

ISSN-0377-8452

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GKN Sinter Metals India Ltd.

*The net shape, high volume, part to part consistency, weight savings and surface finish of PM products provide substantial value additions in their applications. The recent recognition of Variable Valve Timing ( VVT ) Technology systems by PM is another innovative and significant use of PM parts in auto engine applications. Further PM is a recognized green technology. Present your paper, showcase your products / processes /services at the leading forum of Intl.PM-11, Conference & Exhibition at Pune. Other activities reported in this issue include a seminar with BASF Metal Systems, PM short course, PM Plant Practice course during 2010. This issue of News letter is sponsored by GKN Sinter Metals Limited.*

*P.Ramakrishnan*

## INTERNATIONAL CONFERENCE & EXHIBITION

On

**Powder Metallurgy for Automotive and Engineering Industries**

**Cost Effective Solutions through PM & 37<sup>th</sup> ATM of PMAI on Particulate Materials**

Venue - The Westin Pune, Koregaon Park

3<sup>rd</sup> to 5<sup>th</sup> February 2011

Organized by - Powder Metallurgy Association of India



**PM-11**

International Conference with Exhibition



### TOPICS

- ▶ Modeling of PM Parts & Processes
- ▶ Materials & Alloy Development
- ▶ Powder Production & Characterization
- ▶ Compaction & Other Forming Processes
- ▶ Sintering
- ▶ Secondary Operations
- ▶ Advanced Materials & Processes
- ▶ Metal and Ceramic Injection Molding
- ▶ Energy Conservation
- ▶ Advances in Equipment Design
- ▶ New Materials for Automotive Applications
- ▶ Application of PM Parts-Automotive and Allied Industries
- ▶ Nano Materials & Technology

### DEADLINES

- ▶ Abstract & Pre Registration....November 15, 2010
- ▶ Deadline For Exhibitors & Advertisement..... December 1, 2010
- ▶ Second Circular with Full Program.....December 30, 2010
- ▶ Dead line For Full Text..... January 1, 2011
- ▶ Conference..... February 3 to 5, 2011

### For Details

All the details regarding the conference information will be available on website [www.pmai.in](http://www.pmai.in)

Powder Metallurgy Short Course 2010  
(PMSC-10)

October 8 - 11, 2010.

College of Engineering, Shivajinagar, Pune

\*Details Over Leaf

Powder Metallurgy Plant Practice  
(PMP2 2010)

December 3 - 4, 2010.

Jungal Resort & SintBush India Ltd., Palghar

\*Details will be announced shortly

One Day Seminar on  
BASF Metal Systems - CIP & Catamold  
BASF India Ltd. jointly with PMAI  
September 16, 2010.  
Mumbai

\*Venue & Other Details will be announced shortly

**Powder Metallurgy Short Course 2010**

Powder Metallurgy Short Course 2010 (PMSC-10), offered by Powder Metallurgy Association of India (PMAI) will be conducted by the Department of Metallurgical Engineering, College of Engineering Pune (COEP), for four days from October 8 to 11, 2010. It is a unique department established in 1948 and surrounded by number of automotive and allied industries.

The course conducted in the past several years has been very successful, and several entrepreneurs have come up in PM with this background. The list attached gives an idea of the participation since the last few years.

The course is designed for practicing powder metallurgists and other engineers, managers, executives, academicians and entrepreneurs seeking an in-depth knowledge of the range of powder metallurgy technology. It is expected that middle level management and senior supervisory staff as also entrepreneurs in the field of PM would benefit from the course by giving them a deeper understanding of their current activities, as also their exposure to the advances in the technology that they can make use of in their work place. Anyone else desirous of an insight into practical powder metallurgy would also benefit by the course.

In addition, the course would include demonstration/practical classes in some of the above mentioned aspects of PM such as, powder reduction, die compaction, tool room practices, atomization, powder injection moulding etc.

This is an intensive course, which calls for full involvement from morning to evening on all four days of the course. Lectures will be held by specialists in respective fields with years of practical experience. At the end of the course the participants would be tested for the knowledge acquired and will be issued with a certificate from PMAI. To ensure excellent interaction between the participants and the lecturers, participation will be restricted.

**The course would cover the following fields:**

1. Powder production
2. Characterization of powders
3. Compaction of powders
4. Design and fabrication of dies
5. Sintering
6. Characterization of sintered component
7. Sintering furnaces and atmospheres
8. Processing of ceramics
9. Hard Metals & cemented carbides
10. Surface engineering with powders
11. Statistical Quality Control
12. Technology Management
13. Specialty areas in powder metallurgy
  - (a) Powder Injection Moulding
  - (b) Mechanical alloying
  - (c) Nanomaterials
  - (d) Hot isostatic pressing
  - (e) Microwave sintering

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**Register Now !****Some of the past participant organizations**

