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## Newly Implemented MULPIC System Enables Processing of Higher Strength Steel Grades

- **12-meter long MULPIC line was supplied to replace existing laminar cooling system at a plate Steckel mill in India to achieve higher cooling rates**
- **Enables mill to increase product quality and expand pipe-grade product portfolio**

Recently, Primetals Technologies signed the final acceptance certificate (FAC) with a steel producer in India following the successful installation and commissioning of a new Multi-Purpose Interrupted Cooling (MULPIC) system for a plate Steckel mill line. The technology offers an 'in-line' plate cooling system capable of reaching the desired cooling rate and temperature drops necessary for plates of various product dimensions.

This advancement has expanded the mill's product range to include higher grades used for pipeline applications, making them suitable for the most demanding markets, such as the oil and gas industry.

### Improvements in Product Quality

The MULPIC technology is an in-line and integrated plate cooling system that is offered as a complete mechatronics package, combining the mechanical equipment with smart process control technology. The system comprises high precision valves with large flow range. It also features high water nozzle density and actuators with advanced flow control valves as well as crown and edge masking control functions. The MULPIC technology has the capability for both accelerated cooling and direct quench cooling across a wide range of product thicknesses. This ensures superior cooling performance and maintains uniform, controlled temperatures along the length and width of the plate, resulting in improved flatness and uniform mechanical properties. This, in turn, is leading to improved product quality.

### Expanded Product Offering

The upgrade of the existing laminar cooling system with MULPIC technology enabled the plate Steckel mill to achieve higher flow density and cooling rates. This cooling upgrade allowed the plate mill to process higher-strength steel grades such as X70, accommodating plate thicknesses between 10 and 30 millimeters and widths of up to 4,500 millimeters with excellent temperature and flatness uniformity.

This advanced cooling methodology rapidly removed heat, providing metallurgists with increased flexibility when designing new alloys for entering new markets. Additionally, it reduces operating costs through lean alloying.

## The Online Plate Cooling Technology: MULPIC

Primetals Technologies designed and supplied the entire in-line plate cooling system comprising two cooling banks with each bank measuring six meters in length. Each bank consists of six top and six bottom headers, and the height of each header can be adjusted between 500 and 1200 millimeters to ensure ultra-precise cooling of every single plate. The top and bottom headers are made of stainless steel to prevent corrosion, guaranteeing a long lifetime. The MULPIC system was also designed to optimize the mill's overall carbon emissions.



MULPIC - world-leading plate cooling technology from Primetals Technologies.

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