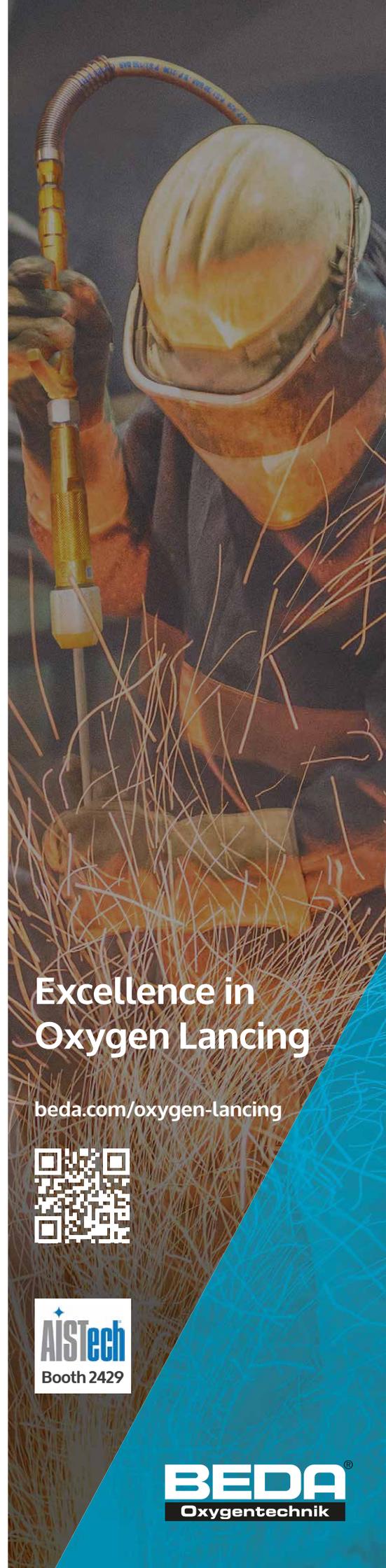
Pittini to revamp rolling mill

Pittini has awarded Danieli the contract to modernize the rolling mill at the Sider-Potenza plant in Potenza to boost productivity and enable future coil production.

The revamp will include a new rolling mill featuring 20 SHS cartridge stands, enabling a billet size increase to 165 mm. This configuration is designed to prepare the plant for the installation of a spooler line,

initially producing coils of 2.5 t, with provisions for a future upgrade to 5-t coils through the addition of a horizontal billet welder. The upgraded mill will feed the existing bar line and the future spooler line. The project is to be performed involving a planned single shutdown of only 45 days. Hot start-up is scheduled for 2027.

■ *Danieli*



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THE NETHERLANDS

Pelletizing specialist NewFer becomes part of Danieli Corus



From left: Thomas Schwalm (CTO Danieli NewFer), Guido van Hattum (CCO Danieli Corus), Lars Dümmel (CEO Danieli NewFer), Michael Müller (COO Danieli NewFer) (Picture: Danieli Corus)

NewFer GmbH, experts in iron ore beneficiation and agglomeration, has become a full Danieli Corus subsidiary. With this addition, Danieli Corus now offers a comprehensive upstream portfolio for integrated steelmaking.

The activities of the German company will be continued as Danieli NewFer. It will offer technology, engineering, supplies and services related to pelletizing technology and ore beneficiation packages to the global mining and primary steel sectors. By joining

the Danieli Corus group of companies, NewFer's technological expertise is combined with the Danieli Corus industry network and capability to handle large project scopes. This strategic move comes at the right moment, with the global steel industry looking at an increased demand for high quality iron ore concentrates and higher pelletizing capacities to accommodate decarbonization requirements.

■ Danieli Corus

Tata Steel Nederland opens production line for sustainable food packaging

Tata Steel Nederland has commissioned a new production line for packaging steel, using its trivalent chromium coating technology.

The trivalent chromium coating technology (TCCT), developed and patented by Tata Steel Nederland, enables sustainable production of packaging steel and ensures compliance with future chemical-use leg-

islation (REACH). Combined with Protact® (polymer-coated packaging steel), Tata Steel Nederland offers an eco-friendly solution that meets the strictest food safety standards and simplifies the production process, as no extra lacquer layer is needed. This means lower costs, fewer chemicals, and a shorter supply chain.

Tata Steel Nederland also supplies its TCCT technology to other steel producers

for sustainable packaging steel production.

■ Tata Steel Nederland

ROMANIA

UMB Steel places order for continuous long-product mill

UMB Steel has commissioned SMS group to supply a new long-product mill to be integrated into the existing steelmaking complex at the Oțelu Roșu site. The CMT® 700 mill will operate in a continuous endless process.

The Continuous Mill Technology (CMT® 700) line will enable an annual production of approximately 700,000 t of straight bars, compact coils, and wire rod. SMS will supply the plant on a single source basis, delivering mechanical, electrical and automation systems to integrate the new caster and rolling mill into the existing Oțelu Roșu steelmaking complex.

The CMT® technology enables uninterrupted production of long products from scrap by continuously feeding cast products from the meltshop to the rolling mill. It will be designed for a flexible production mix provided by a combination of a vertical



Layout of the new long-product mill ordered by UMB Steel (Photo: SMS group)

compact coil system for coils weighing up to 8 t, a wire rod line for high-carbon construction grades produced in a billet-to-billet process, and a straight bar finishing area. The induction heating system between the continuous caster and the rolling mill sets the appropriate rolling tem-

perature during the multi-strand billet-to-billet production process.

■ SMS group

SPAIN

Rugui Squares & Special Profiles replaces reheating furnace

Rugui Squares & Special Profiles has successfully commissioned a new walking hearth reheating furnace installed by Fives at its Azkoitia plant.

Fives replaced the existing reheating furnace, which had been in operation for over 40 years, with a new state-of-the-art walking hearth furnace equipped with latest burner technology. The AdvanTek® central wide flame burners operate with NO_x emissions lower than 50 ppm. Additionally, an energy recovery system used to pre-heat the air reduces CO₂ emissions and gas consumption.

Fives

New reheating furnace installed at Rugui Squares & Special Profiles (Photo: Fives)



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SWEDEN

Transmission grid expansion in Northern Sweden

Svenska kraftnät is investing, among other things, in a new station to be built in Hällmyran in Luleå to expand the transmission grid essential for powering northern Sweden's expanding green industries.

To enable electricity supply to the new station, the existing main grid station in Svart-

byn in the Boden municipality needs to be modernized. As part of the modernization, Linxon has now been contracted to deliver a new 400 kV substation for Svartbyn. Construction of the substation is scheduled to begin in spring 2026, with completion expected by 2029.

The significance of this project also reflects in the announcement that the

planned start-up of SSAB's new steel mill will have to be postponed by 12 months, from the end of 2028 to the end of 2029, due to the fact that reinforcements to the transmission grid will not be delivered as planned.

■ *Linxon*

SSAB to implement new production management solution

SSAB Europe has commissioned PSI Software SE to implement PSImetals as a key component of its green steel transformation. The integrated solution for production management will support the digitalization and automation of SSAB's mini-mill in Luleå.

Based on a comprehensive design phase started in 2024, the implementation includes the PSImetals modules planning, scheduling, quality, production and logistics, and fully integrated Level-4 and Lev-

el-2 communication. At the Luleå site, the system will manage all production areas of the mini-mill, such as electric arc furnace, compact strip production, cold rolling mill, and surface treatment lines, supporting the production of hot-rolled and cold-rolled coil.

A major objective of the project is to establish a scalable digital template that will guide SSAB's broader renewal efforts. By implementing modern workflows and harmonized tools, SSAB aims to reduce redundant manual efforts, streamline inte-

gration, and achieve significant scale advantages across sites. The project will ensure that new business processes and IT systems are fully ready for the launch of the mini-mill, which is planned for 2029.

■ *PSI*

TURKEY

Çemtaş to upgrade SBQ mill

Çemtaş Celik Makina Sanayi ve Ticaret has placed an order with Kocks for the supply of a 3-roll reducing & sizing block, as part of its mill modernization project.

The Kocks RSB® 370++/4 in 5.0 design will be integrated as a finishing block into

the existing bar mill. With this addition, Çemtaş will be able to produce straight bars with finished sizes from 15 to 100 mm in diameter. The scope of supply includes advanced remote control for automatic stand and guide adjustments as well as the Bamicon Octopus software and hard-

ware, a workflow-oriented solution supporting the entire set-up process in the roll shop. Commissioning is scheduled for 2026.

■ *Kocks*

UNITED KINGDOM

Cogne SMP places order for forging press

Special Melted Products (SMP), part of the Cogne group, has signed a contract with Danieli Breda for the supply of a new forging line for special steels to be installed at SMP's production facility in Sheffield.

The project includes a hydraulic fast-forging press, integrated with rail-mounted and robotized manipulators. Designed

with a compact and robust configuration, the press will deliver forging forces up to 70 MN, with stroking rates exceeding 100 cycles per minute. The forging line will feature advanced hydraulic and automation systems developed by Danieli Breda, including process simulation tools and predictive maintenance functions. It is scheduled to start operation in 2027.

The new press will be used to process high-integrity steels and superalloys, and produce advanced components for demanding sectors such as aerospace, energy, and civil nuclear.

■ *Danieli*

UNITED KINGDOM

Spartan pilots AI-powered digital twin

Deep.Meta, a pioneering manufacturing start-up, has proven it can reduce steel production emissions by close to 10% at Spartan UK's steel plant in Newcastle-upon-Tyne.

Deep.Meta is tackling carbon emissions in the steel industry by using real-time sensor data and material science. Quarto steel plate re-roller Spartan UK, part of the Metinvest Group, is piloting the Deep.Meta's Optimiser solution, an AI-powered

digital twin that combines physics and machine learning to optimise furnace operations, simulating years of production in just a few hours. Unlike black-box AI, Deep.Meta's smart digital replica of the steel production process uses explainable, physics-based models to more accurately predict steel slab temperatures and improve scheduling.

■ *Deep.Meta*

Tata Steel UK to build new water treatment plant

Tata Steel UK has signed a contract with Pert for the engineering and supply of a complete water treatment plant, serving the upgraded slab caster, degasser and related auxiliaries.

The state-of-the-art plant will be designed to cool and treat up to 2,500 m³/h of circulating water, handling both direct and indirect circuits for each process. In addition, a dedicated raw water treatment facility will ensure optimal water quality for the new plant. Pert's scope of supply includes the complete design, manufacturing, and commissioning of the water treatment

plant, with delivery scheduled to take place by January 2028.



Tata Steel UK will receive a new water treatment plant (Photo: Pert)

■ *Pert*

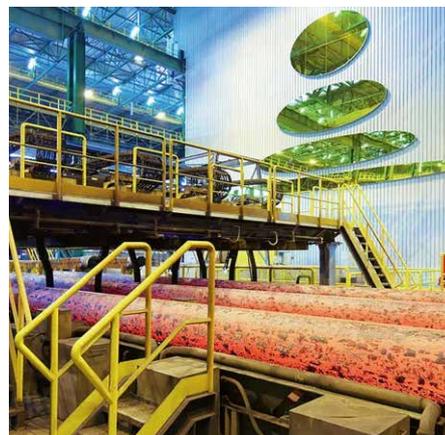
UKRAINE

Interpipe Steel to upgrade continuous caster

Interpipe Steel has awarded Danieli the contract to supply a new round section for its No. 2 continuous casting machine.

The upgrade will extend the casting range of the caster to include 310 mm round billets, enhancing Interpipe Steel's production flexibility. Danieli's scope of supply covers detailed engineering, mechanical and process design, ensuring seamless integration with the existing casting infrastructure. Commissioning is expected to take place before the end of this year.

■ *Danieli*



Interpipe Steel will expand its range of billet sizes (Photo: Danieli)



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STRATEGIC EXPANSION

SMS group opens new workshop in India

Investing in a sizeable new manufacturing facility in western India strengthens SMS Group's presence in this growing economy. It is the group's second workshop in the country and complements the Odisha plant, which opened in 2014.



The new SMS group workshop is located in Sanand, near Ahmedabad in the Indian state of Gujarat (Picture: SMS group)

With a grand opening ceremony on January 21, 2026, SMS group took a significant step forward in its international expansion strategy. The new manufacturing facility in the city Sanand (near Ahmedabad in the Indian state of Gujarat) is not only a milestone for the company, but also an important response to rising demand in one of the world's most dynamic steel markets.

With over 250 guests from the world of politics and business in attendance, the ceremonial red ribbon was cut and a traditional Indian lamp was lit by representatives of SMS's German leadership team together with regional leaders to mark the facility's official inauguration. With this new production plant, SMS is reaffirming its commitment to actively supporting India's economy and to providing its customers with world-class solutions.

Expanded manufacturing capacities

The 80,000-square-meter manufacturing site is SMS's second production facility in India, complementing the first manufacturing plant in Bhubaneswar in the state of Odisha, which opened in 2014. With around 160 SMS employees, together with up to 400 contractors, the new production facility will become a manufacturing site for machines and equipment for processing flat and long products, as well as for forging technology.

The new production complex in Sanand is designed to manufacture components weighing up to 125 tons and to assemble entire production lines. The first facility in Bhubaneswar focuses specifically on machinery and equipment for metallurgy and service. Together, the two locations

form a complementary manufacturing ecosystem that increases efficiency and expands product diversity in SMS's portfolio.

With the new facility in Sanand, SMS is reinforcing its customer focus in this important growth market and contributing directly to the 2014 "Make in India" program, which aims to position India as a leading center for global manufacturing.

"It is an important step toward expanding our presence in this significant growth market and actively supporting the industrial upswing in the country," says Fabiola Fernandez, CFO, Member of the Executive Board, SMS group. Steel production in India currently stands at around 150 million tons per year and is expected to rise to 300 million tons in the coming years.

We aim to actively support the government's goal of increasing steel production in India.

Marco Asquini, CEO APAC & MEA at SMS group and Managing Director SMS India

Optimal location

The new production facility is strategically located with central proximity to metal companies in western India and connections to major seaports for efficient expediting to national and international markets.

The decisive factor in choosing Sanand, near Ahmedabad in the state Gujarat, was its importance as an industrial centre in the region with numerous production facilities belonging to large domestic and foreign companies. The region offers suitable industrial sites, a reliable energy and water supply, and access to skilled workers.

The new production facility benefits from an excellent location and is ideally

positioned to efficiently supply international customers with components manufactured by SMS. The new complex is earmarked for continued growth in the future, with additional investments to be made in state-of-the-art machinery and the recruitment of additional skilled workers planned.

Strong presence in India

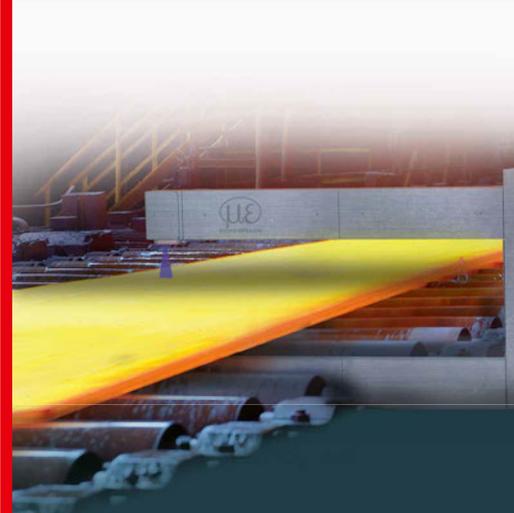
SMS is already well established in India through its predecessor companies. The Mannesmann subsidiary Indomag Steel Technology Ltd. was founded in Delhi in 1989, followed by SMS Schloemann-Siemag, which established SMS India in Mumbai in 1994. With the fusion of the metallurgical plant engineering divisions of Mannesmann Demag and SMS Schloemann-Siemag in 1999, these two Indian companies also merged.

Since then, SMS has been expanding continuously in India. Today, SMS operates offices in Gurgaon, Kolkata, Pune, Bhubaneswar, and Sanand, and it currently employs around 1,700 people across India. SMS India has its headquarters in Gurgaon near New Delhi. Its employees are experts in the fields of sales, design, project management, electrical engineering and automation, and service. They cover the entire range of SMS products and services, from coal and ore processing to Paul Wurth blast furnaces, strip treatment plants, and forging technology. This applies to both new construction and modernization projects.

| SMS group



NAMASTE India! Marco Asquini (left), CEO APAC & MEA, SMS group and Managing Director SMS India with Fabiola Fernandez (right), CFO and Member of the Managing Board of SMS group (Picture: SMS group)



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TRADE FAIR PREVIEW

wire and Tube 2026 just around the corner

In April, Düsseldorf, Germany will once again become the global meeting place for the international wire & cable and tube & pipe industries

On 13 April 2026, the world's leading trade fairs for the international wire, cable, tube and pipe industries, wire and Tube, will open their doors in Düsseldorf, Germany. Until 17 April, Düsseldorf Fairgrounds will become the world's leading hotspot for these industries. More than 2,700 exhibitors from 65 countries will present technologies, machines, materials and end products on around 120,000 square meters of exhibition space – covering the entire industrial value chain.

"wire and Tube are the leading international marketplaces for our industries. Düsseldorf offers the necessary infrastructure and international reach to showcase technological developments and industrial trends," says Daniel Ryfisch, Director Metal Forming & Fabrication Technologies at Messe Düsseldorf.

The focus is on machines and equipment for wire, cable and tube production, new materials, efficient production processes and high-quality end products. Thematic focal points include stainless steel and special materials, hydrogen technologies, plastic pipes, cutting and separating technologies, e-mobility, fibre optic technology, fastening and joining technology, spring manufacturing and mesh welding technologies.

