

Executive Director Report



Takashi Saito, Executive Director

Dear Friends:

We thank you heartily for your cooperation and assistance with our activities in the last year. The Japanese Powder Metallurgy Industries could have the relatively blessed year due to the favorable progress of the Japanese Automobile and Machinery production.

【JPMA Topics of 2017】

In January 2017, we had a new year greeting party, when various award ceremonies were performed. An environmental award was newly set up, and its first awards were granted to member's factories achieved the highest reduction rate for CO₂ and industrial wastes respectively. JPMA will progress activities of the CO₂ and industrial waste reduction for the protection of the global environment.

In March, in order to promote a rationalization for dealings between automobile industries and powder metallurgy industries, we have formulated a dealing rationalization guideline for mold management of extracting and scrapping unnecessary molds, and a system to follow up those rationalization progress, whose activities are under promotion.

In April, the APMA2017 Conference was held in Taiwan, and many JPMA members attended. During the conference, APMA Board Meeting decided newly Thailand Powder Metallurgy Association to join in APMA, hereby the APMA becomes constituted with 6 territories of China,

India, Japan, Korea, Taiwan, and Thailand. It was decided that at the time of World PM2018 Beijing, the chairman of APMA will be changed from Mr. Kikuchi of JPMA to Mr. Chu of TPMA.

【Japanese Powder Metallurgy Products of the year 2017】

Concerning Japanese industries in 2017, export and production activities were headed to recovering as economic deceleration of China and Asian countries were moderated, European economy was improved, and American economy was steady. Also, Japanese consumption was gently turned to recover, due to steady employment and consumer spending situation.

Under such favorite economic situation, local automobile production was 9.69 million cars, which was as +5.3% than 2016 production. Its increased factors relied on new cars equipped with low fuel ratio technologies, and preventive safety technologies, whose locally sold number became over 5million, and exported number also increased.

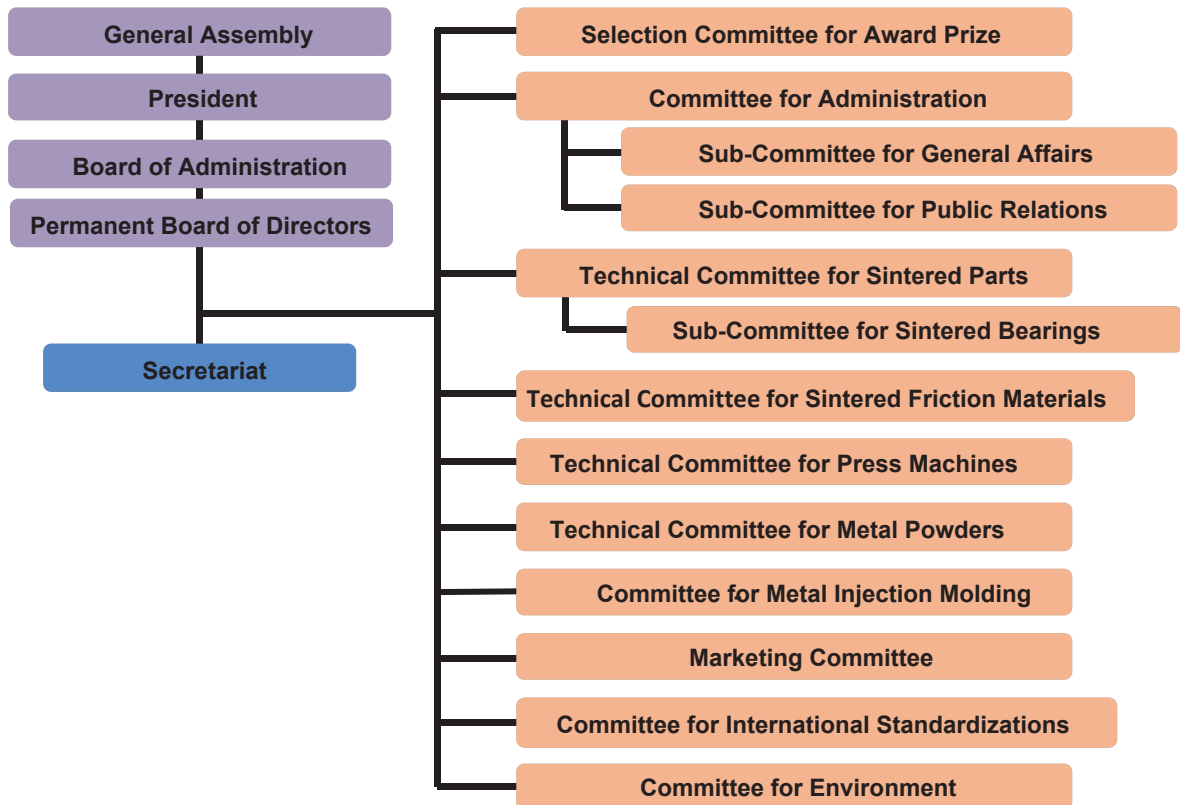
The production of automobile related sintered parts, which shares 90% of sintered mechanical parts, increased just as automobile production numbers, and their weight was 88.5 thousand tons, which was +4.0% than 2016 production weight.

