

# EPMA Industry Benchmarking 2019

A service for manufacturing members of the EPMA for identifying best practice within the European PM Industry.



**The EPMA Benchmarking programme for the European PM Industry is the process of identifying 'best practice' for companies in relation to the manufacture of PM products, including the processes by which those products are created and delivered. All information is externally verified and held in the strictest confidence.**

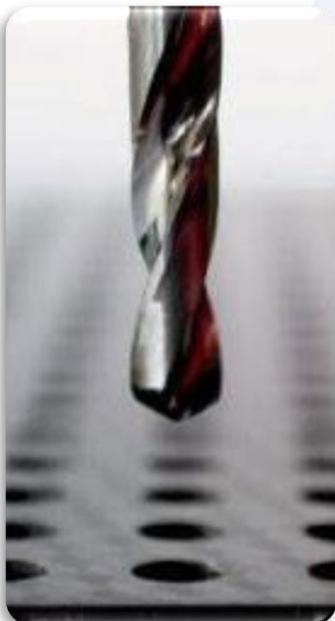


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The EPMA Benchmarking programme provides your company with an independent understanding and evaluation of its current position, in relation to the rest of the industry sector. The results from the benchmarking process will enable your company to identify key areas for future performance improvement.

This free service, exclusive to EPMA Members, offers participants a confidential and competitive benchmarking process against similar companies. Indeed external Benchmarking is a requirement under both ISO 9001:2000 and ISO/TS 16949:2002.

The main benefits of undertaking the EPMA Benchmarking Programme are:



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- Specific to the PM Industry – real comparison to real companies in the same business sector
- Enables year-on-year patterns to be monitored and will provide a solid basis from which to build improvement targets and strategies.
- The programme may expose key competitive weaknesses in both product manufacture and/or delivery and promotes operational excellence.
- Helps to fulfil ISO 9001:2000 and ISO/TS 16949:2002 requirements and move towards gaining ISO accreditation.

The EPMA Benchmarking System has been specifically designed to be as user friendly as possible, while operating according to the needs and requirements of your company.

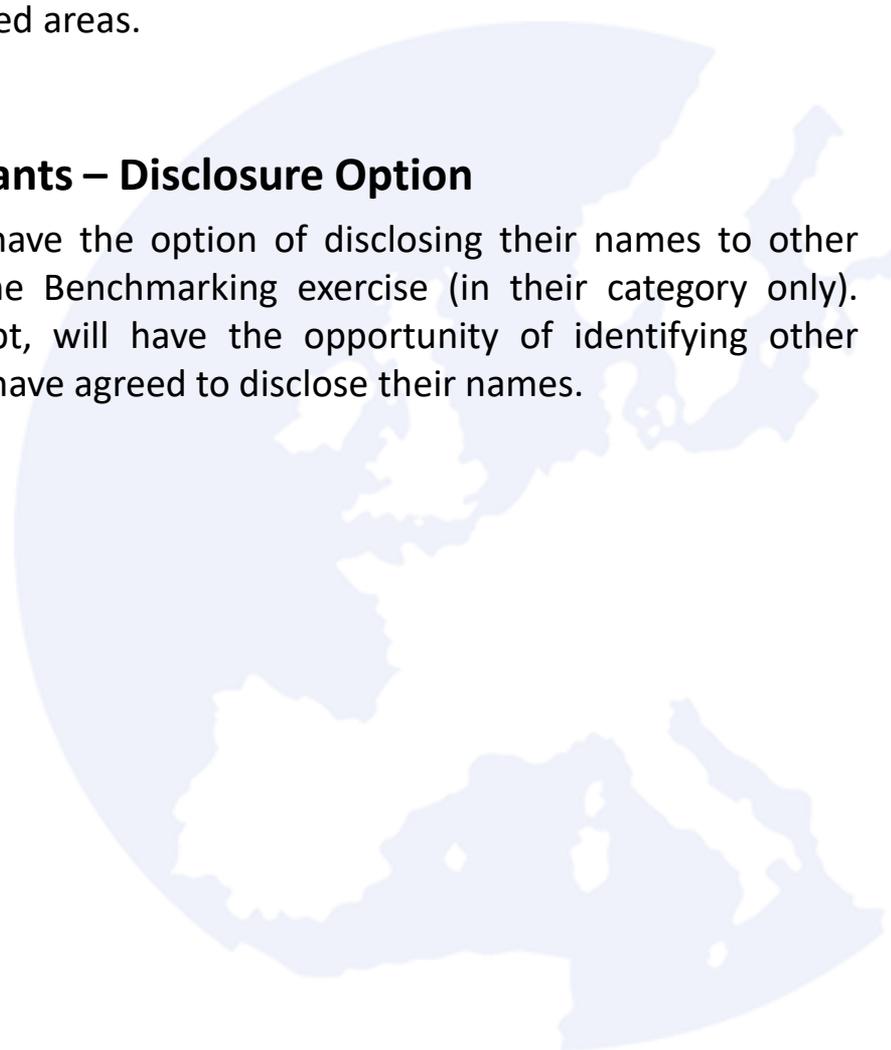
Based on initial systems developed by member companies in Spain and Germany the scheme has been proven over a number of years to ensure data consistency and quality. Therefore, by utilising a series of years of data, a good comparative picture against industry norms can be built up.

