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## Tosyali-Toyo starts sheet production with cold rolling complex supplied by Primetals Technologies

- **Produces cold rolled tin-plated, hot-dip galvanized and painted sheets**
- **Marks expansion of Tosyali into the flat product sector**
- **First application of the patented iBox pickling process in the Europe/MENA region**

A cold rolling complex supplied by Primetals Technologies has commenced operations at the production site of Turkish steel producer Tosyali-Toyo Celik A.Ş. in the city of Osmaniye. The cold rolling complex consists of a coupled pickling line-tandem cold mill (PL-TCM), a tin-plated steel-sheet continuous annealing line (Tin-CAL) and a temper double-cold-reduction (Temper/ DCR) mill. It is designed to produce cold rolled tin-plated, hot-dip galvanized and painted sheets, mainly for export markets as well as for the domestic market. This marks the expansion of Tosyali into the flat product sector. The PL-TCM features the first application of the patented iBox pickling process in the Europe/MENA region. Primetals Technologies had received the order in late 2014.

Tosyali-Toyo was established in April, 2012. It is a 51%/49% joint venture of Turkish flats, longs and pipe producer Tosyali Holdings and the Japanese steel producer Toyo Kohan. For the new production complex in Osmaniye, Primetals Technologies was selected as the main contractor for the supply of PL-TCM, Tin-CAL and DCR, including the technological mechanical equipment, the electrical equipment and automation systems, as well as the field engineering, supervision of installation and commissioning, and training for operating personnel.

The PL-TCM features the patented iBox pickling process and a 5-stand 6-high Universal Crown Control Mill (UCM) for all stands. The stands are driven by an all-digital AC drive system and the high-response hydraulic gauge control (HGC) system Hyrop-F. A new state-of-the-art automatic gauge control (AGC) system is installed to ensure highly precise rolled strip thicknesses. With this equipment, the PL-TCM is designed to roll one million metric tons of high-quality, cold-rolled steel strip and black plate per year.

Furthermore, the technology increases production efficiency and improves production yield and quality,

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and thereby obtains a higher return on investment. The PL-TCM processes strip with an entry gauge of 1.6 mm to 4.0 mm. Exit strip gauge is between 0.16 mm and 2.0 mm at widths ranging from 700 mm to 1,300 mm. Maximum line speed at the mill exit reaches 1,440 m/min. Grades processed include ULC (IF), HSLA and DD11-DD14 (DIN EN 10111). The maximum coil weight is 30 metric tons.

The Tin-CAL has an annual production capacity of 240,000 metric tons and further processes strip produced by the PL-TCM with a maximum strip thickness of 0.8 mm. The vertical-type annealing furnace consists of pre-heating (PHS), heating (HS), soaking (SS), first-cooling (1CS), second-cooling (2CS) and third-cooling (3CS) sections, all developed by Primetals Technologies. The annealing furnace is designed to flexibly produce T1 through T5. A compact-type tension leveler is installed after the cleaning section in order to correct material strip-shape deviations. This is important to ensure smooth and reliable operation in the annealing furnace, even at a maximum line speed of 500 m/min.

The temper DCR has an annual production capacity of 303,000 metric tons at a maximum line speed of 1,500 m/min. It consists of a two-stand UCM and is designed to perform double-cold reduction as well as two-stand temper rolling. In the DCR process, the annealed strip, after reduction in a tandem cold mill, is reduce rolled on the No. 1 stand and temper rolled on the No. 2 stand. This process imparts the strip with its prescribed mechanical strength. In two-stand temper rolling, the strip is temper rolled in both stands 1 and 2 to the prescribed elongation ratios to obtain the desired mechanical characteristics. Like the Tin-CAL, it processes strip produced by the PL-TCM. Entry strip gauges of 0.16 mm to 1.2 mm are used for temper-rolling, gauges from 0.18 mm to 0.4 mm for DCR-processed strip. DCR strip exit gauges range between 0.12 mm to 0.3 mm. Steel grades include T1 to T5 and DR6 to DR10.



6-high Universal Crown Control Mill (UCM) from Primetals Technologies at complex Tosyali-Toyo Celik A.Ş. in the city of Osmaniye, Turkey.

This press release and a press photo are available at

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