JPMA really hope promotion and expansion of PM industries, through cooperation between each Association members, PM technology promotion, cultivation of human resource, and cooperation with world PM industries.

Your warm support to us would be much appreciated.

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

Organization of JPMA



Board Members

President

Mr. Isamu Kikuchi

Supreme Advisor
PORITE CORPORATION



Executive Director

Mr. Takashi Saito

Japan Powder Metallurgy Association

Permanent Board Members

□ Mr. Tetsuya Hayashi

SUMITOMO ELECTRIC INDUSTRIES LTD.

□ Mr. Mutsumi Yasutake

DIAMET CORPORATION

□ Mr. Takuya Hirano

Hitachi Chemical Co., Ltd.

□ Mr. Yoichi Inoue

FINE SINTER CO., LTD.

□ Mr. Shinichi Kondo

KOBE STEEL, LTD.

□ Mr. Carl-Gustav Eklund

Höganäs Japan K.K.

Board Members

□ Mr. Junichi Takahashi

IWAKI DIECAST Co., Ltd.

□ Mr. Mikio Fujihara

Tungaloy Corporation

□ Mr. Hiroshi Takahashi

Tokai Carbon Co., Ltd.

□ Mr. Masayoshi Nishimura

Fukuisinter Co., Ltd.

□ Mr. Jun Kadota

JFE Steel Corporation

□ Mr. Yoshiaki Mori

Daido Steel Co., Ltd.

□ Mr. Atsushi Nagano

Dowa Electronics Materials Co., Ltd.

□ Mr. Masanori Kishima

Nippon Atomized Metal Powders Corporation

□ Mr. Syuzo Sonoda

FUKUDA METAL FOIL & POWDER CO., LTD.

□ Mr. Masanori Uchida

Mitsubishi Materials Techno Corporation

Auditor

□ Mr. Masaaki Matsumoto

Tungaloy Corporation

□ Mr. Toshiharu Takahashi

Dowa Electronics Materials Co., Ltd..

JPMA Secretariat

□ Mr. Yusuke Watanuki (Manager)

General Assembly, Committees, Events, Web, Publication

□ Ms. Tokie Sakamoto (Staff)

Accountant and General affairs

□ Ms. Aoi Yamanaka (Staff)

Statistics, Events and General affairs



Activities of Committees

Selection Committee for Award Prize

Number of Committee Members: 14 persons



Chairman: Mr. Carl-Gustav Eklund
(Höganäs Japan K.K.)
New Chairman

*Selection Committee for JPMA Award (Development Prize)



New Design

Development of low-cost Sintered Ravigneaux Planetary Carrier.
TOYOTA MOTOER CORPORATION

Committee for Administration

Number of Committee Members: 22 persons

Sub-Committee for General Affairs

Number of Committee Members: 7 persons



Chairman: Mr. Kazunori Kato
(FINE SINTER CO., LTD.)
Commission from 2016

*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 2016” in June.

*Edition of the Brochure “2016 JPMA Annual Report (English)” in May and “2016 JPMA Annual Report (Japanese)” in July.

*Planning and operating of “19th Metal Powder and Equipment PR Meeting” and “35th Case Studies on Improving Production Efficiency Meeting” in November.

*Planning and operating of “PM information Exchange Meeting”.

Sub-Committee for Public Relations

Number of Committee Members: 8 persons



Chairman: Mr. Sanpei Seki
(PORITE CORPORATION)
Commission from 2016

*Planning of operating of “5 th Human resources development seminar”.

*Publication of JPMA News “Funmatsu Yakin” (No389-392).

Technical Committee for Sintered Parts

Number of Committee Members: 9 persons



Chairman: Mr. Nozomu Yatagai
(PORITE CORPORATION)
New Chairman

- *Discussion of the matter for ISO/TC119 and SC3.
 - *Update of the JPMA Standard (Fatigue test pieces and Tensile test pieces).
 - *Deliberation of enactment of the JPMA Technical Report.
 - *Planning and operating of “Joint Meeting by the three Technical Committees”.
 - *Planning and operating of the Plant tour for new markets.
-

Sub-Committee for Sintered Bearings

Number of Committee Members: 3 persons



Chairman: Mr. Yoshinari Ishii
(DIAMET CORPORATION)
Commission from 2014

- *Deliberation of standardization of the PV value.
 - *Deliberation of the appropriate inter laboratory tests of the PV value.
 - *Deliberation of update of Bearings Website.
-