The system involves the entering of data onto a spreadsheet in response to a number of carefully selected questions, relating to both process and business issues. Nowadays this process is carried out via an online survey on a trusted specific web service.

Results are organised and returned to participating companies in a format (average and where possible five quartile readings) that allows comparison against maximum, minimum and mean performance in each of the selected areas.

## **List of Participants – Disclosure Option**

Participants will have the option of disclosing their names to other participants of the Benchmarking exercise (in their category only). Those who accept, will have the opportunity of identifying other participants who have agreed to disclose their names.



## 2019 Benchmarking for the Press&Sinter sector (for the 2018 performance)

The Benchmarking exercise for the Press&Sinter sector performance in 2018 is now launched: all companies that produce P&S parts, equipment or powders for Press&Sinter can join the survey for their category. If in a category a minimum participation of 6 companies was not achieved, the benchmarking will not be carried out for that category.

If you intend to take part, remember that if your company owns several sites, for every site you are required to create a separate entry in the survey. Please follow the instructions on how to fill the questionnaire: in the following you can find an empty template with all the questions, and the relevant instructions. We advise you to prepare all the answers before entering the data online.

The link for the survey is the following:

[SURVEY](#)

The deadline for entries is **October 21<sup>st</sup>, 2019**. The results will be distributed to participants in early **November 2019**.

N.B.: the exercise for the 2019 performance will be carried out in the first months of the year 2020.

### Questionnaire template

For your convenience, we enclose here a link to a pdf version of the online questionnaire. Please do not use the pdf for submitting data. If you cannot use the online version, we will send you an xlsx file upon request.

[Template in pdf](#)

## Guidelines for completion – Press&Sinter

**112 Site:** Where companies have more than one site or more than one product, the benchmarking return may be made either by Product Category or by Site.

**135 Product Category:** select from: (please insert the nearest category):

Equipment supplier: EQ  
Powder manufacturer: POW  
Parts producer: SF  
other (please specify)

### 21 Customer Delivery Achievement

*Customer Delivery Achievement measures how well a supplier matches the planned delivery requirements of the customer on a yearly basis*

Unit: % - percentage

Definition: total quantity supplied during **(2018)** (defective parts or powder included) against customer schedule (to be defined by each individual site/company) being the requirement less

- a) the quantity shipped early or late
- b) incorrect quantity

For consignment stock: quantity late = (number of days below minimum agreed stock level) x (average customer consumption)

(Note: you may wish to ignore small orders)

### 22 Customer Returns

*(product condition after shipment)*

*The number of Customer Returns is a measure of how the customers perceive the quality of the delivered products on a yearly basis*

Unit: ppm (parts per million)

Definition: total quantity of unacceptable products supplied to the customer and agreed as reject by both the customer and the supplier in **(2018)** - divided by the total quantity of components or powder delivered in **(2018)** to all customers - multiplied by one million

### **23 Not Right First Time**

*(product condition immediately prior to shipment)*

*Not right first time is a measure of the product meeting the agreed specification. It counts the number of defective parts, not the number of defects (e.g. a single part with several defective aspects is to be counted as one Not Right First Time part/powder unit)*

Unit: ppm (parts per million)

Definition: total quantity of parts or product produced in **(2018)** which are not right first time (i.e. both scrap and rework quantity; rework includes repairs at the production line) divided by the total quantity of parts/powder produced in **(2018)** multiplied by 1 million.

