

Executive Director Report



Takashi Saito, Executive Director

Dear friends :

Thank you very much for your kind cooperation with our JPMA activities in the last year.

Now, the time of issuing an annual report has come around one year after the last issue.

Fortunately, the Japanese Powder Metallurgy Industry may be said to have enjoyed a comparatively favorable business thanks to steady progresses of Automobile Production, Construction Machine Production, and so on during the last year.

“Topics of 2018”

In January, a new year party was held, where a ceremony for awarding various prizes were preceded before the party. As for the new prize for an environmental improvement, FINE SINTER CO., LTD. and NAPAC CO., LTD. were awarded for the highest reduction rate of CO₂ emission and waste matters respectively. The JPMA is continuously campaigning for reducing CO₂ and waste matters for the Earth Environment. Thus, the JPMA Environment committee has decided an Environmental Protection Campaign Logo Mark as under.



In April, a First Committee Combined Meeting was held for promoting committee activities,

wherein each chairman of 11 committees briefed their activities, and attendants discussed lively about how to promote their activities. This meeting was attended by not only each chairman and members but also JPMA President, and permanent directors, in total 41 attendees.

In May, new directors were reelected at the JPMA general meeting, wherein the Presidency of JPMA has been succeeded from Mr. Isamu Kikuchi to Mr. Yoichi Inoue. Before the general meeting, a seminar about the Antimonopoly Act was held and an official of the Fair-Trade Commission lectured about related regulations.

In September, the World PM 2018 Beijing tour group was dispatched to participate in the Conference. The group was organized by the leader, President Mr. Y. Inoue, with 16 JPMA attendees and deepened relationship with PM Associations of North America, Europe, and Asia.

At the APMA Board Meeting held during the Conference, the APMA presidency was succeeded from Mr. I. Kikuchi to Mr. C. L. Chu, and they decided APMA 2021 to be held in Korea, and World PM 2024 to be held in Japan.

We'd like to take this opportunity to express our thanks to all members of CPMA, CPMS, Mr. Cai Rang, and Mr. Baiyun Huang, for not only very valuable papers presented there, but also delicious Chinese dishes and pleasant entertainments.

“2018 Japanese PM production”

The 2018 Japanese Economy showed continuously tendency of recovery, though its export growth rate slowed down. The economic traction was mainly domestic demands composed by the personal consumption and

equipment investments. In addition of personal wages up, the increased employment due to the employment supply and demand balance has benefitted the general household budget, that may be thought to push up the personal consumption.

Under these economic circumstances, the automobile industry, as the basic business, produced 9.73 million cars, which was about 0.4% increase over the last year (Japanese Automobile Industry Association Statistics). The primary factor of the increase may be due to the increase effectiveness of new cars with low fuel ratio technologies and/or accident prevention technologies, whose local sales was increased 0.7 % with 5 million cars per year continuously over 2 years, and also steadily increased exports thanks to the favorable

economy overseas.

