

stallations. The belt casters (now widely used in the nonferrous industry) are manufactured by the Hazelett Strip Casting Corp. in Winooski, Vermont.

Western Gear Corp., Direct Steel Casting Dept., Loftus Engineering subsidiary, Pittsburgh, Pa.

Western Gear is a California based special machines builder and is the U.S. representative and builder of Olsson designed continuous casting machines (see 33, September 1966). Two such units are operating in the U.S.: A straight mold 37 in. by 8 in. slab caster installed (1965) in Bethlehem Steel's Research Department and a 4 strand production billet machine at Pollak Steel, Marion, Ohio. Olsson's machines are unique in having horizontally adjustable mold tables along with an Olsson design hydraulic mold reciprocation. Their general design is straight mold, with subsequent bending of cast material.

The Western Gear-Olsson relationship exists also in Japan (through the Loftus Engineering subsidiary). There are five Olsson designed machines operating in Japan, all production units for casting billets of various sizes from approximately 3 in. to 7 in. square or rectangular. Several other Olsson-designed machines are operating in Europe.

Newcomers to the scene

Many other companies are taking various steps with the expectation of participating in the expected continuous casting machine growth in the U.S. market. These companies cover steel industry spectrum from engineering construction companies (Kaiser Engineers and Swindell-Dressler, for example) through overseas machine builders to major components builders such as Zak, Inc. (molds) and the instrument and systems equipment suppliers. It is probable that several hundred companies have already (or will) supply something for continuous casting machines.

Although a listing of all such companies would be outside the scope of 33's review, some are worthy of mention either because of pioneering effort or unusual circumstances surrounding their continuous casting activities:

Interlake Steel Corp., Chicago, Ill.

This U.S. steelmaker has developed a vibrating mold casting machine several units of which are now going into production in high alloy plants (Driver Harris and Triangle Conduit). Here's how Interlake describes their new units: "Interlake Steel has developed a new high speed continuous casting machine adaptable to a wide variety of small cross section casting needs, from low temperature alloys to extremely high temperature alloys or pure metals. The machine will yield casts of finer than usual metallic grain and highly uniform metallurgical structure. Present Interlake models are particularly suited to the needs of manufacturers of wire, rods, bars and light structural shape. According to an Interlake spokesman, the secret of the casting lies in a unique mold system which enables the machine to run cooler, yet faster, because of elimination of much of the contact between molten metal and molds common in other casting systems. This should also result in extremely low wear rate and low maintenance cost, the company says.

Continua International Casting, Italy; American Ligurian Company, N.Y.; Danieli of America, Baltimore, Md.

This group of companies, the oldest established in 1962, working with an Italian engineer (Dr. E. Colombo previously with the Concast group) designed a straight mold, low head casting machine. To date 19 of these units for billet casting in the under 200,000 annual ton range have been installed in Greece, Italy, Spain and Switzerland. These machines were engineered and manufactured by Danieli SpA, an Italian heavy machinery builder.

Dravo Corp., Pennsylvania Engineering Corp., Voest International

These engineering-construction companies are organizing for activity in the continuous casting field. Dravo has U.S. license rights to the BSR process and know-how. Pennsylvania Engineering is also staffing for turn-key continuous casting plant installation capabilities.

Voest International is the New York-based representative of Vereinigte Österreichische Eisen und Stahlwerke AG. Voest (a supplier of BOF vessels to several U.S. steel companies) has designed and built the first production machine to use the BSR strand reduction process (this single strand billet machine is presently going into operation at Gebr. Bholer, Kapfenberg, Austria).