



STRATEGIC BUSINESS PLAN – ISO/TC 119

Executive summary

The scope of ISO/TC 119 is the standardization of Powder Metallurgical materials concerning terms and definitions, sampling, testing methods and materials specifications. The objective of ISO/TC 119 is to facilitate the timely development and maintenance of quality, market relevant, material test methods and standards for the global powder metallurgical industry.

Powder Metallurgy (PM) is the branch of metallurgy, which relates to the manufacture of metallic powders, or of articles made of such powders with or without the addition of non-metallic powders, by the application of forming and sintering. The most frequent types of commercially available PM products are based on ferrous steel powder, copper-based powder, hardmetals powder and sintered components made thereof.

Although powder metallurgy practices were used in ancient times, modern powder metallurgy is a comparatively young branch of metallurgy and is still growing and developing. Powder Metallurgy materials are today considered as an important, strategic and versatile material in the global economy. From automotive via machine tools to metalworking, PM provide designers, engineers, manufacturers, legislators and consumers with products that contribute to economic growth, a higher standard of living worldwide and sustainability of the environment since metallic powder material is recyclable.

PM has not only shown a rapid growth of already industrially implemented applications, but also great possibilities of producing new materials and products with unique and technically important combination of properties.

The supply of hardmetals is dominated by a relatively small number of big international companies with an integrated production of both powders and products. Products of hardmetals are used for their very high wear resistance. In the industrialized part of the world the most important usage is tool tips for machining (turning and milling) geometries out of blanks of different materials. Hence, the customers can be any type of industry, large or small, and be located all around the world.

The basic strategy of ISO/TC 119 is to continue the work aiming at providing all businesses of the powder metallurgical field with internationally accepted and up to date standards on terminology, testing methods and material specifications.

The structure of ISO/TC 119 is given below:

ISO/TC 119	Powder metallurgy
ISO/TC 119/SC 2	Sampling and testing methods for powders (including powders for hardmetals)
ISO/TC 119/SC 3	Sampling and testing methods for sintered metal materials (excluding hardmetals)
ISO/TC 119/SC 4	Sampling and testing methods for hardmetals
ISO/TC 119/SC 5	Specifications for powder metallurgical materials (excluding hardmetals)

The standardisation work is normally conducted in working groups under each SC, working groups are established when needed and disbanded after the work is finalized.

As appropriate, liaison activities exist with other standards development committees and organizations to help facilitate the efficient and effective development of globally relevant standards.

ISO/TC 119, the SCs and relevant WGs hold annual meetings supported by its industry, in a member body country, at, as appropriate to their individual work programmes. ISO/TC 119 is committed to the efficient use of state-of-the-art electronic communication supplied by ISO Central Secretariat.

1 Introduction

1.1 ISO technical committees and business planning

The extension of formal business planning to ISO Technical Committees (ISO/TCs) is an important measure which forms part of a major review of business. The aim is to align the ISO work programme with expressed business environment needs and trends and to allow ISO/TCs to prioritize among different projects, to identify the benefits expected from the availability of International Standards, and to ensure adequate resources for projects throughout their development.

1.2 International standardization and the role of ISO

The foremost aim of international standardization is to facilitate the exchange of goods and services through the elimination of technical barriers to trade.

Three bodies are responsible for the planning, development and adoption of International Standards: [ISO](#) (International Organization for Standardization) is responsible for all sectors excluding Electrotechnical, which is the responsibility of [IEC](#) (International Electrotechnical Committee), and most of the Telecommunications Technologies, which are largely the responsibility of [ITU](#) (International Telecommunication Union).

ISO is a legal association, the members of which are the National Standards Bodies (NSBs) of some 164 countries (organizations representing social and economic interests at the international level), supported by a Central Secretariat based in Geneva, Switzerland.

The principal deliverable of ISO is the [International Standard](#).

