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## Executive Director Report



Takashi Saito, Executive Director JPMA

Dear Friends:

Your continuous cooperation with our JPMA is much appreciated.

Last year, the Third APMA Conference Kyoto was held in the October, where many PM related people participated from not only Asian countries, but also other worldwide countries. This conference was the third one following after the First at Busan, Korea in 2011 and the Second at Xiamen, China in 2013.

Under the concept of “Simple & Compact”, the Third APMA Conference was held at Clock Tower Centennial Hall of Kyoto University. Thanks to supports of many related people, it was very successful in result that the number of registered participants and presented papers were 439 and 198 respectively. Also, under the very beautiful autumn at Kyoto, participants could get together to have opportunities of exchanging the information about PM technologies and industries, and promoted friendly relations with each other. Taking this opportunity, we would like to express our sincere thanks to cooperators for the Third APMA Conference.

The JPMA saw the Sixtieth Anniversary of the founding in April, 2016, and the commemoration exercises and the celebration party were held at Palace Hotel Tokyo on April 27, 2016. The guests including concerned persons of the Ministry of Economy, Trade and Industry,

ex-JPMA members, and related people joined then, and enjoyed talking about various passed JPMA events since the foundation.

As to the World PM2016 Hamburg of this coming October, JPMA is planning to send a mission as the previous World Conference. In the exhibition site, the JPMA booth is scheduled to promote conferences of APMA2017 Taiwan and World PM2018 Beijing, China.

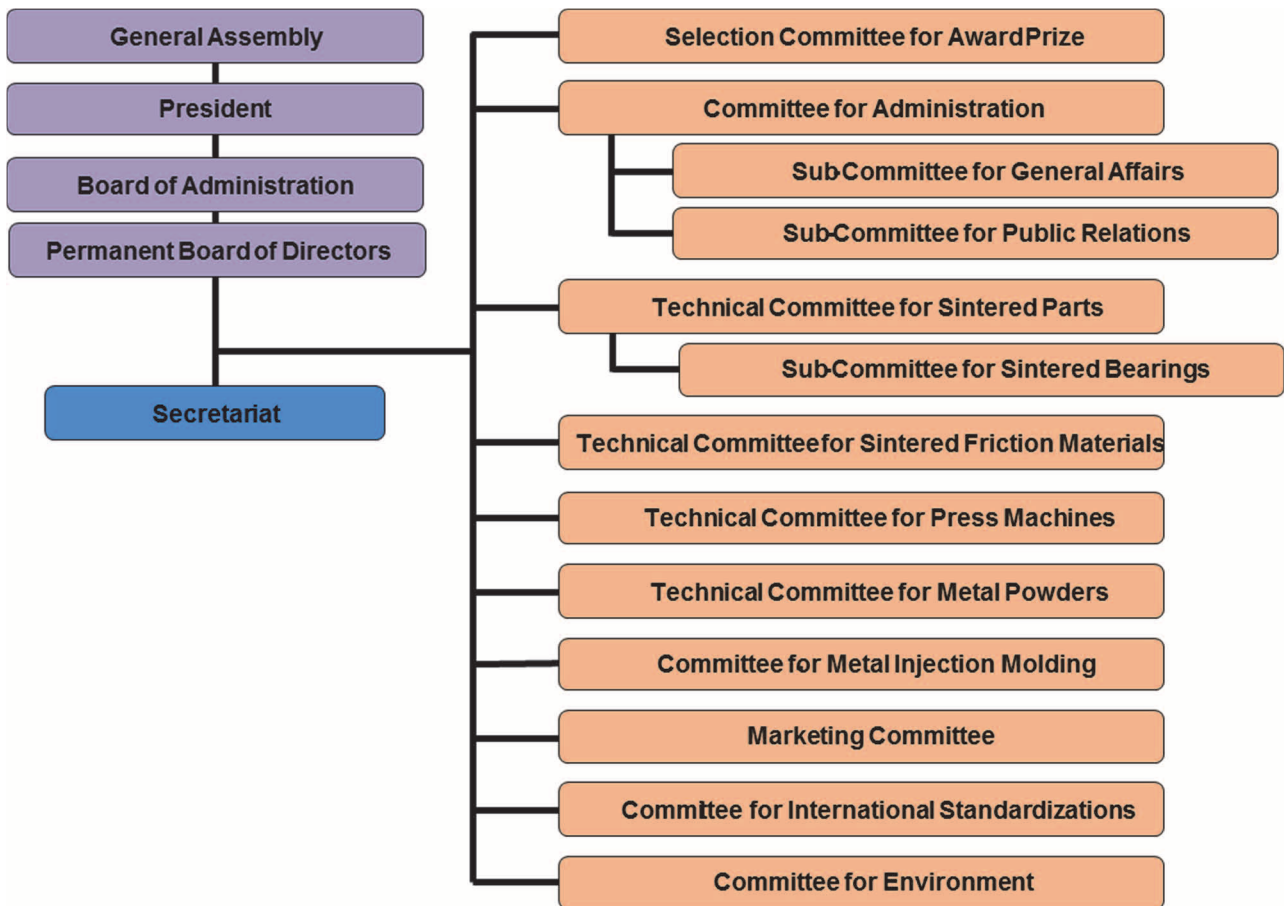
Now, in comparison with a decrease of 5.1% over last year of locally produced quantity of automobiles which are main PM product consumer, the decrease for the same period of locally produced weight of PM machine parts and bearings was 5.0%, that is an apparent reflection on the decrease of automobile products.

