A COMPARISON OF THE ENERGY REQUIREMENTS FOR CONVENTIONAL AND INDUCTION SINTERING

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ABSTRACT

Induction sintering of P/M parts and preforms has been successfully accomplished on a laboratory scale by several independent researchers. However, a comparison of energy and economics between induction and various types of conventional sintering has never been published. This paper attempts to fill that gap by analyzing the energy requirements of several sintering techniques. Consideration is given to energy source, atmosphere, lubricant burn off, capacity, part configuration, lot size, and equipment utilization. The conclusions indicate that induction sintering, although the most energy efficient, is not as cost effective as previously thought. Careful analyses of production requirements and part shape are required prior to determining the best sintering technique for a particular application.

INTRODUCTION

During the past three years the world has become increasingly aware that unlimited, low cost energy no longer exists. There are several recommendations that would at least define the future availability of this nation's energy, but environmental and political considerations have made action on these recommendations, and a resulting national energy policy, impossible. This uncertainty has caused everyone, especially large scale