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 on Friction Material.
 - *Planning and operating of “Opinion Exchange Meeting among Young Workers of Sintered Friction Materials Companies”.
 - *Deliberation of update of the basic texts for Sintered Friction Material.
-

Technical Committee for Press Machines

Number of Committee Members: 6 persons



Chairman: Mr. Hideo Sato
(Mitsubishi Materials Techno Corporation)
Commission from 2016

- *Exchange on Information for defect cases of Press.
 - *Exchange on Information for newfangled Press Machines.
 - *Planning and operating of “Joint Meeting by the three technical committees”.
-

Technical Committee for Metal Powders

Number of Committee Members: 15 persons



Chairman: Mr. Masashi Fujinaga
(JFE Steel Corporation)
Commission from 2016

- *Discussion of matters for ISO/TC119/SC2.
 - *Introduction of topics about “Metal Powder” by the Committee members and exchange of views mutually.
 - *Planning and operating of “Joint Meeting by the three technical committees”.
 - *Verification of measurement difference of Laser diffraction methods.
-

Committee for Metal Injection Molding

Number of Committee Members: 11 persons



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

- *Investigation of the Japanese MIM market.
 - *Planning and operating of MIM PR seminar.
 - *Planning and operating 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. Toshihiko Nagata
(SUMITOMO ELECTRIC
SINTERED ALLOY LTD.)
New Chairman

- *Introduction of topics about “P/M market” by the Committee Members and exchange of views mutually.
 - *Introduction of gathering Informations of User Market and Other Market.
 - *Deliberation of update of the P/M Roadmap.
-

Committee for International Standardizations

Number of Committee Members: 7 persons



Chairman: Mr. Noboru Shimada
(PORITE CORPORATION)
New Chairman

- *Attendance of 2017 ISO/TC119 Meeting in Madrid, Spain.
 - *Discussion of related matters for TC119/WG2, WG3, SC2 and SC3.
-

Committee for Environment

Number of Committee Members: 5 persons



Chairman: Mr. Motonobu Isaka

(DIAMET CORPORATION)

Commission from 2014

*Investigation of 2016 follow-up survey for “Voluntary Action Plan for Environment of PM Industry”.

*Introduction of Case Studies of “CO2 Emissions Reduction”, “Waste Product Reduction” and “KANKYO HIYARI”.

*Selection of the “Environment Awards”.

*Planning of the “Environment Logo Mark”.

JPMA Events and International Communications

11, January

Gathering of 2017 New Year Greeting and Ceremony of Awarding Various Honors in 2016.

17, March

The 12th PM Information Exchange Meeting.

9-11, April

4th International Conference on Powder Metallurgy in Asia (APMA2017Taiwan).

11, April

APMA, 9th Board Meeting.

19, May

2017 JPMA General Assembly.

The 2017 Activity Plans and Budget of JPMA.

31, May

JPMA Special Session at the JSPM Spring Meeting.

8, June

Tour of Committee for Administration.

SUBARU Yajima Plant.

7, July

5th Human resources development seminar.

9, August

Tour of Technical Committee for Sintered Parts.

Panasonic Corporation Eco Solutions Company.

25, August

Preparation Meeting of World PM2018 Beijing.

China National Conference Center.

8, September

The 3rd Opinion Exchange Meeting among Young Workers of Sintered Friction Materials.

21-22, September

The 8th Opinion Exchange Meeting among Young Workers of MIM Companies.

19, October

2017 JPMA Fall General Assembly.

Announcement of 2017 JPMA Awards.

6-10, November

JSPM International Conference on Powder and Powder Metallurgy -60th Anniversary.

JSPM 60th Anniversary Ceremony.

17, November

The 35th Case Studies of Production Efficiency Improvement Meeting and the 20th Metal Powder and Equipment PR Meeting.

