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Primetals Technologies receives Plant Acceptance for the rail and section mill supplied to ARBZ

- **First rail production facility in Kazakhstan**
- **Injector Dual-phase Rail Hardening (Idrha+) is the most advanced technology available for inline hardening of heavy-duty rails with lengths up to 120 meters**
- **Produced rails are pre-certified per GOST standard and also exported to the Russian Federation and CIS countries**

Primetals Technologies was granted the Plant Acceptance Certificate for the rail and section mill supplied to Aktobe Rail and Section Works LLP (ARBZ), Kazakhstan. The new rolling mill was installed in the town of Aktobe under the auspices of Kazakhstan Temir Zholy JSC, the national railway company, and is the first and only rail manufacturing plant in Kazakhstan. In order to produce rails with a high contact fatigue and wearing resistance, the rolling mill was equipped with the Injector Dual-phase Rail Hardening (Idrha+) system. This system is the most advanced technology available for inline hardening of heavy-duty rails with lengths up to 120 m. The rails produced are pre-certified per GOST standard and, beside saturating the domestic market, are exported to the Russian Federation and CIS countries

Contracted to Primetals Technologies in 2013, the combined rail and section mill in Aktobe is able to produce around 200,000 metric tons of rails per annum in lengths of up to 120 meters, as well as 230,000 metric tons of angles, U and I-sections. The rails meet the fast growing demand for railway equipment in Kazakhstan and other CIS states. Primetals Technologies supplied the complete rolling line, including a walking-beam furnace with a capacity of 90 metric tons per hour, a 2-Hi reversing blooming stand with a maximum working roll centerline of 1,050 millimeters, and a reversing universal mill train consisting of four Red Ring stands arranged in universal-edging-universal-universal configuration.

The "Injector Dual-phase Rail Hardening" (Idrha+) is the most advanced technology available for the inline hardening of heavy-duty rails with length up to 120 meters. This system, jointly developed by Primetals Technologies and the technical center, Centro Sviluppo Materiali SpA RINA-CSM, enables

rails to be produced with improved resistance to contact fatigue and wear. Through a very flexible and reliable process, the rail product performances are optimized according to the different grades of steel. The design of Idrha+ is based on thermomechanical and metallurgical process models, and validated by experimental trials in pilot plants. The system allows the simulation of various cooling strategies for different grades of rail steel prior to the start of production. This enables run-up times to be reduced, nominal capacity to be attained more quickly and relevant performance parameters to be fulfilled consistently and reliably.

The scope of supply also included a 125 meter cooling bed, equipment for a horizontal-vertical straightening, cutting saws, and machines for bundling and handling the final products. The plant features also an inline, fully-equipped non-destructive testing station to assure quality. A test laboratory and a workshop for roll maintenance was also built. In addition to the mechanical equipment for the rolling line, Primetals Technologies supplied the basic and process automation, all the main and auxiliary drives, the medium-voltage supply and distribution systems, as well as an uninterruptible power supply. The fluid systems for the rolling mill and a water treatment plant were also be part of the scope of supply. Primetals Technologies handled the engineering of its own equipment as well as that provided by the customer, and was also responsible for supervising installation and commissioning.

After obtaining the national certification, ARBZ entered the multi-year certification process according to the Russian standards GOST, and a pre-certification was obtained in November 2016 after a rigorous six-month testing protocol at the All Russian Railway Research Institute (VNIIZhT). Outside Moscow, Russia, VNIIZhT operates a railway loop where the rails under testing are subjected to a variety of operating conditions (train composition, load distribution, time, acceleration, speed, braking, gradient, etc.). The conditions of the rails are examined during and after the test, so that a thorough investigation of all the occurrences of wear and damage may be completed. Beside saturating the domestic market, ARBZ rails are exported to Russian Federation and CIS states.

The current rail production is 100% Idrha-treated, and it consists of high-strength pearlitic rails P65 DT350 for high-speed applications.

idRH+a is a registered trademark of Primetals Technologies.



idRHa+ inline rail head-hardening system from Primetals Technologies at the ARBZ rolling mill in Aktobe, Kazakhstan.

This press release and a press photo are available at www.primetals.com/press/

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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.