Furnaces for strip processing lines
Carbon steel
Products

Continuous galvanizing line (CGL)
Wide range of heating technologies: radiant tube (RT), direct-fired furnace (DFF), induction heating, electrical heating for different applications like architectural sheeting, domestic appliances, exposed and non-exposed automotive parts.
- Horizontal, vertical or L-shaped layouts
- From CS to HSS/AHSS, GI, GA, GL
- From 25,000 to 500,000 tons/year

Continuous annealing line (CAL)
Based on patented technology for the ANDRITZ Selas differential rapid jet cooling system (DRJC); for domestic applications, automotive AHSS, electrical steel, and tin plating.
- Sheet CAL
- Combination CGL/CAL
- Final annealing lines for electrical steel
- From 50,000 to 1,200,000 tons/year

▲ ThyssenKrupp Stahl, Germany
Technologies

Our know-how
- More than 110 years of experience
- Highly qualified engineering team
- 3D engineering simulation tools
- Technology for highest strip surface quality
- Predictive math models for optimized operation

Direct-fired furnace (DFF)
- Heating to the annealing temperature in only one vertical pass
- Cleans the strip by reduction of oxides and elimination of iron fines and oils, making any cleaning section unnecessary
- Very fast response to production changes
- Uniformity of heating across the strip width; no buckling due to heating
- Controlled pre-oxidation for AHSS
- Ultra-low NOx emission

Radiant tube heating (RTH)
- Thin-wall radiant tubes for low thermal inertia
- Recuperative and regenerative low and ultra-low NOx burners
- Push-pull control systems
- Long-life radiant tubes
- Anti-buckling systems

Differential rapid jet cooling (DRJC)
Strip cooling with:
- Cooling rates up to 140°C/sec with HN₃ at 5% H₂ for a strip thickness of 0.8 mm and a temperature drop from 720°C to 350°C
- Automatic control of the temperature profile and a maximum deviation of 3°C
- Across the strip width no buckling due to cooling (patented system)

Air cooling
- Wide range of designs for perfect temperature uniformity
- After-pot gas jet cooling, specially designed to avoid strip flutter
- Water quenching and drying to reduce strip temperature in the downstream process
**Furnaces for strip processing lines**

**Carbon steel**

ANDRITZ METALS designs and builds complete lines for the production and further processing of cold-rolled carbon steel, stainless steel, and non-ferrous metal strip. ANDRITZ METALS is one of the few suppliers worldwide capable of providing all technologies and processes involved in the production of steel strip (mechanical, process, and electrical equipment, automation, and life cycle services). We are a reliable partner for your challenges and success.

**Your benefit**

- Advanced furnace technology for highest standards (AHSS, automotive exposed)
- Proven and sophisticated design of different technological modules:
  - Heating and cooling technology
  - Extremely tight sealing devices
  - Maintenance machines for equipment removal
  - Fully automatic ingot charging machine
  - Snout design for highest quality demands
  - Special after-pot cooler design
  - Combination and integration of individual modules to build a complete furnace
- Highest standards in process technology, reliability, and maintenance

**Extract from our reference list**

<table>
<thead>
<tr>
<th>Customer</th>
<th>Type</th>
<th>Country</th>
<th>Year</th>
<th>Capacity l/h</th>
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<tbody>
<tr>
<td>Masteel Iron &amp; Steel</td>
<td>CAL</td>
<td>China</td>
<td>2012</td>
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<td>Tianjin Ansteel Tiantie Colled Rolled Sheet</td>
<td>CAL</td>
<td>China</td>
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<td>CGL (revamp)</td>
<td>USA</td>
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<td>CGL 4 + 5</td>
<td>Austria</td>
<td>2007 + 2009</td>
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