### **24 Productivity - Value Added per Employee**

*Value added per employee is a financial measure that relates the value added to the product to the number of direct people involved in the conversion process*

Unit: Euro/person

Definition: sales value of all products manufactured in **(2018)** less cost of raw materials, bought out components, subcontracted processing, consumable stores, loose tools, repairs and maintenance of plant and equipment, heat, light and power, transport, packaging, production services and other purchased services (i.e. added value is the sum of profit, depreciation, rent and insurance, payroll and benefits, financial charges and administration overhead including in-house R&D) divided by the total number of employees (see Notes A and B below)

Note: in past years this has caused some confusion. Typical figures might be expected to be in the range 30 000 to 200 000 euros per person

### **25 Inventory Stock Turn**

*Inventory Stock Turn measures how frequently the stock, raw material, work in progress and finished goods are turned over in relation to the sales revenue of a product. Inventory levels are key indicators of the "leanness" of the process and are directly related to the simplicity of production flows.*

Unit: number

Definition: sales value of all products manufactured in **(2018)** divided by the appropriate\* value of total inventory (raw materials, work in progress, finished goods). This indicator should be calculated on a calendar year basis i.e. from 1 January to 31 December. All products owned or controlled should be taken into account even if they are not physically located on site e.g. consignments stocks held at customers.  
*\*(preferably average, but if this is not available, end of year)*

## **26 Production Space Utilisation**

*Production space utilisation relates the plant space to the generation of sales and demonstrates how the effective use of space can reduce the fixed cost element of the unit*

Unit: Euro per sq. metre (see Note B below)

Definition: sales value of all products produced during **(2018)** divided by the total production space including all storage areas but excluding specialist R&D facilities etc. Areas currently not in use but already owned/constructed in view of future expansion should be included in the calculation.

## **27 Overall Equipment Effectiveness (OEE)**

*OEE is a total measure of performance that relates the availability of the process to productivity and quality. It shows how well the company is utilising resources, which include the equipment, the labour and the ability to satisfy the customer in terms of matching the quality specification*

Unit: %

Definition: OEE is the product of the theoretical availability of the equipment multiplied by its performance level and its quality rate, as per attached flowchart (see Note C below). The calculation is made for the average performance across key equipment within a plant (it is not intended that equipment not in volume or in normal production is included in the calculation of the average). The definition of "key equipment" being that equipment which is of major importance to the manufacturing capability of the plant, as defined per the relevant plant manager. The OEE should be average performance during **(2018)** for the relevant key equipment.

## 28 Training per Employee

*average time spent on training each employee*

Unit: hours per person

Definition: training per employee expressed as total training hours per year divided by number of employees. Employees are the same as those included in the productivity per employee calculation (see Note B below). Includes both external training courses and internal training courses.

## 29 Cost of Internal non-conformities

*Cost of internal non-conformities considers the costs arising from products or processes not in compliance with quality requirements. For ease of use, only defects found internally in the company are considered.*

Unit: % percentage

Definition: total annual units in **(2018)** of internal scrap and internal rework divided by the total annual manufacturing cost in **(2018)** and multiplied by 100. Internal scrap includes all defective products - resulting from faulty manufacturing or assembly that (1) does not meet quality requirements after being reworked and (2) reasonably cannot be used for any other purpose. The overall costs including labour, material and overheads must be taken into account. Revenues from selling scrap shall not be deducted. Internal rework encompasses the activities aimed at making a non-compliant product meet the quality requirements. Unsuccessful rework is also considered rework; it does however usually generate scrap costs in addition to rework costs. The manufacturing cost is defined as the sum of labour, machine costs, tool change costs and special costs on a yearly basis.