JPMA Publications

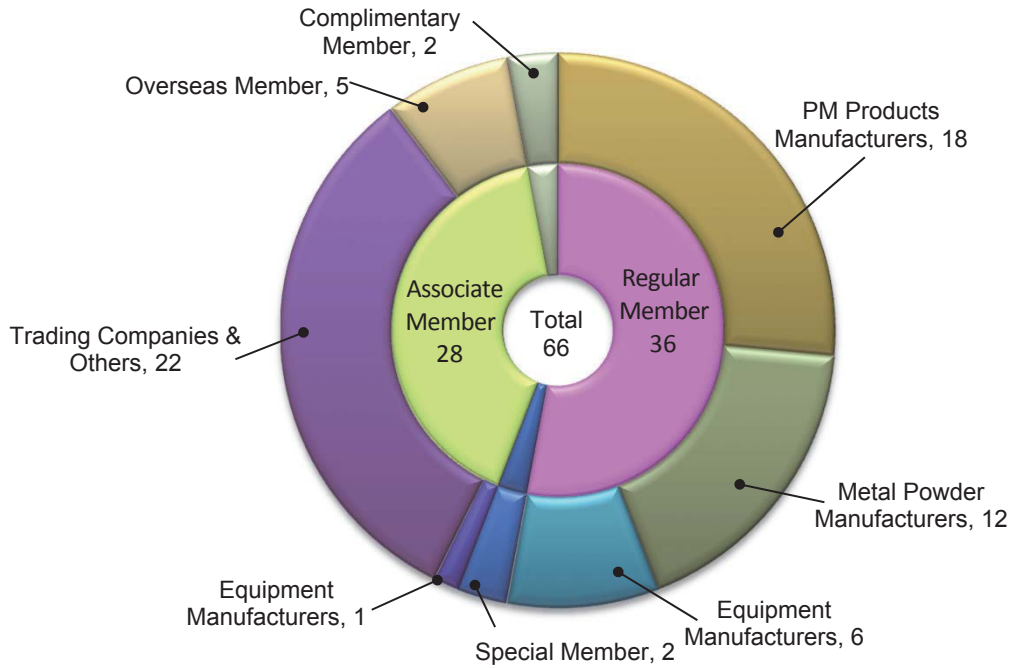
The 38th Investigation Collection Results of Sintered Parts Demand Structure.

JPMA Report, 2016 (English and Japanese).

JPMA News “Funmatsu Yakin” (No389-392).

JPMA Standard (JPMA M04 and JPMA M06).

JPMA Membership



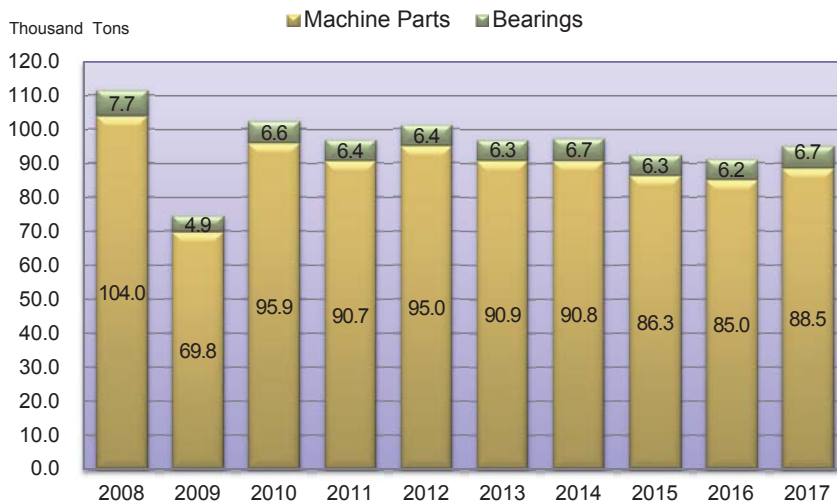
Statistics of Japan

Production of PM Products in Japan

Fig1 shows the production volume change of Machine Parts and Bearings for the period from 2008 through 2017.

In 2017, Machine Parts volume was 88,484 ton, 4.0% increase from the previous year. Bearings volume was 6,741 ton, 8.3% increase from the previous year. As the other products, Friction Materials volume was 723 ton, 21.3% increase from the previous year. Electric Contacts volume was 72 ton, 10.8% 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 2008 through 2017.

In 2017, Machine Parts Production volume for Vehicles was 83,173 ton, 3.4% increase from the previous year.

Such increase was driven by domestic vehicle production volume in 2017 which was 5.3% increase from the previous year. There were two major factors for increase of domestic vehicle production, one was recovery of domestic and international economy, and second was several new vehicle release with high mileage and safety performance.

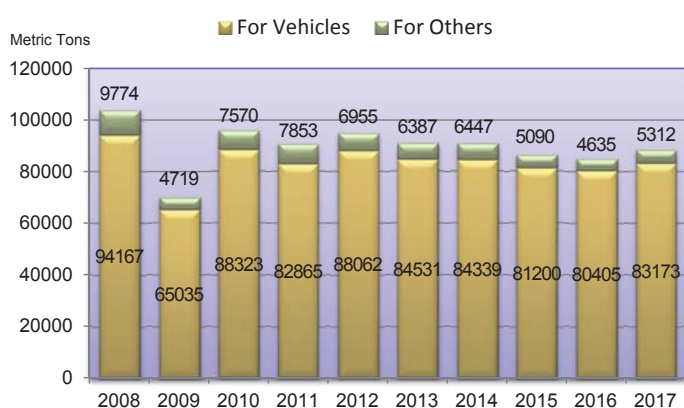
Domestic vehicle production volume in 2018 is forecasted same level of 2017 against expectation of sustainable economic growth, because there is uncertainly international geopolitical risk and trade friction.