About the Japanese economy in 2015, the export enterprises including automobile manufacturers and others enjoyed in general good results because of continuous cheaper Yen and stable stock price, however manufacturers could not keep powers on the whole due to the continuous high level inventories of products and materials influenced from the deceleration of economically growing sphere and the instability of the international financial market. In spite of such market circumference, the JPMA has performed positive activities through each committee, such as standard unification, promotion of technologies for managing environmental issues and the like. We confidence such activities would surely provide favorable results for promotion of PM products, and progress of PM industries in the future.

In conclusion, please access to the English version of JPMA web site that provides the newest information about our activities and JPMA awarded products.

<http://www.jpma.gr.jp/en/>

## Organization of JPMA



## Board Members

### President

Mr. Mamoru Moritani

Executive Officer General Manager, Powder Metal Products Division  
SUMITOMO ELECTRIC INDUSTRIES, LTD.



### Executive Director

Mr. Takashi Saito

Japan Powder Metallurgy Association

### Permanent Board Members

□ Mr. Taichi Haraquchi

DIAMET CORPORATION

□ Mr. Yozo Sato

Hitachi Chemical Co., Ltd.

□ Mr. Yoichi Inoue

FINE SINTER CO., LTD.

□ Mr. Isamu Kikuchi

PORITE CORPORATION

□ Mr. Akihiko Hamano

JFE Steel Corporation

□ Mr. Syuzo Sonoda

FUKUDA METAL FOIL & POWDER CO., LTD.

### Board Members

□ Mr. Junichi Takahashi

IWAKI DIECAST Co., Ltd.

□ Mr. Mikio Fujihara

Tungaloy Corporation

□ Mr. Kazuhide Kikuchi

Tokai Carbon Co., Ltd.

□ Mr. Masayoshi Nishimura

Fukuisinter Co., Ltd.

□ Mr. Shinichi Kondo

KOBE STEEL, LTD.

□ Mr. Satoshi Tsujimoto

Daido Steel Co., Ltd.

□ Mr. Atsushi Nagano

Dowa Electronics Materials Co., Ltd.

□ Mr. Masanori Kijima

Nippon Atomized Metal Powders Corporation

□ Mr. Carl-Gustav Eklund

Höganäs Japan K.K.

□ Mr. Tsugio Watanabe

Mitsubishi Materials Techno Corporation

### Auditor

□ Mr. Masaaki Matsumoto

Tungaloy Corporation

□ Mr. Tomomi Yamamoto

Daido Steel Co., Ltd.

### JPMA Secretariat

□ Mr. Yusuke Watanuki (Deputy Manager)

General Assembly, Committees, Events, Web, Publication

□ Ms. Aoi Yamanaka (Staff)

Statistics, Events and General affairs

□ Ms. Tokie Sakamoto (Staff)

Accountant and General affairs

## Activities of Committees

### Selection Committee for Award Prize

Number of Committee Members: 14 persons



**Chairman: Mr. Yozo Sato**  
(Hitachi Chemical Co., Ltd.)  
**New Chairman**

\*Selection Committee for JPMA Award (Development Prize)



New Design  
Higher Cost Performance by Reduction of Wear Resistant Material on the Valve Seat  
FINE SINTER CO., LTD.

### Committee for Administration Sub-Committee for General Affairs

Number of Committee Members: 22 persons

Number of Committee Members: 7 persons



**Chairman: Mr. Sanpei Seki**  
(PORITE CORPORATION)  
**Commission from 2014**

\*Planning and operating of the PR meeting "JPMA Awards Special Session" at JSPM Spring Meeting in May

\*Planning and operating of "the tour of Committee for Administration"

\*Publication of the report "Analysis of investigation results of sintered parts demand structure 2014" in June

\*Edition of the Brochure "2014 JPMA Annual Report (English)" and "2014 JPMA Annual Report (Japanese)" in May and July

\* Planning and operating of "33th Case Studies on Improving Production Efficiency Meeting (APMA2015 JPMA Special Seminar)" in November.

\*Planning and operating of "PM information Exchange Meeting"

### Sub-Committee for Public Relations

Number of Committee Members: 8 persons



**Chairman: Mr. Yoshio Uetsuki**  
(SUMITOMO ELECTRIC INDUSTRIES, LTD.)  
**Commission from 2014**

\*Renewal of the "JPMA Website (Japanese and English site)"

\*Planning of operating of "3rd Human resources development seminar"

\*Publication of JPMA News "Funmatsu Yakin" (No381-384)

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## Technical Committee for Sintered Parts

Number of Committee Members: 9 persons



**Chairman: Mr. Hiroaki Terai**  
(SUMITOMO ELECTRIC INDUSTRIES, LTD.)

Commission from 2014

- \*Discussion of the matter for ISO/TC119/SC3 and SC5
  - \*Completion of the Domestic Standard(JIS) Draft “Sintered metal materials – Specification”
  - \*Planning and operating of “Joint Meeting by three technical committees”
  - \*Planning of the Plant tour for new markets
- 

