

ThyssenKrupp Steel USA

State-of-the-Art Capabilities and Production Flow

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Latest rolling technology from SMS Siemag provides superior product

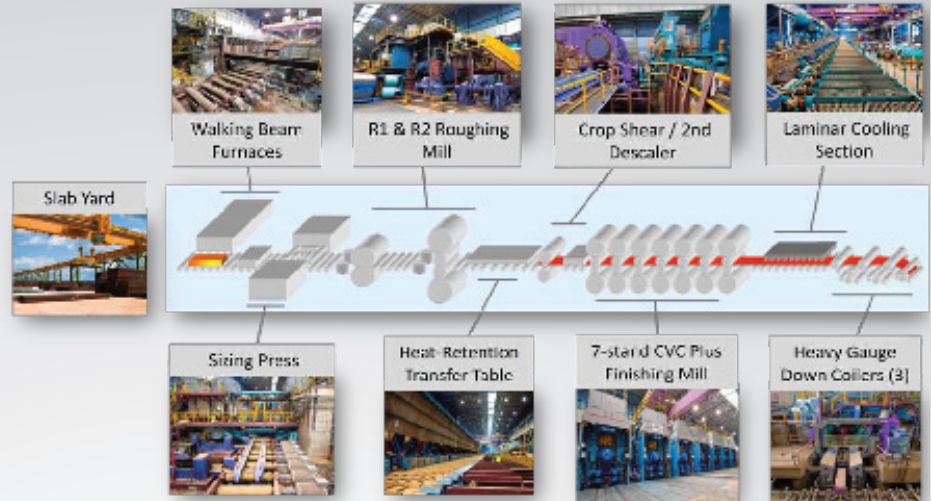
Components of Hot Strip Mill (HSM)

ThyssenKrupp Steel USA's 5.3m tonne/year HSM has been designed to produce flat carbon steel to the highest specifications. The HSM size range is 0.059" – 1" (1.5mm – 25.4mm). Only one other HSM in NAFTA is capable of producing hot bands at 1" thickness.

- **Walking Beam Furnaces** – Competitive advantage by eliminating surface defects and distributing heat evenly through out the bar. The technologically-advanced furnaces provide for uniform mechanical properties, improved shape and improved gauge profiles.

- **Heat Retention Transfer Table with Side Panels** – Retaining the heat in a transfer bar while it is transferred from roughing to finishing allows for the homogenous distribution of heat and helps control finishing and coiling temperatures.

- **7-Stand CVC Plus Finishing Mill** – TKS USA has the only 7-stand integrated Finishing Mill in the Southeastern U.S. The CVC Plus technology in the work rolls and back up rolls provide for superior flatness and better control of strip crown.

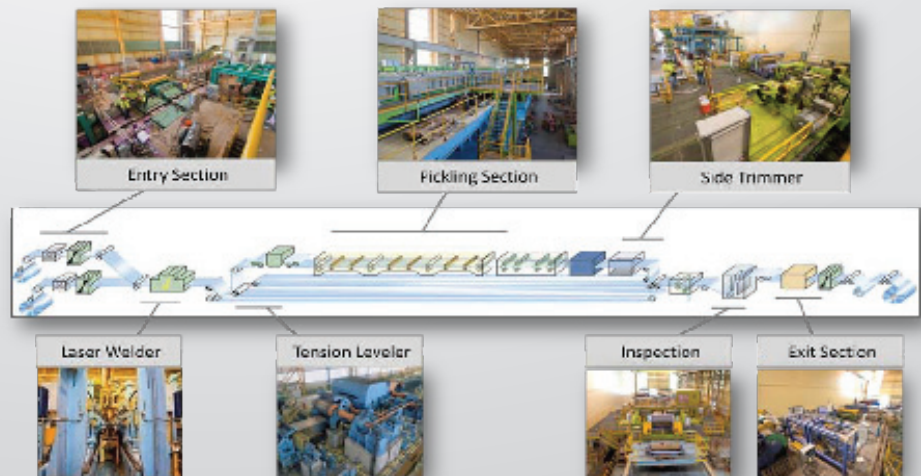


Tension leveling and laser welding to provide for better surface quality

Components of Continuous Pickling Line (CPL)

ThyssenKrupp Steel USA has a 1.1m tonne/year stand-alone CPL and supporting Slitter Line Hot (SLH) to service the needs of Hot Rolled Pickled & Oiled (HRP&O) customers without having to go through outside processing. Since very few steel mills have stand-alone CPLs dedicated to producing HRP&O product, the addition of the CPL at TKS USA will greatly simplify the supply chain for our customers.