Production volume of Bearings for Vehicles was 4,269 ton, 6.0% increase from the previous year. Bearings expanded their business in 2017 thanks to increase of motor driving devices in a vehicle and active demand of the bush for turbo charger unit.

It seems to be still good year for bearings in 2018.

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

Machine Parts



Bearings

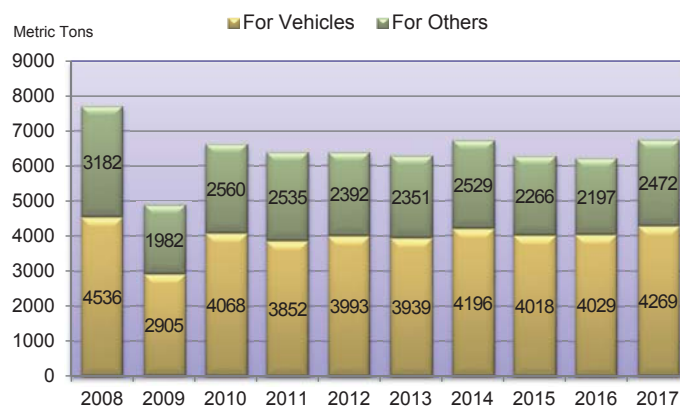


Fig3 shows the use breakdown of Machine Parts and Bearings in vehicle in 2016 based on the demand structure survey by JPMA.

54.1% of Machine parts were for engine use in 2016, Although there is no change in the application field of Machine Parts, in case of Bearing, the usages of electrical field would increase due to the tendency of increasing motor driving devices in a vehicle. Also, we pay attention to the market expansion of the bearings with high heat resistant, because high heat resistant bearings are needed for engine unit.

Fig3. Breakdown of Machine Parts and Bearings for Vehicles (2016) (Source: JPMA)

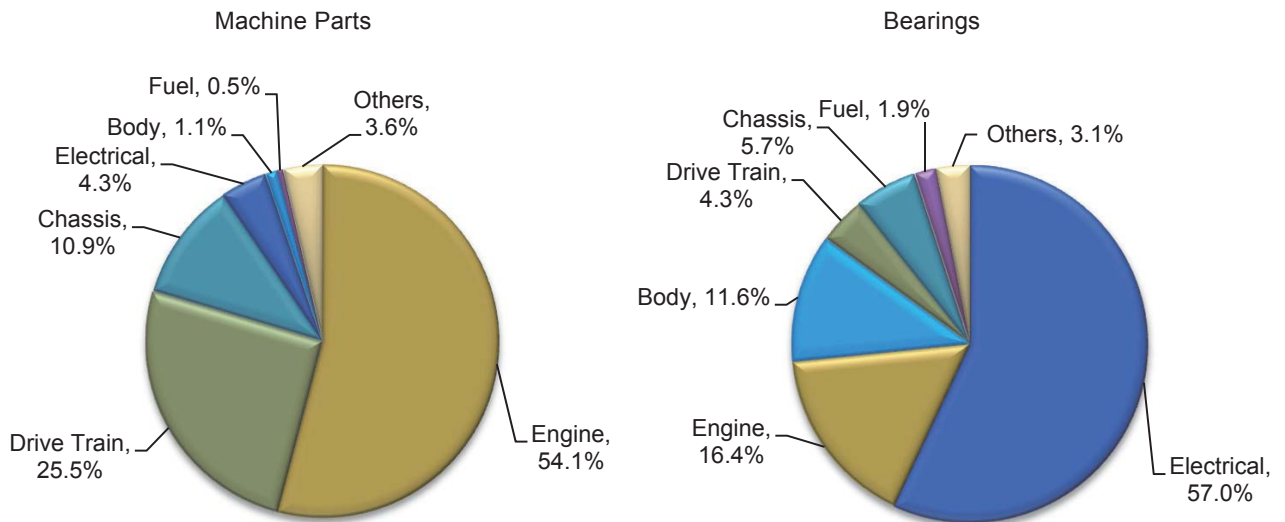


Fig4 shows the weight of sintered parts calculated for one car and the car production in Japan for the period from 2007 through 2016.

The weight of sintered parts calculated for one car in 2016 was 8.7kg in Japan, 20.0kg in U.S. and 8.3kg in Europe.