With the new World of Cables, wire 2026 is adding an additional highlight: for the first

time, the end product cable will take centre stage in a special area in hall 13 – as a key component of modern energy, communication and mobility infrastructures.

wire 2026 will occupy halls 9 to 17 of the Düsseldorf Fairgrounds. Wire, cable and wire and cable technologies will be presented in halls 9 to 13 and 15, complemented by the World of Cables. The 'Meet China's Expertise' area brings together innovations from Chinese suppliers in hall 14. In hall 16, the focus is on fastening technology, springs and their end products, while hall 17 focuses on impressive welded mesh machines. They showcase their capabilities in regular live demonstrations.

Tube 2026 will take place in halls 1 to 7.0. The thematic spectrum ranges from tube manufacturing, processing and trading to machinery and equipment. The special Plastic Tubes & Pipes area in hall 1 is dedicated to plastic tube solutions. Forming technology is located in hall 5, while pipe processing and machinery are located in parts of halls 5, 6 and 7a. Chinese pipe manufacturers and processors will be presenting their technologies in a concentrated manner as part of 'Meet China's Expertise' in hall 7.0.

wire and Tube 2026 will be complemented by an extensive supporting programme with expert forums, industry get-togethers and ecoMetals tours. The



Since 1988, wire and Tube have formed a network in Düsseldorf that interlinks industries and technologies (Picture: Messe Düsseldorf / ctillmann)

forum stage in hall 1 will focus on the key topics of renewable energies, the energy transition, artificial intelligence and robotics. In addition, a hydrogen and e-mobility congress as well as the High Potential Day and ecoMetals initiatives will provide platforms for professional exchange, the promotion of young talent and sustainable industrial approaches.

■ *Messe Düsseldorf*

Ready for the next level – 40 years of wire trade fair

The success story of wire began back in 1967 with the first 'wire style exhibition' in London. When wire took place for the second time in 1970, it was already clear that there was enormous growth potential here. International interest in the wire and cable industry grew, and so wire expo moved in 1972 to Basel in Switzerland. When the exhibition centre there reached its limits after twelve years, the trade fair moved again. In 1986 wire expo found a new, even more centrally located site: Düsseldorf. Here the trade fair of the wire and cable industry found its new permanent home. What began

in Düsseldorf in 1986 with 488 visionary exhibitors and 21,000 trade visitors became the driving force for an entire industry. Today, wire has over 1,500 exhibitors on around 67,000 square metres and 60,000 international visitors. Since 1988, wire and Tube have formed a network in Düsseldorf that interlinks industries and technologies, creates synergies and sets global standards. For innovation drivers and start-ups in particular, wire Düsseldorf is more than just a trade fair. It is a springboard for new ideas, a network for partnerships and a stage for innovative technologies.

DIRECT EMISSION REDUCTION

Feasibility study of converting carbon side streams into aviation e-fuels

Outokumpu and Norsk e-Fuel have signed a Memorandum of Understanding (MoU) for a feasibility study on a production plant for sustainable air fuels to be located next to Outokumpu's stainless steel mill in Tornio, Finland

Outokumpu, the global leader in sustainable stainless steel, has initiated a collaboration with Norsk e-Fuel to convert carbon side streams into e-fuels – enabling 200,000-ton direct emission reduction for Outokumpu. Under the signed MoU, Norsk e-Fuel will start a feasibility study in 2026. If the study leads to positive results, Norsk e-Fuel anticipates taking an investment decision around 2028, with production start planned for 2032.

Outokumpu would provide carbon monoxide (CO) side streams from its ferrochrome production as a feedstock for the production of 80,000-100,000 tons of sustainable air fuels annually, supporting the EU's quota and advancing the decarbonization of aviation – one of the hard-to-abate sectors. Once operational, the e-fuel plant would create financial value for Outokumpu through increased side stream utilization. The project will support Outokumpu's decarbonization journey by allowing the company to reduce direct CO₂ emissions by 200,000 tons annually, rep-

Our long-term vision is to host multiple new projects at the Koivuluoto area that would utilize our other side streams.

Tommi Silvennoinen, Senior Manager, Strategic Partnerships in CCUS and New Energy Solutions at Outokumpu

resenting 20% of Outokumpu's global direct emissions. In addition, it would contribute to the EU's targets for the clean energy transition and increase the EU's resilience and strategic independence through strengthening domestic fuels supply.

Norsk e-Fuel, a Nordic pioneer in Power-to-Liquid project development, will lead the project development, drawing on its longstanding experience and strong part-

ner network to carry out engineering, secure financing and engage future customers for the produced fuels. Responsible for funding the project, Norsk e-Fuel estimates the investment to be approximately EUR 1.2–1.5 billion while expecting to create approximately 250 new jobs locally.

Favourable location factors

Driven by abundant supply of clean electricity, public support for hydrogen economy development and access to relevant resources, Finland ranks among the best locations in Europe for aviation e-fuel production. The Outokumpu Tornio site offers a competitive carbon source. Its carbon monoxide (CO) stream is continuously available throughout the year in high volumes and concentrations and is collected at a single point. This enables production of aviation e-fuels with lower investment requirements and operating costs compared to projects based on captured CO₂. As a result, Outokumpu Tornio site provides an optimal location for large-scale, cost-efficient eSAF production in Europe.



Conceptual visualization by Norsk e-Fuel for orientation purposes only
(Picture: Outokumpu)

Outokumpu Corporation

NEW PRODUCTION WORLD RECORD

DRI plant outputs 2.43 million tonnes in its first year of operation

Tosyali Algérie A.S. has established a new world record for direct reduced iron (DRI) produced in one year using a single direct reduction module. While the company's DR module No. 2 set a new world record in 2025, the module No. 1 was ranked third worldwide.

In 2025, Tosyali Algérie's DR module No. 2 produced 2.43 million tonnes of DRI, representing an exceptional achievement and setting a new global benchmark during its first year of operation. In addition, Tosyali Algérie's DR module No. 1 also delivered outstanding performance levels in 2025, ranking third globally in annual DRI production. "Reaching a new global benchmark so quickly is a powerful demonstration of Tosyali's world-class operational excellence," said KC Woody, Midrex Technologies President and CEO.

Supplied by Midrex Technologies, Inc. and its consortium partner Paul Wurth, part of SMS group, the record-breaking module No. 2 is a MIDREX® plant capable of producing both hot direct reduced iron (HDRI) and cold direct reduced iron (CDRI), providing high operational flexibility and efficiency.

Commenting on this record, Tosyali Holding Board Chairman Fuat Tosyali said, "We continue our DRI (Direct Reduced Iron) investments at our facility in Algeria, delivering lower carbon emissions. Since 2020, our Tosyali Algérie plant has broken

the world DRI production record every year. With the commissioning of our DR module No. 2 last year, Tosyali Algérie has reached the position of being the facility with one of the world's largest twin DRI plants. Thanks to the advanced technology it uses, our DR module No. 2 became the first plant in the world to start commercial production with the capability of operating on both natural gas and – through a minor modification – 100 percent hydrogen. Around the same time, other companies in Europe also announced flexible DRI investment decisions. However, we were the first company to make this decision, complete the investment, and commence production. The production record we achieved further strengthened Tosyali's position as a global green steel producer."

The investment strategy of Tosyali Algérie supports the country's transition from a net importer to a major producer and exporter of high-quality steel. The record-setting DRI production output enhances domestic steel supply while enabling increased exports to international markets.

DR plant connected to meltshop

Tosyali's DR module No. 2 is integrated with a new electric arc furnace (EAF) by means of a hot transport conveyor, allowing hot DRI to be continuously charged into the EAF. This configuration increases melt shop productivity while delivering significant energy savings and reduced emissions. During EAF maintenance or outage periods, the plant can seamlessly switch to producing cold DRI at full capacity, maximizing overall operational availability.

Tosyali's continued investments in DRI-based ironmaking reflect its long-term commitment to producing higher-quality steel with lower carbon emissions. By reducing dependence on scrap and increasing the use of DRI, Tosyali is able to achieve greater production flexibility while supporting sustainability objectives. These investments also align with global efforts to decarbonize steel production.

Midrex / SMS group



The two MIDREX® DRI plants at Tosyali Algérie (Picture: Midrex)

AFRICA – CENTRAL AFRICAN REPUBLIC

Concessions for a massive high-grade iron ore project are expected

A&S Resources has signed major strategic contracts that mark a decisive step toward unlocking one of the world's largest undeveloped high-grade iron ore concessions.

The Central African Republic-based project is linked to what geologists describe as one of the biggest magnetic anomalies globally, with resource potential exceeding 20 billion tonnes of predominantly high-grade iron ore. A&S Resources estimates the gross in-situ value of the mineral endowment at approximately US\$2.5 trillion.

The newly signed agreements involve several of the world's largest industrial and

engineering groups — including major Chinese companies ranked among the Fortune Global 500 — who will collaborate on mine development, railway construction, export logistics and long-term off-take arrangements. Their participation brings substantial technical capability, project execution strength and infrastructure expertise to the development phase.

High-grade iron ore remains in strong global demand. Analysts suggest that if developed as planned, the concession could rank among the largest iron ore operations worldwide.

Importantly, operations are now transitioning from planning to execution. Boots on the ground are scheduled for the end

of March, with two major Chinese companies directly participating in early-stage operational mobilisation. Activities extend beyond railway construction, as comprehensive topographical and technical studies have already commenced — marking the formal start of on-site development works and signalling a clear move into implementation.

Beyond iron ore, A&S Resources also holds a diversified mineral portfolio that includes critical minerals, rare earth elements, copper and other strategic resources, positioning the company as a significant natural resources player in the region.

■ *A&S Resources*

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AFRICA – EGYPT

El Marakby places order for reheating furnace

El Marakby for Metallic Industries (MKM) has selected Danieli Centro Combustion India for the supply of a new 60 t/h pusher-type reheating furnace.

The furnace will feature patented Danieli burners designed to provide uniform billet

heating, minimize scale formation, and reduce fuel consumption and pollutant emissions. Fully integrated with the existing rolling mill, the new reheating furnace will significantly improve thermal efficiency and billet temperature consistency, con-

tributing to enhanced rolling performance. Startup is scheduled for mid-2027.

| Danieli

AFRICA – LIBERIA

ArcelorMittal signs new long-term mineral development agreement

The Government of the Republic of Liberia and ArcelorMittal have signed an amendment to the existing Mineral Development Agreement (MDA), extending the duration of the agreement to 2050, with a right to renew for a further 25 years.

The agreement was signed alongside the recent inauguration of ArcelorMittal's iron ore concentration facility at Tokadeh in Nimba County, which forms the centre-

piece of ArcelorMittal's expansion project. The signed agreement makes provision for a multi-user agreement regarding the use of the rail infrastructure, where other users who wish to use this infrastructure are required to invest in its expansion in order to meet their transportation needs. ArcelorMittal is currently expanding the railway infrastructure so it can transport up to 30 million t/year of iron ore should the feasibility studies it is undertaking prove successful and a decision is taken to expand

iron ore production beyond 20 million t per year. This railway capacity will be reserved for ArcelorMittal's use.

Under the terms of the agreement ArcelorMittal will pay USD 200 million to the Government of Liberia for certain rights it acquires per the agreement, namely the mining rights extension and reserved access to railroad capacity the company is investing in.

| ArcelorMittal

AFRICA – TANZANIA

Lodhia Industries to build new bar and wire-rod mill

Lodhia Industries has signed a contract with Danieli for the supply of a new 300,000 t/year state-of-the-art bar and wire-rod rolling mill complex to be built in Tanzania.

The new rolling mill will produce finished straight bars and wire rod for local and regional markets. Danieli's scope of supply includes advanced rolling technology for both the bar and wire-rod lines. The bar

mill will be equipped with 14 cartridge-type stands, a six-pass finishing block, and an in-line quenching and tempering cooling system, complemented by twin-channel high-speed discharge to the cooling bed. The wire-rod line will feature a four-pass finishing block, an in-line cooling system, and Danieli's patented high-tech oil-film bearing laying head, ensuring high operational stability and excellent coil quality.

The rolling complex will process 150 mm x 150 mm billets, with provisions for a future upgrade to 165 mm x 165 mm billets. The layout also allows for the future installation of a latest-generation horizontal billet welder, enabling endless rolling on the bar line. Commissioning of the new rolling mill is planned for the first half of 2027.

| Danieli

THE AMERICAS – ARGENTINA

Sidersa orders steel minimill with endless scrap charging

Sidersa has ordered a 360,000 t/year minimill from Danieli to be installed in San Nicolás de los Arroyos, Buenos Aires province. The mill will be designed to produce 360,000 t/year of quality straight bars in bundles and wire rod.

The Danieli MIDA QLP-DUE minimill will incorporate endless charging with scrap preheating. This, together with the absence of the billet re-heating, reduces melting energy requirements and minimizes carbon and NO_x emissions. Hybrid-

ready by design, the Q-One power feeder optimizes the performance of the furnace, allows the direct use of renewable energy, and operates with negligible impact on the power grid.

The single-strand Octocaster will feed a 20 housingless-stand bar mill and a wire rod line equipped with an 8-pass fast-finishing block with 154-mm octagon-shape endless billets. The direct rolling bundling station will allow high-speed delivery of the bars into the cooling bed in a narrow,

optimized space. In-line quenching will ensure quality finished rolled products. The new mill will be run by Danieli Automation process control systems

Danieli will also supply auxiliary equipment such as fume and water treatment plants, as well as the process and auxiliary

cranes servicing the complete plant. Start-up is scheduled for the first half of 2028.

| Danieli

THE AMERICAS – USA

MagIron secures in-situ iron ore mining leases

MagIron LLC has completed five new state iron ore mining leases with the Minnesota Department of Natural Resources following the approval by the State of Minnesota Executive Council in December 2025. These leases grant MagIron the rights to explore, mine and process in-situ oxidized hematite iron formation located in Itasca County, Minnesota.

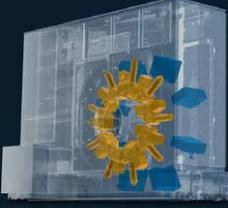
The leases became effective January 1, 2026 for a 20-year term and cover an area containing at least 128 million t of ore at an iron grade of 32.19%. These new leases represent the first State-issued in-situ hematite mining leases specifically aligned with MagIron's proprietary process for upgrading oxidized iron formation into high-grade direct reduction grade iron ore concentrate.

A recently completed independent definitive feasibility study additionally confirms that MagIron's plan to restart Plant 4 in Minnesota is technically robust and economically compelling. This and the new in-situ leases further strengthen the company's long-term resource position as a critical domestic supplier of high-quality, low-carbon DR-grade iron units for the rapidly expanding U.S. electric arc furnace steel industry.

| MagIron



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THE AMERICAS – USA

Plibrico Company acquires Atlantic Fire Brick & Supply

The Plibrico Company, manufacturers of monolithic refractories, precast shapes, and engineered refractory solutions, has acquired Atlantic Fire Brick & Supply, a long-standing refractory distributor and services provider.

Operating as Atlantic Fire Brick & Supply, a Plibrico company, the organization can

offer an expanded product and service range, including broader access to Plibrico’s high-quality refractory materials, precast shapes, and technical solutions, along with enhanced engineering expertise and technical support. This customer-focused approach translates into practical advantages for customers, such as broader solution options, closer technical

collaboration, and continued access to responsive service and reliable field support.

| Plibrico

Polytec North America inaugurates technology training center

Polytec North America has opened the Polytec Technology Training Center, a new strategic hub located inside its Houston headquarters.

The new center, equipped with advanced automation, robotics, and vision-system technologies, is designed to strengthen technical training, innovation, and collaboration across the North American market. It reflects Polytec’s commitment to supporting customers with highly specialized skills and hands-on learning programs.

| Polytec



With the new technology center, Polytec North America takes an important step forward in expanding its presence, capabilities, and partnerships in the United States (Photo: Polytec)

Rocky Mountain Steel Mills starting up new rail mill

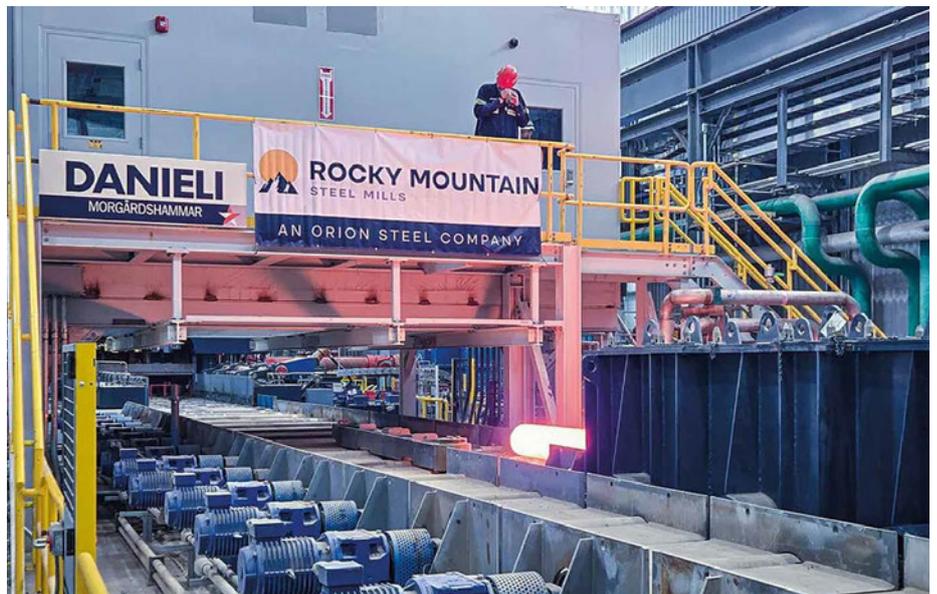
Rocky Mountain Steel Mills, part of Orion Steel, has begun hot commissioning activities at its new Danieli-supplied universal rail mill in Pueblo, Colorado.

