MIM Industry Requirements for Vacuum Furnace

An important factor that vacuum sintering furnace can save cost is its economical process gas and power consumption. According to different gas types, these two cost elements can account for 50% of the total cost in sintering process. In order to save gas consumption, it is necessary to implement an adjustable air partial pressure mode, while ensuring that the degreasing and sintering processes are free from pollution. In order to reduce power consumption, heat loss can be reduced by manufacturing hot zones with optimized heating elements. In order to achieve these design points and control the cost of R&D in a reasonable range, a modern resource-saving vacuum sintering furnace will use hydrodynamic calculation tools to find the optimal flow and heat flow modes.

Depending on the weight of the sintered parts and the residual polymer content, the binder will accumulate on the peripheral parts (e.g. exhaust pipes,

pumps and hot zones) to varying degrees, which will lead to long downtime for manual cleaning and daily maintenance. If the net weight of the material is 400 kg (furnace capacity > 1000L) and the content of binder is 3% to 14%, the polymer up to 15 kg will be removed in the degassing stage. Even so, most of the exhaust gases (>95%) must be collected at specific condensation points (such as binder collectors or wax separators). Due to decontamination and manual cleaning, the door-to-door cycle time will increase by more than two hours. In this way, inefficient and poorly designed vacuum sintering furnace will reduce operating performance by 15%. MIM manufacturers will consider more advanced equipment with automatic cycle cleaning systems to reduce maintenance and keep accidental failures at a very low level.

Rapidly growing MIM enterprises need to flexibly plan their production capacity and respond quickly to changing market demand, but the long delivery time of production equipment will slow down the development of the enterprise. Usually, the equipment manufacturer does not start production until it receives the order, instead of pre-storing key components and important raw materials in the warehouse. When MIM factories receive new urgent orders, the delivery time of new equipment in 9-12 months will be the bottleneck of MIM production line. Until recently, leading vacuum furnace manufacturers introduced the concepts of lean production and standardized production. For example, Ipson reduced the delivery time of their newly introduced TITAN DS vacuum sintering furnace to three months through modularization and standard component design.

URL:https://www.harbermetal.com
+86 0769-82389116
+86 13480709275
sales@harber-mim.com