An International Standard embodies the essential principles of global openness and transparency, consensus and technical coherence. These are safeguarded through its development in an ISO Technical Committee (ISO/TC), representative of all interested parties, supported by a public comment phase (the ISO Technical Enquiry). ISO and its [Technical Committees](#) are also able to offer the ISO Technical Specification (ISO/TS), the ISO Public Available Specification (ISO/PAS) and the ISO Technical Report (ISO/TR) as solutions to market needs. These ISO products represent lower levels of consensus and have therefore not the same status as an International Standard.

ISO offers also the International Workshop Agreement (IWA) as a deliverable which aims to bridge the gap between the activities of consortia and the formal process of standardization represented by ISO and its national members. An important distinction is that the IWA is developed by ISO workshops and fora, comprising only participants with direct interest, and so it is not accorded the status of an International Standard.

2 Business Environment of the ISO/TC

2.1 Description of the Business Environment

The following political, economic, technical, regulatory, legal and social dynamics describe the business environment of the industry sector, products, materials, disciplines or practices related to the scope of this ISO/TC, and they may significantly influence how the relevant standards development processes are conducted and the content of the resulting standards:

Powder Metallurgy (PM) is the branch of metallurgy, which relates to the manufacture of metallic powders, or of articles made of such powders with or without the addition of nonmetallic powders, by the application of forming and sintering. It includes not only cases where starting from a powder is the only possible way to produce an article, see e.g. hardmetals (cemented carbides), but also where the PM route has been preferred instead of other forming methods like casting, forging or machining of wrought metals.

With a large variety of processes, materials and applications Powder Metallurgy is not one market, but can be seen as several separate markets. Two of the most important areas are hardmetals with an approximate total world production of tungsten carbide of about 50 000 tons per year and iron- and copper-based sintered machine components with a total production volume of about 1 000 000 tons per year.

The supply of hardmetals is dominated by a relatively small number of big international companies with an integrated production of both powders and articles. Within the ferrous PM industry, a consolidation is taking place including both producers of iron and steel powders and manufacturers of sintered components. Those two groups are normally independent from each other with a few exceptions.

The quantity of copper-based PM parts is 5-10 % of the iron-based. Producers of the copper powders are specialized in non-ferrous metals while the components mainly are produced by the same companies that are making sintered steel components.

Articles of hardmetals are used for their very high wear resistance. In the industrialized part of the world the most important usage is as tool tips for machining articles out of blanks of different materials, so the customer can be many type of industries.

The customers for sintered components of iron, steel or copper are those having a production of equipment in large production runs and where the components must meet the demand for consistent close tolerances. Most important is the automotive industry, which accounts for 70-80 % of the tonnage. The ongoing electrification of the automotive industry is expected to continue, which is both a challenge and an opportunity for the metal powder industry. Other areas are e.g. household equipment, power tools, office machines etc.

From a sustainability perspective there are advantages by manufacturing components by the PM route. For mass-produced sintered steel components, the PM route shows the lowest energy consumption compared with other methods, which will contribute to the expected increase of the total market. By the possibility to produce net-shape or near net-shape components materials utilization is higher compared to components made by forging or machining from wrought steels.

The market for Additive Manufacturing (AM) has the past years increased dramatically in technological potential and developing efforts are ongoing all over the world. It is essential that ISO/TC 119 in the future take lead in standardization activities regarding the test methods and material characteristics for the metallic powder used by the AM industry.

It is important that the international standardization activities are proactive and is able to meet new developments and future demands for the metal powder industry.

2.2 Quantitative Indicators of the Business Environment

The following list of quantitative indicators describes the business environment in order to provide adequate information to support actions of the ISO/TC:

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In 2021 the shipment of iron metal for North America, Europe and Asia was about 900 000 ton. This is an increase of more than 10% compared to 2020, a year where the business had a dip due to Covid-19 pandemic. It is also an increase from 2015 when the iron powder shipment was about 650 000 tons.

