Awards
for Excellence in Powder Metallurgy

EPMA 2008

These awards have for the last decade celebrated the achievements of the European PM industry as it has been recognised as a leader in PM technology and it has steadily expanded its share of the automotive and other markets.

A panel of independent experts drawn from different countries in Europe, using the following criteria, refereed the entries:

- Excellence in exploiting PM
- Novelty, that is surpassing borders or bringing new ideas into practice
- Stimulation of further usage of PM technology
- To what extent is the Product expected to provide cost savings or improved quality?
- Preparation of the Entry

The judges have decided upon a winning entry, which receives the Award of Merit. Where there were other entrants worthy of specific praise, then these entrants have been highly commended.

Visit www.epma.com to realise the potential of Powder Metallurgy

EU Legislation
The EPMA takes a lead in raising the awareness of current EU legislation that is affecting the European Powder Metallurgy Industry. As part of the EPMA’s commitment to the PM industry the EPMA Website provides a downloadable ‘Introduction to REACH’ document, which provides a basic understanding of this legislation.

Publications
Our extensive PM catalogue is the most comprehensive listing in Europe with all key English language titles available on the website and orders can be placed directly online at www.epma.com

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Ames - Components for Steering Column

These five parts are assembled in the steering column of passenger cars and are the essential core of the steering wheel adjustment: up-and-down, and in-and-out. Because of the ability of Powder Metallurgy to generate complicated shapes, the customer can integrate the whole function in five parts, by designing directly with PM.

Only a CNC multplate press is able to generate the desired shape of the Needle Drive and the Mobile Rack. Heat treatment is mandatory because wear is prohibited, and the parts are sliding between them in dry conditions. The teeth are very precise, in order to reach a smooth movement. Hardness is also critical with an HRC of 35. Introduced in 2007 the components are produced at a rate of 1,500,000 parts per year.

Dorst Technologies Intelligent Program Controller IPG

Due to increasing end user quality demands it is becoming necessary to fully automate the measurement process for the acquisition, recording, and verification of quality data for each individual part produced. The Dorst Technologies length measurement and weight control system enables the identification of part dimensions that gradually drift outside of set tolerance margins during the manufacturing process. A control loop concept then integrates both the press settings and the length/weight measurement and control system through the press controls.

EROWA® EROWA PM Tooling System

The EROWA PM Tooling System forms the interface between punches, die plate and PM press adaptor. The tooling was especially developed to be used under high pressure. By using the system's datum point, no aligning inside the press adaptor is necessary. Single and multi-level press adaptors are equipped with the EROWSA PM Tooling receivers. The positioning accuracy and the stability of the PM Tooling System make it possible to change components without any re-aligning. By using the datum point of the PM Tooling System setup times are reduced to a couple of minutes.

Hoeganaes Corporation Ancorsteel® 30 HP

Currently the powder metal industry is facing challenges from the raw material costs such as molybdenum, nickel and other elements. Therefore the response of Hoeganaes Corporation has been to develop and introduce a range of new materials one of which is Ancorsteel® 30 HP which is a water-atomized prealloyed low-alloy steel powder specifically targeted at high performance applications.

Ancorsteel® 30 HP provides a cost effective complement to other molybdenum prealloyed low-alloy steels. It is particularly suitable for Quench and tempered applications with smaller cross section sizes where it enables similar heat-treated strength and hardness as traditional Molybdenum prealloys when used in parts with a maximum cross section thickness of about 6-12 mm.

Höganäs® Höganäs AB Starmix BOOST

When a press is restarted after an interruption, the initial parts are often up to 1% heavier as compared to before the stop. These challenges led to the development activities of Starmix BOOST, the latest generation of bonded mixes. A new innovative lubricant and binder system has been developed, which in combination with a special powder treatment process, results in mixes having unsurpassed performance.

OBE Component Watch Case

This application is within the exclusive automotive sector where the reason for using MIM was to achieve perceived high value and a cool touch by replacing the original metalised plastic material. Using Catamold Feedstock 316 L and with a weight per component of 13.6 g the items are produced in a one cavity mould.

A special feature is that the brushed surface effect is already integrated into the tool. This is an example of where MIM components can be economic when produced only in low quantities due the high value of the item.

Parmaco AG Planetary-Carrier with Sun Gear

Parmaco's customer was looking for a method to produce cost efficiently some 12 million high torque Planet-Carriers with Sun Gear for its high volume requirement of planetary gear boxes, with an outer diameter of only 6.2 mm. These Planetary-Gear-Boxes are intended to be used in an opening and closing mechanism for cellular phones.

The most cost effective manufacturing route for the high production volumes proved to be MicroMIM because instead of assembling 5 parts, MicroMIM can produce the Planet-Carrier with Sun Gear in one part. Cost savings compared to traditional production techniques which are in the range of 40% sealed the capture of this new application.

Schunk Sintermetalltechnik GmbH Brake Band Components

These components are used in manual seat-height adjustment devices in automobiles. With a total of five other uniaxial compacted powder-metal components, a set of two brake bands are fitted into each adjustment unit. It is precisely the narrow tolerances of this component with a thinnest wall thickness of less than 2 mm and an outside diameter of 53 mm which pose a big challenge for the process technology.

Furthermore, high tolerance demands are placed on the evenness of the component, amounting to 0.2 mm with the total height of the part being 4 mm. The manufacture of several million such components in compliance with the tolerance demands a carefully controlled and fully linked production process.

Sintex A/S STX2000 Alloy

At Sintex A/S a recent development project was aimed at producing a new sintered stainless steel alloy with more stable microstructure, higher corrosion resistance and reduced amount of alloying elements. Molybdenum content was reduced from 6.5% to 3.9%. However further optimisation was needed in the manufacturing processes to maintain a high level of corrosion resistance particularly in the compaction process and more importantly in the sintering process.

As a consequence a new sintering furnace with focus on atmosphere and temperature control was designed and developed. The results were outstanding: an accelerated salt spray test of the new alloy has shown significantly better corrosion resistance than the old STX1000.

Höganäs® Höganäs AB Starmix BOOST

When a press is restarted after an interruption, the initial parts are often up to 1% heavier as compared to before the stop. Another issue concerns stains on the parts after sintering and additional processing steps for cleaning the parts are required. These challenges led to the development activities of Starmix BOOST, the latest generation of bonded mixes. A new innovative lubricant and binder system has been developed, which in combination with a special powder treatment process, results in mixes having unsurpassed performance.