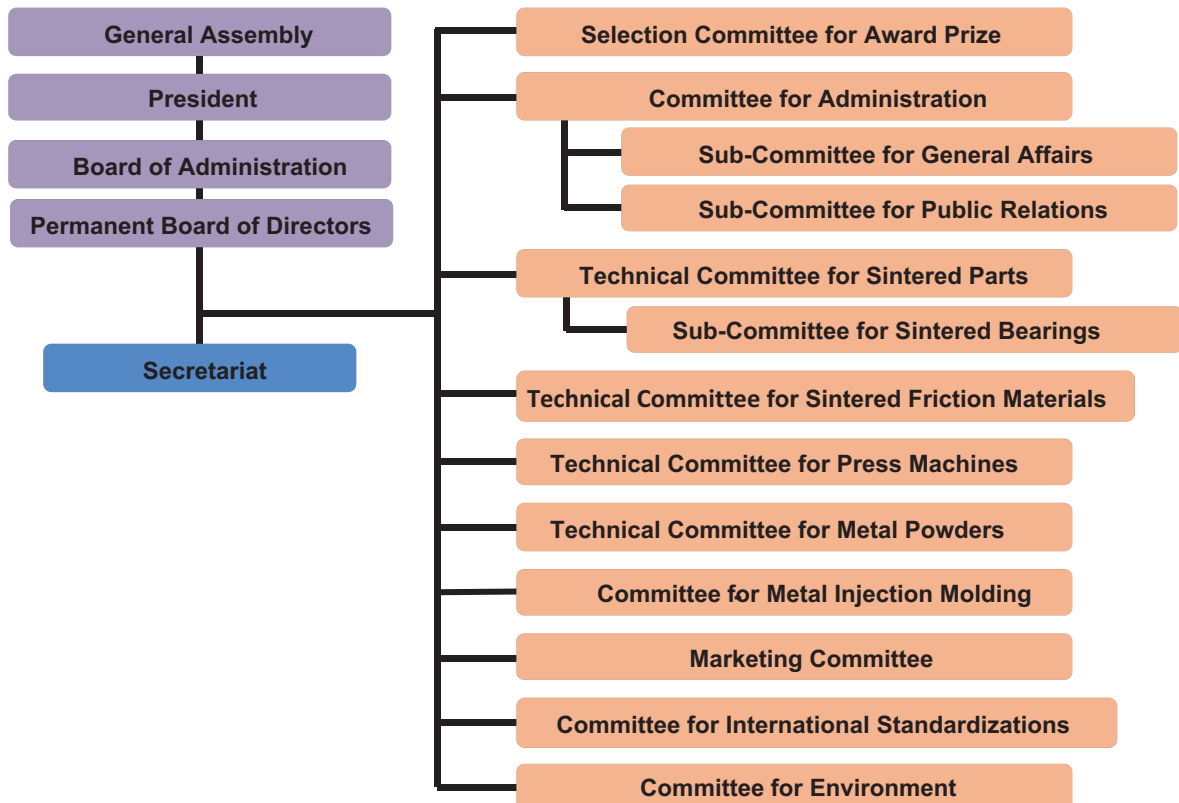
The PM machine parts production for vehicles was 83.4 kilo tons in weight, which is about 0.3% increase over last year, in accordance with the increase of automobiles.

JPMA will continue activities promoting for relationship among PM enterprises, PM R&D, relationship with overseas PM Associations, etc. for further developments.

By the way, I myself will retire at the coming end of May, when this Annual Report would be issued. Taking this opportunity, I would like to express my sincere thanks to all of MPIF, EPMA, APMA, JSPM and JPMA, and also to hope your heartfelt cooperation further extended to the JPMA.

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

Organization of JPMA



Board Members

President

□ Mr. Yoichi Inoue

President

FINE SINTER CO., LTD.



Executive Director

□ Mr. Takashi Saito

Japan Powder Metallurgy Association

Permanent Board Members

□ Mr. Tetsuya Hayashi

SUMITOMO ELECTRIC INDUSTRIES LTD.

□ Mr. Fumio Tsurumaki

DIAMET CORPORATION

□ Dr. Shigeki Katogi

Hitachi Chemical Co., Ltd.

□ Mr. Isamu Kikuchi

PORITE CORPORATION

□ Mr. Ryosuke Horie

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. Hiroshi Takahashi

Tokai Carbon Co., Ltd.

□ Mr. Masayoshi Nishimura

Fukuisinter Co., Ltd.

□ Mr. Shinichi Kondo

KOBE STEEL, LTD.

□ Mr. Yoshiaki Mori

Daido Steel Co., Ltd.

□ Mr. Atsushi Nagano

Dowa Electronics Materials Co., Ltd.

□ Mr. Michifumi Watanabe

Nippon Atomized Metal Powders Corporation

□ Mr. Carl-Gustav Eklund

Höganäs Japan K.K.

□ Mr. Katsuhiko Nomura

Mitsubishi Materials Techno Corporation

Auditor

□ Mr. Toshiharu Takahashi

Dowa Electronics Materials Co., Ltd.