The new rail mill is designed to produce 600,000 t (650,000 short tons) per year of high-quality, flat-bottom and thick-web rails, up to 88 kg/m, in lengths of up to 100 m.

The rails produced meet AREMA specifications and are suitable for heavy-haul and high-speed railway applications.

Key technological areas under commissioning include the break down mill, tandem reversing mill, cooling bed, and the horizontal and vertical straighteners. Hot trials are underway, and start-up activities are progressing according to plan.

| Danieli



Commissioning of the new universal rail mill is underway at Rocky Mountain Steel Mills (Photo: Danieli)

THE AMERICAS – USA

Maglron acquires Reynolds Pellet Plant

Maglron has completed the acquisition of the Reynolds Pellet Plant from the Receivership Estate of Altos Hornos De Mexico. The acquisition is a significant milestone in Maglron's strategy to produce direct reduction grade pellets.

The Reynolds Pellet Plant is a modern straight grate, restart-ready pelletizer benefiting from major prior investment. The

facility has previously operated at an annualized run-rate of approximately 2.2 million t/year. Maglron intends to reintegrate the Reynolds Pellet Plant with its existing iron ore concentrator and is in advanced discussions with third parties to finalize the logistics solutions for the joint operation of both facilities.

These integrated facilities will allow Maglron to not only restart iron oxide pel-

let production relatively quickly, but also to pursue the development of the U.S.'s first integrated merchant pig iron producer. To advance this strategy, the company is working with Primetals Technologies to assess the feasibility of a downstream expansion to produce granulated pig iron.

■ *Maglron*

ASIA – CHINA

Fushun Special Steel places FAC for reducing & sizing block

Fushun Special Steel has granted Kocks the final acceptance certificate for its new 3-roll reducing & sizing block which has been successfully integrated into regular production.

Fushun Special Steel, a supplier of super-alloys and ultra-high-strength steels in the aerospace sector, is further expanding its market position. The Kocks 3-roll RSB® 370++/4 in 5.0 design builds the key equipment of the modernization of the SBQ rolling mill in Fushun City, Liaoning

province. In the rolling mill designed for an annual capacity of 600,000 t/year, the Kocks block produces straight bars with diameters from 14 to 92 mm for demanding downstream applications.

Kocks' scope of supply also included remote control for automatic stand and guide adjustment, as well as the Bamicon Octopus software and hardware to support all setup processes in the roll shop.

■ *Kocks*



The reducing & sizing block has been successfully integrated into Fushun Special Steel's regular SBQ production
(Photo: Kocks)

Jisco starts combined compact strip and hot strip mill production

Jisco Carbon Steel in Jiayuguan started serial production on its integrated line combining hot strip mill (HSM) and compact strip production (CSP®) modes. SMS group supplied the full automation scope for the line, enabling a rapid switchover between the production routes.

The world's first combination of CSP® short process technology with continuous HSM rolling gives Jisco Carbon Steel the ability to adapt its production to changing product mixes while maintaining high throughput. SMS's integrated X Pact® automation synchronizes slab scheduling

and rolling rhythm between the CSP® tunnel furnace and the HSM reheating furnaces. This unified approach from SMS results in a robust and highly adaptive production system that delivers stable rolling and reliable product quality under varying operating conditions. The project activities

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▶ Injection installations for carbon fines and lime

▶ Gunning machines for refractory repair

▶ Gunning manipulators for the hot repair

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were performed without interrupting the CSP® operations.

SMS's scope covered the entire automation landscape, including a comprehensive revamp of CSP® level 1 and level 2 systems and new automation for the hot strip mill, all unified by X Pact® process models and the X Pact® Vision HMI. The system automatically adjusts to different

slab sources—either from the tunnel furnace or the reheating furnaces—ensuring metallurgical consistency and smooth transitions between process modes. To enable the combined production concept, the tunnel furnace's swivelling car was converted into a shifting car for transferring slabs to the finishing mill, backed up by redesigned shifting roller tables.

The project has significantly enhanced Jisco's operational flexibility, broadened its portfolio with higher value steel grades, and increased annual capacity from 2 million to 4.5 million t.

■ *SMS group*

ASIA – CHINA

Shanxi Jingang places digitalization order for endless strip production line

Shanxi Jingang New Materials Technology and Primetals Technologies have signed an agreement for an advanced digitalization solution tailored to Shanxi Jingang's new Arvedi ESP line.

In September 2025, Shanxi Jingang New Materials Technology placed a contract with Primetals Technologies to build an Arvedi ESP line capable of fully endless

operation, producing endless hot-rolled coil with thicknesses from 0.7 to 12.7 mm.

The digitalization solution to be provided for the new line will include a system for real-time asset monitoring and recommendations for service, maintenance, and operation, and through-process quality control. The scheduler to be integrated will streamline production management by generating detailed schedules for the ESP

line based on production orders from higher-level systems. The ESP Industry 4.0 solution will enable Jingang to achieve higher productivity and consistently high-quality results. Production of the first coil is planned for the first quarter of 2027.

■ *Primetals Technologies*

Tonggang optimizes ladle furnace performance

Tonghua Iron and Steel has completed a ladle furnace upgrade, involving the installation of copper-clad electrode arms by Primetals Technologies.

The project included the manufacture and installation of a complete set of three-phase electrode arms, as well as commissioning services. Primetals Technologies' copper-clad electrode arms are lightweight yet highly rigid and are designed to withstand harsh meltshop conditions.

Their double-layer composite structure and integrated water-cooling system further enhance durability. As a result, electrothermal efficiency is significantly improved compared to conventional tube arms. The arm exchange was completed in just six hours, from dismantling to commissioning.

■ *Primetals Technologies*



New electrode arms boost power output and reduce energy consumption at Tonghua Iron and Steel

(Photo: Primetals Technologies)

Xiangtan to upgrade cooling line

Xiangtan Iron and Steel has contracted Primetals Technologies for a cooling line upgrade. The upgraded line will deliver improved cooling performance required for new, higher-value alloys and enable greater throughput from Xiangtan's existing plate mill infrastructure.

Xiangtan specializes in producing wide and heavy plates for demanding applications such as shipbuilding, pipelines, and new energies

including wind turbines, hydropower, and hydrogen. By partnering with Primetals Technologies, Xiangtan will be able to quickly meet rising global demand in these sectors thanks to an upgrade executed on the existing production line. The project is scheduled to commence in the second quarter of 2026, with work continuing throughout mid-2026.

The upgrade is designed to enhance flatness and mechanical properties for plates up to 350 mm thick. The uniform

temperature control of the multi-purpose interrupted cooling line along the entire plate length and width is key to achieving these targets. Primetals Technologies' scope of supply includes the design, supply, and commissioning of a new-generation spray system, alongside an extensive Level 1 and Level 2 automation overhaul to ensure state-of-the-art process control.

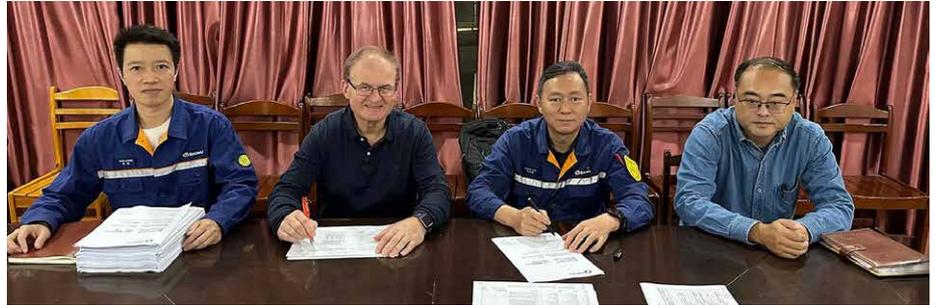
■ *Primetals Technologies*

ASIA – CHINA

MaAnshan to expand plant with new continuous caster

MaAnshan Iron and Steel (MaSteel) has awarded Primetals Technologies a contract for the engineering, supply, and startup of a 2-strand continuous caster for high-quality slab production.

The new slab caster will feature a bow-type machine with a ten-meter radius and a metallurgical length of approximately 40 m. It will be designed for an annual capacity of 2.4 million t, and slabs of 230 and 250 mm thickness and 950 to 1,600 mm width. Primetals Technologies' scope includes equipment supply, engineering, Level 1 and Level 2 automation systems, and supervision services for startup. Systems like a high-performance cassette-type mould



Contract signing for the supply of the new slab caster (Photo: Primetals Technologies)

equipped with the DynaWidth online mould-width adjustment system for flexible and rapid slab-width changes will ensure that high-quality conditions are established early

in the casting process. Commissioning is scheduled for the second half of 2026.

■ *Primetals Technologies*

ASIA – INDIA

ArcelorMittal to increase renewable energy capacity

ArcelorMittal will double its renewable energy capacity in India with three new projects to 2 GW, increasing its total global renewable energy capacity to 3.3 GW.

The three projects are in Amaravati, Maharashtra; Bikaner, Rajasthan; and Bachau,

Gujarat. The power generated will be supplied to AMNS India, ArcelorMittal's 60/40 Indian steelmaking joint venture with Nippon Steel.

ArcelorMittal is developing renewable energy projects in various joint venture partnerships. Combined, its Indian, Brazil-

ian and Argentinian projects will provide a total of 3.3 GW of electrical power generation, once operational.

■ *ArcelorMittal*

Jai Raj Ispat completes performance guarantee test for rebar mill

Jai Raj Ispat has successfully completed the performance guarantee test for the Danieli-supplied 350,000 t/year mill for thermomechanically treated rebar. The test was finalized just two months after production startup.

The plant implements the Danieli MIDA QLP – Quality Long Product – technology, featuring a compact, continuous layout that integrates a ladle refining furnace, continuous casting machine, induction heater, and high-speed rolling mill in an endless casting-rolling configuration. The process enables direct conversion of liquid steel into finished thermomechanically treated bars in a single, energy-efficient sequence. This minimizes thermal losses and intermediate handling, reduces energy



Jai Raj Ispat produces finished thermomechanically treated bars in an energy-efficient sequence (Photo: Danieli)

consumption, and improves metallurgical consistency.

■ *Danieli*

ASIA – INDIA

IISCO to expand steelmaking capacity

Steel Authority of India Limited (SAIL) has awarded Danieli contracts to supply technologies for the IISCO Steel Plant expansion in Burnpur, West Bengal.

This project will add 4 million t/year of steelmaking capacity. It will include a new

blast furnace with a volume of 5,557 m³, three continuous slab casting machines, and a state-of-the-art hot-strip mill designed primarily for coil production serving the automotive and durable goods sectors. The slab casters will produce high-quality slabs up to 250 mm thick and

2,100 mm wide, feeding the new hot-strip mill, which will deliver coils ranging from 1.2 to 25.4 mm in thickness.

■ *Danieli*

JSW Salem commissions upgraded billet caster

JSW Salem has successfully commissioned its three-strand billet caster upgraded by Danieli, ahead of schedule, in just 43 days.

Danieli's scope included the integration of advanced technological packages such as

a Hy-Power hydraulic oscillator, and mould and final electromagnetic stirrers, ensuring superior billet quality and process stability. The caster features a 9-m radius and ladle sequence car configuration. The upgrade was executed within a contractual 45-day shutdown. All three continuous casting

machines operating at JSW Salem's casting platform are now Danieli-supplied.

■ *Danieli*

Kuminex Steels orders compact pellet plant

Metso has signed a contract with Kuminex Steels for the delivery of a travelling grate pelletizing plant in Hospet, Karnataka. The plant will have a capacity of 1.5 million t/year, with pellet production expected to begin by mid-2027.

Metso's scope of delivery covers the engineering and design of the plant, along with the supply of proprietary equipment,

instrumentation, and control systems. Metso will also provide supervisory services and technical training.

Designed on the state-of-the-art principles of Metso's larger product range and based on a three meter wide indurating machine, this compact plant will deliver the same high performance and premium product quality as Metso's full-scale travelling grate pelletizing plants. It will also

feature Metso's advanced digital tools to boost efficiency and reliability. The order value has been reported under the fourth-quarter 2025 order intake of Metso's Ferrous business, which is currently being divested to SMS group and reported as discontinued operations.

■ *Metso*

TII Group opens new office in Pune

The TII Group, manufacturers of heavy-duty and special transport solutions, is expanding its global presence with the opening of a new office in Pune.

The new location complements the existing structure in Bawal near New Delhi and will serve as an additional hub for sales, service and project engineering for the TII

Scheuerle brand. Since the founding of TII India Pvt. Ltd. in 2015, the TII Group has invested heavily in the Bawal site, where transport solutions for industry, energy and infrastructure are manufactured, along with accessories for the transport of heavy and oversized loads. The plant is fully integrated into the global production network and meets the same high quality standards as

the German facility. The German TII Group is a globally active manufacturer of heavy-duty and special vehicles. It includes industry specialists, TII Scheuerle and TII Kamag, and has production sites in Germany and India along with a worldwide organisation of sales and service partners.

■ *TII Group*

ASIA – VIETNAM

Xuân Thiện Group invests in two new flat production lines

Xuân Thiện Group has signed a strategic investment and cooperation agreement with Primetals Technologies to serve as the technology partner, providing advanced solutions, engineering expertise, and key plant components for two production complexes.

The first production complex will focus on heavy plate manufacturing, including an EAF Ultimate electric arc furnace, a twin ladle furnace, a twin vacuum degassing plant, a continuous slab caster, and a plate Steckel mill.

At the same time, another production line will be developed to produce endless hot-rolled coils. This line will feature two EAF Ultimate furnaces, two twin ladle furnaces, two twin vacuum degassing plants, and Arvedi ESP technology, enabling the production of ultra-thin steel products. These capabilities are strategically important, enabling Vietnam to become self-suf-



Signing ceremony for the investment and cooperation agreement
(Photo: Primetals Technologies)

ficient in supplying raw materials for industries that demand high strength and large dimensions, such as offshore wind turbine towers and shipbuilding, fields where the

country previously relied entirely on imports.

Primetals Technologies

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Over 10 years of successful
PROFILEMASTER
implementations



4-8
Number of cameras



5
Min. object diameter (mm)



540
Max. object diameter (mm)



2000
Scan rate (scans/s)

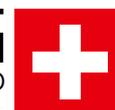
PROFILEMASTER® High Speed

In-Line Profile Measurement Systems for Hot & Cold Steel Applications with increased sampling rate up to 2 kHz.

Benefits:

- ✓ Best measuring accuracy thanks to temperature-stabilized measuring systems
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- ✓ Detects process problems at an early stage
- ✓ Quick maintenance and easy cleaning
- ✓ Profile measuring solutions with global references

MADE IN SWITZERLAND



ASIA – JAPAN

JFE to replace existing electric arc furnace

JFE Bars & Shapes has selected Danieli as its technological partner for the replacement of an existing DC electric arc furnace with a new 120-t Danieli Digimelter at the Mizushima works of JFE's Kurashiki facility.

Beyond improving the current furnace's performance, the upgrade supports JFE's broader decarbonization strategy by reducing emissions and optimizing resource utilization. The new EAF is scheduled to start operations in early 2028 and will produce high-quality billets from recycled steel

scrap, which are rolled into reinforcing bars and structural shapes for construction and infrastructure projects.

| Danieli

New open-die forging press commences operations at Nakamura Iron Works

The company has signed the final acceptance certificate (FAC) with SMS group following the commissioning of a 12.5 MN open-die forging press at Nakamura's Komaki City site.

The new ultra-high-speed press increases Nakamura's production capacity to achieve higher throughput, better consistency, and lower operating and maintenance costs. With up to 205 strokes per minute, the press efficiently forms alloys including as Inconel, titanium, and copper. The press is equipped with SMS hydraulic compact drive technology and integrated SMS ForgeBase technology which allows Nakamura Iron Works to pre-calculate pass schedules and implement material-specific forging strategies from a database of more than 200 materials. ForgeBase sup-

ports fully automatic operation while offering a seamless switchover to semi-automatic or manual modes as and when required. A tailored digital package, delivered as software-as-a-service (SaaS), enhances process transparency and plant availability while minimizing maintenance costs.

| SMS group

The 12.5 MN open-die forging press successfully commissioned at Nakamura's Komaki City site in the Aichi Prefecture (Photo: SMS group)



ASIA – VIETNAM

Hoa Phat orders new rolling mill and caster

Hoa Phat has selected Danieli for the supply of a new long-product rolling mill and a four-strand continuous casting machine to be installed in the Tay Ninh Province. Commissioning is scheduled for the first quarter of 2027.

Designed to process a total capacity of 700,000 t/year, the plant will produce rebar from 10 to 32 mm and wire rod coils

from 5.5 to 8 mm. Operation will be fully based on a direct-charging process, with billets transferred directly from the caster and temperature-equalized by induction heaters. This solution eliminates the need for a conventional reheating furnace, significantly reducing OpEx while ensuring stable rolling conditions.