- **Laser Welder and Tension leveling** – A typical flash-butt weld cannot pass through a tension leveler (or sometimes a skin pass mill) which is located in-line in the pickling process, prior to the acid tank. The tension leveler is forced to 'open' up wider to allow the thicker flash-butt weld through. This activity forces a substantial portion of the head and tail of the strip to receive no shape improvement or scale breaking in the tension leveler, resulting in less efficient pickling. TKS USA's laser welder in the entry area produces a weld which is virtually invisible and therefore capable to pass through the tension leveler, thus producing a steel strip which is consistent from end-to-end.

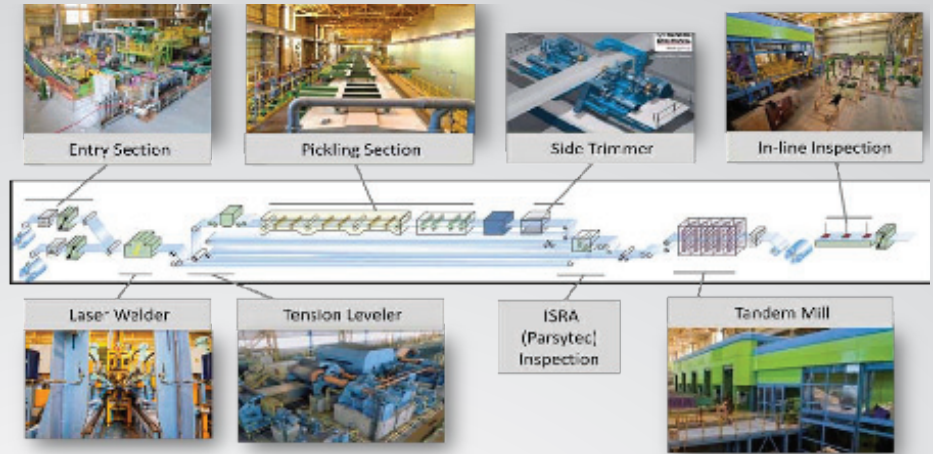


Superior flatness, gauge control and mechanical properties

Components of Tandem Cold Mill w/ Pickling Line (PL-TCM)

ThyssenKrupp Steel USA has a 2.5m tonne/year PL-TCM. The production concept is not unique to TKS, but the 'coupling', or connecting, of a pickling line to a cold rolling mill (CRM) provides for a high-level of production efficiency by eliminating the typical recoiling of strip at the pickling line exit and then subsequent uncoiling of strip as it is loaded into a CRM.

- Laser Welder and Tension leveling** - Exactly the same as the advantage provided in the CPL, the laser welder in the entry area produces a weld which is virtually invisible and therefore capable to pass through the tension leveler and the Tandem Cold Mill, thus producing a steel strip which has been pickled and cold rolled consistently from end-to-end.
- 5-Stand CVC Plus Tandem Mill** - Similar to the advantage provided by the Finishing Mill located in the HSM, the 'tandem mill' provides superior flatness, gauge control and crown control. The 'Full hard' substrate is automatically conveyed to one of TKS USA's Hot Dip Galvanizing (HDGL) or Continuous Annealing (CAL) lines.

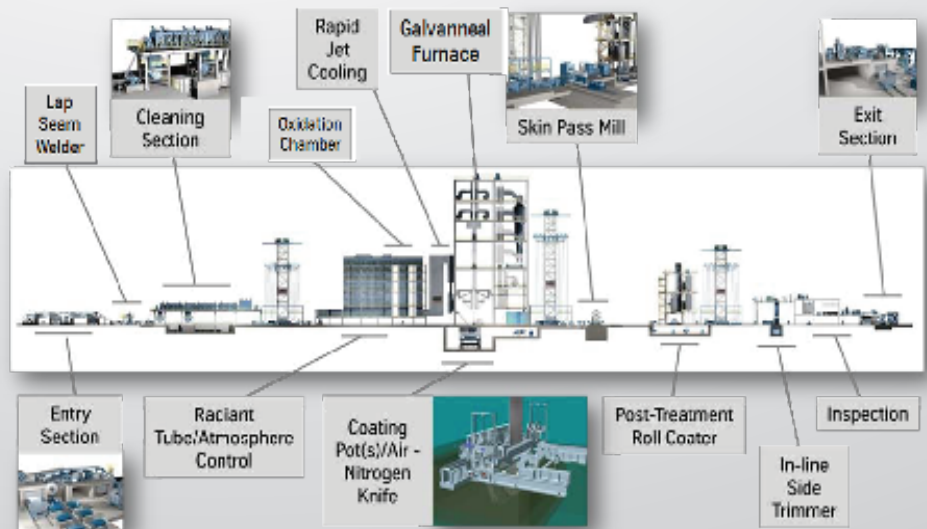


Primary lines providing superior exposed surface quality material

Components of HDGL #1 and #3

ThyssenKrupp Steel USA has the ability to produce 1.5m tonnes/year of Coated products (under current configuration) including Galvanized (GI), Galvannealed (GA), Galvalume® (AZ), and Aluminized (AL) as well as 700,000 tonnes/year of fully-finished (continuously annealed) Cold Rolled. HDGLs #1 and #3 will produce high quality GI and GA for both exposed and unexposed applications.