□ Mr. Yuichi Miyagawa

Mitsubishi Materials Techno Corporation

JPMA Secretariat

□ Mr. Yusuke Watanuki (Manager)

General Assembly, Committees, Events, Web, Publication

□ Ms. Tokie Sakamoto (Supervisor)

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. Isamu Kikuchi
(PORITE CORPORATION)
New Chairman

*Selection Committee for JPMA Award (Development Prize)



New Design

Oil impregnated sintered bearing with 1 μ m inner dimension tolerance

PORITE CORPORATION

Committee for Administration

Number of Committee Members: 21 persons

Sub-Committee for General Affairs

Number of Committee Members: 7 persons



Chairman: Mr. Motonobu Isaka
(DIAMET CORPORATION)

New Chairman

- *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 2017” in June.
 - *Edition of the Brochure “2017 JPMA Annual Report (English)” in May and “2017 JPMA Annual Report (Japanese)” in July.
 - *Planning and operating of “21th Metal Powder and Equipment PR Meeting” and “36th Case Studies on Improving Production Efficiency Meeting” in November.
 - *Planning and operating of “PM information Exchange Meeting”.
 - *Planning and operating of “Joint result presentation of Committee”
 - *Support of the WORLD PM2018 Beijing and the APMA2019 Pune.
 - *Establishment of Quality Guideline
-

Sub-Committee for Public Relations

Number of Committee Members: 9 persons



Chairman: Mr. Kazunori Kato
(FINE SHINTER CO., LTD.)

New Chairman

- *Planning of operating of “6th Human resources development seminar”.
 - *Publication of JPMA News “Funmatsu Yakin” (No393-396).
-

Technical Committee for Sintered Parts

Number of Committee Members: 9 persons



Chairman: Mr. Toru Moriya
(FINE SHINTER CO., LTD.)

New Chairman

- *Discussion of the matter for ISO/TC119 and SC3.
 - *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".
 - *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.
 - *Deliberation of standardization of Metal Powders
 - *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".
-

Committee for Metal Injection Molding

Number of Committee Members: 12 persons



Chairman: Dr. Hideki Nakayama
(CASTEM CO., LTD.)

New Chairman

- *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”.
 - *Deliberation of standardization of MIM – Specifications.
-

Marketing Committee

Number of Committee Members: 14 persons



Chairman: Mr. Toshihiko Nagata
(SUMITOMO ELECTRIC
SINTERED ALLOY LTD.)

Commission from 2017

- *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)

Commission from 2017

- *Attendance and operating of 2018 ISO/TC119 Meeting in Tokyo, Japan.
 - *Discussion of related matters for TC119/WG2, WG3, SC2 and SC3.
-

Committee for Environment

Number of Committee Members: 5 persons



Chairman: Mr. Kazunori Hattori
(SUMITOMO ELECTRIC
SINTERED ALLOY LTD.)

New Chairman

- *Investigation of 2017 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”.
 - *Establishment of the “Environment Logo Mark”.
 - *Discussion of public relations of the Environment Logo Mark.
-

JPMA Events and International Communications

10, January

Gathering of 2018 New Year Greeting and Ceremony of Awarding Various Honors in 2017.

9, March

The 13th PM Information Exchange Meeting.

18, April

Joint result presentation of Committee

17, May

2018 JPMA General Assembly.

The 2018 Activity Plans and Budget of JPMA.

14, June

Tour of Committee for Administration.

Nippon Mining Museum.

6, July

6th Human resources development seminar.

29, August

The 4th Opinion Exchange Meeting among Young Workers of Sintered Friction Materials.

13-14, September

ISO/TC119 Meeting at Tokyo, Japan

16-20, September

World PM2018 Congress & Exhibition at Beijing, China

18, September

APMA, 10th Board Meeting.

MPIF/EPMA/JPMA Meeting.

25, October

2018 JPMA Fall General Assembly.

Announcement of 2018 JPMA Awards.

8-9, November

The 9th Opinion Exchange Meeting among Young Workers of MIM Companies.

15, November

Tour of Technical Committee for Sintered Parts.

Magnetic Powder Metallurgy Research Center

17, November

The 36th Case Studies of Production Efficiency Improvement Meeting and the 21th Metal Powder and Equipment PR Meeting.