## Sub-Committee for Sintered Bearings

Number of Committee Members: 4 persons



**Chairman: Mr. Yoshinari Ishii**  
(DIAMET CORPORATION)

Commission from 2014

- \*Deliberation of standardization of the PV value
  - \*Inter laboratory test of the PV value
- 

## Technical Committee for Sintered Friction Materials

Number of Committee Members: 3 persons



**Chairman: Mr. Yoshihisa Ueda**  
(FINE SINTER CO., LTD.)

Commission from 2010

- \*Exchange of Information for Friction Material
  - \*Planning of “Opinion Exchange Meeting among Young Workers of Sintered Friction Materials Companies”
- 

## Technical Committee for Press Machines

Number of Committee Members: 7 persons



**Chairman: Mr. Katsuo Murakami**  
(YOSHIZUKA SEIKI CO., LTD.)

Commission from 2010

- \*Exchange of Information for defect case of Press
  - \*Exchange of Information for newfangled Press machine
  - \*Planning and operating of “Joint Meeting by three technical committees”
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## Technical Committee for Metal Powders

Number of Committee Members: 16 persons



**Chairman: Mr. Akio Sonobe**  
(JFE Steel Corporation)  
Commission from 2010

- \*Discussion of Matter for ISO/TC119/SC2
  - \*Introduction of topics about “Metal Powder” by Committee members and exchange of views
  - \*Planning and operating of “Joint Meeting by three technical committees”
- 

## Committee for Metal Injection Molding

Number of Committee Members: 11 persons



**Chairman: Mr. Jyunichi Takahashi**  
(IWAKI DIECAST CO., LTD.)  
Commission from 2014

- \*Investigation of the Japanese MIM market
  - \*Publication of “the MIM booklet”
  - \*Deliberation of “MIM Lecture Meeting for Users” and “Opinion Exchange Meeting among Young Workers of MIM Companies”
- 

## Marketing Committee

Number of Committee Members: 14 persons



**Chairman: Mr. Tatsuya Kajino**  
(PORITE CORPORATION)  
Commission from 2014

- \*Introduction of topics by Committee Members and exchange of views
  - \*Introduction of Information Gathering of User Market and Other Market
- 

## Committee for International Standardizations

Number of Committee Members: 7 persons



**Chairman: Mr. Tetsuya Sawayama**  
(KOBE STEEL, LTD.)  
Commission from 2012

- \*Attendance of 2015 ISO/TC119 Meeting in Los Angeles, USA
  - \*Discussion of related matters for TC119, SC2, SC3 and SC5
-



## Committee for Environment

Number of Committee Members: 5 persons



**Chairman: Mr. Motonobu Isaka**  
(DIAMET CORPORATION)

Commission from 2014

- \*Investigation of 2014 follow-up survey for "Voluntary Action Plan for Environment of PM Industry"
- \*Introduction of Case Study of "CO2 Emissions Reduction", "Waste Product Reduction" and "KANKYO HIYARI"
- \* Deliberation of "Environment Awards"

## JPMA Events and International Communications

### 14, January

Gathering of 2015 New Year Greeting and Ceremony of Awarding Various Honors in 2014

### 20, March

The 10th PM Information Exchange Meeting

### 14-15, May

The 6th Opinion Exchange Meeting among Young Workers of MIM Companies

### 21, May

2015 JPMA General Assembly  
The 2015 Working Plans and Budget of JPMA

### 26, May

JPMA Special Session at the JPMA Spring Meeting

### 18, June

Tour of Committee for Administration  
Miyagi Fukkou Park

### 22, June

The 1st Opinion Exchange Meeting among Young Workers of Sintered Friction Materials

### 3, July

3rd Human resources development seminar

### 22, October

2015 JPMA Fall General Assembly  
Announcement of 2014 JPMA Awards

### 8-10, November

APMA2015 3rd International Conference on Powder Metallurgy in Asia (Kyoto, Japan)

