

Upgrade to the latest roll cooling technology with just 12 hours' downtime: Evertz Hydrotechnik (EHT) converts the selective cooling system of a PLTCM plant to CoolectroPro®

On behalf of the SMS group, Evertz Hydrotechnik (EHT) has successfully upgraded the existing selective roll cooling system of a 5-stand tandem mill with upstream pickling line (PLTCM) which produces advanced high-strength steels (AHSS). In order to ensure a highly efficient process in such a productive system, EHT implemented the latest, purely electrical cooling technology CoolectroPro® for flatness control. The conversion of the selective cooling system was carried out by EHT within a planned maintenance shutdown of just 12 hours.

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BACKGROUND: PROVEN TECHNOLOGY THROUGH THE AGES

The original cooling system was delivered to the customer in 2009 and successfully commissioned in 2011. The system was in use for over a decade until an initial inspection was carried out by EHT in 2021.

Based on the findings of this initial inspection, a first maintenance was agreed and carried

out shortly after, together with SMS group and the end customer. The visible benefits of this measure in turn convinced the operator, so that a further service was carried out in 2023. In addition to systematic decentralized maintenance via a rolling system, EHT brought the possibility of a very interesting technological advancement to the table: the upgrade to the EHSd, CoolectroPro® system (Figure 1). →

