

# metallograms

## Fairless electrics start up

Fairless Works has started up a new electric furnace-caster complex which adds two 200-ton steel furnaces, a D-H vacuum degasser unit, and a dual-strand bloom caster to its present steel-making facilities.

The electric furnace shop put the first of its 24-ft diameter steel furnaces into operation October 23. The electric furnace shop, a department of the rolling division, has continued to operate on the one furnace break-in schedule while the second furnace and auxiliary mechanical equipment are being thoroughly tested prior to their start-up.

Both the furnaces and caster are expected to be in full working operation early in the year.

Each of the electric furnaces has been provided with separate gas cleaning facilities consisting of a quencher to remove initial high heat from gases, a venturi scrubber for removing dust, a moisture separator and an induced draft fan. A common stack will serve both systems.

The electric furnace facility is divided into two main areas which include a ladle repair facility and the charging and melting aisle housing the two elec-

tric furnaces, control rooms, electrode storage, additive feeders, and scrap receiving areas.

The continuous casting facilities are located in a 110 ft wide by 125 ft long building which is a continuation of the electric furnace building.

The caster facilities consist of a dual strand bloom caster for 10 in. by 23 in. blooms. The caster is a straight mold curved rack type machine, enclosed to contain cooling water, that will produce semi-finished steel at a rate of 230 tons per hour. The caster has a 120 ft cooling zone to accommodate 200 ton heat sizes at a casting speed of 60 in. per minute.

Blooms produced on the continuous caster will be transported to the existing bloom and billet mills for rolling into billets and from there to the bar and rod mills.

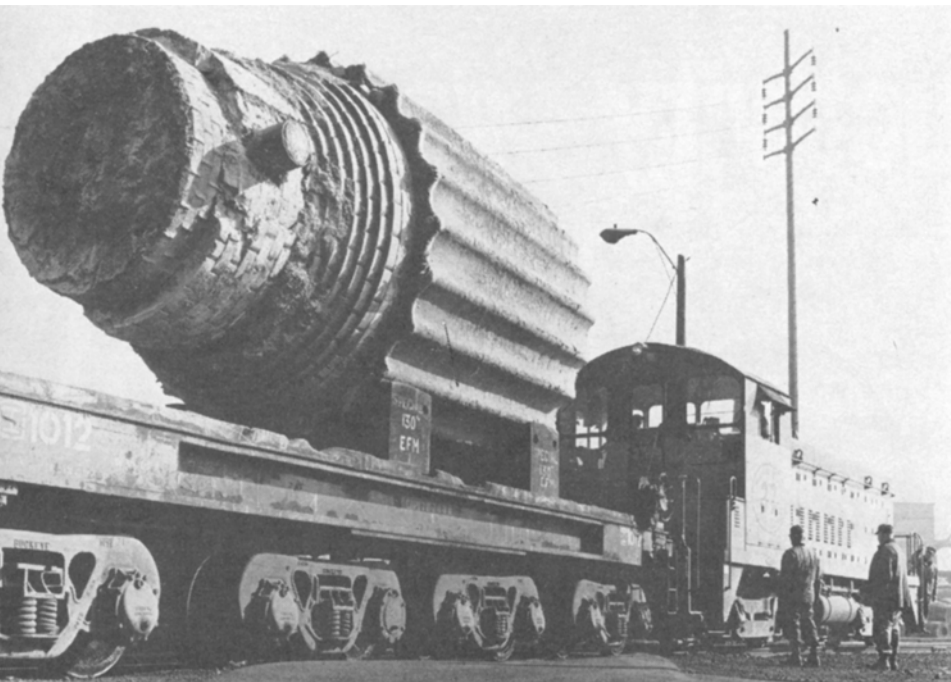
Production of high quality blooms requires degassing of the liquid steel prior to casting. For this purpose vacuum degassing facilities have been installed in a bay adjacent to the electric furnace building. Heats requiring degassing will be moved from the electric furnace building to the degassing area by a ladle transfer car and then back to the electric furnace building for casting.

## GIANT INGOT PRODUCED AT BETHLEHEM

**The largest ingot ever made by any of Bethlehem Steel Corp.'s BOF shops was recently produced at the firm's Bethlehem, Pa. plant.**

**Manufactured for Allis-Chalmers Corp., the huge ingot tipped the scales at over 260 tons and stretched nearly 20 ft from top to bottom.**

**Approximately two hours were required to melt, pour and teem the steel for the ingot. It took approximately 65 hours for the ingot to solidify in the mold prior to shipping to the plant's press forge department. The giant carbon-vanadium steel ingot will be forged into a hydroturbine shaft for the Ice Harbor Lock and Dam in the State of Washington.**



## \$45-million worth of casting machines

Kawasaki Steel Corp. (Tokyo) has started construction on two continuous casting machines at its Mizushima Works. A DEMAG continuous slab caster will process 270 metric ton heats into slabs, ranging in width from 33.5 in. to 74.8 in. (850-1900 mm) and in thicknesses ranging from 7.1 in. to 12 in. (180-305 mm). This installation will produce grades for hot strip and plate applications.

A 4-strand Concast curved mold unit will produce 96,000 metric tons of beam blanks or blooms annually. This machine will process 200 ton metric heats and cast 9.45 in. x 15.75 in. (240 mm x 400 mm) or 11.81 in. x 15.75 in. (300 mm x 400 mm) blooms or 18.11 in. x 15.75 in. x 4.72 in. (460 mm x 400 mm x 120 mm) beam blanks. The blooms or beam blank output will be rolled into structural shapes on Kawasaki's wide or medium flange beam mill.

The target on-stream date for both machines is October 1973. The casting installation's cost is estimated at \$28.2 million for the slab machine or \$17.2 million for the beam blank/bloom machine. When operational, each will be the largest unit of its kind in the world.

The DEMAG continuous casting machine will cast 270 metric tons of molten steel into slabs ranging 33.46-74.80 in. (850-1,900 mm) in width, 7.08-12.01 in. (180-305 mm) in thickness and up to 40 ft (12.2 meters) in length. The slabs from this machine will be sent to the hot strip or plate mills for further processing.

The Concast machine, on the other hand, will work on 200 metric tons of molten steel at a time. It will cast out 9.45 in. by 15.75 in. (240 by 400 mm) or 11.81 in. by 15.75 in. (300 by 400 mm) blooms, or 18.11 in. x 15.75 in. x 4.72 in. (460 x 400 x 120 mm) beam blanks. The blooms or beam blanks coming off this machine will be rolled into structural shapes on the wide-flange beam mill or medium-flange beam mill.

## Perkin-Elmer laser interferometer updated

Perkin-Elmer Corp., Norwalk, Conn., has made available an updating "package" for Lasserage™ laser interferometers (Models 5900 and INF-1). Among the new features is a remote interferometer which is removable from the laser head. This serves to isolate heat from the measuring area and permit measurement in formerly inaccessible places. A new optical system, a new optional retroreflector, and a total electronic tune-up is also part of the package.

Perkin-Elmer offers the updating on an exchange basis. A full one year warranty is furnished on the tube, and a six month warranty is given on the balance of the system.

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