The four-strand continuous casting machine will supply high-quality billets tai-

lored to the rolling mill requirements, supporting productivity and product consistency. Thanks to the hot-charging operation and induction-based temperature control, the plant will operate with minimized energy use and lower environmental impact.

| Danieli

RAW MATERIALS

Cold agglomerated pellets from Pilbara ore

For the first time cold agglomerated pellets have been produced using 100% Pilbara iron ore from the world's largest iron ore producing region, located in Western Australia. Binding Solutions Ltd. is now engaging with additional strategic and financial investors as it advances towards construction of the first commercial plant.

Binding Solutions Limited (BSL), a UK based developer of green steel technology, has successfully produced the world's first cold agglomerated pellets from 100 per cent Pilbara ore. Pilbara ores are complex, and do not survive high temperature furnace conditions when pelletised using traditional agglomeration techniques, such as induration. BSL's Pilbara cold agglomerated pellets meet recognised furnace test standards and provide a potential route to exploiting value from this prestigious source of iron ore deposits.

Dr Matthew Bennett, Head of Science at BSL, said: "It is globally recognized that goethite containing ores present challenges that make it difficult to formulate agglomerated pellets that could be used to produce steel. BSL's approach has been to understand the behaviour of these ores and to develop a technology that takes advantage of their unique mineralogy."

The Pilbara cold agglomerated pellets were produced and tested at BSL's Middlesbrough Technology Centre, utilising state of the art furnace testing equipment and the skills and agglomeration know how of the experienced technical team. BSL will continue to work with leading industry partners to further develop this product and identify opportunities where it can be applied for direct reduction iron making as well as blast furnace applications.

BSL's cold agglomerated pellet technology can be applied to multiple ore types

to deliver significant, near-term reductions in carbon emissions and energy usage of 70% and 80% respectively compared to traditional agglomeration technologies. In addition, due to the modular nature of the BSL technology, cold agglomerated pellet plants can reduce capital costs by 86% per million tonnes of annual production. BSL's technology also almost eliminates NO_x and SO_x pollution.

Collaboration with Mitsui Iron Ore

Binding Solutions Limited announced the completion of a US\$ 5 million equity fundraising led by existing shareholders including Mitsui Iron Ore Development, Champion Iron and other long-standing investors. The funds raised will be used to rapidly progress engineering and other studies ahead of a final investment decision for BSL's first-of-a-kind commercial cold agglomerated pellet plant, designed for a range of iron ore types; further develop several commercial opportunities to pelletise fine material with direct reduced iron producers and blast furnaces; and enable additional product development for direct reduction and hydrogen CAP products.

Separately, BSL and Mitsui Iron Ore have signed a Memorandum of Understanding for BSL to apply its proprietary technology to produce cold agglomerated pellets intended for implementation in Australian Pilbara iron ore operations,

where Mitsui Iron Ore has a strong presence. It is envisaged that the cold agglomerated pellet technology will enable the conversion of fine Pilbara material into sea-borne pellets, creating a potential new source of low greenhouse gas emission pellet supply.

As part of the MoU, BSL will continue to conduct the product development work at its world leading Technology Centre in Middlesbrough, UK utilising the R&D capabilities it has developed as well as its dedicated product testing facilities.

Mitsui Iron Ore, a strategic investor in BSL since February 2022, also intends to utilise its deep industry knowledge and extensive network to assist BSL in further progressing toward commercialisation. BSL is now engaging with additional strategic and financial investors as it advances towards construction of the first commercial plant.

Jon Stewart, Binding Solutions CEO, commented: "This investment demonstrates the confidence our investors have in BSL following the successful industrial trial with British Steel and partnership with Salzgitter. It also reinforces the enormous potential of our technology to support the global iron ore and steel industries.

The progress we have already achieved working with Mitsui Iron Ore to develop a cold agglomerated pellet for Australian Pilbara iron ore, the world's largest iron ore producing region, creates a significant additional market opportunity for Binding Solutions and could unlock a major new source of low-GHG pellets to meet growing global demand.

We are now well placed to advance the commercialisation of our technology through the completion of all remaining steps towards selecting a site for our first-of-a-kind commercial plant."

We are now well placed to advance the commercialisation of our technology through the completion of all remaining steps towards selecting a site for our first-of-a-kind commercial plant.

Jon Stewart, CEO at Binding Solutions Limited

| Binding Solutions

NEAR-ZERO-CO₂ MELTSHOP

Paving the way of sustainable steelmaking

Al Qaryan Steel is embracing induction technology from ABP, achieving a significant boost in melting capacity while ensuring high-availability production

A new era of steelmaking has begun at Al Qaryan Steel in Dammam, Saudi Arabia. The long-established manufacturer has invested in the latest generation of induction furnaces, relying on proven technology from ABP Induction. This project highlights not only Al Qaryan Steel's trust in its long-standing partner, ABP, but also sends a clear signal that the company is committed to sustainable, efficient and future-proof steel production.

The project holds special significance for both parties. Al Qaryan Steel, a leading producer in the region, has been successfully using ABP technology since 2017. Several systems have been in daily operation for years. The positive experience and collaborative partnership were decisive factors in choosing ABP for the new meltshop as well. "Both sides have learned a lot from each other and built up expertise together," explains Alexander Keller, Head of System Sales at ABP Induction. "This has not only led to a close partnership, but also allowed us to directly incorporate the experience gained over the past years into the new plant – enhanced by our latest technological developments." Over time, induction furnaces have proven to be highly effective, particularly in mini and micro steel mills for the production of construction-grade and high-alloy steels.

Scope of supply

Specifically, ABP has supplied two high-performance, medium-frequency



Setting at Al Qaryn Steel: IFM9 induction furnace (charged) with the Eco Top hood, with a charging crane beside it (Picture: ABP)

IFM9 induction furnaces, powered by a TWIN-POWER® energy system with an electric capacity of 14,000 kW. Each IFM9 furnace holds 30 tonnes and can melt 25 tonnes of steel per hour.

Thanks to the TWIN-POWER® principle, converter power can be distributed freely and continuously between both furnaces without the need for additional switches. This makes it possible to melt in one furnace while keeping the heat at temperature in the other. It also results in a higher utilisation rate for the converter, as well as lower maintenance and investment costs than separate energy supplies would entail.

This investment significantly increases Al Qaryan's melting capacity and creates the basis for highly available and reliable production. The scope of delivery also includes the EcoTop hood for environmentally friendly exhaust management, remote service options, and the latest DICU 3 controller. The package is rounded out by ABP's melting processor PRODAPT® Enterprise with crucible monitoring system: PRODAPT® handles demand-driven energy control for melting, holding, cold start-up, sintering, and communication with charge preparation.

Strategic move

The decision to go with ABP was driven not only by its technology. Service, support, and long-term care also played a key role. "Ultimately, it wasn't just the equipment – it was also the collaboration and our service offering that made the difference," emphasizes Alexander Keller.

For Al Qaryan Steel, the investment marks a strategically significant move: it

With the right scrap and process management systems, we can now achieve the highest quality standards in the final product.

Alexander Keller, Head of System Sales at ABP Induction

boosts production capacity, enhances system availability, and increases reliability through the deployment of cutting-edge technology. At the same time, the project clearly reflects a strong commitment to sustainability. The use of induction technology enables a drastic reduction in CO₂ emissions – and in many cases, it even allows for nearly climate-neutral operations. “With the right scrap and process management systems, we can now achieve the highest quality standards in the final product – while reducing both investment and operating costs and significantly improving our environmental footprint,” Alexander Keller adds. In addition, “the use of induction furnace technology also leads to improved working conditions.”

Installation and commissioning of the new plant began in 2025, with final acceptance on schedule. It’s already clear that the project is not only a success for Al Qaryan Steel, but also holds significant relevance for the entire Middle East region.



Alexander Keller (left) and Ahmed Rizk (both from ABP) on-site at Al Qaryan Steel
(Picture: ABP)

This move reflects Al Qaryan Steel’s commitment to both continuity and progress: its long-standing collaboration with ABP is being carried forward through a state-of-the-art plant concept that delivers not only economic efficiency but also meets the demands of an increasingly sustainable

industry. For ABP Induction, the order affirms its strategy of supporting customers worldwide on their journey towards an efficient, digital, and climate-friendly future.

| ABP Induction Systems, Dortmund, Germany

TOP-PERFORMANCE EAF AT JINDAL STEEL SOHAR

At its steelmaking facility in Oman the company achieved a benchmark in monthly steel production with a 220-t electric arc furnace. Q-MELT adaptive process control from Danieli drives productivity, availability, and energy efficiency.

Danieli has awarded Jindal Steel Sohar with a recognition for the record performance achieved at its steelmaking facility in Oman, Jindal operating a 220-t electric arc furnace (EAF) supplied and commissioned by Danieli in 2014. The plant recently set a new monthly production record, tapping 235,112 tonnes of liquid steel, corresponding to an annualized output exceeding 2.5 million tonnes of cast steel.

This milestone was achieved through Jindal’s stable plant operation and a skilled, professional operating team committed to the continuous improvement of process control. A key contribution also came from the recent upgrade of the EAF with Danieli Q-MELT adaptive process control, which enabled stable and optimized furnace operation and resulted in 96.5% equipment availability, including scheduled shutdowns and process-related delays.



A total of 235,112 tonnes of liquid steel were tapped from the 220-t EAF over the course of one month (Picture: Danieli)

The furnace operates with an optimized charge mix of 61% hot DRI, 37% cold DRI, and 2% hot briquetted iron (HBI), achieving a productivity of 324 t/h with a specific electrical energy consumption of 493 kWh/t. High-quality billets and rounds are produced with consistent quality, high efficiency, and operational stability.

The result confirms the solid and long-standing cooperation between Danieli and the Jindal Group, based on tech-

nology reliability and continuous performance improvement. This achievement further demonstrates the effectiveness of Danieli EAF technology combined with advanced digital process control and confirms the growing relevance of the DRI-EAF route as a competitive and efficient solution for modern steelmaking.

| Danieli

STEELMAKING

Advanced ladle logistics at secondary metallurgical facility

JSW Vijayanagar works in India has commissioned a new 350-ton Ruhrstahl Heraeus (RH) vacuum recirculation degassing plant. This installation marks the world's first operational combination of an RH Ladle Rocker with Fast Vessel Exchange (FvE), representing a major advancement in both, secondary metallurgy and plant efficiency.

JSW Vijayanagar Metallics Ltd. (JVML), a subsidiary of JSW Steel Ltd. – one of India's leading integrated steel producers, has commissioned a new 350-ton Ruhrstahl Heraeus (RH) unit from SMS group at Vijayanagar works steel plant No. 4 in Toranagallu, India. The facility enables the company to produce various grades of high-quality steel for demanding industries, including construction, infrastructure, manufacturing, automotive and energy. The unique configuration provides significantly higher process effectiveness, safety and throughput compared to conventional installations. The total production capacity is three million tons per annum.

The RH vacuum treatment yields cleaner steel with superior mechanical properties. The new RH plant at JVML features both a "ladle rocker" for controlled lifting and tilting of the ladle, and a proven fast vessel exchange system (FvE). This combination delivers substantial strategic and operational improvements, including greater production flexibility, through reduced exchange times, longer vessel lifetimes and faster grade changes.

By merging the ergonomic and accessibility advantages of the ladle rocker with the rapid handling capabilities of the FvE system, the plant enhances safety while reducing maintenance requirements. The FvE system shortens exchange cycles and reduces idle time, enabling higher annual output without a proportional increase in manpower or footprint.

Additionally, the installation of an on-top ferro-silicon (FeSi) bunker increases the availability of alloying material on-site. This prevents charging interruptions and shortens process times for electric steel production, resulting in higher process stability and improved yields. Nikhil Agashe, Vice President of JSW Steel, highlighted the advantages: "The new 350-ton RH



First heat of the 350-ton RH plant at JSW Vijayanagar works steel plant 4 in Toranagallu, India (Picture: SMS group)

unit with fast vessel exchange represents a step change in our production capability and grade flexibility. It integrates seamlessly into JVML Steel Plant 4 and maximizes our operational efficiency, while improving safety and maintainability. SMS group's solution directly supports our commitment to delivering higher-quality steel to our customers."

Christina Godolt, Contract Manager at SMS group, commented: "Commissioning the world's first 350-ton RH Ladle Rocker combined with FvE is a proud moment for us and our partnership with JSW Steel. This technology milestone underscores SMS group's engineering leadership while offering clear, quantifiable benefits for our customer in terms of plant effectiveness, lifecycle costs and safety. We are delight-

ed by JSW Steel's longstanding trust in our secondary metallurgy plants and look forward to extending these gains across future projects."

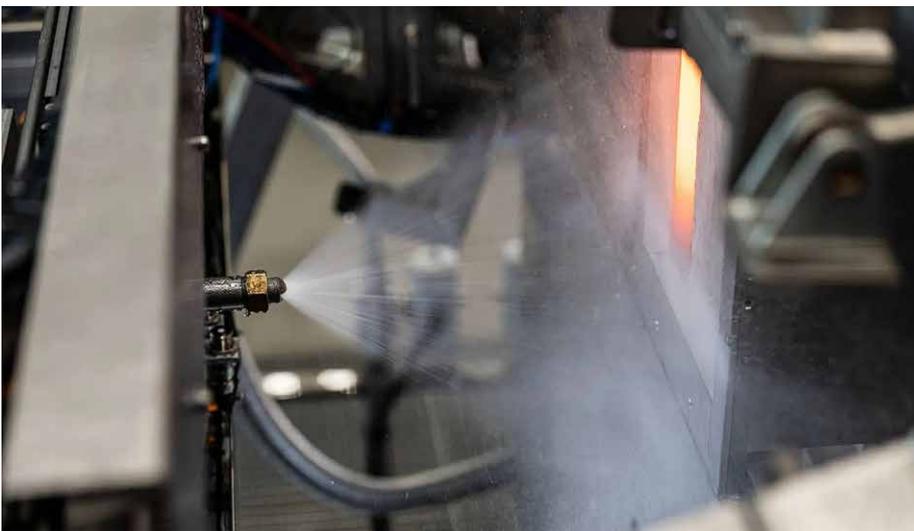
JSW Steel and SMS group previously collaborated on the company's first 350-ton RH unit at Dolvi Works in 2023, followed by a second unit in 2024. Based on the demonstrated performance of these installations, JSW Steel chose to equip all RH units at Vijayanagar Works Steel Plant 4 with SMS group's 350-ton Ladle Rocker FvE solution. This decision reinforces JSW Steel's strategic position in the Indian market and expands its capacity to produce premium-quality steel.

| SMS group

RESEARCH AND DEVELOPMENT

Cooling system optimization for continuous casting plants

A new test facility enables innovative visualization of the hot strand during the continuous casting cooling process. This solution delivers deep insights into the behaviour of the hot strand, supporting the enhancement of cooling systems in continuous casting and other industrial applications where cooling is critical. The flexible setup allows testing of any type of industrial cooling system.



The measuring plate is equipped with a temperature probe, and the equipment can fully rotate (Picture: Primetals Technologies)

Primetals Technologies is advancing industrial cooling system optimization with a new type of heat-transfer test facility. This solution delivers deep insights into the behaviour of the hot strand during the cooling process, supporting the enhancement of cooling systems in continuous casting and other industrial applications where cooling is critical.

Replicating industrial cooling units

In any cooling system, effective cooling depends on both the distribution and volume of water. A better understanding of machine and system performance enables targeted optimization.

The test facility is designed to replicate real industrial cooling scenarios. During testing, a measuring plate equipped with temperature probes moves beneath the nozzles, allowing tests at any angle to monitor temperature reduction, i.e. the cooling effect.

Tests can be conducted at various speeds, and the equipment can be fully rotated to simulate any cooling position along the continuous casting machine. The nozzle configuration, including water distribution, nozzle type and position, can be adjusted. Caster rolls can also be used to mimic actual casting conditions.

Key facts of the cooling optimization test facility can be summarized as following:

- › Nozzles: two fully independent systems
- › Orientation: any angle in the caster, inner and outer bow, from bender to horizontal
- › Casting speed: 0 to 10 meters per minute
- › Water flow rate: 0.5 to 75 liters per minute
- › Water pressure: 0 to 25 bar
- › Temperature: up to 1250°C

Optimizing cooling performance. The measuring plate features dozens of measur-



The flexible setup allows testing of any type of industrial cooling system (Picture: Primetals Technologies)

ing points, which are automatically recorded and analyzed using a cooling model to create a heat transfer map. This data is used to optimize nozzle design and arrangement and to further refine Primetals Technologies' Dynacs 3D online cooling model. This model calculates the full 3D temperature profile at any position along the strand, enabling precise secondary cooling adjustments.

Broad range of applications. By replicating any cooling system configuration, the test facility allows the fine-tuning of new continuous casters and the optimization of existing machines, as well as other systems that relies on industrial cooling. Located in Linz, Austria, the test facility is operated by Primetals Technologies automation experts and is available for both Primetals Technologies casters and those supplied by other parties. The facility also welcomes scientific and R&D institutions.

This project is supported by the COM-ET-K2 Center "Center for Symbiotic Mechatronics" of the Linz Center of Mechatronics (LCM), funded by the Austrian federal government and the federal state of Upper Austria.

▮ *Primetals Technologies, Limited*

MODERNIZATION

Tata Steel produce first coil after extensive CSP[®] plant upgrade

The Tata Steel TSCR plant can now produce strip gauges as thin as one millimetre, while improving dimensional and flatness quality and increasing throughput. Following extensive pre-commissioning tests, the facility ramped up rapidly and successfully.



