

A thyssenkrupp anniversary in Duisburg: the casting-rolling mill turns 20

A milestone in steel production proves to be an investment in the future

In early April 1999, thyssenkrupp commissioned the first casting-rolling mill (CRM) in an integrated steel plant at their Duisburg location. The event was a milestone in flat steel production. In the CRM, liquid crude steel is poured and milled directly in a continuous process. Today, the mill is operated by 230 workers, working in five shifts. They produce so many tons of “hot strip” that this steel could theoretically be used to produce about 12,000 medium-sized cars per day. The approximately 300 million euros that went into the project have proven to be a forward-thinking and worthy investment. The new mills are used to produce top quality steel for the automotive and household appliance industries, among others.

First casting-rolling mill in a steel plant

At 450 meters long, the casting-rolling mill (CRM) is a central feature of the Duisburg site. From liquid crude steel, it produces what is known as “hot strip” – coiled sheet steel that is rolled in a heated state. This hot strip goes through several further processing and refining stages and is then used to produce parts for such things as cars, furniture and electric motors. “Our CRM was constructed as the very first of its kind in an integrated steel plant”, proudly explains Dr. Carmen Ostwald, who has been managing the casting-rolling mill since 2016. “The CRM allows us to significantly speed up manufacturing processes, reducing energy consumption and CO₂ by nearly two thirds, since the slabs poured from the crude steel do not need to be cooled and heated back up again for the rolling operation. This method also produces higher quality steel”.

Two steps in one continuous process

When the CRM was put into operation in 1999 after a two-year construction period, the technology was still new. This one, continuous steel production process now replaced what had always been two separate operations: casting the liquid crude steel into blocks as semi-finished material for steel plates and strip (slabs) and rolling. The development of casting-rolling mills is considered a technological leap forward in flat steel production. “When they made this investment, our predecessors were gambling on a brand-new technology – and they made the right decision”, says Dr. Heribert Fischer, Technical Director at thyssenkrupp Steel. “When we combined two process steps in one plant 20 years ago, we were investing in the steel quality of today. Now, we can offer our customers top quality for their products”. During the continuous process, the slabs are maintained at a constant rolling temperature of 1,150 degrees. Thanks to this even temperature distribution, the strength and elongation properties of the steel are much more constant than those of steel produced by conventional methods. At the same time, the steel plates can be rolled very thin – down to 0.8 millimetres or about the thickness of 8 sheets of paper. Today, the plant is still being used to produce new steel qualities, greatly contributing to the success of thyssenkrupp Steel’s customers in the automotive, electrical and construction industries and securing many jobs.

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