- Multiple Coating Pots** - TKS USA HDGL lines have dedicated coating pots for each different coating type. This allows for superior control of the pot chemistry.
- Radiant Tube Atmosphere Controlled Furnace** - The HDG lines at TKS USA have 'Atmosphere Controlled Radiant Tube Heating' which provides consistent and uniform mechanical properties.
- Rapid Cooling** - The ability to quickly and evenly cool the strip after annealing produces steels with better strength characteristics and a wider range of mechanical properties.

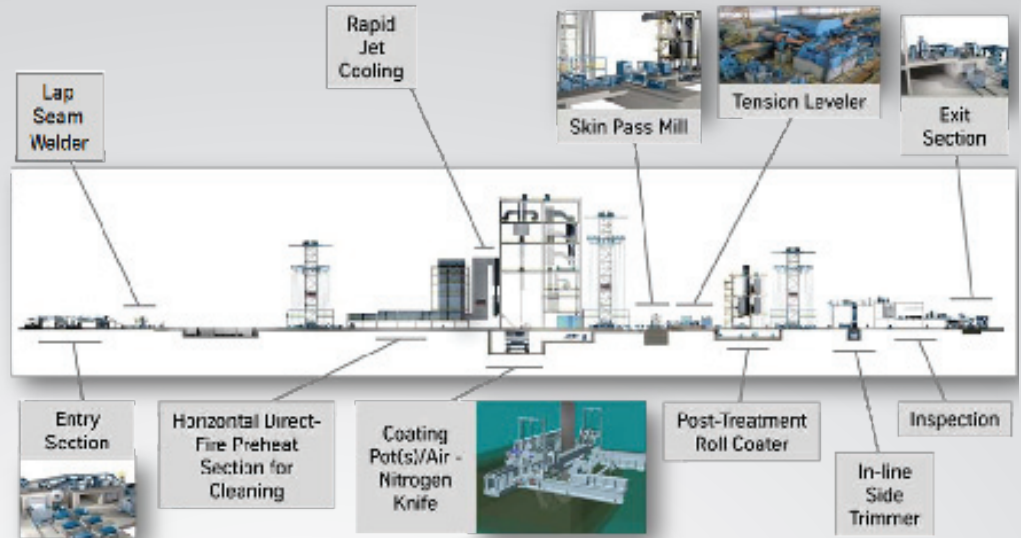


Construction line to provide Galvalume®, Aluminized & Galvanized Components of HDGL #4

ThyssenKrupp Steel USA has a 550,000 tonne/year light-gauge line which is designed to produce Galvalume®, Aluminized and Galvanized. The line will ultimately focus on flatness-critical construction applications as well as high-heat exhaust systems in the automotive segment.

• **Multiple Coating Pots** – Our HDGL #4 line has three coating pots, with each one dedicated to a different coating type, Galvalume®, Aluminized or Galvanized. The multiple pot configuration allows for superior control of the pot chemistry, which gives us the ability to offer a superior product to our customers.

• **Tension Leveler** – The line has a tension leveler device located after the in-line Skin Pass Mill (SPM). The tension leveler, combined with the SPM, will allow us to offer an extremely flat product, a very critical attribute to the users of Galvalume® and Galvanized in the Construction segment.



Continuous Annealing technology to provide superior Cold rolled Components of Continuous Annealing Line/HDGL (CAL)

ThyssenKrupp Steel USA has a 700,000 tonne/year CAL. The line is designed to produce fully-finished Cold Rolled in a continuous process. As opposed to more-traditional batch annealing, continuous annealing is a more efficient process and thus produces product with better uniformity.

• **Radiant Tube Atmosphere Controlled Furnace** – The ‘annealing’ furnace located on the CAL line serves to increase the ductility of the recently hardened strip and also to relieve internal stresses. The CAL line at TKS USA has ‘Atmosphere Controlled Radiant Tube Heating’ which applies indirect radiant heating to the strip as it passes through the furnace, providing consistent and uniform mechanical properties.

• **Fast Rapid Jet Cooling** – The ability to quickly and evenly cool the strip after annealing produces steels with better strength characteristics and wider range of mechanical properties.