### 8, November

APMA, 7th Board Meeting

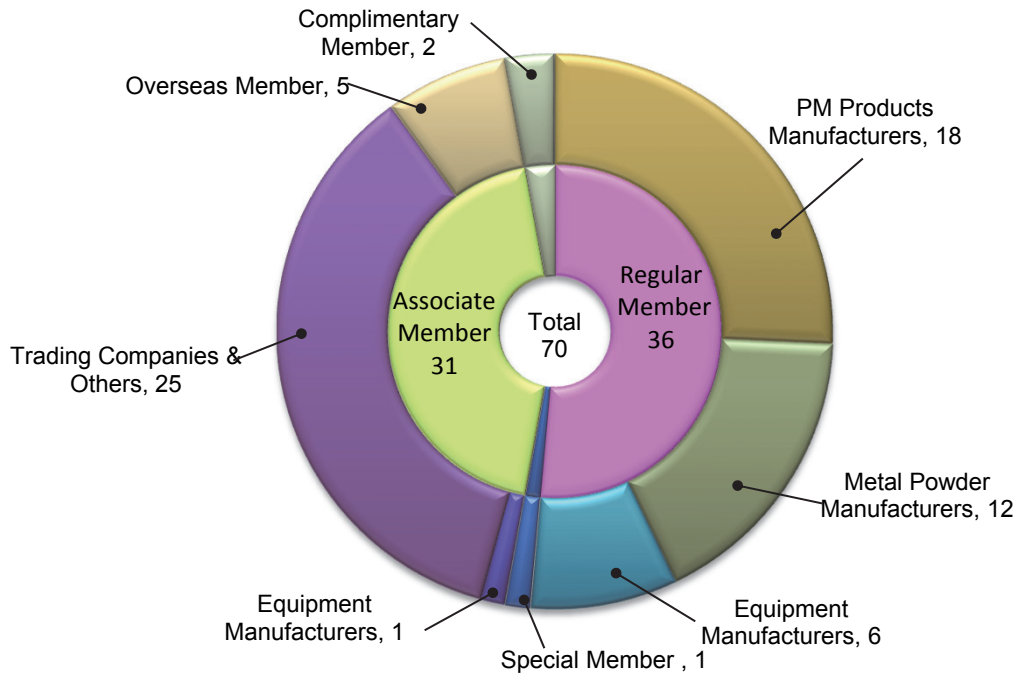
### 10, November

The 33th Case Studies of Production Efficiency Improvement Meeting in APMA2015

## JPMA Publications

The 36th Investigation Collection Results of Sintered Parts Demand Structure  
JPMA Report, 2014 (English and Japanese)  
JPMA News "Funmatsu Yakin" (No381-384)  
The MIM Booklet

## JPMA Membership



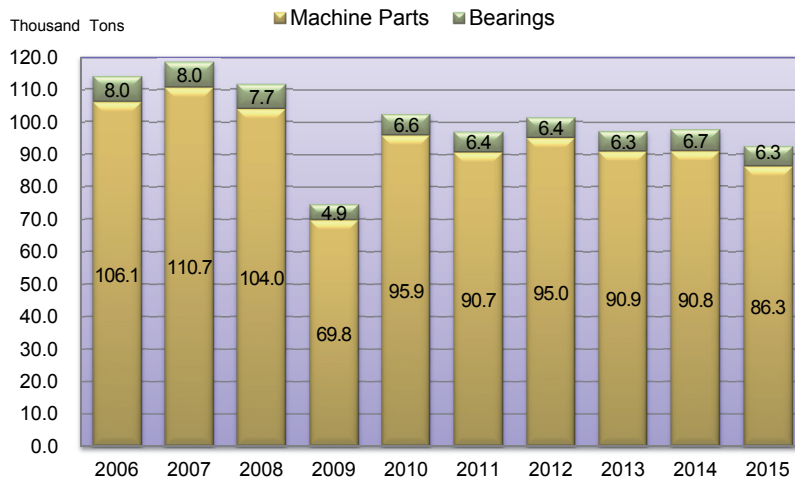
## Statistics of Japan

### Production of PM Products in Japan

Fig1 shows the production volume change of Machine Parts and Bearings for the period from 2006 through 2015.

Machine Parts volume was 86,287 ton, 5.0% decrease from the previous year. Bearings volume was 6,284 ton, 6.6% decrease from the previous year. As the other products, Friction Materials volume was 660 ton, 4.6% decrease from the previous year. Electric Contacts volume was 71 ton, 10.9% increase from the previous year.

Fig1. Production of Machine Parts and Bearings (Calendar Year) (Source: METI)



## Machine Parts and Bearings

Fig2 shows the analysis of demand for Machine parts and Bearings for the period from 2006 through 2015

Machine Parts Production volume for Vehicles was 81,200 ton, 3.8% decrease from the previous year.

This is because the production amount of automobile that is the main user of powder metallurgy in Japan was 5.1% decrease. And also, production transfer to foreign countries by automobile producers because of the spot supply, is another reason.

In 2016, it is expected to recover the demand a little. One of the reason is the urgent demand increase before the expected consumption tax increase in April,2017 and the other reason is the production amount recovery in Japan from other countries by some automobile producers.

Production volume of Bearings for Vehicles was 4,018 ton, 4.2% decrease from the previous year.

Fig2. Analysis of Demand for Machine Parts and Bearings (Calendar Year) (Source: METI)