JPMA Publications

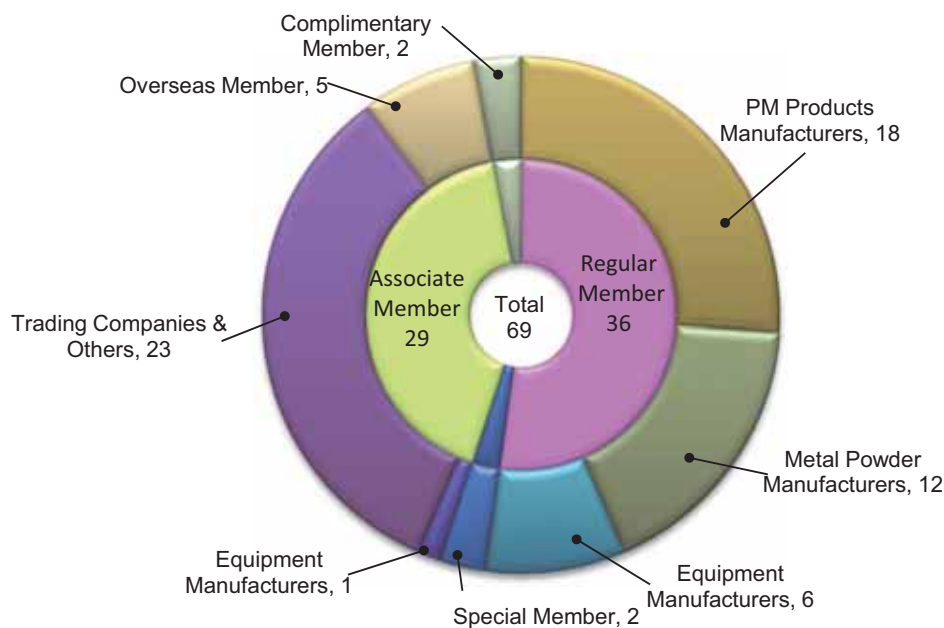
PM Guide Book 2018 Technical Report of Steam treatment of P/M Parts.

The 39th Investigation Collection Results of Sintered Parts Demand Structure.

JPMA Report, 2017 (English and Japanese).

JPMA News "Funmatsu Yakin" (No393-396).

JPMA Membership



2018 New Members

Regular Member

TEIBOW COMPANY, LTD.



Associate Member

CHUNG YI MOLD CO., Ltd.



Bandas metálicas CODINA, S.L.



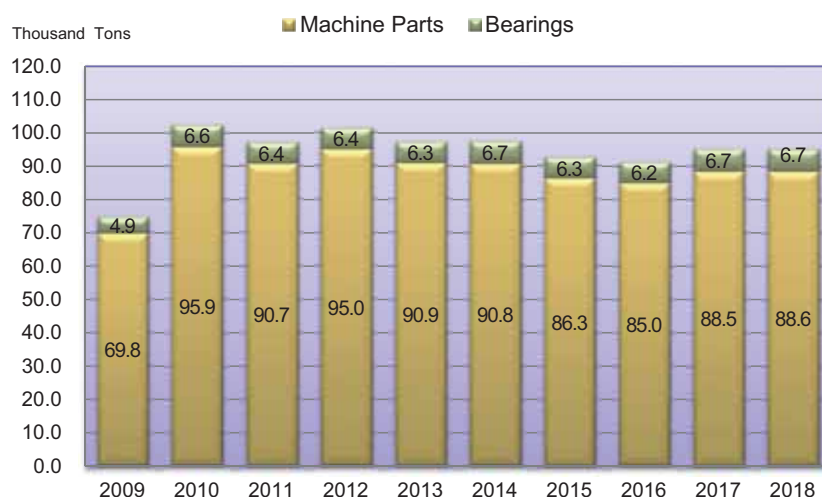
Statistics of Japan

Production of PM Products in Japan

Fig1 shows the production volume change of Machine Parts and Bearings for the period from 2009 through 2018.

In 2018, Machine Parts volume was 88,605 ton, 0.1% increase from the previous year. Bearings volume was 6,704 ton, 0.5% decrease from the previous year. As the other products, Friction Materials volume was 775 ton, 7.1% increase from the previous year. Electric Contacts volume was 65 ton, 9.7 % decrease 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 2009 through 2018.

In 2018, Machine Parts Production volume for Vehicles was 83,381 ton, 0.3% increase from the previous year.

Because the production amount of Vehicles, that is the main user of P/M in Japan, was nearly same amount of the previous year, production Machine Parts Production Volume showed the same trend.

Production volume was decreased because of the transfer to light weight car and the production transfer to foreign countries of automobile. The other-side, the machine parts production volume for hybrid car was increased.

