

Modification of Heating Chamber to Improve Crucible Furnace Performance

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ABSTRACT

Crucible furnace have developed continuously to support casting process at VHS. Compact crucible furnace for casting practice at VHS had been developed in 2016. This research aimed at improving performance of compact crucible furnace by modification the heating chamber.

Research and development method was applied to conduct the modification on compact crucible furnace. The steps are follows: (1) observation prior compact crucible furnace; (2) furnace modification design; (3) making the furnace; (4) modification by adding fins on heating chamber; (5) performance test of heating chamber modiflicated compact crucible furnace. The performance of modiflicated crucible furnace determined by increasing of temperature rate and LPG consumption to melt 3 kg of aluminum. Descriptive analysis is used to describe performance of modiflicated crucible furnace.

The fins addition on the inside wall of a compact crucible furnace can improve its performance. The temperature rate will increase as the inclination angle of fins increase. Fins with inclination angle of 80° can keep and retain the heat. Compact crucible furnace which added fin on the inside wall is adequate to melt 3 kg of aluminum in 35 minutes.

Kata Kunci: Modification, heating chamber, performance, crucible furnace