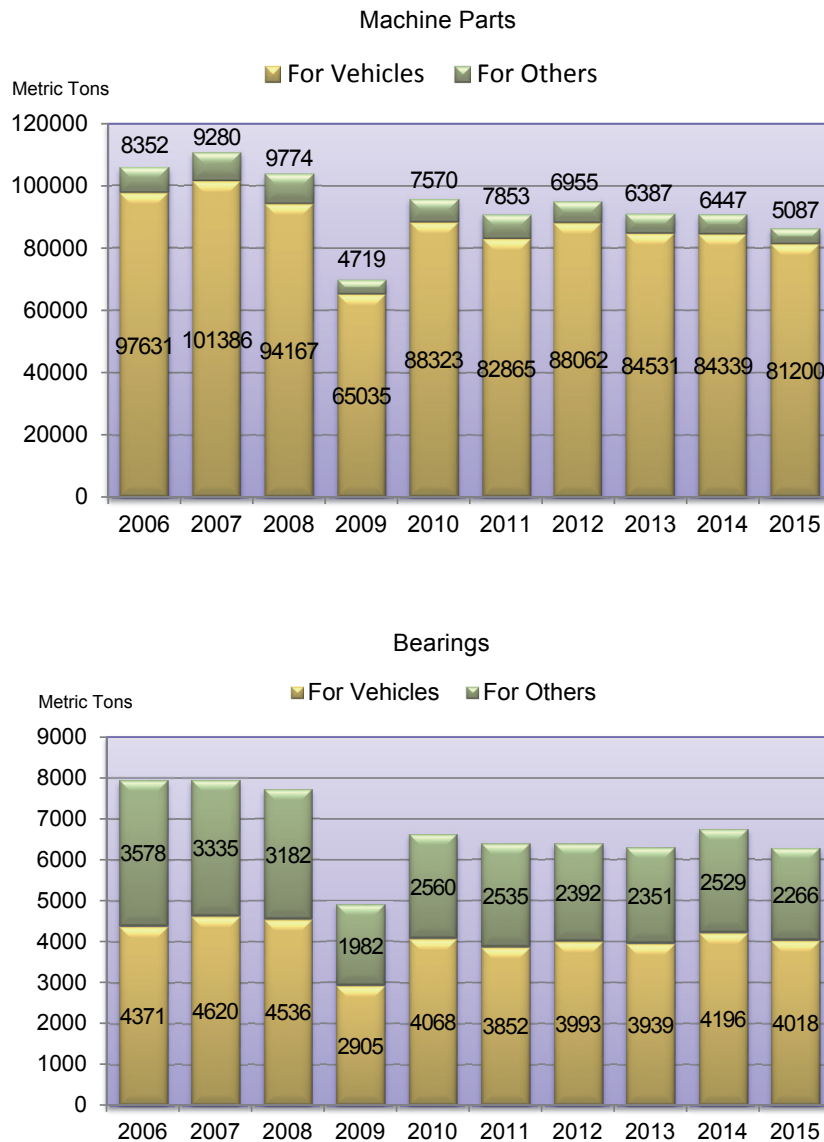


Fig3 shows the use breakdown of Machine parts and Bearings in vehicle in 2014 based on the demand structure survey by JPMA.

52.2% of Machine parts were for engine use, the main trend of machine parts is not the change of the parts itself, but it is investigated to change the low cost material by keeping the same material properties and to fulfil the cost saving by the new compaction and heat treatment technology, by that we aim the distinction from other manufacturing method.

The main trend of Bearings is for electrical use, the bearing with high tolerance and high durability is required. And the bearing as turbo-parts by down-sizing is expected to increase.

Fig3. Breakdown of Machine Parts and Bearings for Automobile (2013) (Source: JPMA)

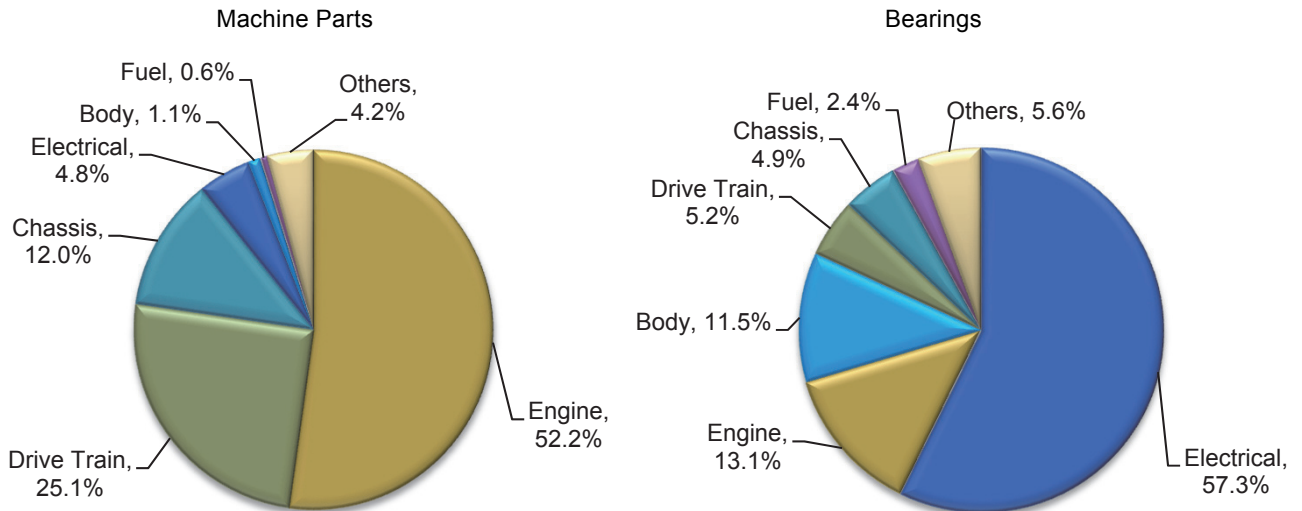


Fig4 shows the weight of sintered parts used for one car and the car production in Japan for the period from 2005 through 2014.

The weight of sintered parts used for one car in 2014 was 8.9kg in Japan, 20.3kg in U.S. and 9.5kg in Europe.

