SAMPLING OF MOLTEN METALS

Immersion samples SUPERSAMP

A rapid chemical analysis is essential for production control in the melt shop. Although electronics have reduced analysis time, the total time needed for obtaining and preparing a sample by spoon or mould sampling is still too long. It is important to introduce advanced techniques for the reduction of total sampling and analysis time. The result will be a reduced tap-to-tap time, which means higher productivity.

SIDERMES sampling probes and devices are designed for a safe, rapid and direct sampling. This system provides the user with a sample easy to obtain and quick to prepare. Laboratory preparation time and equipment is minimized by SUPERSAMP samplers.

Standard sample is a single or double thickness disk, formed in a split metal mould contained in a sand body. Its 6 mm diameter pin is formed in a quartz tube. Sampler configuration is determined by sampling technique, location and metal conditions. Various deoxidant killing agents are available, if needed, and assembled in the sample mould during manufacturing.
Technical Characteristics:

CPO and CI line samplers are used in furnaces and large ladles. A steel slag cap is provided as standard and a killing agent, if needed, is included. When dipping the sampler to the needed depth for 3 to 5 seconds, depending on temperature and viscosity of the melt, the slag cap melts and the liquid metal flows into the quartz filling the mould. After the sampler is removed from the lance, hit the not-immersed end vertically on the floor. The hot sample will fall inside the carton tube, and the mould will automatically release the sample ready to be sent to the laboratory for analysis.

CA line vacuum samplers are used mainly in small ladles, tundishes, ingots and where the turbolence and splashing created by the paper tube of an immersion sampler is not admitted. The sampler is fitted on a mandrel of the Venturi pump lance. A protective cap on sampler’s quartz prevents surface slag or covering powders from entering before the molten metal is sucked in the mould. A 130 mm long carton tube is housing the mould, but for critical applications, when it is difficult to control the sampling position, a 400 mm long carton tube can be supplied on request.

CS samplers are used during teeming from ladles. A 130 mm long protective carton tube is housing the mould. Sampler support during operations is a simple steel pipe of suitable length.

CIA lateral entry samplers line is recommended for LF, VD, VOD, AOD and CCM where ferrostatic pressure could not be sufficient for standard lollipop samplers. Its can be supplied with standard sampler paper tube or with thermocouple paper tube, for single and double probe. Various deoxidants can be added, if needed, and assembled in the sample mould.