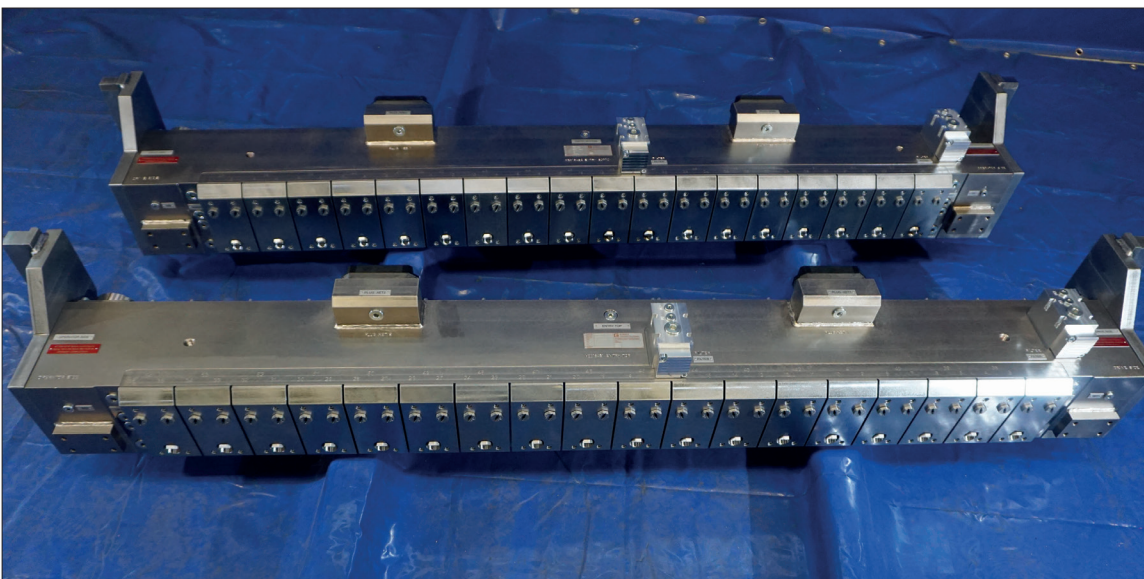


Fig 1 The EHT Spray bars DN16 PN10; EHSd CoolectroPro® design

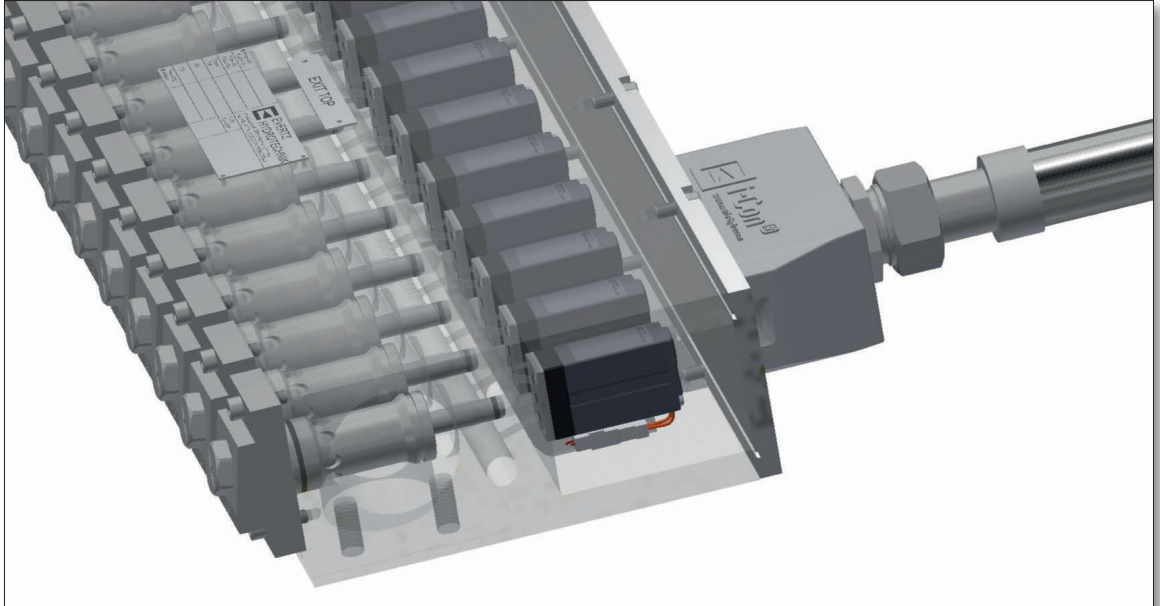


Fig 2 The EHT CoolectroPro®

EFFICIENT CONVERSION WITH MAXIMUM COMPATIBILITY

The system, which is 100% compatible with the existing cooling bars, would make the costly and high-maintenance use of compressed air redundant. This highly innovative approach by EHT met the customers' modern requirements and enables the highest product quality with low maintenance intensity and maximum production safety.

The high level of customer satisfaction and the excellent service provided by EHT convinced the client to systemically replace the spray bars, so the order to convert to the EHSd, CoolectroPro® system was placed in June 2023 (*Figure 2*).

During the development of the CoolectroPro®, EHT had already attached great importance to compatibility and ensured the convertibility and dismantlability of existing systems. This is why the entire mechanical dimensions and the media technology components of the spray bars were retained for this project. The electrical plug connections, which are always a pain point in many systems, were successfully equipped with the smart EHT i-Con® plug system. The use of the new, patented i-Jet® nozzles has further improved cooling performance.

This investment in technological progress, also in the area of existing systems, has strengthened the customer's position as one of the leading manufacturers of high-quality steel products in North America.

TECHNOLOGICAL INNOVATION: COOLECTROPRO®

With CoolectroPro®, the EHT relies on a pioneering, purely electric cooling technology that offers decisive advantages. When using CoolectroPro®, the customer eliminates costly and energy-intensive compressed air. The directly controlled, highly dynamic spray valve system operates at up to 10Hz and enables maximum precision. In addition, the spray valve has no seal in the dynamic range, which reduces wear and maintenance costs. It is therefore ideal for the use of pulse width modulation with maximum energy efficiency, as only 25% of the nominal power is required in holding mode. Thanks to the hermetic separation of the electromagnet, the quality of the spray medium plays only a subordinate role and makes the system extremely resistant to dirt. The integrated worst case filtering guarantees maximum operational safety. CoolectroPro® can be used in 26mm and 52mm zones.

100% PLANT PERFORMANCE – PROVEN IN PRACTICE

The system has been running smoothly since EHT installed it successfully in April 2024 (*Figure 3*). Several phone calls and written responses from the customer confirm that there has not been a single spray valve failure and that there has been a significant improvement in the cooling performance of critical materials.



Fig 3 The EHSd, CoolectroPro® system in action

Even after a planned shutdown of the rolling mill for 13 days, the selective roll cooling system started up without any problems. This is not a common occurrence, especially with emulsion systems. Due to their design, other systems used on the market very often tend to malfunction after longer downtimes, as incrustations form between the solenoid and the valve piston, which can cause such systems to fail. A clear advantage of the hermetically separated solenoid in the EHT-CoolectroPro® design.

SUMMARY AND OUTLOOK: THE FUTURE OF SELECTIVE ROLL COOLING

The system was converted to the most innovative and modern selective roll cooling technology on the market within a maintenance shutdown of just 12 hours, with lasting success.

CoolectroPro® is thus gradually succeeding the EHT Phragmspray® system, which began

25 years ago. Further systems with CoolectroPro® technology are already in operation and in further planning.

The advantages are:

- Purely electrical control without compressed air
- Maximum precision and energy efficiency
- Short switching times and long service life
- Fully compatible with existing systems

With CoolectroPro®, EHT is setting new standards in selective roll cooling: efficient, sustainable and with maximum performance for flatness control. **MS**

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