Fig4. Weight for sintered parts used for one car (Source JPMA and JAMA)

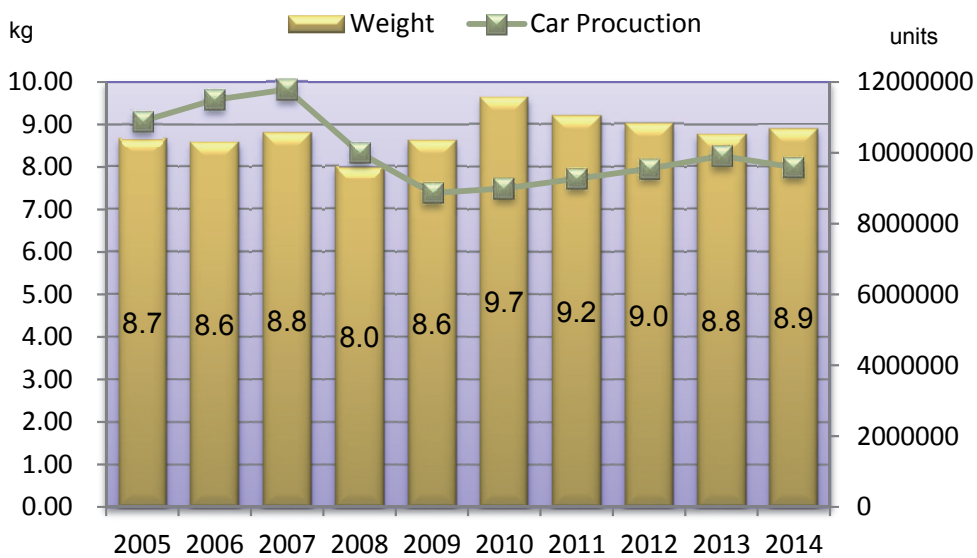
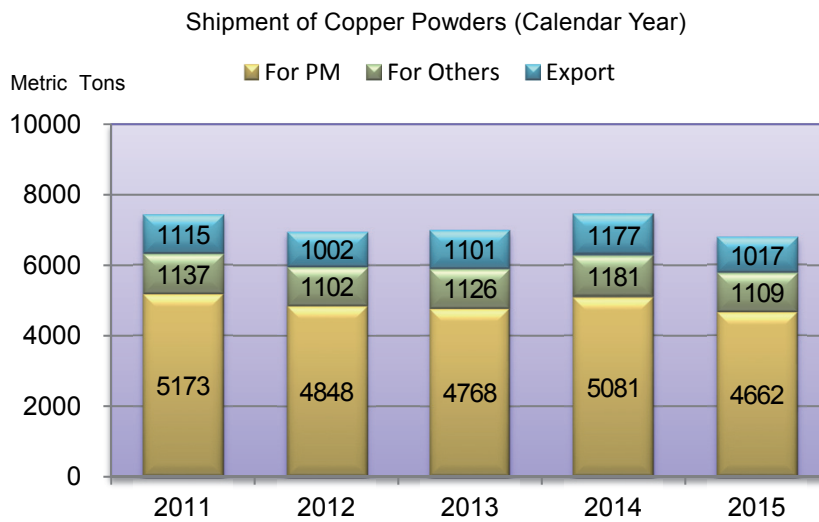
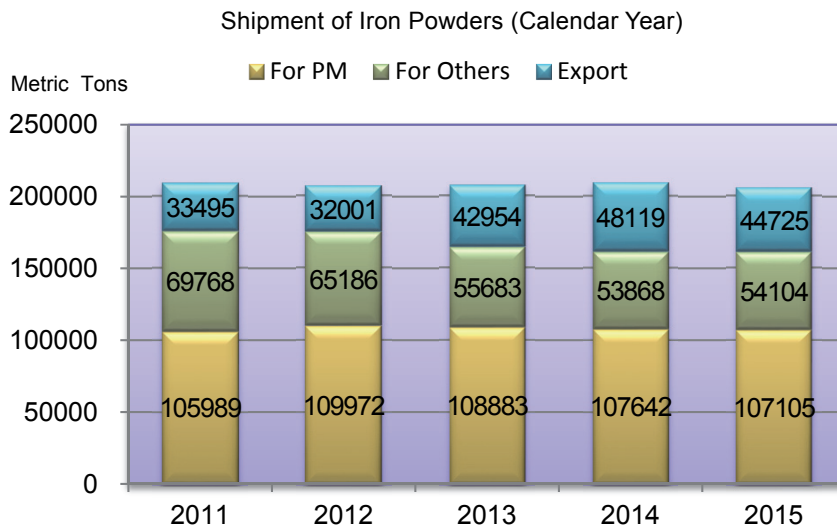


Fig5 shows Shipment of Metal Powders.

Fig.5 Shipment of Metal Powders (Source JPMA)





## Awards

### Development Prize

#### A New Design

##### A-1

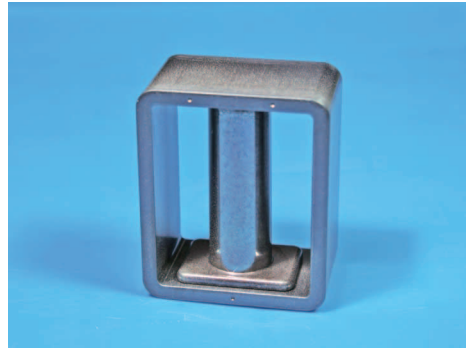
Higher Cost Performance by Reduction of Wear Resistant Material on the Valve Seat



FINE SINTER CO., LTD.

##### A-2

Development of the soft magnetic composite core for high-power output and rectangular-shaped ignition coil



SUMITOMO ELECTRIC INDUSTRIES, LTD.

