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Energy recovery in long product casting

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Energy recovery in the continuous casting process offers substantial opportunities for enhancing efficiency and sustainability within the metals industry. During the solidification and cooling phases, a significant volume of energy is extracted from the melt. This energy, however, is often dissipated and remains unrecovered, representing a lost opportunity for energy optimization. Recognizing this, SMS Concast has identified several promising areas within the continuous casting machine where energy recovery could be effectively implemented.

One primary area for potential energy recovery is the mold cooling system. In continuous casting, the mold cooling water absorbs a considerable amount of heat from the molten metal as it begins to solidify. By implementing advanced heat exchange systems, the thermal energy from the cooling water can be captured and repurposed, potentially reducing overall energy consumption in the plant.

Another area of focus is the heat radiation above the turnover cooling bed (TOCB). As the cast product moves along the cooling bed, it emits a significant amount of radiant heat. This energy can be harnessed using innovative technologies such as thermoelectric generators or heat exchangers, converting the radiant heat into usable electrical or thermal energy.

The implementation of energy recovery systems in these areas not only contributes to reducing energy costs but also aligns with broader sustainability goals by minimizing the environmental footprint of the casting process. Moreover, the recovered energy can be redirected to other processes within the facility, enhancing overall operational efficiency.

By focusing on these key areas, SMS Concast aims to lead the way in developing sustainable solutions for the metals industry. Through strategic investment in energy recovery technologies, the continuous casting process can be transformed into a more energy-efficient and environmentally friendly operation, ultimately contributing to a more sustainable future for the industry.

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