

## UCS PRODUCTS

Chemistry: Low-carbon, silicon-killed  
Widths: 46" to 48.5" cut edge  
THICKNESS: 0.035" to 0.060"

### Skin-passed, pickled and oiled sheet

ASTM A1039CS Type A & B  
SS Grades 40, 50, & 55  
ASTM A1011CS Type D  
SS Grades 33 to 60

### Hot Dipped Galvanized Sheet

ASTM A653SS Grades 33, 37, 40, & 50

*\* For current UCS (Ultra-thin Cast Strip) product offering, please see [www.nucor-sheetmills.com](http://www.nucor-sheetmills.com) or contact your District Sales Manager.*

## CASTRIP HIGHLIGHTS

- 500,000 ton annual capacity
- 70% reduction in green house gas emissions
- Rapid solidification (< 1 sec)
- Creates new product category - UCS
- Can replace cold rolled sheet, especially for non-exposed or coated parts
- Multiple strength levels can be produced from a single chemistry via cooling table conditions
- Initial markets include:
  - Construction
  - Metal buildings
  - Tubing
  - Roll formed applications

## CASTRIP PRODUCTS



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[www.castrip.com](http://www.castrip.com)

# Castrip

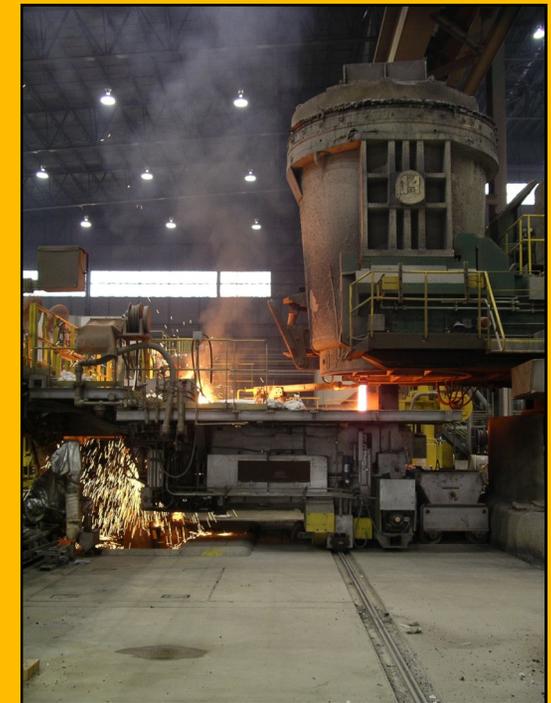
LLC

FASTER

SMARTER

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BETTER



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# THE CASTRIP® TECHNOLOGY

## THE ORIGINAL CONCEPT

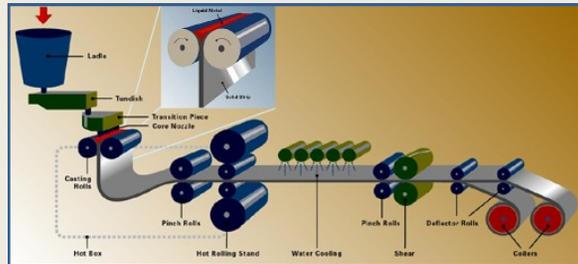
The year was 1857 when English inventor, Sir Henry Bessemer, patented the fundamentals of twin-roll casting of metals. But the full value of his contribution to strip casting - and its impact on the steel industry - would not be realized for generations. The exacting electronic controls, metallurgical knowledge and refractories necessary for commercial application were not yet available. Bessemer's concept, therefore, would sit idle for nearly 150 years.



## PROCESS FUNDAMENTALS

The twin roll casting process uses two copper water-cooled, counter-rotating rolls. A refractory core nozzle is positioned between the rolls to distribute molten steel into the melt pool. Side dams are positioned at each end of the rolls to contain the melt pool.

Starting at the first point of contact between the rolls and the molten steel, solidification begins and continues as the rolls rotate downwards. Two individual steel shells are formed, one on each roll. The shells form one continuous sheet when they are brought together at the roll nip or kissing point.



This steel strip is guided through pinch rolls and a hot rolling stand, where it is reduced to the desired dimensions, typically between 0.7 and 1.8 mm. Water-spray cooling reduces the steel from its rolling temperature to a temperature suitable for coiling.

## THE FIRST LICENSEE OF THE CASTRIP® TECHNOLOGY

Nucor, the company world-renowned for pioneering the development of the thin-slab casting process in the late 1980's, now has the distinction of being the first licensee of the revolutionary Castrip® process.



The Castrip process utilizes the concept of twin-roll strip casting and represents the first commercial installation of direct casting of carbon steel sheet products. Among the main advantages of this new technology is the fact that the steel is cast at or near its final thickness. This eliminates the need for large hot and cold rolled reductions and provides unique product properties.



Constructed in 2001 and commissioned in 2002, the Castrip facility is capable of producing 500,000 tons annually. Located at Nucor's Crawfordsville Indiana steelmaking site, Castrip UCS (Ultra-thin Cast Strip) products are sold as hot rolled, cold rolled and galvanized sheet. The product conforms to ASTM standards A1011, A1039 and A658. Typical applications for UCS products include structural decking,



tubing, racking, galvanized steel framing, roll-formed structural components, etc.

The Castrip process utilizes two copper, water-cooled, counter-rotating rolls (see schematic this page). Liquid steel is poured between the rolls, forming a stable melt pool. As the rolls move downwards, the steel begins to solidify on each roll and is then formed into a single sheet at the contact point between the rolls. As the solidified sheet moves vertically downward, it is guided through pinch rolls and a hot rolling stand, where it is reduced to customer specified thickness. Typically, the thickness of the as-cast steel sheet is 0.06 to 0.07". With in-line reduction, gauge is reduced to 0.035 to 0.060".

## CASTRIP ARKANSAS



The new plant will be capable of casting up to 1680mm wide strip. It has several enhancements over the existing Crawfordsville plant including automatic rapid change out of casting rolls, higher productivity casting rolls and the next generation of strip flatness control.

The line length has been decreased by 10.3m (approximately 20%) relative to the Crawfordsville plant resulting not only a reduced capital cost but also enabling the control of coiling temperature over a wider range."



**FASTER**

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