The upgraded Tata Steel TSCR plant can now roll high-quality coils down to one millimetre thickness (Picture: SMS group)

After completing an extensive upgrade by SMS group, Tata Steel Ltd. has successfully rolled the first coils at its Jamshedpur CSP[®] (Tata Steel TSCR) plant in Jharkhand, India. The modernization included a new mill stand as well as comprehensive enhancements to legacy X-Pact[®] automation systems. As a result, the mill is now capable of producing thinner strip gauges and higher quality products, underscoring SMS group's life-cycle partnership approach.

The existing CSP[®] plant, originally delivered and commissioned by SMS in 2011, has an annual output of approximately 2.5 million tons, producing strip in widths from 900 to 1,680 millimetres and thicknesses from 16 down to one millimetre.

Mechanical upgrades

With a new F7 mill stand, the rolling load distribution can be optimized for harder materials at wider widths and thinner gauges, in particular. The F7 mill stand ensures there are fewer bottlenecks for certain products in the finishing mill. This boosts output for such grades and allows the CSP[®] casters to operate at an optimized casting thickness for improved overall efficiency.

The project included adapting the existing roll-changing equipment for the new F7 rolling stand. Additionally, the modernization aimed at enhancing mill stands F1 to F5, with the installation of a new hydraulically-operated pass line adjustment system.

Five laminar cooling sections were replaced by four reinforced cooling units with edge masking. The entire exit area was upgraded, including a new measuring house, and provision was made for a second multifunction gauge in the future.

Among the technical enhancements, SIEFLEX[®] gear-type spindles with internal oil return line were also incorporated. The SIEFLEX[®] gear-type spindle is designed to transmit up to twice as much torque as conventional shafts through advanced hardening, optimized tooth geometry, and a proprietary tribo system. At the same time, it features a continuous oil lubrication system that ensures effective cooling, eliminates the need for grease maintenance, extends the service life, and reduces rolling mill downtimes.

Renewal of the level 1 and level 2 automation

As part of the revamp, SMS level 1 and level 2 automation systems were upgraded within the powerful X-Pact[®] ProBAS platform based on X-Pact[®] Embedded controllers, and the existing Human Machine Interface (HMI) was updated. These technological advancements provide high-speed control capabilities for the CSP[®] rolling mill, ensuring reliable and efficient plant operations.

The level 2 automation system incorporates state-of-the-art process models specifically designed to maximize the efficiency and quality of production processes. The X-Pact[®] Pass Schedule Calculation (PSC[®]) model facilitates the precise generation of rolling schedules tailored to specific production requirements. By accurately planning rolling parameters, it ensures perfectly synchronized workflows.



Project team at the Tata Steel Jamshedpur works (Picture: SMS group)

Another key component is the X-Pact® Cooling Section Control model, which provides fully automated cooling of the rolled material. This technology maintains a consistent material temperature during the rolling process, which is critical for the quality of the final product. By precisely controlling the cooling parameters, a uniform material structure is achieved, which in turn enhances the product's mechanical properties. Additionally, the X-Pact® Profile, Contour, and Flatness model ensures precise thickness and flatness tolerances, meaning greater process stability. With this technology, high-quality products covering a wide range of specifications and dimensions can be manufactured. The integration of these advanced automation solutions into the CSP® rolling mill ensures that production processes are not only efficient but also flexible and adaptable to changing market demands.

Quick ramp-up

From day one after the revamp, fourteen coils were rolled without any cobbles, and by the sixth day the mill successfully pro-

cessed thicknesses up to 1.2 millimeters. Although the shutdown was a difficult operation, these early achievements reflect careful preparation and thorough pre-commissioning tests.

Hendrik Trimborn, Project Manager at SMS, said, "Thanks to the excellent cooperation between Tata Steel and SMS group during the execution phase and especially during the shutdown and ramp-up, in which several team members from the original commissioning also participated and thus reinforced our partnership approach with our customers, this complex revamp project was a success. The open and trusting communication made it possible to identify challenges early on

and to find solutions together. This very short and effective ramp-up phase exceeded the expectations of all parties involved, which impressively underlines the value of this strong partnership."

The integration of the F7 stand and the state-of-the-art X-Pact® automation highlights SMS's long-term commitment to supporting customers throughout the entire lifecycle of their equipment and adding value to our customers. Notably, some team members from the original commissioning were also involved in this upgrade, reinforcing the partnership approach.

■ SMS group

“ The open and trusting communication made it possible to identify challenges early on and to find solutions together.

Hendrik Trimborn, Project Manager at SMS

ROLL SHOP TECHNOLOGY

Addressing key challenges in roll grinding in hot and cold mills

Maintaining rolls can be challenging for rolling mills since they are typically made from hard-to-grind materials. This requires specialty grinding wheels that do not compromise roll integrity or safety. This article addresses common roll grinding challenges, with a focus on achieving maximum productivity and quality.

Industrial roll grinding is more than just maintenance; it is a key step that directly impacts the quality of the final product as well as mill uptime and throughput. Roll shops typically require high productivity and fast material removal to minimize downtime, but that must be balanced in many cases with precise surface finish requirements to meet strict standards.

Roll grinding is a specialized form of external cylindrical grinding designed for rolls, which are significantly larger than typical grinding parts. These rolls, used in hot or cold rolling mills, require regular maintenance to remove deformations and ensure smooth mill operation. In roll grinding, the deformed layer of material is removed to restore the roll to precise geometric and surface specifications.

Operations face several key challenges that impact productivity, efficiency and quality in roll grinding, including:

Defects and quality issues. Quality is often a top priority in rolling mills. The roll grinding process itself should not introduce flaws that will be transferred to the finished steel. For example, chatter marks and spirals can be caused by vibrations or grains falling out of the wheel, and burning can occur if the grinding wheel is too hard for the application. When there are stringent surface finish requirements, mills typically prioritize that over a high material removal rate.

Grinding wheel consumption. Frequent grinding wheel changeovers not only increase the downtime required for swapping out wheels used for roll grinding, but



Roll mills typically require high productivity and fast material removal to minimize downtime (Picture: Weiler Abrasives)

they also increase the mill's consumable costs. To optimize productivity and wheel life, mills typically look for a grinding wheel with a higher G-ratio, which is calculated by dividing the volume of the removed material by the volume of the wheel that is used. A wheel with a higher G-ratio is more efficient, removing more material of the roll with less grinding wheel consumption.

Downtime. In many roll mills, there is a constant need for quick material removal to minimize downtime and get rolls back into the process. Daily maintenance is common, especially in the first stages of the process when the rolls are much harder, increasing the deformity on the rolls.

Risk of wheel failure. Safety issues can result when a wheel bursts or fails. Wheel safety and structural integrity are critical to prevent operator injury or damage to the machinery.

Differentiating hot and cold roll grinding operations

There are several key differences between hot roll grinding and cold roll grinding. These distinctions affect the goals of the operation and the right choice of roll grinding wheel for the job.

Hot rolling mills use high temperatures to shape raw steel into various forms, such as sheets, plates and structural compo-

Inja Skrinjar, Product Manager, Weiler Abrasives – Contact: iskrinjar@weilerabrasives.com

nents. Hot rolling is often done with thicker material at the start of the process for the initial shaping of the steel. The hardest-to-grind materials are found in this stage, so they experience greater deformation from thermal and mechanical stress. Productivity is usually the top priority in hot roll grinding, so there is a need for coarser, more aggressive grains that remove more material faster. Surface finish requirements are typically less strict when compared to cold rolling, since material removal rate is the priority.

Cold rolling occurs at room temperature or slightly below, and the process starts with steel that has already been rolled. Cold rolling involves the final rolling of steel into thinner sheets for precision components, so they have much stricter requirements for final finish and aesthetics. The top priority in these applications is finish quality, and productivity is less critical. It requires roll grinding wheels that use finer grains to achieve the necessary specific finishes. Because the rolls are not damaged as much during the process, they require less frequent maintenance compared to hot rolling.

What to look for in high-performance grinding wheels

The specific challenges of roll mills can be addressed by choosing the right grinding wheels that stand up to the requirements. Here are several factors for mills to consider.

Choose an upgraded ceramic grain.

Advanced abrasive grain technology can deliver significantly better results in roll grinding. For example, the advanced ceramic grain used in Fortis Mill Hot and Cold Roll Grinding Wheels from Weiler Abrasives is designed to be self-sharpening. Grains continually fracture into sharp, aggressive cutting points throughout the grinding process. This leads to higher, more consistent material removal rates and shorter grinding cycles.

Look for wheels that provide greater durability.

Weiler has a new grain treatment technology that increases the time the grain remains anchored in the bonding system. Ultralock technology is a proprietary grain treatment technology that enhances the retention of the abrasive grain and significantly contributes to the wheels' durability, reducing consumable spend and changeovers.



A close-up look at an unfinished roll (left) versus a finished roll (right)
(Picture: Weiler Abrasives)

The importance of tailored solutions.

Work with a grinding wheel provider that has experience and offers custom solutions for roll grinding. This results in grinding wheels that can handle the demands of roll hardness (for grinding hard rolls in the early hot mill stages vs. softer rolls later) and required surface finish. The manufacturer can adjust the wheel's hardness, grain and bond system. This is crucial because even similar machines and rolls often require different parameters due to site-specific conditions. An experienced wheel manufacturer can also provide expertise to help troubleshoot issues like chatter and burning by recommending the correct wheel specifications. Choosing a wheel designed for the specific application can help optimize performance, results and wheel life.

Look for on-site technical support.

An abrasives partner that provides on-site support can help operations not only choose the right solutions but also dial them in for optimized performance.

Real-world results in hot mill grinding

For one market leader in the European hot-rolled stainless-steel industry, critical productivity challenges were affecting their throughput and bottom line. Their existing grinding wheels delivered suboptimal performance, and they needed a better solution.

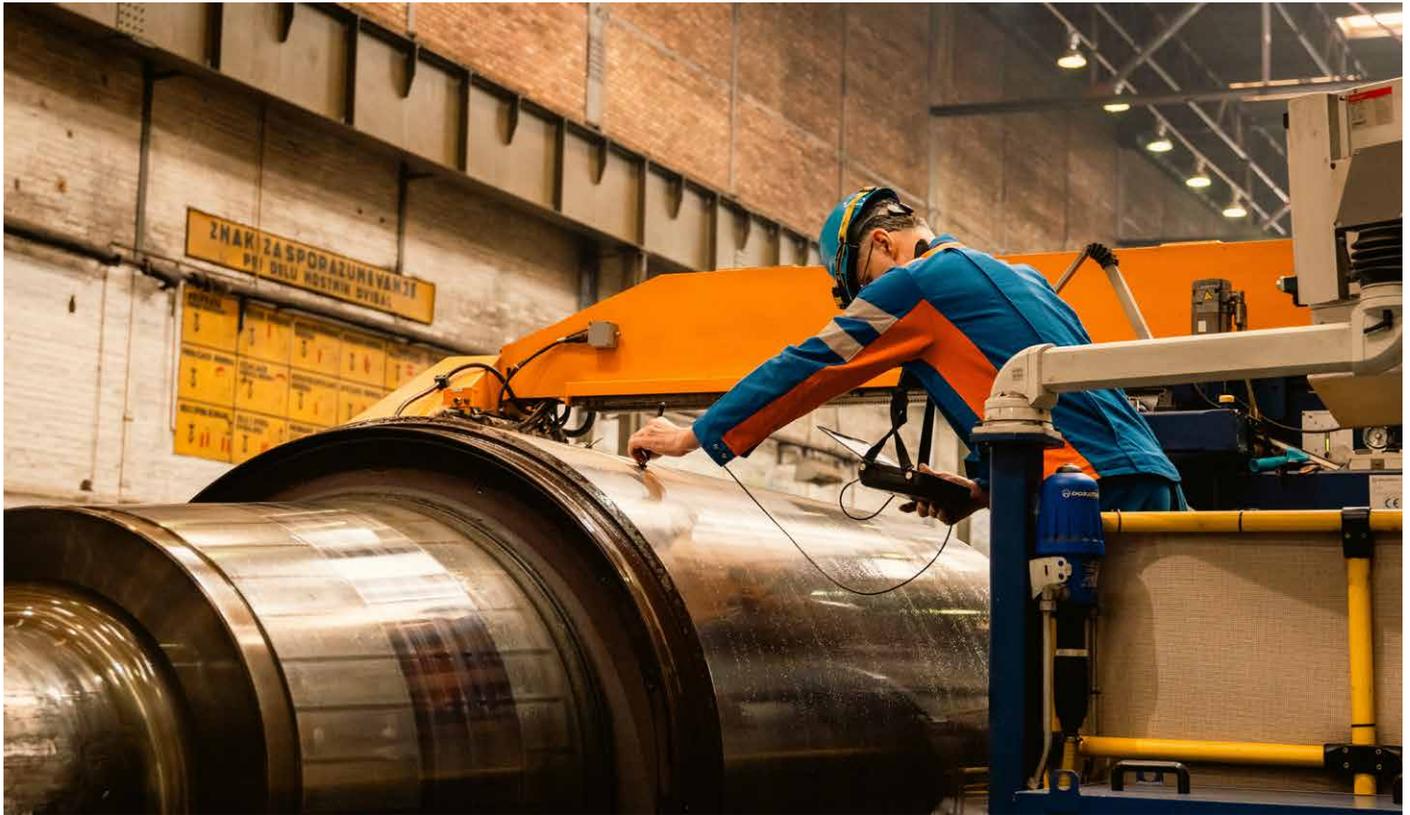
After a comprehensive analysis of their specific requirements, they implemented the innovative Fortis Mill grinding wheel technology from Weiler Abrasives. On-site



Solutions such as Ultralock technology can significantly increase the durability of wheels, thereby reducing the cost of consumables and the time spent on changeovers (Picture: Weiler Abrasives)

testing produced remarkable results, including a 21% increase in HSS (G-ratio), a 30% increase in ICDP material (G-ratio), and a 24% increase in forged material (G-ratio). The change helped them meet several key goals in the operation, including:

- › improved G-ratio performance across all material types,
- › improved surface finish quality in fewer passes,



Many applications have precise surface finish requirements to meet strict standards (Picture: Weiler Abrasives)

- › improved versatility with one wheel that was able to grind different materials,
- › elimination of quality issues such as chatter marks and burning.

Real-world results in cold mill grinding

A major European steel producer was trapped in a frustrating cycle. Despite working with industry-leading suppliers, their cold roll mill grinding wheels kept leaving microscopic scratch patterns across expensive rolls. Quality was suffering, costs were climbing and their established vendors had run out of answers.

They consulted with a team of experts from Weiler Abrasives to find solutions. After a complete process audit, as well as examination of the conditions, systems, every procedure, and grinding parameter, the facility switched to the Fortis Mill wheel from Weiler Abrasives. The wheel is engineered specifically for cold roll mill applications. The solution helped them:

- › eliminate comma patterns and scratches.
- › double the wheel life compared to the previous solution.



Proper roll storage can support the roll needs for a productive operation (Picture: Weiler Abrasives)

- › get three times the removal rate (G-ratio), without compromising quality.
- › cut wheel consumption in half, for annual savings of €15,000-20,000.

Optimizing roll grinding results

High-performance roll grinding is achieved by adopting advanced grain technology that balances the competing needs of pro-

ductivity and quality. The best grinding solution is not off-the-shelf; it is a custom-tailored product designed for the specific challenges of the mill. Combine the latest technologies with onsite abrasive expertise and operations can reach their full grinding potential, maximizing G-ratios and material removal rates while protecting roll quality and safety.

■ Weiler Abrasives

WIRE & BAR

Record-breaking rebar rolling mill

Abul Khair Steel Limited (BWRM), a subsidiary of the Abul Khair Group, has started production at its new high-capacity rolling mill, built in Sitakunda, Chattogram, Bangladesh. The new rebar mill is considered being the world's fastest. It has been designed to produce 1.6 million tons of deformed bars annually, meeting the country's growing demand for high-quality construction steel.

This investment reflects Abul Khair Steel's commitment to supporting the growth of Bangladesh's construction sector and local infrastructure. The company's competitive edge has also been enhanced. In addition, they have adopted environmentally responsible manufacturing practices.

Supplied by SMS group, the new rebar mill has been engineered to manufacture deformed bars ranging from 8 to 40 milli-

meters in diameter, the mill achieved a record-breaking production speed of 52.5 meters per second during its initial operational phase, later achieving 55.04 meters per second when producing 2x10-millimeter deformed bars.

SMS delivered the entire high-capacity rolling mill from a single source, equipping it with innovative technologies for sustainable and efficient production. Versatile SMS ECOFlame+ burners, designed for

low NO_x emissions, are installed in the reheating furnace to reduce energy consumption and fossil fuel usage. An Elotherm® induction furnace is strategically positioned at the entry side of the first rolling stand to recover billet heat losses after welding, thereby maximizing thermal efficiency.

Further, the EBROS® endless bar rolling system increases productivity, with a general increase of up to eight percent over a

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The rebar mill achieved a speed of 55.04 meters per second for the production of 2x10-millimeter deformed bars (Picture: SMS group)

By achieving record-breaking speeds and ensuring reliable operations, we are helping Abul Khair Steel serve its customers more effectively.

Bernhard Steenken, CSO, APAC & MEA, SMS group

one-hour production period, an improvement of two percent in material yield, and better plant efficiency overall. This system ensures uninterrupted billet-to-billet welding.