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

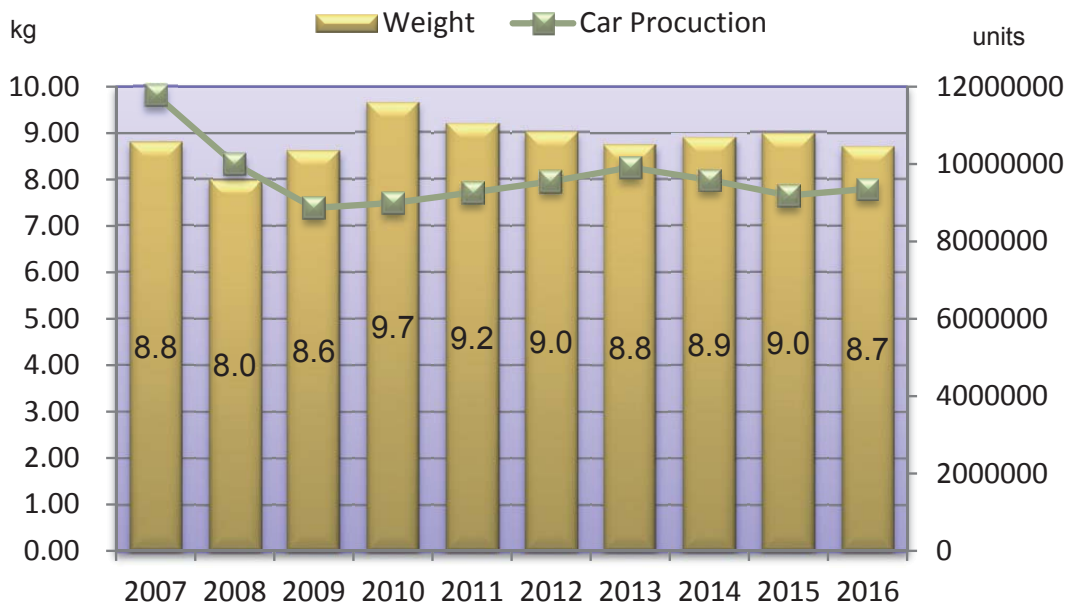
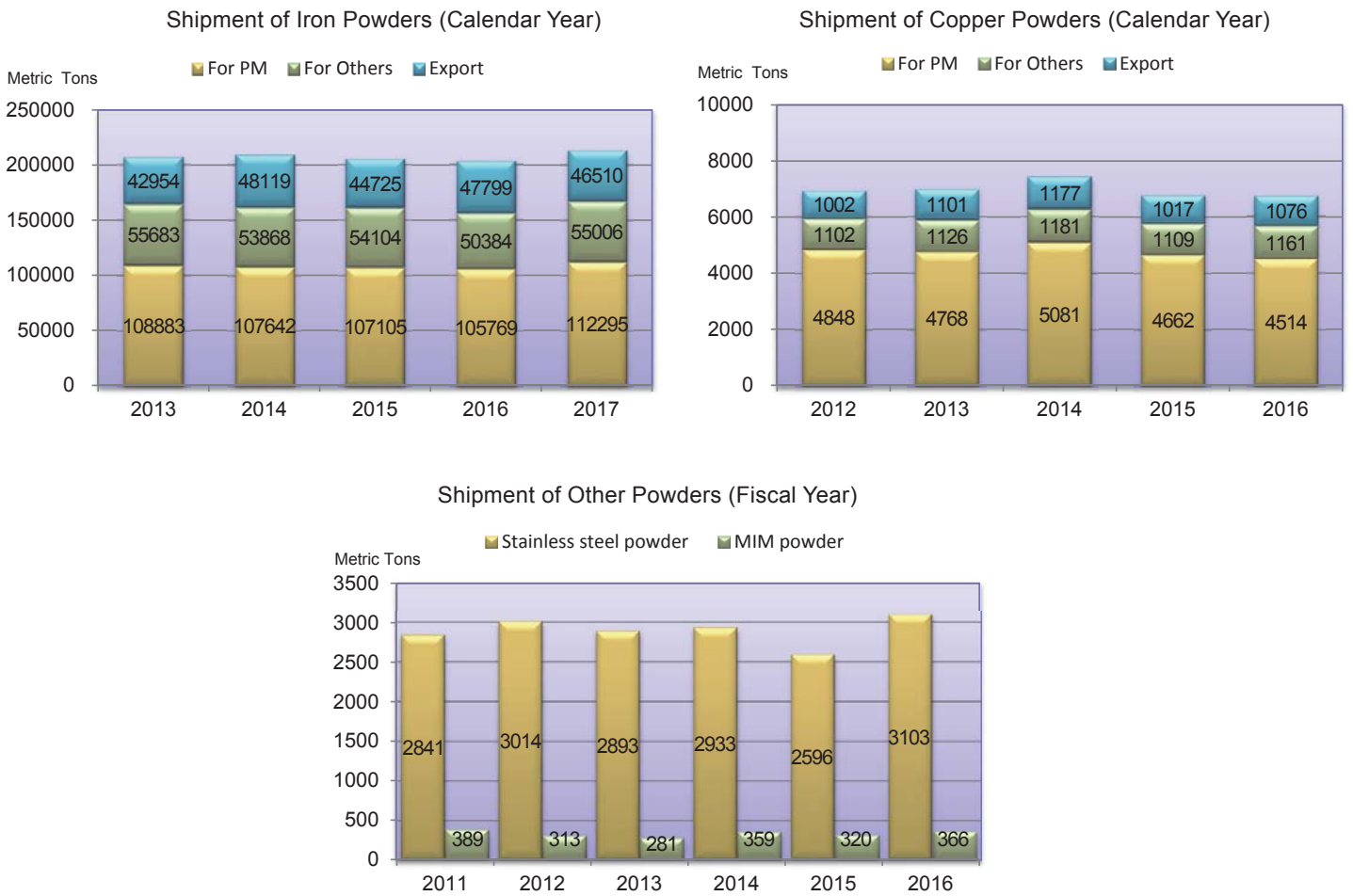


