

## AUMUND Conveying Technology for Green Steel in Duisburg

*Two Bucket Apron Conveyors for transporting hot DRI will be supplied by AUMUND Fördertechnik for the ThyssenKrupp Steel direct reduction plant at Duisburg in Germany. In the hydrogen-based “green steel” production process the two Hot Material Conveyors will be the direct connection between the direct reduction plant and the smelting furnace. Delivery of the steel works with the AUMUND conveying equipment is planned for Autumn 2024.*

Both Conveyors will be installed beneath the shaft furnace of the direct reduction, and their function is to feed the smelting furnace directly with hot DRI. The direct reduction shaft furnace designed by Midrex Technologies, USA, is the core technology of the plant. “The order for ThyssenKrupp Steel is not only a very significant project for us, but will play a leading role in the transformation of green steel in Germany,” says Matthias Moritz, Sales Director Metallurgy, AUMUND Fördertechnik. He continues, “Thanks to a large extent to the success of our joint projects with MIDREX, we are very proud of our proven experience in conveying technology for direct reduction plants.”

### Functionality of the Conveyors

The patented AUMUND Hot Material Conveyors are a closed system for continuous material feed. They transport the DRI in an inert atmosphere which prevents it coming into contact with the air, so that avoidance of re-oxidation is assured.

One of the advantages of this mechanical enclosed system is its significantly lower energy consumption in comparison with pneumatic conveying concepts. Unlike with pneumatic conveying, on a mechanical conveyor there is no relative movement between the equipment and the transported material on the conveying route. This prevents any additional fines being generated during transportation.

The AUMUND equipment is automated. Sensors monitor the temperature and the condition of the material on the Conveyor. The concept of the transport system is that inert gas protects the conveyed material from contact with outside air, and dust remains inside the system.

### Flexibly constructed

This Conveying System, which has been established with proven success for more than 20 years, is adapted to the required capacities and to the situation on the installation site. Temperatures up to 1,000°C and angle of inclination up to 60 degrees are among the design features. The largest lifting height so far achieved with a Bucket Apron Conveyor for hot direct reduced iron is 110 m, and the maximum conveying capacity is 480 tph. “Lifting height and conveying capacity of the Conveyor are correlating characteristics, and limited by the strength of the chains,” says Frank Reddemann, Senior Manager in the Metallurgy Division. He continues, “Our chains have tensile strengths up to 3,000 kN per chain. AUMUND develops the chains for the Conveying Systems itself.”

### Experience in plants all over the world

The patented AUMUND Conveyor Technology has proved itself in more than 700 plants in the iron and steel industry internationally. As an example, the first hydrogen-based plant of the Swedish company H2 Green Steel will be equipped with this AUMUND technology, and is set to produce green steel from 2025. As well the Hot Material Conveyor, two Cooling Conveyors will also operate here. What little water they consume can even be reintroduced into the cycle. The generated heat can also be recovered and re-used. All AUMUND equipment already operates according to the ideas behind producing green steel; less toxic waste, conservation of resources and re-use.

**About the AUMUND Group**

The AUMUND Group is one of the experts in the field of bulk handling. Their technically mature, innovative solutions can be seamlessly integrated into almost any customer and site situation. The AUMUND equipment for the safe transport of hot, abrasive material or for optimized cooling of the transported material, the sophisticated storage and blending bed technology as well as mobile loading and unloading systems make the companies recognized market leaders in demanding industries. At the same time, this makes the AUMUND companies reliable partners for plant manufacturers and plant operators - be it for the construction of new plants, conversions or even modernizations. Three production sites with engineering and R&D capacities, an in-house spare parts production, two service companies, four warehouse locations, five service centers and 20 sales locations ensure plant availability for customers worldwide - while at the same time conserving resources.

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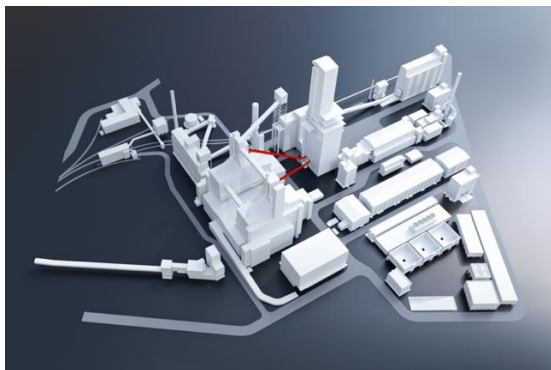
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Planned DRI plant in Duisburg with AUMUND conveyor technology (in red)

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AUMUND conveyor system for DRI in the Middle East - in continuous operation for more than 15 years