- Home
- Industry Projects
- Products & Services
- A-Z Company Index
- Industry News Releases
- Advertise Here
- Expos & Conferences
- Newsletter Registration
- New On This Website

Home ▸ Industry Projects ▸ Hot Rolled Steel ▸ Tuscaloosa

TUSCALOOSA HOT ROLLED STEEL MILL EXPANSION, USA

In February 1999 Tuscaloosa Steel Corporation completed a two-year expansion project of its Tuscaloosa, Alabama, steel mill.

MARKET RATIONALE

Tuscaloosa used to buy 15,000 tons of slabs from parent company British Steel's (now Corus) Teeside Works in the United Kingdom. The new project was designed to end this. In 1999 the last delivery was made, as the ramp-up of the Alabama steel plate plant was complete.

TUSCALOOSA PLANT PRODUCTION AND COST

Tuscaloosa's facility has more than doubled in size to 104 acres and has undergone other changes during the $165 million project. Tuscaloosa has hired almost 200 new employees.

Tuscaloosa installed a twin-shell DC EAF from MAN GHH. Each heat produces 150 tons of steel; 30 tons is left as a heel. The furnace is producing 18-20 heats per day. Tap-to-tap times average 65-68 minutes, but Tuscaloosa's goal is to reach consistent times of 55 minutes. The mill has a fleet of seven ladles.

Mobile DRI, a Tuscaloosa Steel unit located 200 miles south on McDuffie Island in Mobile Bay, Alabama, supplies direct-reduced iron (DRI) to the mill. The Midrex-process units were shipped from Scotland and then reassembled.

DRI accounts for 30-45% of the charge at the new EAF. Mobile DRI ships send about a barge a day of DRI up the Tombigbee and Black Warrior rivers to Tuscaloosa Steel. The 800 to 1,200 tons of DRI Tuscaloosa uses daily allows the steelmaker to use lower-cost scrap, much of it

EXPAND IMAGE

The material handling facility at Corus' Tuscaloosa plant.

EXPAND IMAGE

The Steckel mill at Tuscaloosa.

No. 2 material.

The mill receives 60% of its scrap by rail, 30% by barge, and 10% by truck. The melt shop was designed to use DRI from the start, but the mill has only been receiving DRI consistently since the beginning of the year. This meant that the scrap bucket and crane, which were only made for single-bucket scrap charges, were forced into double duty until a steady supply of DRI was available.

Slabs are 5.1 inches thick and cast at a rate of 2.5 tons per minute, or 150 tons per hour. Operators in the caster pulpit monitor a breakout-detection system that tells them the status of the steel as it works its way down the caster.

Tuscaloosa Steel direct-hot-charges 80% of the slabs. The five pieces of equipment in the process are the EAF, ladle-metallurgy furnace (LMF), caster, equalising (EQ) furnace, and Steckel mill. A.C. Leadbetter supplied the EQ furnace, which serves as the primary buffer and heats slabs to 2,200 degrees Fahrenheit.

The refurbished upcoiler has allowed Tuscaloosa to increase its maximum coil weight from 32 to 40 tons. Coils are 0.17-1 inch thick and 36-102 inches wide. The discrete plate is 0.75-2.5 inches thick, 48-102 inches wide and 10-40 feet long.

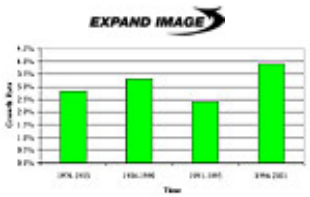
Tuscaloosa is producing 10,000 tons of discrete plate per month and 60,000 tons per month of coiled plate. Rather than buying a cooling table, Tuscaloosa stacks its discrete plate, which is left to cool for 2 1/2 days.

The cut-to-length line produces plate 0.187-0.75 inch thick, 48-102 inches wide, and 60 feet long. Two levellers here take out the residual stresses in the plate.

The relatively labour-intensive cut-to-length line adds to the mill's man-hours/tonne, which currently is 1.1-1.3. Tuscaloosa hopes to keep the figure at 1.1 consistently by reducing its workforce, improving productivity, and increasing shipments from the current 70,000 tonnes/month to 75,000. Shipments totalled 500,000 tons/year before the melt shop began operating and when the mill was rolling only purchased slabs; annual capacity will eventually reach about 900,000 tonnes. The company expects the number of employees to drop from 426 - 384 by attrition.

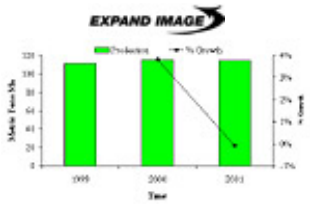
TUSCALOOSA STEEL

Tuscaloosa Steel started in 1984 as a joint



The economic growth of the USA has underpinned the demand for steel. Growth has been higher than 4% a year in 1997, 1998 and 1999. The possible slowing of the economy will make the position of US steel producers even more difficult.

Map showing location of Tuscaloosa



The work at the steel plant is taking place despit.e substantial difficulties in the US Steel industry.

venture of four companies: British Steel, Tippins International, O'Neal Steel, and American Cast Iron Pipe Co. British Steel, now renamed Corus, has been the sole owner since 1991.

Click here for printable version

The USA will account for almost 80% of steel production in NAFTA during 2001.

SPECIFICATIONS