Fig5 shows Shipment of Metal Powders.

Fig.5 Shipment of Metal Powders (Source JPMA)



Awards

Development Prize

A New Design

A-1

Development of low-cost Sintered Ravigneaux Planetary Carrier



TOYOTA MOTOR CORPORATION

A-2

Development of Complex Shaped Pulley with High Accuracy Non-circular gear teeth



SUMITOMO ELECTRIC INDUSTRIES, LTD.

A-3

Development of the sprocket drive for low fuel consumption AT oil pump

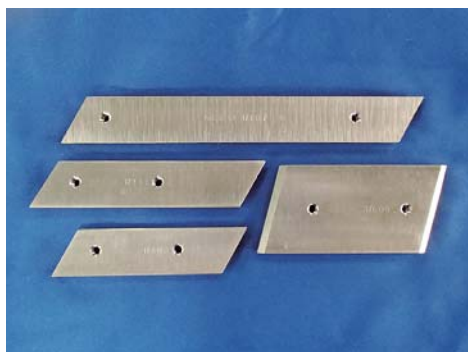


DAIAMET CORPORATION

B New Materials

B-1

High wear resistant Fe-sintered alloy slider for high speed trains



FINE SINTER CO., LTD.

B-2

Development of Fe-Cu system Oil-impregnated Sintered Bearing with Excellent High Pressure Resistance and Wear Resistance

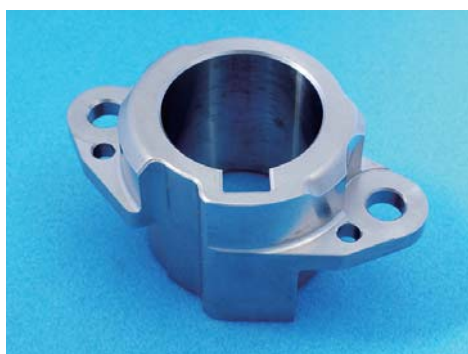


DAIAMET CORPORATION

F Effort Prize

F-1

Development of Gasoline Direct Injection Mechanism Part `Guide, Fuel Pump Lifter



SUMITOMO ELECTRIC INDUSTRIES, LTD.

Recognition of Superior Employees

2017 prizewinner numbered 18 persons

(13 member companies)



Environment Prize

Reduction of CO₂ basic unit

FINE SINTER CO., LTD.

Yamashina Plant



Reduction for total waste basic unit

NAPAC Co., Ltd.



2017 APMA Activities

The 9th Board Meeting

Date : Tuesday 11 April 2017 13:30-15:00

Venue : Peace Room 4th Floor Sheraton Hsinchu Hotel, Taiwan

Participants :

APMA Board Member

President	Isamu Kikuchi (JPMA, Japan)
Director	Rang Cai (CPMA, China)
Director	Chiu-Lung Chu (TPMA, Taiwan)
Director	N. Gopinath (PMAI, India)
Auditor	Akira Kawasaki (JSPM, Japan)
Secretariat	Takashi Saito (JPMA, Japan)

Attendant of APMA Members Association

CPMA(China)	Rang Cai (President) Han Wei (Secretary General), Yang Yu (Vice Secretary General)
CPMS(China)	Xiang Xiong (Director), Bin Liu, Hong Wu
JPMA(Japan)	Isamu Kikuchi (President) Takashi Saito (Executive Director) Sanpei Seki (Chairman of Public Relations Committee) Aoi Yamanaka (Secretary, Planning and Statistics)
JSPM(Japan)	Akira Kawasaki (President) Yoko Inoue (Secretary General)
KPMA(Korea)	Sung Hwan An (Vice Chairman), Joon Park (Director)
KPMI(Korea)	Yong JIn Kim (President) Hyoung Seop Kim (Vice President), Young Do Kim (Former President) Jai Sung Lee (Former President), Chang Kyu Lee (Director)
PMAI(India)	N.Gopinath (President) Aniket Gore (Vice President), Deepak Grover (Vice President)
TPMA(Taiwan)	Chiu Lung Chu (President) Sea Fue Wang (Vice President) S J Liao (Secretary General) H L Lee (Supervisor)
ThaiPMA(Thailand)	Ruangdaj Tongsri (President) Boon Teeraprawatekul (Secretary General)