##### A-3

Development of bearing for linear vibration actuator to be used in wearable device



Porite Corporation

##### A-4

A set of sintered joints for the motor used in valve lift actuator



DIAMET CORPORATION

### B New Materials

##### B-1

Austenitic high heat and wear resistance sintered material for turbocharger



Hitachi Chemical Co., Ltd.

##### B-2

Ferrous sintered bearing material with high permeability and oil content



Hitachi Chemical Co., Ltd.

## C Process Development

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### C-1

Development of high-density sprocket for automobile engines  
made by die wall lubrication compacting at room temperature



Hitachi Chemical Co., Ltd.

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## F Effort Prize

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### F-1

Development of planetary carrier for E-4WD applied with sinter  
brazing technology



SUMITOMO ELECTRIC INDUSTRIES, LTD.

### F-2

Partially Alloyed Bronze Powder with High Compactibility  
Suitable for High Sintered Density



Fukuda Metal Foil & Powder Co., LTD.

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## Prize for Distinguish Service of the Committee Activities

Dr. Yoshimi Sugaya

Former Hitachi Chemical Co., Ltd.

2009-2015

Chairman and Member of Technical Committee  
for Sintered Parts

Member of Technical Committee for Press Machines

Member of Technical Committee for Metal Powders

Member of Committee for International Standardizations

Member of Selection Committee for Award Prize

Member of Committee for Japan Industrial Standards



Mr. Ryoichi Harada

Höganäs Japan K.K.

2001-2015

Member of Technical Committee for Metal Powders

Member of Committee for Japan Industrial Standards



## Recognition of Superior Employees

2015 prizewinner numbered 20 persons

(15 member companies)





## 2015 APMA Activities

### The 7th Board Meeting

Date: Sunday 8<sup>th</sup> November 2015 16:00 - 17:00

Venue : Hotel Granvia Kyoto, Konjaku, 3rd Floor

Participants :

#### APMA Board Member

President	Mr. Isamu Kikuchi (JPMA, Japan)
Director	Mr. Chang Whan Bae (KPMA, Korea)
Director	Mr. Chiu-Lung Chu (TPMA, Taiwan)
Director	Mr. Cai Rang (CPMA, China)
Auditor	Mr. Jun Sakai (JSPM, Japan)
Secretariat	Mr. Takashi Saito (JPMA, Japan)

#### Attendant of APMA Members Association

CPMA(China)	Dr. Han Wei	Secretary General
	Dr. Yu Yang	Vice Secretary General
CPMS(China)	Prof. Xiong Xiang	Director
	Mr. Bin Liu	Director
TPMA(Taiwan)	Mr. Sea Fue Wang	Vice President
	Mr. Shin Chieh Liao	Secretariat
KPMA(Korea)	Mr. In Bun Jeong	Director
	Mr. Suc Choi	Secretariat
KPMI(Korea)	Prof. Tae Suk Jang	President
	Prof. Young Do Kim	Director
	Prof. Jai Sunng Lee	Director
PMAI(India)	-----	
JSPM(Japan)	Ms. Yoko Inoue	Secretary General
JPMA(Japan)	Mr. Mamoru Moritani	President
	Mr. Yoichi Inoue	Permanent Board of Director
	Mr. Taichi Haraguchi	Permanent Board of Director
	Mr. Shuzo Sonoda	Permanent Board of Director
	Mr. Sanpei Seki	Chairman of Committee Administration
	Mr. Hideo Kato	Member of Committee Administration
	Mr. Yoshio Uetsuki	Member of Committee Administration
	Mr. Yusuke Watanuki	Secretariat

#### Conclusion

\*2014 Finance and 2015 Budget was approved

\*2016 Member Fee was approved

\*World PM2018 date was decided.

Date: September, 16-18, 2018

Venue: Beijing National Convention Center

\*Introduction of the APMA2017 Taiwan preparations situation

\*Next APMA Board Meeting is decided to be held at World PM2016 Hamburg, Germany

## APMA2015 Kyoto, Japan review

APMA (Asian Powder Metallurgy Association) has held "Asian Powder Metallurgy Congress (APMA Congress)" at the year that World Congress is not held to strengthen the connection and co-operation in Asian area.

The first congress was held in Korea in 2011, the second congress was held in China in 2013. At APMA board meeting in 2013, it was decided to hold the third Congress will be held in Japan in 2015 (APMA2015).

APMA2015 was held at Kyoto University under the sponsorship of JSPM (Japan Society of Powder & Powder Metallurgy) and JPMA (Japan Powder Metallurgy Association) before JSPM autumn congress since November 8<sup>th</sup> through 10<sup>th</sup>. Total attendees were 439 from 19 countries mainly from Asian area.

Main participating countries were as follows.

Aria	Prtipicants
Japan	278
China	50
Korea	36
Taiwan	28
Sweden	8
Malaysia	7
Others	32

The Congress was held at Kyoto University Clock Tower Centennial Hall. The registration was started at November, 8<sup>th</sup>. And at the same day, we had APMA board meeting and Friendship Night at Hotel Granvia Kyoto. At 9<sup>th</sup>, the Opening Ceremony, PM Forum, Presentation of Research Report Exhibition were held. At 10<sup>th</sup>, Presentation of Research Report, Exhibition and Case Studies of Production Efficiency Improvement Meeting were held. And also, Conference Party was held at Hotel Granvia Kyoto.



