Application Note



Continuous Strand Hardening and Tempering Furnace

Application

Hardening and tempering of stainless steel strip in a continuous operation.

Solution

The split furnace processes two strands simultaneously through a pair of tubes side by side, at up to 15 metres/ minute while ensuring the combination of hardness, temper, ductility, and flatness required by the customer.

The stainless steel strip is hardened in a hydrogen or cracked ammonia atmosphere. Heating, in both the hardening and tempering units, is via wire wound elements on ceramic tubes mounted horizontally, above and below the 2 work tubes. Separate gas control equipment is supplied for each lane.

The length of the hardening furnace (7100mm) is designed to meet the customer's throughput. It is divided into 6 zones to ensure good temperature uniformity and is designed to heat up rapidly from cold.

After hardening, the strips pass through water cooled quench blocks and are then frozen before being tempered. The two tempering lines and their temperature zones can be controlled independently.

Temperature control in both units is provided by PID controllers showing set and actual temperature.

Specifications:

Max. Operating Temp

Temperature Uniformity Overall Dimensions (mm) Throughput Max. Power Power Supply 1150 °C Hardening 500 °C Tempering ± 10 °C at 1000 °C 1280H 900W x 1750L 33kg per hour 6000W Hardening 380/220V 3 Phase, 50Hz