Production volume of Bearings for Vehicles was 4,354 ton, 2.0% increase from the previous year. One side, production volume of bearings was increased because of fan motor and the increase of export, but overall the same volume or a little decrease from the previous year. Because home electric appliance, that is the main user of P/M bearings, has the trend influenced from the trade friction, we must watch the future international economy carefully.

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

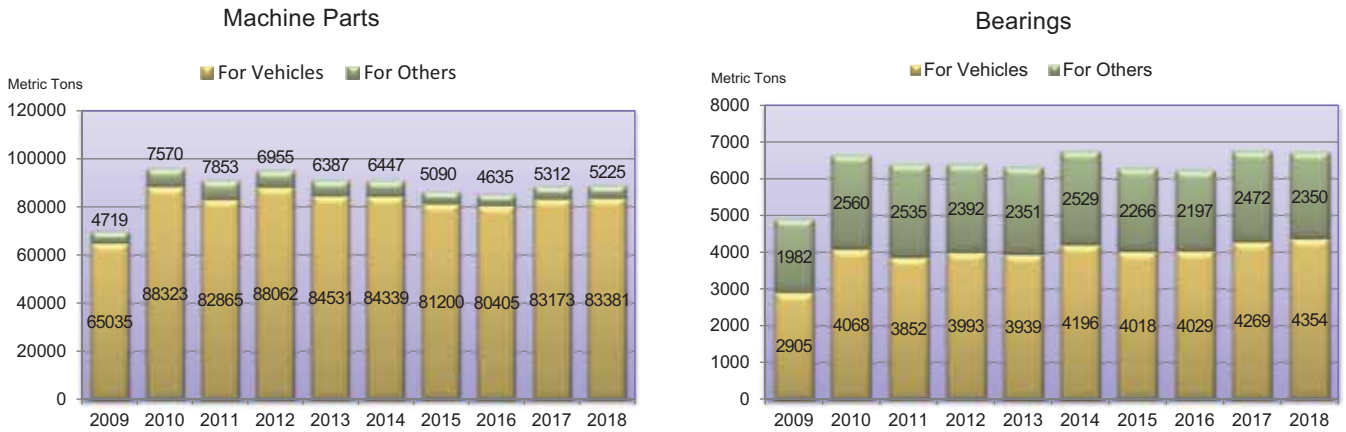


Fig3 shows the use breakdown of Machine Parts and Bearings in vehicle in 2017 based on the demand structure survey by JPMA.

54.5% of Machine parts were for engine use in 2017, Although there is no change in the application field of Machine Parts, in case of Bearing, the demand for engine was increased from 2016 continuously.

Continuous use increase is expected for Bearings. For that purpose, the understanding for P/M by user designers and the establishment of special testing method for P/M bearing was needed. P/M bearing makers think that way.

Fig3. Breakdown of Machine Parts and Bearings for Vehicles (2017) (Source: JPMA)

