PRIMETALS TECHNOLOGIES

Press

London, October 22, 2020

Primetals Technologies receives final acceptance for revamping No.2 Continuous Pickling Line for Kakogawa Works of Kobe Steel, Ltd.

- **Improves pickling of high tensile strength strips for automobiles**
- **Saves energy and reduces acid solution consumption with iBox and acid concentration control**

In June 2020, Primetals Technologies received the final acceptance certificate (FAC) for revamping No. 2 continuous pickling line for Kakogawa Works of Kobe Steel, Ltd. An iBox replaced the existing pickling tank, and it demonstrated the improved productivity of high-strength strips for automobiles, saving of energy, and reduction of acid solution consumption in operation after the revamping work completion.

In the revamping work, a polypropylene iBox superior in chemical resistance and in retaining heat replaced the existing shallow tank consisting of acid-resistant bricks and steel plates, and acid solution storage tanks were added with incidental fittings.

The iBox has immersion boxes inside through which strips travel guided by rolls and skids. This pickling process uses the strong shear flow generated by the narrow and rectangular channel the immersion boxes form to accelerate the acid-liquid reaction without an electric pump required to circulate the acid solution in conventional jet pickling tanks.

This is a continuous pickling line that pickles hot-rolled strips of 1.8 – 6 mm in thickness and 600 – 1,650 mm in width, at the maximum central speed of 240 m/min, and a maximum throughput of about 300 t/h.

Kobe Steel, Ltd. is a global company that operates on a worldwide scale under the group's unified international brand of “KOBELCO.” It supplies high-value-added steel products, primarily long and flat products for automobiles, home appliances, ships, buildings, and bridge cables in Japan and overseas. It is also involved in a wide range of other businesses, including other metal materials than steel, e.g.

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aluminum, titanium, copper and such, industrial machinery, e.g. compressors and isostatic pressurizers, construction machinery, and engineering.

Primetals Technologies proposed its iBox to revamp the No. 2 continuous pickling plant that had been operating at Kakogawa Steel Works since 1981 and was awarded the order in April 2018. Mitsubishi Heavy Industries, Ltd. Hiroshima Shipyard and Machinery Works, the predecessor and now the parent company of Primetals Technologies Japan (PTJ), delivered its first pickling plant to Nippon Steel Sheet Company Osaka Works (currently, Nippon Steel Corporation Setouchi Works (Osaka)) in 1954. This is the 98th after unrelenting development and improvement since then. The 100th was shipped from PTJ Hiroshima in June to make the 100th pickling line or 28th iBox in fall in 2020.

iBox is a registered trademark of Primetals Technologies, Ltd. in certain countries.

Pickling plant revamped with polypropylene iBox (July 13, 2020)

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

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Primetals Technologies, Limited, headquartered in London, United Kingdom, is a pioneer and world leader in the fields of engineering, plant building, and the provision of lifecycle services for the metals industry. The company offers a complete technology, product, and services portfolio that includes integrated electrics and automation, digitalization, and environmental solutions. This covers every step of the iron and steel production chain—from the raw materials to the finished product—and includes the latest rolling solutions for the nonferrous metals sector. Primetals Technologies is a joint venture of Mitsubishi Heavy Industries and partners, with around 7,000 employees worldwide. To learn more about Primetals Technologies, visit the company website www.primetals.com.

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