Venue APMA2015

(Kyoto University Clock Tower Centennial Hall)

### ○Opening Ceremony and PM Forum

At Opening Ceremony, Mr. Sakai, Chairman of Organizing Committee (Chairman of JSPM) and Mr. Kikuchi, Chairman of APMA, made an opening address.

At PM Forum, JPMA (Japan), CPMA (China), KPMI (Korea) and TPMA (Taiwan) reported their situation in each area and their activities.



Opening address  
(Sakai Chairman)

### ○Presentation of Research report (November 9-10)

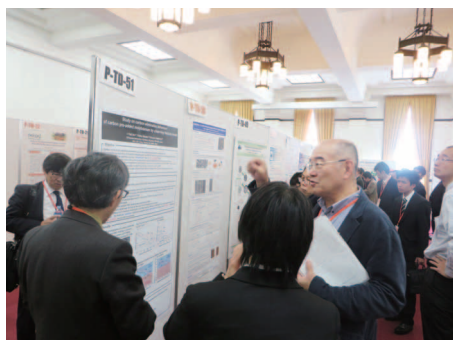
At Presentation of Research Report, total 195 reports were presented. In that, Oral presentation were 143 and Poster presentation were 52.

Oral presentation were made from 6 categories at 5 meeting rooms from November 9<sup>th</sup> through 10<sup>th</sup>. The animated discussion were made.



Oral Room

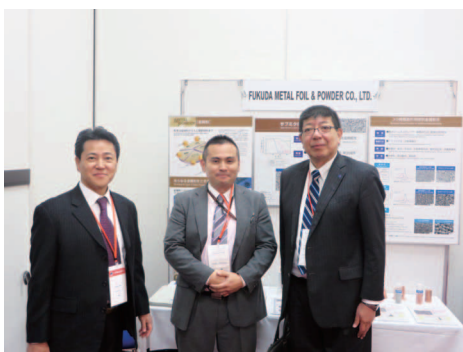
Poster presentation were made from November 9<sup>th</sup> until the noon of 10<sup>th</sup>. And from 11:30 through 13:30, Core Time was settled, also the animated discussion were made.



Poster Room

#### ○Exhibition (November 9-10)

The exhibition was settled at the same meeting space of Poster presentation. 13 companies were participated.



Exhibition Booth

#### ○Conference Party (November 10)

The conference party was held as the last event of APMA2015 at Hotel Granvia Kyoto. Under the chairmanship by Prof. Yoshimura (Kyoto University) and Prof. Matsubara (Tohoku University), Mr. Sakai, Chairman of Organization

Committee, made an opening address and Mr. Moritani, Vice Chairman of Organization Committee, made a toast. At this party, 8 Poster Award were commended. And Japanese harp attraction were made. And also, PR of APMA2017 Taiwan and World PM2018 China were made.

Finally, Ms. Inoue, Ms. Doi and Ms. Yoshida of JSPM were introduced as the members who has worked for the success of APMA2015. Mr. Sonoda, a member of Organization Committee, were made the closing address. Total attendees were 258.



Mr. Sonoda and secretariat members

## PM Production in Asia

PM Production (Source JPMA, PMAI, KPMI, TPMA and CMPMA)

(Metric Tons)

AREA		2013	2014	2015	15/14(%)
Japan	Iron-base	93,251	93,594	89,123	95.2
	Copper-base	3,948	3,984	3,449	86.6
	Total	97,199	97,578	92,572	94.9
China	Iron-base	145,291	166,865	146,153	87.6
	Copper-base	11,293	12,173	12,457	102.3
	Total	156,584	179,038	158,610	88.6
Korea	*Iron-base	65,292	67,881	67,617	99.6
	Copper-base	585	632	640	101.3
	Total	65,877	68,513	68,257	99.6
Taiwan	Iron-base	29,000	30,000	30,680	102.3
	Copper-base	1,500	2,000	2,100	105.0
	Total	30,500	32,000	32,780	102.4
India	Iron-base	36,000	37,000	30,500	82.4
	Copper-base	12,100	12,100	10,000	82.6
	Total	48,100	49,100	40,500	82.3
Malaysia	Iron-base	5,419	4,963	4,186	84.3
	Copper-base	239	213	136	63.8
	Total	5,658	5,176	4,322	83.5
Singapore	Iron-base	1,443	1,420	1,452	102.2
	Copper-base	626	600	498	83.0
	Total	2,069	2,020	1,950	96.5
Thailand	Iron-base	15,156	14,748	16,074	109.0
	Copper-base	7	7	7	100.0
	Total	15,163	14,755	16,081	109.0
Indonesia	Iron-base	1,619	2,959	3,992	134.9
	Copper-base	0	45	83	184.4
	Total	1,619	3,004	4,075	135.6
Total	Iron-base	392,471	419,430	389,777	92.9
	Copper-base	30,298	31,754	29,370	92.5
	Total	422,769	451,184	419,147	92.9

\*Included "Others"

## Application Field Ratio of PM Production (2015) (%)

AREA	For Transportation Machines	For Industrial Machines	For Electrical Machines	For Others
Japan	92	4	3	1
China	63	2	24	11
Korea	93	1	3	3
Taiwan	45	25	8	22
India	80	5	8	7
Malaysia	58	3	39	0
Singapore	53	5	41	1
Thailand	92	1	7	0
Indonesia	100	0	0	0