## 30 Energy usage

*energy costs as % of total turnover*

Unit: %

Definition: (Cost of electricity) + (cost of gas used for energy purposes only) divided by turnover

## 31 Average price

*average selling price per kilo*

Unit: euros per kilo

Definition: sales turnover divided by weight of parts/powder equal to that sales turnover

### **32 Turnover with new parts**

*fraction of turnover which has come from new business*

Unit: %

Definition: turnover of parts made and sold from toolsets new during the year/ quantity of powder blends made and sold which are to new specifications as a fraction of total turnover. This does not include minor modifications to old specifications.

### **33 Mean time required for tool changing**

Unit: hours

Definition: measured from the moment whereon the previous production run stops up to the first "good" piece (green part to specification: right densities, right dimension, no cracks) is produced and full scale production starts after the tool change. The part should have a complexity of "class VI": Multilevel parts of any thickness and contour. Figures to be stated for three classes of presses.

### **34 Production personnel**

The figures 341-343 refer to direct production personnel including line supervision, highly skilled and those with more general engineering training. Excludes maintenance, design and all other categories.

### **341 Participation of production personnel**

Unit: number

Definition: number of ideas per year received and implemented divided by number of production personnel.

Note: Typical figures might be expected to be in the range 0 to 6

### **342 Paid hours of production personnel**

Unit: hours

Definition: total hours paid, including overtime, divided by total employees.

Note: Typical figures might be expected to be in the range 1 500 to 2 500 hours

### **343 Gross yearly skilled production personnel average wage**

Unit: euros

Definition: gross salary in euros paid but excluding social costs.

Note: Typical figures might be expected to be in the range 30 000 to 45 000 Euros in West Europe.

### **35 Absenteeism**

This refers to personnel from production and all other departments including design, sales, and administration.

Unit: %

Definition: total number of hours lost for any reason without any exception divided by total legal working days (but not including overtime) in **(2018)**.

### **6 Customer Profile**

How much of your total turnover goes finally to the automotive market; of this, how much goes directly to the Vehicle Manufacturers defined as follows:

Tier 0 = OEM Vehicle Manufacturers including (1) Vehicle Assembly plants (2) Powertrain Assembly Plants (Engine and Transmission) (3) Replacement or Spare Parts divisions of the major OEMs

Tier 1 = the component makers that ship direct to Tier 0.

Tier 2 = the companies that ship to Tier 1

Tier 3 = the companies that ship to Tier 2

### **Notes**

**A)** The total number of employees includes all personnel directly involved in and contributing to the site performance but excludes all corporate staff and central company specialist areas such as a corporate R&D activity

**B)** The financial values to be applied in the calculations are to be at a fixed rate in order to eliminate currency variations from the Benchmarking initiative. The values to be used are the rates as in December **(2018)** which are as follows:

**Table 1 Exchange rates from the European Central Bank<sup>1</sup> for 31 Dec (2018)**

Code	Currency	1€=?
USD	US dollar	1.1450
JPY	Japanese yen	125.85
BGN	Bulgarian lev	1.9558
CZK	Czech koruna	25.724
DKK	Danish krone	7.4673
GBP	Pound sterling	0.89453
HUF	Hungarian forint	320.98
PLN	Polish zloty	4.3014
RON	Romanian leu	4.6635
SEK	Swedish krona	10.2548
CHF	Swiss franc	1.1269
ISK	Icelandic krona	133.20
NOK	Norwegian krone	9.9483
HRK	Croatian kuna	7.4125
RUB	Russian rouble	79.7153
TRY	Turkish lira	6.0588
AUD	Australian dollar	1.6220
BRL	Brazilian real	4.4440
CAD	Canadian dollar	1.5605
CNY	Chinese yuan renminbi	7.8751
HKD	Hong Kong dollar	8.9675
IDR	Indonesian rupiah	16500.00
ILS	Israeli shekel	4.2972
INR	Indian rupee	79.7298
KRW	South Korean won	1277.93
MXN	Mexican peso	22.4921
MYR	Malaysian ringgit	4.7317
NZD	New Zealand dollar	1.7056
PHP	Philippine piso	60.113
SGD	Singapore dollar	1.5591
THB	Thai baht	37.052
ZAR	South African rand	16.4594

# Promoting the Powder Metallurgy Future

c)

## OVERALL EQUIPMENT EFFECTIVENESS (OEE)

