Welcome to the Harrison Steel Plant

TimkenSteel develops some of the cleanest and strongest specialty alloy steels in the world. We understand our customers’ challenges, and we apply our metallurgical and application knowledge to develop solutions that consistently help improve product durability while reducing ownership costs.

The integrated facility melts, rolls, produces and finishes steel. We also produce billets, which we process into seamless mechanical tubing for bearing and cylinder components, as well as structural materials. Customers rely on our steel to strengthen their automotive transmission and powertrain components, drill collars and tool joints, and forgings for rings and gears used in the construction equipment industry.

Production starts with melting raw materials – including scrap steel – in two 120-ton electric arc furnaces. We design the steel to customized requirements in our ladle furnace and ladle refining facility. We sequence cast the steel on a four-strand, 11 in. x 14.75 in. bloom caster and roll it on billet and H-V bar mills to laser-measured size and length. At the end of production, we inspect the final bars and prepare them for shipment.
The Precision Sizing Mill (PSM) rolls 1 in. to 5 in. diameter rounds. The PSM features five strands, each containing three rolls. The three-roll configuration facilitates the ability to achieve tighter tolerances down to half American Society for Testing and Materials (ASTM) size limits. A dynamic hydraulic gap control system gives the PSM the ability to achieve a very uniform diameter on each bar from end to end. This mill also uses a shear and laser to assist in manufacturing a uniform diameter.

**Scrap Loading**
Steelmaking starts with recycling. Discarded materials (such as old cars, appliances, steel cranes, stampings, as well as our scrap bar and tube ends) comprise virtually all furnace input. We load the scrap into buckets and transfer it—along with lime for slag making—to the melting area.

**Melting**
To melt steel scrap, 900°F electric arcs alternate between three large graphite electrodes. In about two hours, scrap melts in the electric arc furnace to produce 120 tons of liquid steel. When the molten steel reaches approximately 3000°F, we tap (pour) it into a refractory-lined ladle.

**Slag Raking Station**
A mechanical paddle and raking arm removes the oxidized slag and impurities that float on top of the liquid steel.

**Refining**
At the ladle furnace, we add alloys to produce the customer-specified steel grade. We also use a small set of electrodes—similar to the melting process—to bulk reheat this “heat of steel.” We then transfer the ladle of alloyed steel into the ladle refiner, where we add the alloying elements, deoxidizing materials, and inhibitors. Upon discharge of the final rolling mill, we clean the surface of the billets with a 3000 psi water spray descaler.

**Bar Length Saws and Identification**
We cut bars from the H-V mill and PSM to customer-specified lengths using abrasive wheel saws in a two-step process with computerized equipment. We then bundle and tag the bars at the end of the line before sending them to the shipping areas.

**Intermediate Bar and Billet Inspection (IBBI) Line**
We inspect bars with 1.875 in. to 8 in. diameters and squares 2½ in. to 7 in. on this line. We prepare the bar surfaces for NDT by a two-roll ... system and a separate computerized order-tracking system, we monitor the orders through bar inspection and finishing.

**Small Bar Line (SBL)**
We inspect bars with 1 in. to 3.25 in. diameters on this line. We prepare bar surfaces for NDT by a two-roll ... system, we inspect the bars, paint or ground imperfections and bundle and tag. We send bundles to the shipping area. An electronic ship system assigns a unique dispatch number to each bar order shipment. Finally, we load the product onto a commercial truck for transportation to its final destination.
- Specialty carbon and alloy steels in the form of ingots, blooms or bars rolled to size ranging from 1 in. (25.4 mm) through 7½ in. (190.5 mm) rounds or squares 2½ in. (63.5 mm) through 7 in. (177.8 mm).
- Annual production capacities: 630,000 melt and 850,000 roll tons.
- Approximately 600 associates, 80 acres of plant area and 31 acres under roof.