

NUCOR STEEL TEXAS, USA

Steel Plant Designed by SMS Concast





MELTSHOP

GENERAL DATA

Annual production

906'000 t of prime billets

Production mix

Equipped for billets 133 mm, 203 mm sq.
159 mm x 203 mm
159 mm x 254 mm
127 mm x 305 mm

Currently producing 159 mm sq.
160 mm x 229 mm

Steel grades Carbon / Structural
SBQ capable

Raw material

Charging ratio 100% Steel scrap

MAIN EQUIPMENT DATA

Nucor is one of the leading steel producers in the United States of America.

We are proud to be the chosen supplier of all technological equipment for the EAF, LF and the CCM.

As found on Nucors website:

'Nucor is the largest recycler in the United States. Nucor is known for its strong emphasis on... quality, productivity and technological leadership... with rigorous quality systems and an aggressive pursuit of innovation and technical excellence.'

This equipment is still setting new technological benchmarks for the steel industry.



CONCEPT

EAF

EBT furnace King-Pin design. The furnace features a full range of SMS Concast melting technologies, including CONSOTech oxygen injection, charged with a single bucket.

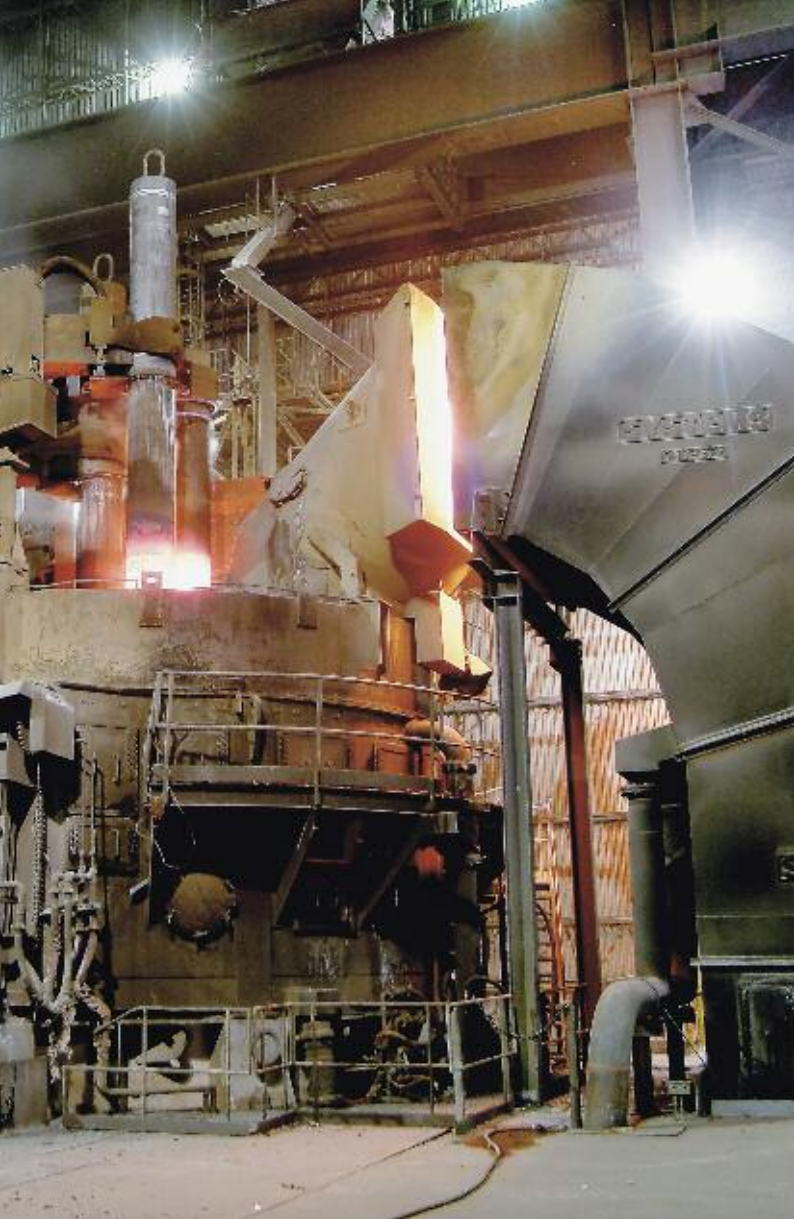
LF

The LF is designed to perform full refining activities within the limited time frame imposed by the rapid tap to tap cycle of the EAF. To reduce the ladle handling time a twin station design was selected.

CCM

Among other innovations the modern SBQ-Billet Caster features the compact hydraulic oscillation, which allows remote adjustment of the oscillation parameters such as frequency, stroke and curve mode - both sinusoidal and non sinusoidal – for perfect surface quality.





ELECTRIC ARC FURNACE

Type	Single bucket charge, UHP AC full platform, EBT design
Heat size	109 t nominal
Hot heel	18 t
Shell diameter	6,7 m
Shell volume	146 m ³
Electrode arms	Conductive type (Cu)
Electrode diameter	610 mm
Electrode regulation	Digital hydraulic type
Transformer	110 MVA
Conso injector	– Wall installation 4 x 6 MW
Scrap charges	1 bucket
Tap to tap time	26 to 30 min (avg.)
Power on	23 min (avg.)
Heats per day	44
Consumption figures:	
Electric	330 kWh/t
Oxygen	28 Nm ³ /t
Natural gas	4,0 Nm ³ /t
Electrode	1,2 to 1,35 kg/t



LADLE FURNACE

Type	Twin station, cantilever water cooled roof design
Nominal ladle capacity	91 t
Electrode arms	Bus-tube type
Electrode diameter	406 mm
Electrode regulator	Digital hydraulic type
Transformer	16 MVA
Heating rate	4.5 K/min
Stirring	Argon ($\frac{1}{3}$), nitrogen ($\frac{2}{3}$)
Consumption figures:	
Electric	20 kWh/t
Electrode	0,25 kg/t





CONTINUOUS CASTING MACHINE

Type	CONVEX® 20-10.25 CCS
Radius	10,25 m
Number of strands	5
Strand distance	1'300 mm
Section range	133 mm sq. up to 160 mm x 229 mm 127 mm x 305 mm
Cast section range	159 mm sq. 160 mm x 229 mm
Billet length	4,3–14,6 m
Ladle support type	Turret with lifting/lower- ing and weighing system
Tundish car type	Dual cantilever with lifting/ lowering system
Tundish shape	Delta-type
Tundish content	24 t (800 mm working level)
Mould type	CONVEX Technology®
Casting speed	1,0–4,0 m/min
Mould oscillation	Hydraulic short lever oscillation adaptable to each steel grade at casting time (remote controlled). Maintenance-free system with high rigidity and stability.



Secondary cooling	ConMax – Multi zone cooling
Withdrawal	Concast Continuous Straightening (CCS)
Dummy bar type	Rigid retractable
Cutting device	Torch cutting
Discharge	2-level with overhead cross transfer
Cooling bed type	Hydraulic turnover with billet weighing system
Billet marking machine	2 machines
Machine type	ConMark
Digit height	8 mm
Automation	SMS Concast Level 2





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