The rolling mill is also equipped with MEERdrive® blocks, providing exceptional operational flexibility and ensuring consistent product quality across all production sizes. Its individual drive technology (one motor per pass) minimizes wear and maintenance, typically reducing roll ring stocks by approximately 60 percent compared to

conventional blocks. Additionally, the HSD® High-Speed Delivery system ensures precise and high-speed delivery of rebar, with 8,000,000 tons produced using HSD® drums requiring no maintenance, thereby ensuring consistent quality and exceptional operational efficiency.

“This project shows SMS group’s expertise in delivering innovative rolling mill technology that combines speed, efficiency, and sustainability. By achieving record-breaking speeds and ensuring reliable operations, we are helping Abul Khair

Steel serve its customers more effectively and contribute to Bangladesh’s infrastructure growth,” Bernhard Steenken, CSO, APAC & MEA, SMS group.

With this suite of technological solutions, Abul Khair Steel has significantly reduced both capital expenditure (CAPEX) and operational expenditure (OPEX), making its production processes more competitive.

■ SMS group

WIRE, BAR AND TUBES

Precision measurement and control in hot and cold steel manufacturing

In today's global steel and metal production industry, achieving maximum productivity and cost-efficiency is essential for delivering superior quality products and maintaining a competitive edge.

Steel manufacturing demands accuracy, efficiency, and reliability at every stage – whether in hot rolling mills or cold finishing lines. Advanced measurement and control solutions help to optimize production, reduce waste, and guarantee consistent quality for a wide range of steel and metal products.

Zumbach's product portfolio ranges across the entire spectrum of steel production, including hot-rolled long products, forg-

ing technology, tube extrusion and welding processes. Zumbach's systems are designed to enhance the productivity and precision of manufacturing tubes, billets, wires, rods, profiles and rebar. Each solution is tailored to meet the unique challenges of hot or cold environments, ensuring accurate dimensional control and surface quality monitoring.

PROFILEMASTER® SPS. It uses high-speed dimension monitoring with 2D laser

triangulation and light section technology, and has integrated surface fault detection. Operates with measuring frequencies of 1 kHz and 2 kHz. It can measure dimensions ranging from 5 mm to 720 mm (for rounds) and 510 mm (for squares). The system is ideal for integration into production lines for rebar, large metal profiles, squares, special shapes (e.g. rail bars) and multistrand products. It improves production efficiency, detects surface defects



Comprehensive range of non-contact measuring and monitoring instruments (Picture: Zumbach Electronic)

early and reduces scrap while improving product quality.

PROFILEMASTER® PMM. Outer dimension monitoring using 2D laser triangulation and light section technology. It can measure dimensions ranging from 2 mm to 144 mm for rounds and 102 mm for squares, with a resolution of 0.001 mm. This high-precision dimensional measurement solution is ideal for cold finishing lines, particularly those with smaller cold profiles, flat products and non-round shapes.

STEELMASTER SMS and SMR. The SMS version offers a static gauge with two to six measuring axes for full-length diameter checks. It provides a standard measuring frequency of 1 kHz, with the option of increasing this to 2 kHz.

The SMR version offers a rotational measuring gauge with up to three axes for rapid profile measurement. With a measuring frequency of 2 kHz, the SMR captures 10 complete profiles per second, making it ideal for short product lengths too.

Both systems can be used in the manufacture of billets and round bars, as well as in continuous casting. The SMR is also capable of measuring rebar and basic profiles, including hexagonal, L-shaped, flat and square ones. Both systems ensure dimensional consistency after finishing or calibration.

ECOGAUGE. A robust laser system designed for use in extreme conditions, ideal for applications such as billets, round bars and continuous casting of hot and cold products. It cost-effectively measures diameter and ovality, offering high-accuracy, stable measurements.

BENDCHECK. An in-line laser device with three to five stations for measuring the straightness of cold bars, rods and tubes. It provides real-time monitoring of bending to improve product integrity.

ODAC®. Laser gauges for measuring the diameter and ovality of cold, round products, particularly on peeling, grinding, rolling, wire drawing and slitting lines. They

provide enhanced oscillating support and have an optional DVW/DVO for measuring minimum and maximum dimensions.

LSV. This laser device is used to measure the length and line speed of billets, round bars and continuous casting strands. It provides accurate length control for continuous production.

These solutions not only ensure dimensional accuracy but also integrate seamlessly into modern production lines, delivering real-time data for process optimization. With thousands of installations worldwide Zumbach Electronic continues to set the pace for measurement and control in steel production, helping manufacturers achieve superior quality, reduce waste, and stay competitive in today's demanding markets.

| *Zumbach Electronic*

CUTOFF SAW UPGRADE

Primetals Technologies and Nakata Mfg. have successfully completed the automation and drives system upgrade for a 12-inch Nakata flying cutoff machine at a major tubular products supplier in the southeastern United States. The project included design, installation, and commissioning of a new solution featuring an advanced Siemens programmable logic controller (PLC) with safety functions and drives. The plant can now operate the machine more safely and efficiently while increasing its operational lifetime.

The new solution, developed by Nakata Mfg., features user-friendly flexible programming and enhanced machine safety. The PLC safety functionality includes the application of access control devices on safety gates around the machine perimeter, and the implementation of functional safety via the PROFIsafe protocol over the PROFINET communication network with Siemens Sinamics drives.



Upgraded automation and drives system for a 12-inch Nakata flying cutoff machine (Picture: Primetals Technologies)

Nakata's automation also utilizes edge computing, allowing each application to run on a virtualized system that can be seamlessly migrated to any other platform. This approach also allows easier access for support compared to traditional server/client applications. As an additional benefit, edge computing provides a framework for future system expansion, including cloud computing, data analytics, and artificial intelligence.

Through a cooperation agreement, Nakata supplied the proprietary information required to engineer the new system,

while Primetals Technologies contributed local expertise to ensure the engineering and equipment met U.S. standards. Primetals Technologies will also provide ongoing maintenance service support from its nearby location in Alpharetta, Georgia. The project was completed as scheduled with the machine returning to successful operation and production.

| *Primetals Technologies*

FORTESCUE'S GREEN METAL PROJECT UNDER CONSTRUCTION

Fortescue Ltd's Christmas Creek Green Metal Project in the Pilbara, Western Australia, will see the production of high-purity green metal using renewable energy for hydrogen-based reduction and smelting technologies from Metso.

Installation of Metso equipment commenced in September 2025. The project incorporates Metso's Circored™ fluidized

bed direct reduction process and electric DRI smelting furnace to support low-emission steelmaking. The Circored™ process uses solely green hydrogen instead of fossil reductants. This flexible fine ore-based fluid bed process, which does not need pelletization, produces highly metalized direct reduced iron (DRI) that can directly be used as feed material in electric smelting furnaces for carbon-free steel-

making, using low-grade iron feed. This initial project will have an annual output of over 1,500 t, with studies underway to support development of a commercial-scale facility.

■ *Metso*

HENGYANG VALIN EXPANDS SEAMLESS PIPE PROJECT

Two saw lines to serve large-diameter seamless pipe production in China

Hengyang Valin has awarded Danieli the supply of cutting lines for billets and tubes to be integrated into the world's largest seamless pipe mill, currently under construction in China. The new

lines – one for upstream billet cutting with two machines and one for tube layer cutting – will be connected to the FQM™ retained mandrel mill production line, designed for annual production of over 800,000 tons of seamless pipes from 323.8 to 610 mm in diameter and wall thicknesses up to 65 mm.

Each cutting line will feature SDM vertical sawing units, cut-to-length systems, hydraulic stations, and automatic crop discharge. Automation and process control will be provided by Danieli Automation.

Startup is scheduled for 2026.

■ *Danieli*

A PARADIGM SHIFT IN THE FINISHING PROCESS FOR LONG ROLLED PRODUCTS

The most significant movement in today's industry is the incorporation of artificial intelligence to optimize processes and improve product quality. This gives rise to trends such as big data management and sensor integration (IoT), to name a few.

This creates new challenges for professionals in the steel sector. The most important being the need to ask the right questions. In other words, to be very clear about the objective being pursued and the information that is needed. Users do not seek an endless array of sensors managed independently; they want meaningful insights delivered with minimal complexity.

The finishing area of rolling mills is an ideal place to obtain intelligent informa-

tion, but this is only possible with logical integration of sensors and actuators, and not with the high dispersion and lack of integration that currently exists.

To solve this issue, a new generation of equipment has emerged in recent years and is now a reality. This equipment is multi-purpose, capable of detecting defects in real time, measuring product dimensions and even obtaining material properties such as hardness. Following the acquisition of the information, artificial intelligence can then be applied to improve products and services in ways never seen before.

A great example of this new generation of equipment is the new inspection system EDDYeyes PRO from ISEND, which, in a very short space, allows the use of

different technologies, the best for each purpose, in a precise, reliable and real-time manner. This system uses eddy current sensors for defect detection and mass flow measurement, artificial vision tools for instant identification and classification of defects, a high-performance profilometer and, in future versions, a metallographic property meter. The system captures the essence of the transition towards a digital rolling mill providing the users with accurate, real-time data of multiple variables. This data can be connected to other elements of the rolling mill, L2 or MES for example ultimately enabling users to build a "digital twin" of the rolling mill.

■ *ISEND*

WELDED TUBES PRODUCTION

Sughd Metal reaches full welded tubes production with OTO tube mills

With its recent tube manufacturing investments in the region, the company illustrates how advanced equipment and process know-how can accelerate industrial development in Central Asia

The Sughd Metal plant has established itself as a high-performance production hub in Central Asia's metal industry, achieving its designed output capacity with the support of advanced tube mill technology supplied by Fives. Located in the Bobodjon-Gafurov district of Tajikistan, the facility integrates metal cutting, processing, tube manufacturing and packaging operations, with an annual production target of 100,000 tonnes of welded steel tubes.

This target has now been reached and exceeded, driven by the continuous operation of two OTO tube mills engineered by Fives. The two tube mill lines have been designed to produce high-quality tubes for construction and automotive applications that meet the following specifications.

OTO tube mill I.

- › Tube diameter 19.0 – 80.0 mm
- › Tube thickness 0.6 – 3.0 mm

OTO tube mill II.

- › Tube diameter 35.0 – 127.0 mm
- › Tube thickness 0.8 – 4.0 mm

Since start-up, the OTO mills have demonstrated high availability and stable performance, ensuring superior tube quality that goes beyond traditional standards. "We are proud to see our technology contributing to Sughd Metal's growth. The mills' reliability and performance have opened new market opportunities for our partner, reinforcing their position on the international stage," says Luca Cagnolati, Sales and Marketing Director at Fives OTO, a Fives' subsidiary specialized in tube mill technology.

The successful deployment of the OTO mills reflects Fives' approach to delivering turnkey tube mill solutions combining mechanical design, process expertise and



General view of the tube production facility at Sughd Metal (Picture: Fives)



Entry section of the OTO tube mill with strip accumulator (Picture: Fives)

long-term operational reliability. For Sughd Metal, the collaboration has contributed to faster market penetration and expanded commercial opportunities across Central Asia.

As the plant continues to consolidate its production footprint, the project stands

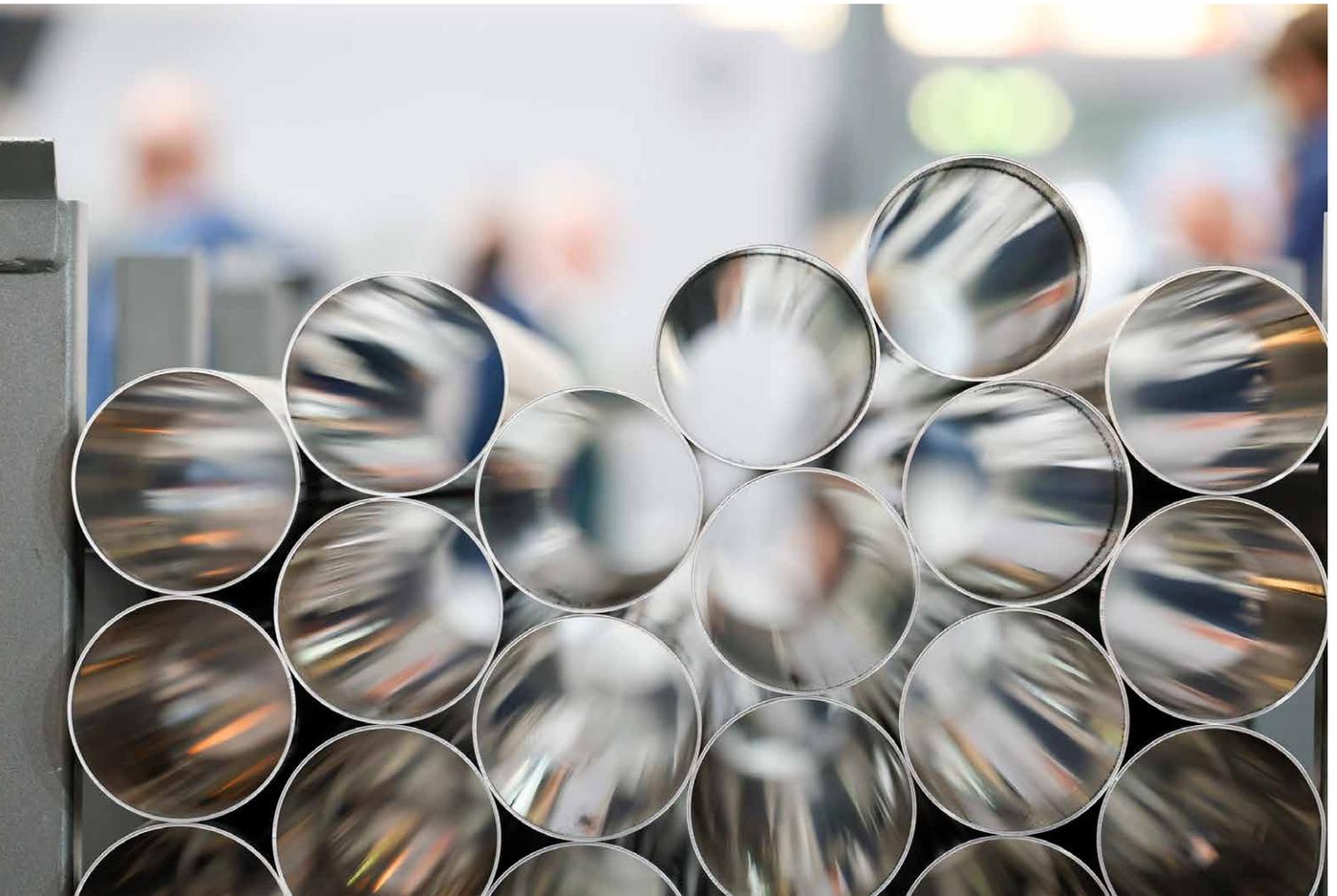
as a reference for tube manufacturing investments in the region, illustrating how advanced equipment and process know-how can accelerate industrial development.

▮ Fives

TUBES

Prospects for the welded tubes market

According to a new, comprehensive report from The Insight Partners, the global welded steel tubes market is experiencing healthy growth due to growing demand for these tubes in the construction, oil and gas, and automotive sectors worldwide.



The global market for welded steel tubes is expected to register a CAGR of 5.6% during 2025–2031

(Picture from the archives: Messe Düsseldorf / ctillmann)

The welded steel tubes market size is projected to reach US\$ 274.25 billion by 2031 from US\$ 191.23 billion in 2024. The market is expected to register a CAGR of 5.6% during 2025–2031.

Regional and country details

From a geographical aspect, Asia Pacific led the market with a substantial revenue share, followed by Europe and North

America, respectively. Asia Pacific is expected to register the highest CAGR during the forecast period as well.

Asia Pacific. The region accounted for the largest market share in 2023, owing to the increasing demand for welded steel tubes in the growing construction sector. The Asia Pacific construction sector was valued at US\$ 4.4 trillion in 2023, representing 46% of the global construction sector

output. The construction sector in Asia Pacific is driven by the increasing private and public sector investments in infrastructure developments. Further, according to the Asian Development Bank (ADB), the infrastructure development sector investment in Asia Pacific will reach US\$ 1.7 trillion per year by 2030.

North America. The continent's welded steel tubes market is segmented into the

US, Canada, and Mexico. In terms of revenue, in 2023, the US held the largest share of the market. Construction is one of the exponentially growing industries in North America. Government bodies in the US, Canada, and Mexico are investing substantially in developing residential and non-residential infrastructures, including housing units, airports, hospitals, hotels, office buildings, and universities.

Based on insights from the Association of General Contractors of America (AGC), the US construction sector is growing with an investment of US\$ 1400 billion annually. The Bipartisan Infrastructure Act approved US\$ 1.2 trillion in funding in the United States. According to an Associated Builders and Contractors analysis of data by the US Census Bureau, national total construction spending increased by 4.6% in September 2024 on a year-on-year basis compared to September 2023. With the burgeoning number of infrastructural projects, the demand for welded steel pipes used in engineering fields, such as building structures, steel frames, and supports, is also growing.

Europe. The welded steel tube market in Europe is growing at a moderate pace owing to the increasing investment in the construction sector with government initiatives and funding. The EU Infrastructure Development Fund approved US\$ 828.8 billion in Europe.

In the European Union, under the Cohesion Policy, the construction sector investments are likely to reach almost US\$ 80.54 billion during 2021–2027. These investments are targeted to improve energy efficiency and construction sector growth. The construction sector was responsible for 9% of the European Union's GDP in 2023. According to the European Commission, the total investment in the construction sector reached US\$ 1,760.54 billion in 2023 and is growing at a rapid pace.

