

1. 2006 Japan Powder Metallurgy Association Awards

(1) New product award, materials section

“Development of Electromagnetic P/M Stainless Steel with High Magnetic Flux Density and High Permeability”

This material is a ferritic stainless steel with an Fe-Cr-Si composition and is used in injector parts of LPG automobiles, which have attracted attention as low pollution vehicles.

Injector parts for use with gasoline have long been produced using wrought stainless steel because it was not possible to obtain high density in injectors manufactured by the powder metallurgy process, and consequently, the required magnetic properties could not be obtained.

In this development, high density of 7.35g/cm^3 was realized based on a review of the chemical composition by increasing the Si content and, in combination, including Cr, and innovations in the raw material powder treatment method. As a result, high magnetic flux density on the same level as wrought stainless steel was obtained, and permeability was increased 60% and electrical properties (specific resistivity) were improved by 30% in comparison with wrought material. Thus, it was possible to develop a material with excellent response. In addition, although 0.25% Pb is added to wrought stainless steel in order to improve its machinability, the developed product is an outstanding environmental material which is completely Pb-free.

This award recognized the development of a material with outstanding magnetic properties superior to those of wrought stainless steel, and the fact that development to other applications can be expected.



(2) New product award, Process development section

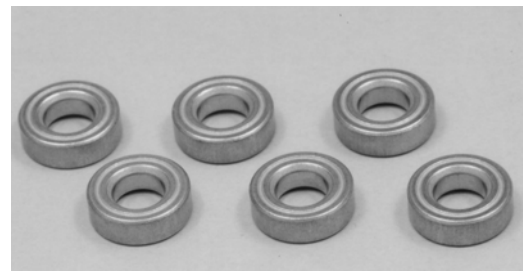
“Thrust Bearing using Side Face Porosity Filling Processing by Ultrasonic Welding Machine”

This production process is a method of side face porosity filling processing for oil-impregnated sintered bearings using an ultrasonic welding machine, and greatly increases the speed of the process of controlling side face porosity. It is applied to bearings for copying machines.

In bearings in which loads are applied to the side face and bearings that require pore sealing, special cutting had conventionally been used. However, processing costs are high because the work tact is long, a washing process is necessary in order to remove chips, frequent blade maintenance is necessary, etc.

In this work, a processing method was developed by focusing on the ultrasonic welding machine, which is a different field from powder metallurgy.

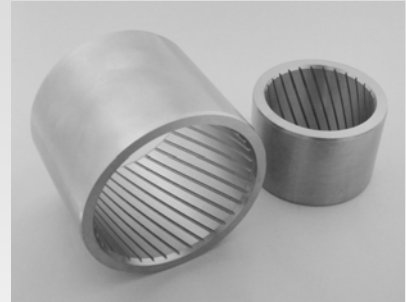
This technique was recognized for the discovery of a new processing method in which the side face of the bearing is filled by striking the face with ultrasonic vibration, and as a result, (1) lubricating oil is not necessary during processing, (2) generation of chips is slight, (3) processing time is reduced to 1/4 that of the conventional technology, etc., and it is possible to reduce costs by approximately 50% in comparison with the conventional technology.



2. Excellence Award for Poster Session Presentation “EK Bush” at PM2006 Powder Metallurgy World Congress & Exhibition (Pusan, Korea)

The PM2006 Powder Metallurgy World Congress & Exhibition was held in Pusan, Korea from September 24 (Sunday) to September 28 (Thursday), 2006. As an event during the period of the Congress, poster session presentations with excellent content were recognized based on voting by registered participants.

Hitachi Powdered Metals was recognized for its poster presentation on the low speed, high load bearing “EK bush.” (Two entries from Japan received awards.)



3. 2007 Spring Meeting of the Japan Society of Powder and Powder Metallurgy: Progress in Technology Award

The “Sintered Electromagnetic Stainless” mentioned in item 1 above also received the Progress in Technology Award at the Spring Meeting of the Japan Society of Powder and Powder Metallurgy held on June 5 (Tuesday), 2007.