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Commentary

# Procedure Involved in Casting of Metals of Metallurgy

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## DESCRIPTION

Continuous casting technology is most effective, if it is essential to manufacture semifinished products of standardized form in large series. This approach also presents improved control over the technique through automation. Equal and continuous supply of metal, its crystallization and removal of the product allows obtaining a homogeneous semi-finished metal product during the casting procedure. With intensified cooling with water, it is possible to increase the speed of crystallization. By choosing the right speed, focused crystallization in the material is achieved and a great structure of crystals with an excellent chemical composition is produced. Continuous casting allows producing a wide variety of profiles: cylindrical bares, tubes, square bares and tubes, hexagonal profiles, slabs of various thickness and width. The continuous casting process is used to overcome a number of ingot-related problems consisting of piping, mold spatter, entrapped slag and structure variation along the length of the product. It is used to produce blooms, billets, slabs and tubing directly from the molten metal. In this technique, molten metal flows into a refractory-lined intermediate pouring vessel, in which impurities are skimmed off. From there, the metal travels through a bottomless water-cooled copper mould in the form of a vertical tube open at each ends and begins to solidify as it travels downward along a path supported by rollers.

Direct water sprays to produce complete solidification then cool the metal. The cast solid is still hot and is either bent or fed horizontally through a short reheat furnace, which makes it perfectly straight. Hollow rods or thick-walled tubing is made by placing a graphite core centrally in the mold to a depth under the extent at which solidification is complete. The constantly cast metal can be reduced into desired lengths with a torch or a circular saw. It can also be fed directly into a rolling mill for further reduction in thickness and for shape rolling of products which include channels and I-beams. The excessive pouring temperature requirement in the preparation of steel offers difficulties in the design of mold. The slow solidification rate of steel and the excessive casting speed make it essential to have lengthy dies. This will increase the chance for bulging of the cast shape due to the deep liquid core. This method is implemented to copper and copper alloys, aluminium, steel, grey cast iron, and alloy cast iron. Typical elements made by continuous casting process are tubes, slabs, and gears. These merchandise are obtained by cutting the continuous strand to the desired size. Strand can be of rectangular or circular cross-sections.

## CONCLUSION

An industrial horizontal continuous casting plant explains the processing of rod casting and strip casting, which is self-explanatory. These strategies are the maximum efficient way to solidify large volumes of metal into simple shapes for subsequent processing. Most basic metals are mass-produced using a continuous casting method, which include over 500 million tons of steel, 20 million tons of aluminium, and 1 million tons of copper, nickel, and different metals in the world every year. Continuous casting is prominent from other solidification strategies through its steady state nature, relative to an outside observer in a laboratory frame of reference. The molten metal solidifies against the mould partitions while it is simultaneously withdrawn from the lowest of the mould at a rate, which maintains the solid-liquid interface at a constant position with time. The method works best when all of its factors perform in this consistent state manner.

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