South America. Countries such as Brazil, Argentina, and Chile are making significant

investments in infrastructure projects, including roads, bridges, and urban development. The oil and gas sector, particularly in countries such as Brazil, Peru, and Chile, also plays a vital role in fueling welded steel tube market growth. Governments of countries in South America are investing heavily in infrastructure projects to enhance transportation networks, including roads, railways, bridges, and ports. Large-scale public projects also include energy production (especially renewable energy) and water treatment facilities, which drive the demand for welded steel tubes.

Growing investment in the construction sector

The construction industry is growing rapidly in several countries around the world, with increasing government investment and an increase in demand for various construction sector projects. The largest construction companies in the world are located in countries such as the United States, China, Mexico, Brazil, and India.

In construction, welded steel pipes are used in plumbing, heating, cooling, and fire sprinkler systems. They are corrosion-resistant, durable, high strength, and can withstand high pressures and temperatures. Welded steel pipes are also utilized in the construction of buildings, bridges, and other large construction infrastructure projects. They provide strong, load-bearing elements in structural frames, roofs, walls, and floors.

Steel tubes are commonly used as columns and beams in commercial infrastructure and industrial buildings. High strength welded steel offers greater strength and the ability to withstand both compression and tension, making it ideal for vertical and horizontal loading applications.

Importance of welded steel tubes in the oil & gas industry

The oil and gas industry depend heavily on steel pipes due to their high tensile

strength, durability, and corrosion resistance, that are critical in the challenging environments of oil exploration, production, and transportation.

Welded steel pipes play a vital role in the oil and gas industry, particularly in the construction of pipelines that transport crude oil, natural gas, and other liquids over long distances. These pipes must withstand high internal pressures, mechanical stresses, and corrosive environments. Welded pipes made of high-quality carbon or alloy steel are designed to effectively meet these demanding requirements. They can withstand the extreme pressures and environmental conditions found in both onshore and subsea pipelines.

There is increasing investment in the construction and expansion of oil and gas pipelines around the world. The report mentions numerous examples of pipeline projects.

In addition to the importance of the construction and oil and gas sectors, the automotive sector is also experiencing an increase in demand for welded tubes. The automotive industry has grown notably, particularly in major countries such as the United States, China, Germany, India, and Japan. Overall, the report provides an in-depth analysis of market trends, key players, and future opportunities.

The Insight Partners

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MARKET FORECAST

Global coil coatings market worth US\$5.51 billion by 2030

According to a recent study, the global market for coil coatings is estimated to grow from USD 4.72 billion in 2025 to USD 5.51 billion by 2030, at a CAGR of 3.12% between 2025 and 2030.

Coil coatings are experiencing high demand due to their crucial contribution to improved durability, corrosion resistance, and appearance, as well as meeting strict environmental and performance requirements across sectors. Such coatings are extensively applied across building & construction, appliances, automotive & transportation, and HVAC uses to deliver increased protection against weathering, abrasion, and chemical exposure. Moreover, to ensure the preservation of product life and reduce maintenance costs, coil coatings have a positive effect on performance and improve energy efficiency in end-use applications. Further, increased awareness of sustainability concerns, regulatory mandates for environmentally friendly solutions, and the increased use of lightweight materials in innovative product designs are driving the adoption of next-generation coil coating technologies. In response, manufacturers increasingly are emphasizing low-VOC, chromate-free, and environmentally responsible formulations, setting the coil coatings market for long-term growth.

Polyester is projected to register the highest growth rate

In terms of value, the polyester segment is forecast to achieve the highest CAGR in the global coil coatings market due to its cost-saving, durability, and versatility to suit a wide range of end-use industries, such as construction, appliances, and automobiles. Its balance between performance and price makes it the favored option for high-volume usage, and thus it is the market's prime growth driver in the forecast period. Increased energy-efficient building demand and greater use of resin in consumer products further support its uptake, while ongoing improvements in resin formulations are improving weather resistance and color retention, and thus widening its scope of application.

Aluminium segment is growing

Aluminium was the second-largest application segment in the global market for coil coatings in 2024, backed by its extensive application in building facades, roofing, transportation, and consumer products. Its lighter weight, corrosion resistance, and capability to provide premium aesthetics position it as a viable substitute for coated steel, fueling consistent demand in both the construction and industrial markets. Increasing investments in infrastructure, rising uptake in green building solutions, and mounting demand for high-performance, durable finishes are also driving the segment's growth.

An advanced coil coating line is also capable of applying special coatings such as woodgrain effects

(Picture from the archives: SMS group)

Europe still an important market for coil coatings

Europe accounted for the third-largest share in the coil coatings market, in terms of value, in 2024. This dominance is fueled by its well-established construction, automotive, appliance, and other sectors. The demand for high-performance and environmentally friendly coatings, along with stringent environmental laws and energy-efficiency mandates, remains instrumental in driving the market forward. Moreover, increased investment in infrastructure updates and the region's emphasis on environmentally friendly, low-VOC formulations also solidify Europe's presence in the international market.

Key Players. The key players profiled in the report include Akzo Nobel N.V. (Netherlands), Axalta Coating Systems Ltd. (US), PPG Industries, Inc. (US), The Sherwin-Williams Company (US), Beckers Group (Germany), Nippon Paint Holdings Co., Ltd (Japan), Kansai Paint Co., Ltd. (Japan), KCC Corporation (South Korea), JSW Paints (India), and Yung Chi Paint & Varnish Manufacturing Co., Ltd. (Taiwan) and others.

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DRIVING HIGHER QUALITY AND PROCESS STABILITY

Strip straightening technology at ArcelorMittal's Steel Service Centre Poland

At ArcelorMittal SSC Europe, the Polish team in Kraków completed a project involving the modernization of the cut-to-length line from FIMI, aimed at developing a hybrid straightening technology that represents a world-class innovation

The modernization of the Fimi line in Kraków was a key element of ArcelorMittal SSC Poland's development strategy. The investment, worth over 6.85 million Euro (PLN 29 million), covered a comprehensive scope of activities: purchase of a modern stretcher straightening machine, foundation works, reconstruction of electrical infrastructure, installation of advanced measurement systems, and full integration with the existing production line. This enabled the implementation of an innovative sheet straightening technology that significantly improves flatness

and material stability, reduces internal stress, and minimizes the risk of deformation after thermal cutting. Supported by EU funds, the project not only increased process efficiency and reduced complaint costs but also strengthened SSC Poland's competitiveness in the European market, paving the way for production in the highest quality classes – Laser Classic and Laser Premium. After implementation, the Steel Service Centres can supply approximately 150,000 tons/year of sheets with enhanced performance parameters to the European market, including for railcar,

automotive, and construction machinery manufacturers.

The project was evaluated by an independent certification body, TÜV, which confirmed the repeatability and stability of the process – essential for further technology development and safety across the entire supply chain.

High-performance results across multiple steel grades

As part of the project, sheets made of S355JR, S355MC, S500MC, and S700MC



A 30-metre stretch leveller (stretcher) has been installed on the Fimi cut-to-length line (Picture: SSC Europe)



Stretching straightening technology significantly reduces the risk of unpredictable deformations after cutting (Picture: SSC Europe)

The stretching straightening technology allows us to achieve the highest standards of flatness and stability for sheets used in thermal cutting.

Barbara Mazur, Head of Quality SSC Poland

steel, with thicknesses of 3 - 10 mm, were tested after straightening and thermal cutting, checking for deformations, resistance to distortion, and compliance with Laser Classic and Laser Premium classes. The results clearly confirmed the high effectiveness of the stretching straightening technology – 92% of samples achieved the highest Laser Premium standard, and all met Laser Classic requirements.

“For us, the key was to prove that the process can operate consistently, regardless of material grade and thickness. We achieved what matters most to a process engineer: stability and predictability of parameters,” emphasizes Monika Witkowska-Stochel, Process Engineer and Project Leader.

The independent assessment by TÜV confirmed the stability and repeatability of the process, opening the way for full implementation in serial production. “Thanks to this technology, we can guarantee Laser class requirements at a constant level. This is an important step toward improving quality and SSC Poland’s

competitiveness,” adds Michał Stachura, Plant Manager in Kraków.

From a quality perspective, the key point is that the stretching straightening technology significantly reduces the risk of unpredictable deformations after thermal cutting. This gives the company not only better compliance with requirements but also greater process reliability which ultimately translates into stability across the entire supply chain for customers.

“The obtained certificate confirmed that the stretching straightening technology allows us to achieve the highest standards of flatness and stability for sheets used in thermal cutting. This is an important step toward further improving the quality of our products and increasing process safety for customers,” notes Barbara Mazur, Head of Quality SSC Poland.

The project also brings tangible benefits for customers: reduced risk of deformation after cutting, fewer complaints, and greater reliability of production processes.

“Every investment that improves material parameters and process stability

strengthens our relationships with customers. The project results show how technology can truly support industry in moving toward greater precision and modernity,” summarizes Monika Witkowska-Stochel.

SSC Poland invites companies seeking high sheet flatness and reliable further processing and distribution to cooperate with them. The team offers assistance in selecting the right solutions and delivering materials that meet the requirements of the most demanding production processes.

A comprehensive modernization

The modernization of the Fimi line in Kraków was a key element of ArcelorMittal SSC Poland’s development strategy, implemented under a program co-financed by the National Centre for Research and Development with funds from the European Union. The research was also carried out in cooperation with the Institute of Ferrous Metallurgy (IMZ), which acted as a subcontractor for critical R&D tasks, bringing extensive experience in European and national projects related to the subject of this initiative.

Thanks to this investment, a key stage in preparing sheets for thermal cutting has been significantly improved, and material quality has increased substantially. The straightening process and accompanying research now allow ArcelorMittal Steel Service Centre Poland to deliver sheets with tighter flatness tolerances and reduced internal stresses, which directly impact work safety, efficiency, and downstream savings for customers.

■ *ArcelorMittal Europe*

INTERNATIONAL MERGER

Worthington Steel to acquire Kloeckner

Through this complementary combination, Worthington Steel aims to diversify its products, end markets, and geographic presence in North America and Europe. Kloeckner & Co. is to continue under its current management. No site closures or layoffs are planned.

In mid-January, Worthington Steel announced that it had entered into a business combination agreement with Kloeckner & Co. Listed in Germany, Kloeckner & Co is a leading service center and metal processing company with approximately 110 locations across North America and Europe. It has broad product capabilities including carbon flat-roll steel (sheet and plate), electrical steel, aluminum, stainless steel and long products. Over the past few years, Kloeckner has been transitioning toward high value-added processing and fabrication via M&A and strategic growth initiatives.

Worthington Steel explained the proposed acquisition represents a strong strategic fit and advances the company's growth strategy by strengthening its position in the North American metal processing sector. It will create a larger and more diversified metals processing leader with an enhanced product offering and broader geographic reach. Once completed, the transaction will position Worthington Steel

as the second largest steel service center company in North America by revenue.

"Through the acquisition of Kloeckner & Co, we will enhance our offerings in high-value metals processing and create meaningful value for our shareholders, deeper relationships with our customers and suppliers, and growth opportunities for our employees," said Worthington Steel president and CEO Geoff Gilmore. "By integrating Kloeckner's capabilities in North America and Europe, we will be stronger together, building a more resilient business and driving shareholder value."

"This transaction is the right step for Kloeckner & Co," said Guido Kerkhoff, CEO of Kloeckner & Co. "Kloeckner will be even better positioned to execute our strategic plan, serve our customers and support the long-term success of our people."

Both parties consider the offer price of €11.00 per share to be attractive, fair and reasonable. Worthington Steel published the offer document on February 5, 2026

for an all-cash acquisition implemented via a voluntary tender offer in Germany. The acceptance period ends on March 12, 2026.

Worthington Steel has identified approximately US\$150 million in anticipated annual cost, operational, and commercial process synergies primarily in North America. Synergies are expected to be fully realized by the end of Worthington Steel's fiscal year 2028.

The transaction is expected to triple Worthington Steel's scale in terms of sales representing approximately US\$9.5 billion of combined revenue while maintaining margins above 7%, including synergies. Furthermore, the acquisition is expected to be substantially accretive to Worthington Steel's earnings per share within the first full year of operation.

Transaction execution

Meanwhile, the Management and Supervisory Boards of Kloeckner & Co have welcomed the offer from Worthington Steel and recommended that Kloeckner & Co shareholders accept it and tender their shares. All members of the Management Board plan to tender their shares into the offer. According to the bidder's notification, SWOCTEM GmbH, Kloeckner & Co's largest shareholder, has tendered its entire 41.53% stake in the company into the offer.

Completion of the offer will be subject to a minimum acceptance threshold of 65% of Kloeckner's issued share capital at the end of the acceptance period and regulatory approvals. Worthington Steel expects to finance the transaction via a combination of cash on hand and new debt financing.

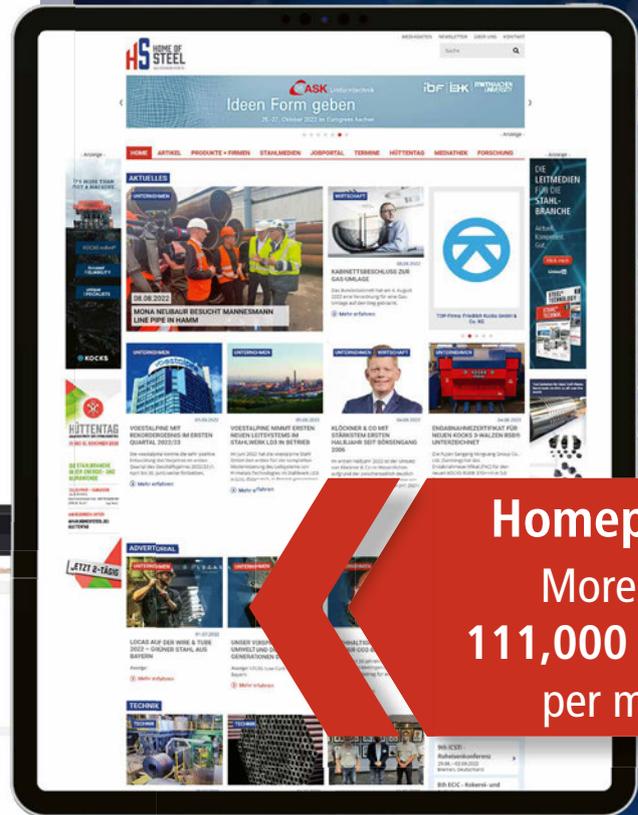
■ *Worthington Steel / Kloeckner & Co*



Kloeckner & Co is a leading producer-independent steel and metal processor and leading service center company with a distribution and service network of around 110 warehouse and processing locations (Picture: Kloeckner & Co.)

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COMBILIFT RAISES CHARITY FUNDS IN CELEBRATION OF 100,000TH FORKLIFT



Combilift CEO Martin McVicar and Kareen Farrell, winner of the ‘Golden Forklift’
(Picture: Combilift)

To celebrate a remarkable milestone, Irish forklift manufacturer Combilift ran a very special competition, offering one lucky winner the chance to own the 100,000th truck delivered.

The goal was to raise valuable funds to help UNICEF’s Children’s Emergency Fund (CEF) deliver urgent aid to children affected by conflict and natural disasters. With the help of stakeholders, the company raised a 56,500 Euros, to which Com-

bilift added a further 43,500 Euros, bringing the total amount donated to 100,000 Euros – providing life-saving support wherever and whenever it is needed most.

The winning ticket was purchased by Kareen Farrell, who travelled to Combilift’s headquarters in Monaghan to receive the one-of-a-kind 100,000th Combi-CBE “Golden Forklift.”

█ *Combilift*

KADANT TO ACQUIRE VOESTALPINE BÖHLER PROFIL

Kadant Inc., based in Westford, Massachusetts, USA, has entered into a definitive agreement to acquire voestalpine Böhler Profil. The acquisition is expected to close in the first quarter of 2026, subject to regulatory approvals.

With over 150 years of experience, voestalpine Böhler Profil specializes in near-net-shape rolling, delivering high-quality, special profiles with complex geometries for the most demanding industrial applications. voestalpine Böhler Profil is head-

quartered in Austria with approximately 150 employees and a revenue of 51.5 million Euros for the fiscal year ended March 31, 2025. The new owner of voestalpine Böhler Profil will retain the company’s workforce.

“During the reorganization of voestalpine’s High Performance Metals Division it became clear that, due to its structure, sales channels, and processes, voestalpine Böhler Profil was no longer a strategic key business in the voestalpine group. Kadant Inc. had repeatedly expressed

interest in the company,” says Herbert Eibensteiner, CEO of voestalpine AG.

Kadant Inc. is a global supplier of technologies and engineered systems that drive Sustainable Industrial Processing®. voestalpine Böhler Profil will become part of Kadant’s Industrial Processing segment upon closing, at which time its name will be changed to Kadant Profil GmbH & Co KG.

█ *voestalpine / Kadant*

OVAKO ANNOUNCES PARTNERSHIP WITH DISCUS THROWER DANIEL STÅHL

Ovako has entered a three-year collaboration with world-renowned discus thrower Daniel Ståhl. Together, they will highlight the power of Nordic steel, the value of perseverance, and the importance of striving for excellence.

The partnership reflects the shared values that define both Daniel’s athletic achievements and Ovako’s commitment to excellence, long-term development and continuous improvement. Through this collaboration, Ovako will follow Daniel

Ståhl’s training journey, share stories about performance and innovation, and activate joint initiatives across internal and external channels. Daniel will also participate in selected customer events and internal activities, bringing inspiration, engagement and a unique contribution to Ovako’s culture.