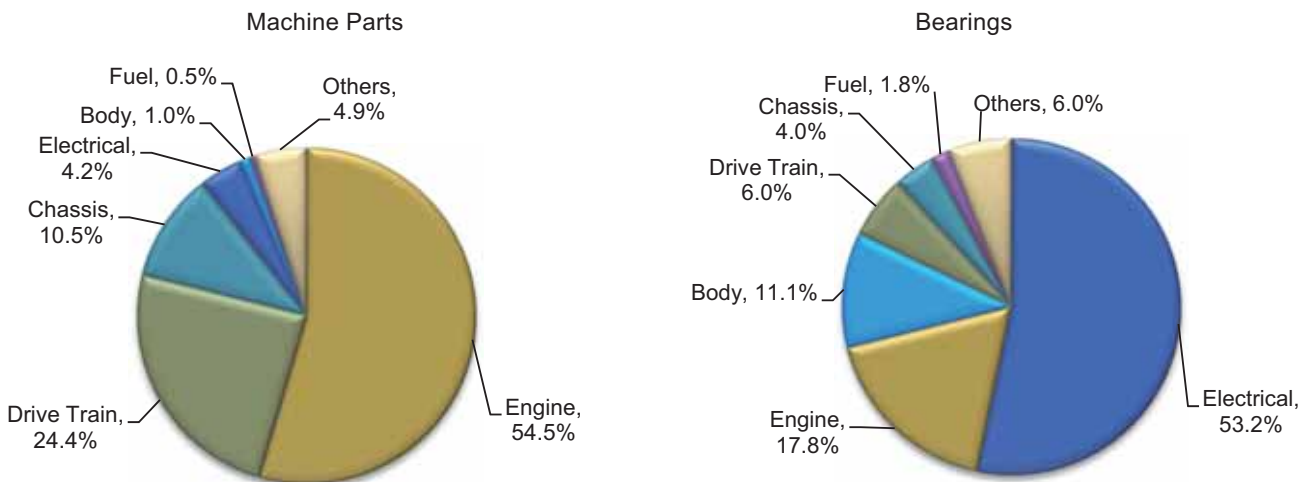


Fig4 shows the weight of sintered parts calculated for one car and the car production in Japan for the period from 2008 through 2017.

The weight of sintered parts calculated for one car in 2017 was 8.8kg in Japan, 20.0kg in U.S. and 8.5kg in Europe.

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

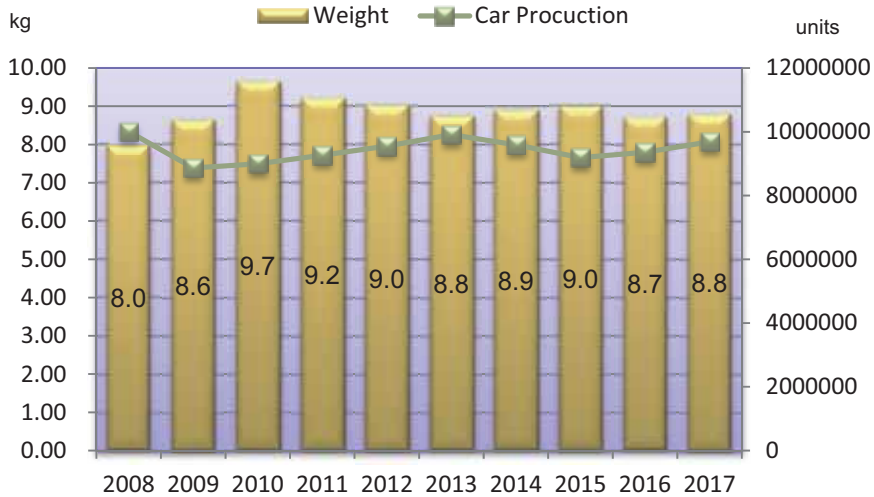
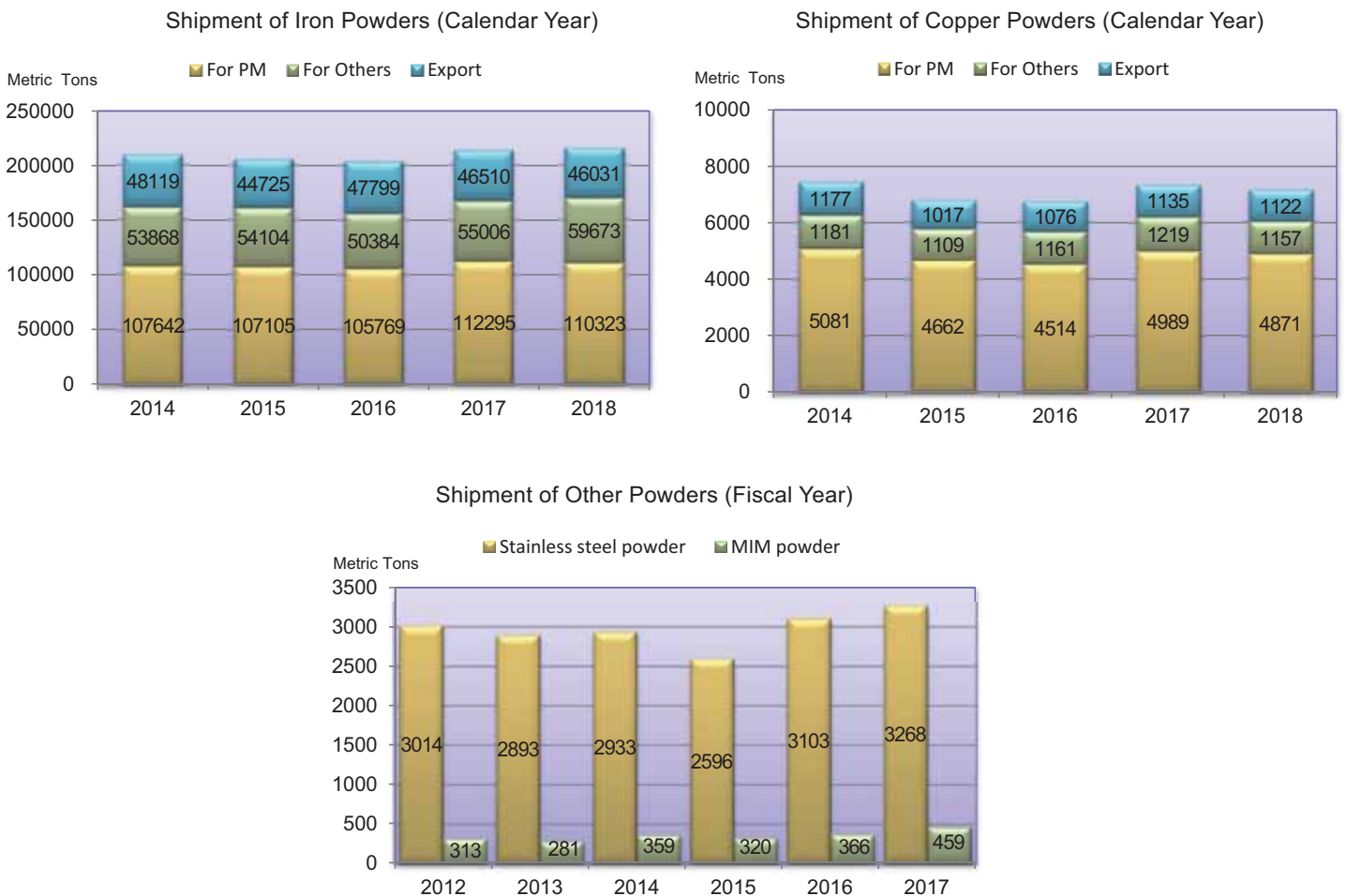


