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## HKM orders two new ladle heating stations from Primetals Technologies

- **Fully automated plants ready for Industry 4.0**
- **Copper-plated roofs to lengthen service life and assure the quality of the melt**
- **LiquiRob robots to provide the highest safety standard for temperature measurement and unmanned sample taking**
- **New plants reduce operating costs**
- **Treatment capacity of 5.6 million metric tons of liquid steel per annum**

Hüttenwerke Krupp Mannesmann GmbH (HKM), a German steel producer, has awarded Primetals Technologies an order to supply two new ladle heating stations for the LD basic oxygen furnace plant at its Duisburg-Huckingen location. The heating stations are designed for a fully automated annual treatment capacity of 5.6 million metric tons of liquid steel, and so are ready for Industry 4.0. Copper-plated roofs are used to lengthen the service life and assure the quality of the melt. To enhance safety at work, LiquiRob systems handle tasks that formerly had to be performed manually, such as temperature measurement and sample taking. The new furnaces help to substantially reduce operating costs in the steel works. In addition, the phosphorous content of the melts can be reduced, and higher proportions of alloying elements processed. Commissioning is scheduled for the fall of 2019.

Hüttenwerke Krupp Mannesmann GmbH (HKM) runs an integrated iron and steel works at its Duisburg Huckingen site. The works is divided into the subsections harbor, sinter plant, coking plant, blast furnace plant with two blast furnaces, and an LD basic oxygen furnace plant with two converters. The steel works also has VD (vacuum degassing) plants, and two continuous round-steel casters and three continuous slab casters in the casting section. The HKM plants produce more than 1,800 different grades of steel. HKM is one of the largest iron and steel works in Germany. It has a share of around twelve percent of the raw steel produced in Germany, and has a production capacity of 5.6 million metric tons of continuously cast slabs and rounds per annum. The BOF trunnion ring for converter no. 2 was also

supplied by Primetals Technologies, and was brought into operation in the middle of November 2016. Primetals Technologies had previously modernized continuous slab caster no. 3 in 2015.

Primetals Technologies will engineer, supply and install two 285 metric ton ladle heating stations for the basic oxygen furnace plant. These plants are designed as electric arc heating stations, and are intended to be able to treat all the melts produced by the two converters without exception. The required treatment capacity is therefore 5.6 million metric tons per annum, and depends on the ladle heating stations having very high availability. This is ensured by high-quality, copper-plated roofs and a powerful high-current system. Energy is supplied from the on-site power plant, which uses the surplus quantities of blast furnace gas and coke-oven gas to generate electricity. Both furnaces are equipped with a fully automated manipulator for temperature measurement and sampling. The inert gas systems are connected automatically. The main tasks of the heating stations are to reduce the consumption of refractory material in the converter by lowering the tapping temperature by up to 50 °C, setting lower phosphorous contents, producing melts with higher proportions of alloying elements, optionally increasing the use of pig iron or scrap for steel production, optimizing the use of lime, and reducing the amount of slag. The scope of delivery also includes the furnace transformers for the electrical supply to the heating stations, as well as the electrical, automation and control equipment. The location of the ladle heating stations directly in the production line behind the converters and the extremely limited space available in this area of the steel works require a complex layout with a special portal construction. Primetals Technologies will be responsible not only for the process equipment but also for installation and commissioning.



Ladle heating station from Primetals Technologies.

This press release and a press photo are available at

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**Primetals Technologies, Limited** headquartered in London, United Kingdom is a worldwide leading engineering, plant-building and lifecycle services partner for the metals industry. The company offers a complete technology, product and service portfolio that includes integrated electrics, automation and environmental solutions. This covers every step of the iron and steel production chain, extending from the raw materials to the finished product – in addition to the latest rolling solutions for the nonferrous metals sector. Primetals Technologies is a joint venture of Mitsubishi Heavy Industries (MHI) and Siemens. Mitsubishi-Hitachi Metals Machinery (MHMM) - an MHI consolidated group company with equity participation by Hitachi, Ltd. and the IHI Corporation - holds a 51% stake and Siemens a 49% stake in the joint venture. The company employs around 7,000 employees worldwide. Further information is available on the Internet at [www.primetals.com](http://www.primetals.com).