Conclusions

- *2016 Finance and 2017 Budget was approved
- *Report of APMA2017 Taiwan
- *Introduction of the World PM2018 Beijing preparations situation
- *Report of APMA2019 Conference (India) preparations situation
- *ThaiPMA approval as member of APMA
- *Mr. Chu (TPMA) approval as new president of APMA (President change at World PM2018)

APMA2017 Hsinchu, Taiwan Review

APMA2017 (the 4th International Conference on Powder Metallurgy in Asia), organized by TPMA (Taiwan Powder Metallurgy Association), was held on 9 to 11/Apr., at Sheraton Hsinchu Hotel.

469 people, mainly from Asia, participated. The main participating countries are as follows.

Aria	Prtipants
Taiwan	155
China	127
Japan	89
Korea	47
India	4
Ohers	47

The Conference started with registration on 9/ Apr., and an opening ceremony, a PM forum, invitation lectures and presentations of research report were held on 10/Apr., and invitation lectures and presentations of research report were held on 11/Apr..

○Opening ceremony and PM Forum

At the opening ceremony, Mr.Chiu, Chairman of Organizing Committee, made welcome speech and introduced the attended VIPs, and then Mr. Kikuchi, Chairman of APMA, made greeting speech.



Opening address
(Shiu Chairman)

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

○Plenary Lecture

At Plenary Lectures, four kind of themes, consist of Soft Magnetic Composites, Ti-6Al-4V alloy, Furnaces and Industry 4.0 (PM Industry), were lectured.

○Presentation of Research report

Presentation of Research report, total 360 reports were presented. In that, Oral presentation were 264 and Poster presentation were 96.

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Oral presentation were made from 7 categories at 6 meeting rooms from April 10th through 11th. The animated discussion were made.

○Exhibition

Exhibition was held at two venues. Total 50 companies exhibited, consist of "major European & US P/M makers and major domestic P/M makers mainly", raw material suppliers, equipment makers and P/M makers.



Exhibition Place

○Gala Dinner

Gala Dinner was started by the greeting speeches of Mr. Chiu, Chairman of Organizing Committee, and Mr. Kikuchi, Chairman of APMA.

The presenters of superior research report received honor afterwards. And letters of thanks were conferred on the companies who cooperated with success of APMA2017 much.

PM Production in Asia

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

(Metric Tons)

AREA		2015	2016	2017	17/16(%)
Japan	Iron-base	89,123	88,145	92,166	104.6
	Copper-base	3,449	3,121	3,059	98.0
	Total	92,572	91,266	95,225	104.3
China	Iron-base	146,153	156,525	169,636	108.4
	Copper-base	12,457	12,669	15,535	122.6
	Total	158,610	169,194	185,171	109.4
Korea	*Iron-base	67,617	64,086	68,917	107.5
	Copper-base	640	633	435	68.7
	Total	68,257	64,719	69,352	107.2
Taiwan	Iron-base	30,680	30,000	32,637	108.8
	Copper-base	2,100	2,000	2,070	103.5
	Total	32,780	32,000	34,707	108.6
India	Iron-base	30,500	30,000	33,600	112.0
	Copper-base	10,000	6,000	7,200	120.0
	Total	40,500	36,000	40,800	113.3
Malaysia	Iron-base	4,186	3,810	3,744	98.3
	Copper-base	136	116	85	73.3
	Total	4,322	3,926	3,829	97.5
Singapore	Iron-base	1,452	1,486	1,542	103.8
	Copper-base	498	438	404	92.2
	Total	1,950	1,924	1,946	101.1
Thailand	Iron-base	16,074	17,141	16,498	96.2
	Copper-base	7	8	66	825.0
	Total	16,081	17,149	16,564	96.6
Indonesia	Iron-base	3,992	5,444	6,134	112.7
	Copper-base	83	68	96	141.2
	Total	4,075	5,512	6,230	113.0
Total	Iron-base	389,777	396,637	424,874	107.1
	Copper-base	29,370	25,053	28,950	115.5
	Total	419,147	421,690	453,824	107.6

*Included "Others"

Application Field Ratio of PM Production (2017) (%)

AREA	For Transportation Machines	For Industrial Machines	For Electrical Machines	For Others
Japan	94.3	4.8	0.6	0.3
China	62.0	2.0	25.0	11.0
Korea	94.0	0.0	3.0	3.0
Taiwan	44.0	26.0	7.0	20.0
India	80.0	5.0	8.0	7.0
Malaysia	56.1	1.9	42.0	0.0
Singapore	52.5	3.2	42.9	1.4
Thailand	91.8	1.1	7.1	0.0
Indonesia	100.0	0.0	0.0	0.0