█ *Ovako*

Daniel Ståhl at Ovako
(Picture: Jonas Billberg)



SSAB AND RHEINMETALL SIGN FOSSIL-FREE STEEL AGREEMENT

SSAB and German defence and technology company Rheinmetall have signed a letter of intent for the supply of fossil-free steel.

The agreement between Rheinmetall and SSAB is paving the way for a new generation of sustainable products. The collaboration will begin with deliveries of SSAB Zero™, with volumes increasing over time.

Future deliveries will also include SSAB Fossil-free™ steel produced using hydrogen reduced sponge iron.

█ *SSAB / Rheinmetall*

ARCELORMITTAL SHIPS FIRST RAILS FOR OMAN-UAE RAILWAY PROJECT

ArcelorMittal Rails and Special Sections has dispatched the first shipment of rails for the Oman-United Arab Emirates (UAE) railway project, marking a significant milestone in the development of the region's first cross-border rail network.

The initial shipment, produced at ArcelorMittal's state-of-the-art facility in Gijón,

Spain, was made up of 3,800 60E2 profile bars in the R260 grade, each measuring 25 m in length, with a total weight of 5,700 t. Further deliveries will follow in 2026, bringing the overall supply to 33,100 t. Designed to withstand heavy freight and passenger loads of up to 32.4 t per axle, these rails ensure exceptional performance and long-term reliability, tai-

lored to the geographical and environmental conditions of the project. The 238 km railway will connect Sohar with the UAE's national rail network, strengthening commercial exchange and fostering social cohesion between economic and industrial zones in both countries.

■ *ArcelorMittal*

TIBNOR TO ACQUIRE OVAKO METALS

Ovako has signed an agreement to sell Ovako Metals Oy, processor and distributor of steel and metals for the engineering, process and construction industries mainly in Finland, to Tibnor.

Tibnor will take over Ovako Metals' distribution operations in Finland, including its product portfolio, logistics and warehousing activities, processing services and local sales organizations.



"This step reflects our strategy to focus on our core business while ensuring that the distribution operations in Finland con-

Marcus Hedblom, President & CEO of Ovako, and Fredrik Haglund, CEO of Tibnor, signing the contract

(Picture: Ovako)

tinue to develop under Tibnor's leadership," says Marcus Hedblom, President & CEO of Ovako. The acquisition is subject to regulatory competition approval in Finland.

■ *Tibnor / Ovako*

THYSSENKRUPP MATERIALS SERVICES AND STEGRA AGREE ON NON-PRIME STEEL SUPPLY

thyssenkrupp Materials Processing Europe, part of thyssenkrupp Materials Services, has signed a multi-year agreement with Stegra for the delivery of steel from Stegra's site in Boden, Sweden.

Under the agreement, thyssenkrupp Materials Processing Europe will acquire

significant amounts of non-prime steel from Stegra. First deliveries are expected to start in 2027.

The new steel production facility that Stegra is currently building in Boden will produce steel with green hydrogen from renewable electricity. Although Stegra's Boden site uses only hydrogen and renew-

able electricity, the non-prime steel purchased by thyssenkrupp Materials Services will not be considered to be CO₂-reduced as Stegra will sell the respective certificates to other customers.

■ *Stegra / thyssenkrupp Materials Services*

VOESTALPINE TO SUPPLY HIGH BAY WAREHOUSING SYSTEMS TO TURKEY

voestalpine has received its largest order to date in high bay warehousing systems. The order includes the construction of a high bay warehouse and an automated small parts warehouse for a leading Turkish logistics service provider in Istanbul.

The warehouse (almost 40 m high, 220 m long and 86 m wide) will be part of a modern logistics hub for sporting goods being built in Istanbul. The warehouse system will be designed for fully automated processes. Completion is scheduled for April 2027.

Another major project is currently being implemented for a retail company in the UK. The new facility – a fully automated pallet racking system – reaches a height of 30 m and comprises thousands of storage locations for palletized and small goods. One technological highlight is the integration of a so-called mezzanine construction, which has enabled the customer to significantly reduce the amount of steel and materials required while maintaining structural stability.

The successful implementation of these international projects goes hand in hand with the targeted further development of global activities in the area of storage systems. In the 2024/25 business year, a specially designed production site was built in Kentucky, USA, to meet the growing demand in the United States. This location will be expanded with additional systems in the current business year.

■ *voestalpine*



Stornorrfors dam on the Ume River in Sweden (Picture: Vattenfall)

STEEL APPLICATIONS FOR RENEWABLE-POWER STATIONS

Reducing the climate footprint of energy

Electricity companies are increasingly interested in using sustainably produced steel to construct renewable-power stations. Since SSAB has achieved the IEA threshold for near-zero CO₂e emissions steel, the material will be used in GE Vernova's onshore wind towers. Furthermore, SSAB will supply the steel for the world's first fossil-free dam gate, which is to be deployed at a huge hydropower station in Sweden.

SSAB is committed to eliminating fossil carbon dioxide emissions from its own operations, while also supporting its customers in achieving their own sustainability goals. Bearing this in mind, SSAB Zero™ steel is designed for use in a variety of end applications, including in the energy sector. The steel is produced with hydrogen-reduced iron from HYBRIT® technology.

Thresholds of International Energy Agency and First Movers Coalition

SSAB Zero™ steel is the world's first near-zero CO₂e steel to meet the International Energy Agency (IEA) near-zero steel and First Movers Coalition (FMC) thresholds. The announcement of this milestone was made at GE Vernova's Annual Wind

Supplier Conference on September 23, 2025, where the companies said that the product will be available for use in GE Vernova onshore wind towers.

"GE Vernova and SSAB have a shared focus on innovation. This verified near-zero emissions steel supports our mission to electrify to thrive and decarbonize the world," said Guy Lynch, VP of Wind Sourcing

and Sustainability for GE Vernova. "Together, our companies are providing for a more sustainable and secure energy economy."

SSAB Zero steel will be deployed in GE Vernova wind towers across the United States. SSAB Zero steel is commercially available and is produced in the USA at SSAB's Montpelier, Iowa facility using recycled scrap metal, fossil-free electricity, biocoal and renewable natural gas. By adding hydrogen-reduced iron to the SSAB Zero manufacturing process, this steel now meets the requirements of near-zero steel, set out by the IEA.

This achievement by SSAB marks a critical milestone in the reduction of emissions from steel production and demonstrates GE Vernova's commitment to decarbonizing their value chain. Both SSAB and GE Vernova are members of the First Movers Coalition. Utilization of SSAB Zero steel contributes to the fulfilment of GE Vernova's FMC steel purchasing commitment.

The world's first fossil-free steel dam gate for a hydropower station

Vattenfall and SSAB have signed a new agreement for the delivery of 120 tonnes of fossil-free steel for what will be the world's first fossil-free dam gate. The dam gate will be the largest steel component ever produced with near-zero fossil carbon dioxide emissions in the iron production. It will be installed in Vattenfall's Stornorrfor's hydropower station on the Ume River in 2028. This is the largest hydropower station in Sweden in terms of annual production, with an installed capacity of 603 MW.

The dam hatch will be 21 metres wide and 11 metres high, produced from 120 tonnes of fossil-free steel. The fossil-free steel is a concept delivery from SSAB and is produced with sponge iron from Hybrit's pilot plant in Luleå, jointly owned by Vattenfall, SSAB and LKAB. The Hybrit tech-

nology virtually eliminates carbon dioxide emissions in iron production. In the current project, the climate footprint is estimated to be reduced by about 200 tonnes of carbon dioxide.

The order for the dam gate, which will be replaced as part of a planned maintenance, is in line with Vattenfall's strategy for the fossil-free transition and is a logical next step in the deepened collaboration between Vattenfall and SSAB from 2023.

SSAB's fossil-free steel is a proof-of-concept for the emission-free materials of the future, demonstrating that it is possible to manufacture large, complex components with a radically reduced climate footprint. The steel structure, measuring 21 meters wide and 11 meters high, will serve as a tangible example of how SSAB's fossil-free steel can be used in large-scale infrastructure projects.

■ *SSAB / Vattenfall*

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STEEL APPLICATIONS IN ADVANCED MOBILITY

Canada's first ultra-high-speed ground transportation project

TransPod, Algoma Steel and Supreme Steel are working together to advance the Edmonton–Calgary tube transportation project test track. This collaboration establishes Canadian steel production as a key part of a nation-building project and positions Alberta as a leader in transformational infrastructure.

TransPod Inc. is a Canadian company developing ultra-high-speed ground transportation through its TransPod Line infrastructure system and FluxJet vehicle. The company has announced a strategic collaboration with Algoma Steel and Supreme Steel to advance the test track of the Edmonton–Calgary tube transportation project.

Strategic collaboration

The FluxJet is TransPod's all-electric vehicle designed to travel at more than 1,000 km per hour on the TransPod Line, a future network system with stations in major cities and high-frequency departures to make travel fast, affordable, and safe. Through the strategic collaboration with Algoma Steel and Supreme Steel TransPod secures the materials and manufacturing capacity required to transform how Canadian businesses, workers, and communities move and collaborate.

With Algoma's ongoing transformation to electric arc furnace (EAF) steelmaking, the company will be positioned to supply low-carbon intensity steel for the project. This strengthens the sustainability profile of the TransPod development, aligning the project with Canada's climate objectives and further enhancing its appeal as a next-generation transportation system that combines innovation with responsible, low-emission supply chains.

Under this framework, Algoma Steel will supply between 1.5 and 2 million tonnes of Canadian-made steel during the construction period. Additionally, Supreme Steel will manufacture the precision steel guideways that will carry FluxJet vehicles.

The collaboration will create long-term domestic demand for 1.5–2 million tonnes of Canadian-made steel. Thus it will



TransPod steel partnership secures the materials and manufacturing capacity required to build the TransPod test track (Picture: CNW Group / TransPod Inc)

reduce reliance on volatile U.S. export markets and tariffs and build advanced Canadian expertise in precision manufacturing for large-scale infrastructure.

During construction, the Edmonton–Calgary TransPod Line is expected to create up to 140,000 jobs in Alberta and contribute approximately 19.2 billion CAD to the region's GDP. Once operational, it will offer passenger fares that are around 44% lower than the current cost of air travel along the same route, while reducing CO₂ emissions by 636,000 tonnes per year.

Project status and timeline

The project has been designated by the Government of Alberta as one of the province's major projects – large-scale infrastructure developments expected to attract investment and strengthen long-term competitiveness.

The project aligns with federal priorities. Preliminary work has already been

completed. While progress is paused pending the Government of Alberta's transportation master plan, TransPod and its partners are fully prepared to resume development as soon as the Province releases its strategy.

The Edmonton–Calgary TransPod Line is ready to continue advancing toward key milestones once provincial approval is granted:

- › construction permits, environmental approvals, and land acquisition,
- › test track construction, high-speed testing, and certification,
- › construction of the full inter-city line,
- › first passenger service.

TransPod was founded in 2015 with the goal is to redefine commercial transportation between major cities in developed and emerging markets. TransPod Inc. is headquartered in Toronto, Canada.

▮ *TransPod Inc*

The next issue of **STAHL + TECHNIK** in German will be out in April covering the following topics:

STEEL TECHNOLOGY

Aperam melt shop in Genk benefits from a major upgrade

Aperam, a global player in stainless, electrical, alloys, and specialty steel, has successfully completed an extensive upgrade project at the Genk works in Belgium. The existing argon-oxygen decarburization (AOD) converter was revamped and an additional new 130-ton AOD converter was installed. The meltshop now features an extensive automation solution ensuring improved process control and plant availability. This investment has significantly contributed to an increased production flexibility. Advanced dedusting and waste heat recovery systems have drastically reduced emissions.

Innovative cooling technology for hot rolling of long products

The water boxes of the BlueBox series from KOCKS were developed as a pioneering solution for temperature-controlled cooling at wire rod and bar mills. Designed as single strand or multi-strand water boxes with reduced space requirements, the new generation of cooling lines includes a range of innovative features that are embedded in an overall concept for temperature-controlled cooling of hot rolled steel bars and coil products.

Retrofit of heating-hood burners in batch annealing furnaces

In batch annealing furnaces, the heating hood has a major say in fuel consumption, emissions, and day-to-day reliability. As operators are under growing pressure to push efficiency, cutting both ongoing fuel costs and CO₂ emissions, the most straightforward lever is higher combustion-air preheating. The Tenova THSQ burner family has been developed as a low-NO_x solution for heating hoods, also suitable for retrofit. The paper outlines the motivation, the burner concept, field results from a German customer site, and a practical approach for retrofit projects.

CIRCULAR STEEL ECONOMY

Collaboration between VOLVO Cars and Salzgitter AG as a practical example of circular economy

Volvo Cars and Salzgitter AG expanded their long-standing cooperation last year and launched a closed loop partnership. Salzgitter Group already supplies the Volvo Cars body parts plant in Olofström in southern Sweden with high-quality flat steels. Now considerable quantities of steel scrap from the stamping processes at the Swedish plant are returning directly to the production of Salzgitter Flachstahl GmbH. The project, which has been named ScanLoop, is an example of executing on circular economy to deliver business and sustainability benefits.

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For currently valid prices see Price List No. 2, effective January 1st 2023.

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Schlavenhorst 10
46395 Bocholt, Germany

STEEL + TECHNOLOGY is printed with the highest environmental standards.

Terms of Delivery

STEEL + TECHNOLOGY is published four times a year and is available on subscription. The price for a one-year subscription for print and e-paper is 69.00 € incl. shipment (VAT not included). Subscriptions will be renewed for the next 12 months, unless DVS Media GmbH receives a written cancellation 6 weeks prior expiration. VAT calculated in accordance with EC legislation. Single copy: 35.00 € excl. shipment

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ISSN (Print) 2628-3859

ISSN (Online) 2628-3867

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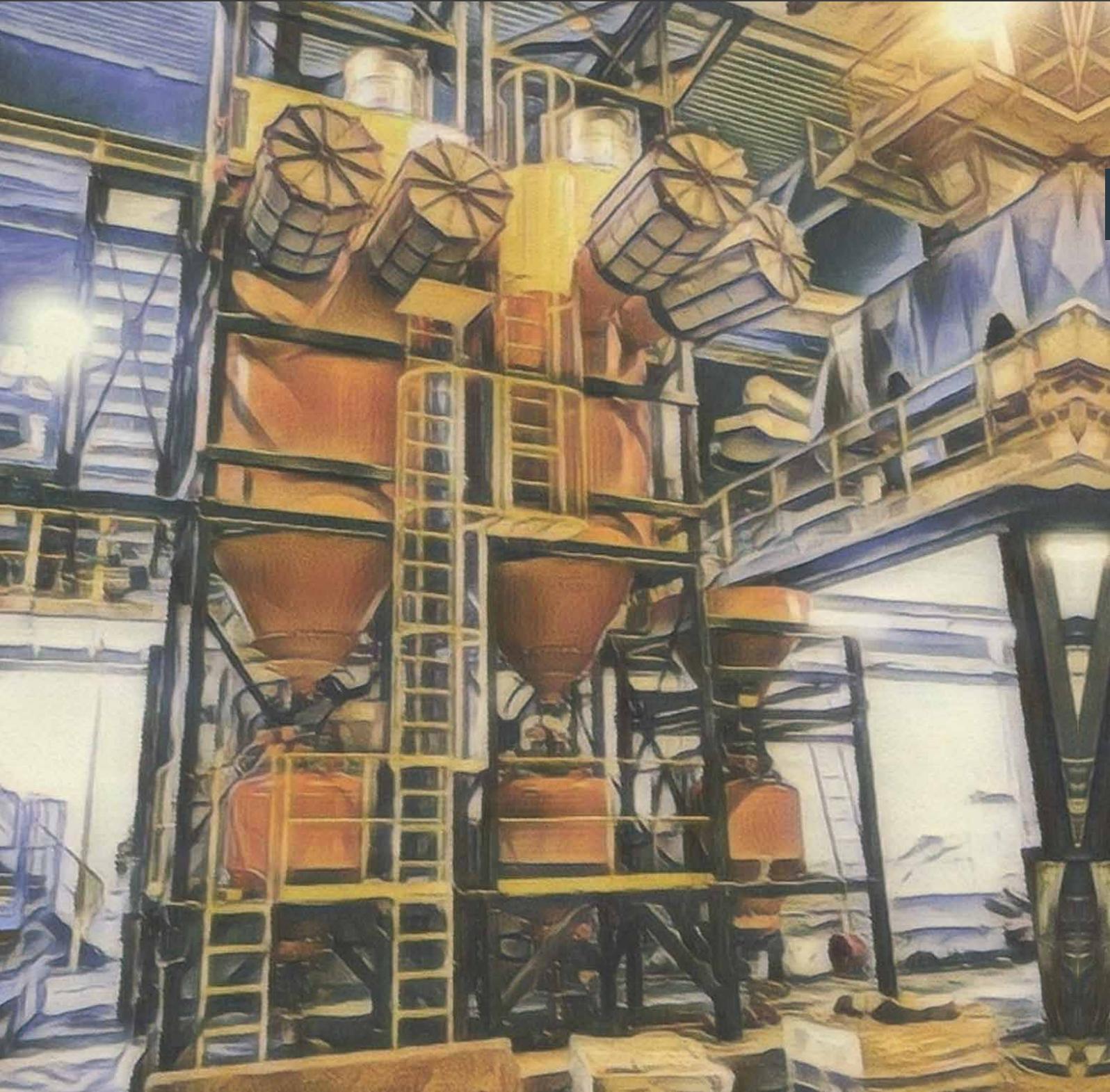
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