- Abrasive Technologies Private Ltd, Bangalore,
- Anticorrosive Equipments Pvt. Ltd., Valsad,
- Armament R & D Establishment, Pune,
- Ashvini Magnets Pvt. Ltd, Pune,
- Avis Machines Pvt. Ltd., Surat,
- Avis Metal Powder Ltd., Surat,
- Balaji Diamond Tools Pvt. Ltd., Coimbatore,
- Bhabha Atomic Research Centre, Mumbai,
- Brico Goetze, New Delhi,
- British Super Alloys Ltd., Mumbai,
- Centre for Materials for Electronics Technology, Hyderabad,
- Coimbatore Rubber Products, Coimbatore,
- Defence Metallurgical Research Laboratory, Hyderabad,
- DGP Hinoday Industries Ltd., Pune,
- Double-Dee Technology Pvt. Ltd., Mumbai,
- Electronica Machine Tools, Nasik,
- Federal Mogul Sintered Products Ltd., Bhiwadi,
- Fluidtherm Technology Private Ltd, Chennai,
- G. K. Micrometals Pvt. Ltd., Gwalior,
- Global Sinter Products (P) Ltd., Hyderabad,
- Glowtronics Private Limited, Mysore,
- Goa Sintered Products Pvt. Ltd., Goa,
- Grantools Pvt. Ltd., Bangalore,
- Grishma Special Materials, Mumbai,
- Heavy Alloy Penetrator Project, Tiruchirappalli,
- Hindustan Aeronautics Ltd., Bangalore,
- Hindustan Non Metallix, Coimbatore,
- Hyflux Limited, Singapore,
- Institute of Minerals & Materials Technology, Bhubaneshwar,
- Jas Diamond Tools, Chennai,
- Laxmi Narayan & Sons, Mumbai,
- Mahindra & Mahindra, Nasik
- Maniks, Pune,
- Mishra Dhatu Nigam Limited, Hyderabad,
- Midwest Granite Private Ltd., Hyderabad,
- Mipalloy-PM Division, Chennai
- Modison Metals Pvt. Ltd., Gujarat,
- National Metallurgical Laboratory, Jamshedpur
- Nonferrous Materials Technology Development Center, Hyderabad,
- Nuclear Fuel Complex, Hyderabad,
- Nutech Sintered Products Private Ltd., Mumbai,
- Oblum Electrical Industries Private Ltd., Hyderabad,
- P.P. Patel & Co, Solapur,
- Prasad Innovations, Hyderabad,
- Pune Institute of Engg and Technology, Pune,
- Rane Brake Linings Ltd., Hyderabad,
- Rapicut Carbides, Ankaleshwar,
- Regional Research Laboratory, Thiruvananthapuram,
- Rivon Engineering Company, Goa,
- Rubamin Limited, Baroda,
- Sanwa Diamond Tools Pvt. Ltd., Bangalore,
- Sarda Enterprise, Jaipur,
- Shatul Engineering Industries, Goa,
- Shubhmets, Mumbai,
- Sintbush (India) Pvt. Ltd., Mumbai,
- SKS Industries, Chennai,
- SLM Metal (P) Ltd., Rourkela,
- Speciality Sintered Products Pvt. Ltd., Pune,
- Star Sintered Products Ltd., Noida,
- Sundaram Fasteners Ltd., Hosur, Hyderabad, Medak,
- Terminal Ballistics Research Laboratory, Chandigarh,
- Thermax Ltd., Pune,
- Titan Industries Ltd., Hosur,
- Tristar Diamond Tools, Chennai,
- Vasundhara Sintered Pvt. Ltd., Delhi,
- Vikram Sarabhai Space Centre, Thiruvananthapuram,
- Vinka Industries, Goa,

**Forth Coming PM Events**

- **MICROSCOPY & MICROANALYSIS 2010, August 1-5, Portland-OR,** [www.microscopy.org](http://www.microscopy.org)
- **PRICM 7, 7<sup>th</sup> PACIFIC RIM INTERNATIONAL CONFERENCE ON ADVANCED MATERIALS AND PROCESSING**  
August 1-5, Cairns-Australia, [www.materialsaustralia.com.au](http://www.materialsaustralia.com.au)
- **ILASS 2010 23<sup>rd</sup> ANNUAL LIQUID ATOMIZATION AND SPRAY SYSTEMS, September 6-8, Brno, Czech Republic**  
[www.ilasseurope2010.org](http://www.ilasseurope2010.org)
- **TITANIUM 2010, October 3-5, Orlando-FL,** [www.titanium.org](http://www.titanium.org)
- **PM2010 WOLD CONGRESS, October 10-14, Florence, Italy,** [www.epma.com/pm2010](http://www.epma.com/pm2010)
- **7<sup>th</sup> INTERNATIONAL SYMPOSIUM ON SUPERALLOY 718 & DERIVATIVES, October 10-13, Pittsburg- PA,** [www.tms.org](http://www.tms.org)



## AWARD-WINNING PM PARTS

Winners of the 2010 Powder Metallurgy Design Excellence Awards competition, sponsored by the Metal Powder Industries Federation, were announced in Hollywood, Florida, at PowderMet2010, the 2010 International Conference on Powder Metallurgy & Particulate Materials. Receiving grand prizes and awards of distinction, the winning parts are outstanding examples of powder metallurgy's (PM) precision, performance, complexity, economy, and innovative design advantages.

