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## Primetals Technologies Pioneers Industrial Cooling System Optimization

- **New test facility enables innovative visualization of the hot strand during the continuous casting cooling process**
- **Flexible setup allows testing of any type of industrial cooling system**

Primetals Technologies is advancing industrial cooling system optimization with a new type of heat-transfer test facility. This solution delivers deep insights into the behavior of the hot strand during the cooling process, supporting the enhancement of cooling systems in continuous casting and other industrial applications where cooling is critical.

### Replicating Industrial Cooling Scenarios

In any cooling system, effective cooling depends on both the distribution and volume of water. A better understanding of machine and system performance enables targeted optimization.

The test facility is designed to replicate real industrial cooling scenarios. During testing, a measuring plate equipped with temperature probes moves beneath the nozzles, allowing tests at any angle to monitor temperature reduction, i.e. the cooling effect. Tests can be conducted at various speeds, and the equipment can be fully rotated to simulate any cooling position along the continuous casting machine. The nozzle configuration, including water distribution, nozzle type and position, can be adjusted. Caster rolls can also be used to mimic actual casting conditions.

### Optimizing Cooling Performance

The measuring plate features dozens of measuring points, which are automatically recorded and analyzed using a cooling model to create a heat transfer map. This data is used to optimize nozzle design and arrangement and to further refine Primetals Technologies' Dynacs 3D online cooling model. This model calculates the full 3D temperature profile at any position along the strand, enabling precise secondary cooling adjustments.

### Broad Range of Applications

By replicating any cooling system configuration, the test facility allows the fine-tuning of new continuous casters and the optimization of existing machines, as well as other systems that relies on industrial cooling. Located in Linz, Austria, the test facility is operated by Primetals Technologies automation experts and is available for both Primetals Technologies casters and those supplied by other parties. The facility also welcomes scientific and R&D institutions.

This project is supported by the COMET-K2 Center “Center for Symbiotic Mechatronics” of the Linz Center of Mechatronics (LCM), funded by the Austrian federal government and the federal state of Upper Austria.

**Key facts: Primetals Technologies’ Cooling Optimization Test Facility**

**Nozzles:** Two fully independent systems

**Orientation:** Any angle in the caster, inner and outer bow, from bender to horizontal

**Casting speed:** 0 to 10 meters per minute

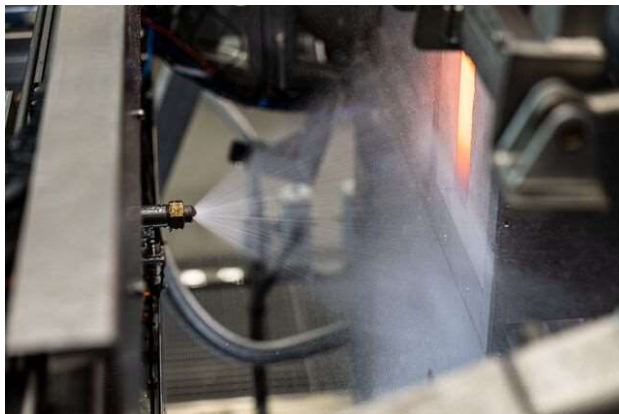
**Water Flow rate:** 0.5 to 75 liters per minute

**Water Pressure:** 0 to 25 bar

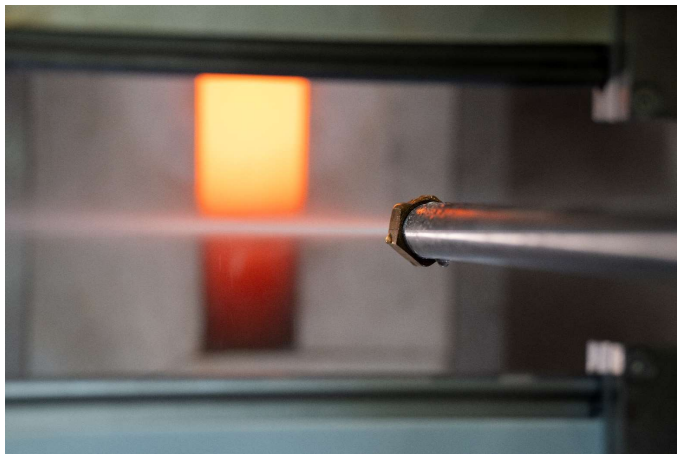
**Temperature:** Up to 1250°C



The new heat transfer test facility from Primetals Technologies allows for optimization of industrial cooling systems.



Measuring plate equipped with a temperature probe.



The equipment can rotate fully to simulate every cooling position.

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