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## Editorial

Powder Metallurgy Associations are recognizing the outstanding examples of PM's precision, Complexity, performance, economy and innovation in their award for excellence. The recent award winning components from Metal Powder Industries Federation, U.S.A., European Powder Metallurgy Association, Japan Powder Metallurgy Association and Powder Metallurgy Association of India are shown in this issue. Congratulations to the Indian MIM company for winning the award of distinction from MPIF for the year 2011, for the stainless steel multi-purpose military utility tool hammer. Other coverage include information about Intl.PM-12, PMAI Logo Competition and forthcoming PM events. This issue is sponsored by Fluidtherm Technologies Pvt. Ltd.

P. Ramakrishnan

## INTERNATIONAL CONFERENCE & EXHIBITION On

### New Vistas in Particulate Technology & 38<sup>th</sup> ATM of PMAI on Particulate Materials



The Residence Hotel & Convention Centre, 2<sup>nd</sup> to 4<sup>th</sup> February 2012  
Saki Vihar Road, Before Vihar Lake, Powai, Mumbai - 400 087. Tel. : 2858 5100, 2857 5000, [www.pmai.in](http://www.pmai.in)

## PMAI Award

### PMAI Award for best product 2011 GKN Sinter Metals, Pune, India

**Part Description:** Main Bearing

**Application:** Rotary Compressors

**Material:** C-0.5~0.7%; Cu-0.1% max; Mn-0.25% max; Others-2% max, Iron-Balance; Density-6.7gm/cc (min); Hardness-75~95HRb

**Features:** 60mm long, Two lower and two upper punches, 10 CR and stepped die to have smooth edge radius all around.  
Parts are finally welded to main body  
Leak tightness at Port area

#### Process flow:

Mixing      Compaction (400~500T)  
Sintering    Machining (ID, Face and  
OD turning)    Steam Treatment



## MPIF Awards

### WINNERS OF THE 2011 POWDER METALLURGY DESIGN EXCELLENCE AWARDS COMPETITION, SPONSORED BY MPIF.

#### Grand Prize Awards

- GKN Sinter Metals, LLC, Auburn Hills, Michigan, earned the Grand Prize in the Automotive- Transmission category for a carrier and one-way rocker clutch assembly made for Ford Motor Company.
- GKN Sinter Metals, LLC, Auburn Hills, Michigan, won another Grand Prize in the Automotive- Chassis category for a differential bearing adjuster made for its customer American Axle & Manufacturing and used in the GMT 900 rear differential on GM Tahoe and Yukon models.
- Capstan California, Carson, California, received the Grand Prize in the Aerospace/ Military category for a porous bronze filter made for Chase Filters and Components.
- Parmatech Corporation, Petaluma, California, earned the Grand Prize in the Hand Tools/ Recreation category for a large-game 420 stainless steel hunting arrowhead, the 300Xtreem broadhead, made for Optek Precision Tooling Ltd.
- ASCO Sintering Company, Commerce, California, won the Grand Prize in the Hardware/ Appliances category for a PM copper-steel outer hub exit spindle used in electronic door locks, made by for Ingersoll Rand Security Technologies (Schlage).
- FloMet LLC, Deland, Florida, earned the Grand Prize in the Medical/ Dental category for a housing cup and lid used in an audio device with magnetic shielding capabilities.



Grand Prize winners—foreground (l. to r.): outer hub exit spindle and audio housing cup & lid; middle row: archery broadhead, bronze filter, and differential bearing adjuster; background: carrier & rocker assembly

#### Awards of Distinction

- Cloyes Gear & Products, Inc., Paris, Arkansas, won the Award of Distinction in the Automotive- Engine category for an intake sprocket gear and an exhaust gear used in a coupling assembly operating in 2.0 and 2.2 liter diesel engines made by General Motors Korea.
- Megamet Solid Metals, Inc., Earth City, Mo., received the award of distinction in the aerospace/military market category for a rear sight used on sporting and military rifles such as the AR-15, M4, and M16 models, made for Yankee Hill Machine Co., Inc.
- Indo-US MIM Tec (P) Ltd., Bangalore, India, won an Award of Distinction in the Hand Tools/ Recreation category for a 17-4PH stainless steel hammer used in a Leatherman Tool Group multi-purpose military utility tool (MUT) designed for military and law enforcement personnel, and civilians.
- Webster-Hoff Corporation, Glendale Heights, Illinois, received the second Award of Distinction in the Hand Tools/ Recreation category for a PM sinter-hardened steel cam and bushing used in a manual paper hole punching machine made for ACCO Brand Inc.
- Lovejoy Sintered Solutions, LLC, Downers Grove, Illinois, won the Award of Distinction in the Industrial Motors, Controls & Hydraulics category for a PM diffusion-alloyed steel rotor that operates in an industrial rotary gear pump for handling fluids like waste water or chemicals.
- Burgess-Norton Mfg. Co., Geneva, Illinois, earned the Award of Distinction in the Hardware/ Appliances category for a PM steel crimp retainer operating in a valve assembly that regulates gas flow in a high-performance compressor for commercial refrigerators.
- Kinetics Climax Inc., Wilsonville, Oregon, received the Award of Distinction in the Medical/ Dental category for a 17-4PH stainless steel distal channel retainer formed via the MIM process used in a mechanical stapler/cutter used in endoscopic surgery.
- Capstan California, Carson, California, won an Award of Distinction in the Off-Highway category for a bronze filter plate made for Knorr-Bremse GmbH, Austria, used in the braking system of European commuter trains



Award of Distinction winners—foreground: MUT hammer, rear sight, and distal channel retainer; second row: crimp retainer, sintered plate, and cam & bushing; back row: coupling assembly gears and pump rotor



## JPMA Award

### JPMA, 2010 Award *Sumitomo Electric Industries, Ltd.*

#### Forward clutch hub for CVT systems



Sumitomo Electric Industries, Ltd. (SEI) developed this Forward Clutch Hub, a torque transmission part for forward and backward movement in a chain type Continuously Variable Transmission (CVT). The component has complicated features such as a large thin rim with long outer spline and a long boss with inner and outer splines.