3 Benefits expected from the work of the ISO/TC

The technical development is very fast within Powder Metallurgy and new processes and materials are introduced almost every year. It is therefore extremely important that the terminology is clear and that standardized testing methods exist or fast can be standardized to keep up with the PM-development. The automotive industry (at least the bigger companies) are looking for global sourcing of components and the revised ISO material standard for sintered steel is well appreciated by the biggest end-users.

The continuous appraisal and revision of the PM international standards ensures that, as new nations come into the arena, there is a consistency of standards that allows all the producers to compete on an equal footing.

The exploitation of technological changes by the industry and its customer industries ensures that ISO/TC 119 is always ready to react to the new industries and applications that emerge by the revision of and the writing of new international standards to cover these eventualities.

The powder material used in both iron-based PM and hard metals is of strategic importance to customers worldwide and therefore it is a valuable material and has a high level of recyclability. From energy and material utilization point of view production of components by the PM route are favorable compared to competing technologies such as forgings and castings.

4 Representation and participation in the ISO/TC

4.1 Membership

Members of ISO/TC 119 Powder metallurgy

4.2 Analysis of the participation

The most relevant countries within the metal powder industry are participating in ISO/TC 119 or any of its sub-committees.

5 Objectives of the ISO/TC and strategies for their achievement

5.1 Defined objectives of the ISO/TC

To elaborate and revise International Standards for testing methods for Metal powders, Hardmetals and Sintered metals in cases where the methods are specific and not covered by other standards. To elaborate and revise Material Specifications for some Sintered Metals and to keep a Standardized Terminology updated.

Continuous attention is paid to the updating of standards and test methods to align with the latest developments both in global technical terms and the global marketplace. For instance, work to standardize powder characterization methods catering for the needs of the AM industry is discussed in the industry and is identified by TC 119 as a possible action for the immediate future as an international objective.

Another objective is standardization of soft magnetic composite materials which are increasingly relevant in the trend of electrification in the automotive industry.

5.2 Identified strategies to achieve the ISO/TC's defined objectives

The strategies are:

- to review currently published International Standards and progress with the preparation of either new International Standards or Technical Reports for the range of metal powder materials
- to focus on the development for new precision statements for the standards covering testing methods for metal powder materials
- to follow, by liaisons, the ongoing standardization work within groups that are linked to the PM industry and the scope of ISO/TC 119.

This work will be hastened by the use of project managers whose function will be to prepare a first draft of the respective standard or technical report and then use the SC to progress the work against the agreed timetable.

All ISO standards published by TC 119 will by default be published as EN ISO since within Europe/CEN no organization covering the standardization of PM materials exists.

6 Factors affecting completion and implementation of the ISO/TC work programme

About 50% of the P members regularly attend and take part in the meetings. With the imminent approach of the revision phase for some of the standards, it would help the drafting work of the SCs, WGs and ad hoc groups if other member bodies could actively involve themselves in the various projects. It has had some success in making direct contact with the industry in the member body countries concerned to get the message across that the development of International Standards is not only the responsibility of the few dedicated members but requires the input from all concerned.

The TC has adopted a forward plan for meetings so that member bodies have sufficient notice of forthcoming meetings. Notification of forthcoming meetings are normally given latest 4 months before the date of the meeting and reports of recent meetings are available to all member body representatives within one month of the meeting being held.

7 Structure, current projects and publications of the ISO/TC

Information on ISO online

The link below is to the TC's page on ISO's website:

[ISO/TC 119 Powder metallurgy](#)

Click on the tabs and links on this page to find the following information:

- About (Secretariat, Committee Manager, Chair, Date of creation, Scope, etc.)
- Contact details
- Structure (Subcommittees and working groups)
- Liaisons
- Meetings
- Tools
- Work programme (published standards and standards under development)

Reference information

[Glossary of terms and abbreviations used in ISO/TC Business Plans](#)

[General information on the principles of ISO's technical work](#)