Fig5 shows Shipment of Metal Powders.

Fig.5 Shipment of Metal Powders (Source JPMA)



Awards

Development Prize

A New Design

A-1

Oil impregnated sintered bearing with 1 μ m inner dimension tolerance



PORITE CORPORATION

A-2

Transmission parts for new-generation HV automobiles with multi-steps taper shape



FINE SINTER CO., LTD.

A-3

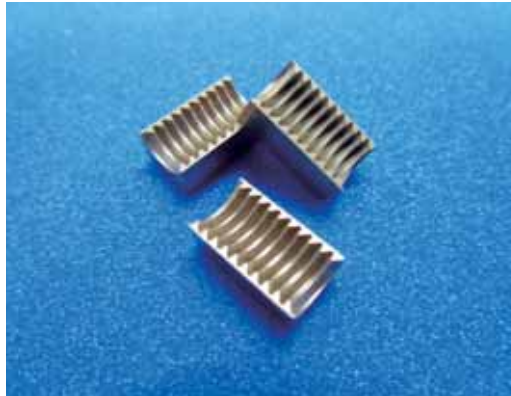
Sinterized eccentric bush use for Motorcycle ABS hydraulic control unit



PORITE CORPORATION

A-4

Sinterized screw nut lead used for medical syringe pump



PORITE CORPORATION

A-5

High-density sprocket with low-cost and die-lubrication less compaction



FINE SINTER CO., LTD.

F Effort Prize

F-1

Development of Gears for a Wastegate Valve in a Turbocharged Engine



SUMITOMO ELECTRIC INDUSTRIES, LTD.

F-2

Development of a Pressure Sensor Holder in Gasoline Direct Injection System



SUMITOMO ELECTRIC INDUSTRIES, LTD.

Prize for Distinguished Service of the Committee Activities

Mr. Masakazu Kirihara

KOBE STEEL, LTD.

2010-2018

Member of Committee for Administration

Member of Sub-Committee for General Affairs

Member of Sub-Committee for Public Relations

Member of Sub-Committee for PM2012



Recognition of Superior Employees

2018 prizewinner numbered 17 persons

(12 member companies)



Environment Prize

Reduction for total waste basic unit

NAPAC Co., Ltd.