The market for automobile CVT's has been expanding due to the growing demand for smaller engines and lower fuel consumption. Until now the only PM components used in a CVT system were for the oil pump, however this new product now offers more opportunities for the PM industry.

The use of the PM process allowed SEI to achieve lower production costs and a higher strength partly due to the use of a Ni-free high strength powder resulting in superior machinability. The production process involves multi level compaction with three upper and four lower punches on a CNC press.

## EPMA Award

### The EPMA, 2010 Award

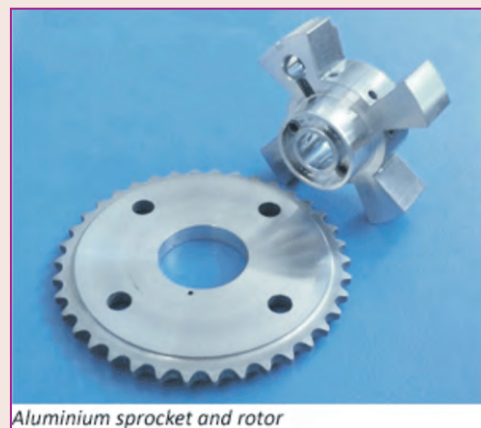
In the Component Category was given to SHW Automotive, Germany, for the development of their aluminium sprocket and rotor.

The rotor and sprocket are used in an automotive cam-phaser application and are the first known components being manufactured. The second award in the Component Category was given to SHW Automotive, Germany, for the development of their aluminium sprocket and rotor.

The rotor and sprocket are used in an automotive cam-phaser application and are the first known components being manufactured from aluminium powder in large scale production.

Compared to a standard sintered iron cam-phaser design, weight is reduced from 900 grams to 450 grams. In addition to fuel savings due to reduced weight, the rotating inertias are also reduced which improves the dynamic response behaviour of the cam-phaser, thus giving another benefit to engine performance and efficiency.

Stimulated by the continuous need for CO<sub>2</sub>/fuel savings following legislative regulations, growing usage of aluminium powder metal components in automotive applications is expected.



Aluminium sprocket and rotor

## Forthcoming Events

### TERMEC 2011 - 7TH INTERNATIONAL CONFERENCE ON PROCESSING & MANUFACTURING OF ADVANCED MATERIALS

August 1-5, Quebec City, Canada [www.thermec2011.ca](http://www.thermec2011.ca)

### INTERNATIONAL CONFERENCE ON SINTERING 2011

August 28 - September 1, Jeju Island, Korea

[www.sintering2011.org](http://www.sintering2011.org)

### ILASS 2011 24TH EUROPEAN CONFERENCE ON LIQUID ATOMIZATION AND SPRAY SYSTEMS

September 5-7, Estoril, Portugal, [www.ilass2011.org](http://www.ilass2011.org)

### TITANIUM 2011

October 2-5, SAN Diego, CA, [www.titanium.org](http://www.titanium.org)

### 6TH INTERNATIONAL POWDER METALLURGY CONFERENCE

October 5-9, Ankara, Turkey, [www.turkishpm.org](http://www.turkishpm.org)

### EURO PM2011 CONGRESS & EXHIBITION

October 9-12, Barcelona, Spain, [www.epma.com/pm2011](http://www.epma.com/pm2011)

### APMA - 2011

October 30-November 2, 2011, Jeju, Korea,

[www.kpmi.or.kr/www.apma2011.org](http://www.kpmi.or.kr/www.apma2011.org)

### INTERNATIONAL CONFERENCE & EXHIBITION

### NEW VISTAS IN PARTICULATE MATERIALS TECHNOLOGY

February 2-4, 2012, Mumbai, India, [www.pmai.in](http://www.pmai.in)

## PMAI Logo Competition

### PMAI Logo Competition

The Powder Metallurgy Association of India is looking for a new LOGO, one that stylishly reflects either the name of the association or particulate processing technologies in an abstract manner.

Online submission as pdf file may be send to [info@pmai.in](mailto:info@pmai.in)

Copyright will belong to PMAI

Entries are invited from individuals upto 30 Dec. 2011.

The winning entry will be announced during the inaugural session of PM I2, Annual International Conference (Feb. 2-4, 2012, at The Residence Hotel and Convention Centre, Powai, Mumbai) and the author will be awarded a certificate in addition to a cash award of Rs.25,000/=

The decisions of a selection panel from among the Governing Council of PMAI will be final on all aspects of this competition.

# FURNACES FOR POWDER METALLURGY



**MESH BELT**

**PUSHER**

**WALKING BEAM**

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**SINTERING**

**STEAM TREATMENT**

**POWDER ANNEALING**



**FLUIDTHERM**

[www.fluidtherm.com](http://www.fluidtherm.com)

[info@fluidtherm.com](mailto:info@fluidtherm.com)