### The Grand Prize in the Automotive

Transmission Category was won by GKN Sinter Metals for a fully integrated planetary carrier and rocker-style one-way clutch assembly, an industry first. Designed and made for Ford Motor Company and used in the Ford Super Duty truck five-speed automatic transmission, the application is a three-piece sinter-brazed planetary carrier. Smith Metal Products received the Grand Prize in the Hand Tools/Recreation Category for a 17-4 PH stainless steel hunting arrow tip—called a shuttle T-lock broadhead—made by metal injection molding (MIM) for Trophy Taker, Inc. FloMet LLC won the Grand Prize in the Aerospace/Military Category for a safe and arm rotor used in an explosive device for a Department of Defense application. And Advanced Materials Technologies Pte Ltd. won the Grand Prize in the Industrial Motors/Controls & Hydraulics Category for four complex 316L stainless steel MIM parts—lock cover, lock barrel pin, lock barrel boss, and lock barrel square—assembled into a locking device for heavy machinery operating in harsh environments.



Grand Prize winners—foreground: safe and arm rotor; middle row (l. to r.): shuttle T-lock broadhead and lock parts; background: planetary carrier and rocker-style clutch assembly



Award of Distinction winners (l. to r.): foreground: dead-locking lever and upswept grip; second row: clutch outer race and pinion gear and sector; third row: tensioner assembly and crankshaft sprocket; background: belt-drive sprocket and rotating counterweight

### There were eight Awards of Distinction.

PMG Füssen GmbH won an Award of Distinction in the Automotive—Engine Category for a complex PM steel crankshaft sprocket used in a V-6 engine. The part is made for iwis motorsysteme GmbH & Co. KG. PMG Indiana Corporation received an Award of Distinction in the Automotive—Transmission Category for a one-way clutch outer race made for EXEDY Globalparts Corporation. ASCO Sintering Company won one of two Awards of Distinction in the Hardware/Appliances Category for a high-strength sinter-hardened PM steel dead-locking lever used in a 40H Series high-security mortise lock made by Stanley Security Solutions, Inc. The other Award of Distinction in this category was won by Capstan Atlantic for a high-density transfix pinion gear and sector used in a high-volume printing application.

The other Awards of Distinction include two in the Hand Tools/Recreation Category. The first went to Burgess-Norton Mfg. Co. for a final belt-drive sprocket which transmits torque from the transmission to the rear wheel on a motorcycle. Megamet Solid Metals, Inc., won the second Award of Distinction in this category for an upswept grip safety used in the 1911-style 45-caliber pistol made by Colt's Manufacturing Company, LLC. Finally, Lovejoy Sintered Solutions LLC won two Awards of Distinction in the Industrial Motors/Controls & Hydraulics Category. The first was for a rotating machine counterweight used in a refrigeration compressor for truck trailers, and the second for a PM steel tensioner assembly made for its customer Rosta AG.

## INDUSTRY RECOGNIZES PM VVT TECHNOLOGY

The Metal Powder Industries Federation has identified PM variable valve timing (VVT) systems as a technology worthy of its Powder Metallurgy Industry Landmark recognition for its innovative and significant use of PM parts. The recognition was announced on June 28 during PowderMet2010, in Hollywood, Florida.

Originally introduced in the late 1960s, VVT systems began using PM parts in North American internal combustion engines in 2000. The technology assists automakers to meet environmental and fuel-efficiency standards by advancing or retarding the timing of the intake or exhaust valves. VVT allows cam timing to change, which results in improved engine efficiency and power over a wider range of engine RPMs.

The PM industry supplies an estimated 40 million PM steel parts for VVT systems annually in North America, a number that is projected to grow to 70 million by 2015. Most current VVT systems contain three complex PM parts, a vane rotor, sprocket, and thrust plate, weighing about one pound per system. PM's net-shape, weight-saving, high-volume part-to-part consistency and superior surface-finish advantages provide substantial value to OEMs in this application. Making parts for VVT systems via PM offers substantial cost savings.



PM variable valve timing systems earn Industry Landmark recognition for impact on usage of powder

 1759-2009

250 Years of Exceptional Engineering

# No Limits


**countertrack**  
GKN TECHNOLOGY

GKN's focus on future technologies means:

Vision for new applications and concepts that will be used beyond tomorrow.


**crosstrack**  
GKN TECHNOLOGY

GKN Sinter Metals is the leading partner globally for new developments and integration.

As the world's number one supplier we deliver components from Powder Metal (PM) and Metal Injection Moulding (MIM).

Together with our customers we create value from visions – day by day.

If you want to be part of our success you will find more at

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