



Plate

SMART® Steelmaking System

What is Smart®?

SMART stands for Steckel Mill Advanced Rolling Technology, ArcelorMittal USA's state-of-the-art manufacturing system for alloy and carbon steel. Located at a company facility in Conshohocken, PA, SMART is North America's most flexible system that can manufacture alloy and carbon sheet and plate steel products.

How SMART Works

ArcelorMittal USA's SMART system combines advanced technologies in a configuration unique to the steel industry. The system has four key components: a world-class roughing mill, a Steckel rolling mill, an on-line, laminar flow cooling system and an advanced cut-to-length line. SMART products are manufactured in large, wide coils, resulting in reduced handling costs and increased productivity and yield.

The Roughing Mill

After being heated to 2,300 degrees Fahrenheit in energy efficient, rehear furnaces, steel slabs travel to one of the world's finest roughing mills. This fully automated, 110 inch wide mill is powered by two 8,000 horsepower electric motors, has hydraulic automatic gauge control and slab shape correction. These systems allow the rolling of steel slabs into a top-quality transfer bar, which is then processed on the Steckel Mill.

The Steckel Mill

After exiting the roughing mill, the transfer bar travels to the key-stone of the SMART system – a 110-inch wide, four-high, reversing Steckel mill. Powered by two 6,000 horsepower electric motors, the Steckel mill features full computer control, hydraulic gauge control, work roll bending and shifting, automated drum cleaning and a wide array of other features designed to manufacture products at new quality standards.

On each side of the Steckel mill, mandrels housed in heated chambers continually wind and unwind the ribbon of steel as it passes back and forth through the rolling mill. The goal is to reduce radiant heat loss so the steel can be rolled longer and thinner. Keeping the steel hot during rolling improves surface quality, gauge uniformity and product shape. Finally, when the steel has reached the desired thickness, it is transferred to the on-line, laminar flow cooling system.

Laminar Flow Cooling System

Steel's metallurgical properties are influenced by the rate at which the material is cooled after rolling. SMART's sophisticated laminar flow cooling system uses automated water sprays that allow for very precise control of the cooling rate and temperature. For certain products, this imparts greater strength without the need for exotic chemistries, additional heat treating or other processing. After cooling, the steel is again wound into coils of up to 42 tons on a heavy-duty downcoiler.

Advanced Cut-to-Length Line

SMART's fully automated cut-to-length line decoils the plate and flattens it with shape-control levelers, virtually eliminating residual coil memory. It also trims the material to precise dimensions to meet exacting customer requirements.

The SMART Quality Advantage

SMART enables ArcelorMittal USA to achieve a new standard of quality for carbon and alloy steel products. The system's key quality benefits include:

- Exceptional uniformity and flatness, particularly for thinner steel products
- Exacting dimensional accuracy, including tighter thickness control and more precise tolerances to ensure all products meet or exceed customer expectations for thickness and weight
- Enhanced surface quality

SMART Products & Applications

The SMART system enables ArcelorMittal USA Plate mills to produce carbon and alloy steel products in coils up to 102 inches wide and between .125 and .625 inches thick, and discrete plates up to three inches thick, for a wide range of end uses.

ArcelorMittal USA sells SMART carbon and alloy steel products in capital goods and infrastructure markets for power generation, ships and barges, rail cars, storage tanks, military applications, environmental control systems and construction equipment.



SMART System Facts

Location	Conshohocken, PA
Length of Production Line	625 feet
Size of Facility – SMART System	110,000 square feet
Conshohocken Facility	1.1 million square feet

Production Specifications

Annual Capacity Target	750,000 tons
Maximum Rolling Width	102 inches

Gauge (Thickness) in Coils

Maximum	0.625 inches
Minimum	0.125 inches
In Discrete Plate	Up to 3 inches
Inside Coil Diameter	30 inches
Maximum Coil Weight	42.6

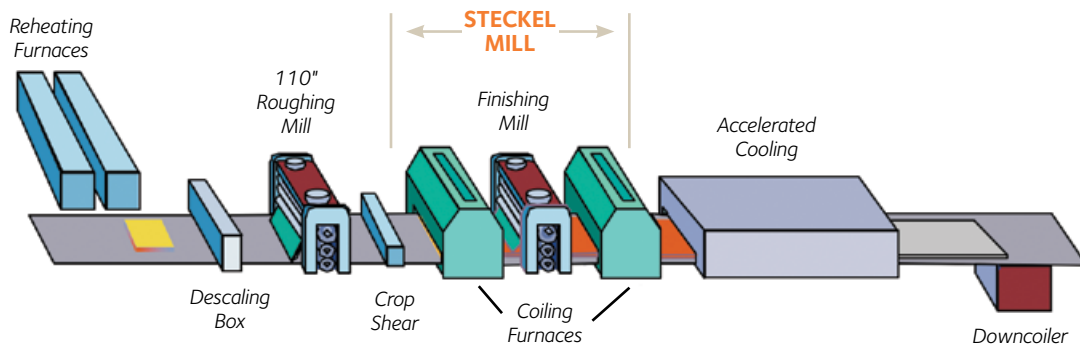
Steckel Mill Specifications

Separating Force	11 million pounds
Main Mill Drives:	Two 6,000 HP electric motors (7,500 HP thermal rated)

Contact Information

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Conshohocken's SMART® Facility (Steckel Mill Advanced Rolling Technology)



All information in this brochure is for the purpose of information only. ArcelorMittal USA reserves the right to change its product range at any time without prior notice.

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