Headquarter and Plant (Nagano Prefecture, Japan)



2018 APMA Activities

The 10th Board Meeting

Date : Tuesday 18 September 2018 10:00-12:00

Venue : 402A, China National Convention Center, Beijing, China

Participants :

APMA Board Member

President	Chiu-Lung Chu (TPMA, Taiwan)
Director	Rang Cai (CPMA, China)
Director	Yoichi Inoue (JPMA, Japan)
Director	Kun Jin Lee (KPMA, Korea)
Director	N. Gopinath (PMAI, India)
Secretariat	Takashi Saito (JPMA, Japan)

Attendant of APMA Members Association

APMA(Japan)	Isamu Kikuchi (Former President)
CPMA(China)	Rang Cai (President) Han Wei (Secretary General), Yang Yu (Vice Secretary General) Chonglin Wang (Consultant)
CPMS(China)	Baiyun Huang (President) Xiang Xiong (Executive Director), Yon Liu (Secretary General)
JPMA(Japan)	Yoichi Inoue (President) Takashi Saito (Executive Director), Yusuke Watanuki (Manager) Motonobu Isaka (Chairman of Committee for Administration)
JSPM(Japan)	Yoko Inoue (Secretary General)
KPMA(Korea)	Kun Jin Lee (President) Joon Park (Secretary General)
KPMI(Korea)	Chang Kyu Rhee (President) Jai Sung Lee (Former President), Hyoung Seop Kim (President-Elect)
PMAI(India)	N.Gopinath (President) Aniket Gore (Vice President), Deepak Grover (Vice President)
TPMA(Taiwan)	Sea Fue Wang (President) Ming Wei Wu (Secretary General)
ThaiPMA(Thailand)	Boon Teeraprawatekul (Secretary General)

Conclusions

- *2017 Finance and 2018 Budget was approved
- *Report of APMA2019 India
- *Next APMA2021 Conference is decided to be held in Korea
- *Next WORLD PM2024 Conference is decided to be held in Japan

PM Production in Asia

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

(Metric Tons)

AREA		2016	2017	2018	18/17(%)
Japan	Iron-base	88,145	92,166	92,283	100.1
	Copper-base	3,121	3,059	3,026	98.9
	Total	91,266	95,225	95,309	100.1
China	Iron-base	156,525	169,636	168,876	99.5
	Copper-base	12,669	15,535	14,831	95.5
	Total	169,194	185,171	183,707	99.2
Korea	*Iron-base	64,086	68,917	65,858	95.6
	Copper-base	633	435	639	146.9
	Total	64,719	69,352	66,497	95.9
Taiwan	Iron-base	30,000	32,637	34,800	106.6
	Copper-base	2,000	2,070	2,040	98.5
	Total	32,000	34,707	36,840	106.1
India	Iron-base	30,000	33,600	36,000	107.1
	Copper-base	6,000	7,200	8,900	123.6
	Total	36,000	40,800	44,900	110.0
Malaysia	Iron-base	3,810	3,744	3,970	106.0
	Copper-base	116	85	95	111.8
	Total	3,926	3,829	4,065	106.2
Singapore	Iron-base	1,486	1,542	1,655	107.3
	Copper-base	438	404	314	77.7
	Total	1,924	1,946	1,969	101.2
Thailand	Iron-base	17,141	16,498	19,771	119.8
	Copper-base	8	66	67	101.5
	Total	17,149	16,564	19,838	119.8
Indonesia	Iron-base	5,444	6,134	6,778	110.5
	Copper-base	68	96	104	108.3
	Total	5,512	6,230	6,882	110.5
Total	Iron-base	396,637	424,874	429,991	101.2
	Copper-base	25,053	28,950	30,016	103.7
	Total	421,690	453,824	460,007	101.4

*Included "Others"

Application Field Ratio of PM Production (2018) (%)

AREA	For Transportation Machines	For Industrial Machines	For Electrical Machines	For Others
Japan	93.8	4.3	1.6	0.3
China	59.0	2.0	25.0	14.0
Korea	95.5	0.0	2.0	2.5
Taiwan	42.0	26.0	9.0	23.0
India	80.0	7.0	8.0	5.0
Malaysia	67.7	1.7	30.5	0.1
Singapore	51.2	1.9	45.9	1.0
Thailand	93.3	2.8	3.9	0.0
Indonesia	100.0	0.0	0.0	0.0