



IEC/TC OR SC:	SECRETARIAT:	DATE:
<b>68</b>	<b>Germany</b>	<b>2017-11</b>

Please ensure this form is annexed to the Report to the Standardization Management Board if it has been prepared during a meeting, or sent to the Central Office promptly after its contents have been agreed by the committee.

### A. STATE TITLE AND SCOPE OF TC

Are there any new or emerging trends in technology that will impact the scope and work activities of the TC? Please describe briefly. **None**

Do you need to update your scope to reflect new and emerging technologies? If yes, will these changes impact another TC's scope or work activities? **No**

If yes, describe how these will impact another TC(s) and list the TC(s) it would impact

Title: Magnetic alloys and steels

Scope: To prepare international standards relating to the magnetic and other physical properties of alloys and steels which are relevant to their electrotechnical usage.

NOTE: The work of TC 68 should be at all times co-ordinated with the activities of IEC/TC 51 and ISO/TC 17.

### B. MANAGEMENT STRUCTURE OF THE TC

Describe the management structure of the TC (use of an organizational chart is acceptable) (should be integrated by CO automatically) and, if relevant (for example an unusual structure is used), provide the rationale as to why this structure is used. **The valid structure of TC 68 is described at its dashboard on the IEC website.**

Note: Check if the information on the IEC website is complete.

When was the last time the TC reviewed its management structure? **The structure was checked at every TC 68 meeting. The latest modification of scopes of WGs were made at the previous TC 68 meeting, 2015, resulting in the structure shown in the penultimate paragraph of section B.**

Describe any changes made. When does the TC intend to review its current management structure? In the future, will the TC change the current structure, for example due to new and emerging technologies, product withdrawal, change in regulations etc. Please describe. **No changes since 2015.**

Make sure the overview includes:

- any joint working groups with other committees,
- any special groups like advisory groups, editing groups, etc.

TC 68 was set up in 1968. Since its inception the Secretariat has been held by Germany and the Chairmanship by Great Britain until 2014-09-30. The Chairmanship is now held by France from 2014-10-01.

Presently, there are 12 P-members in TC 68: Austria, Belgium, China, France, Germany, India, Japan, Republic of Korea, Pakistan, Sweden, United Kingdom and United States of America.

Liaison is maintained with IEC/TC 51 "Magnetic components and ferrite materials" and ISO/TC 17 "Steel" which is formed through the joint working group IEC/TC 68/WG 1 - ISO/TC 17/WG 16 responsible for the specification standards for soft magnetic steels, in particular electrical steel. Liaison with TC 51 is through the exchange of documents with occasional holding of joint meetings of the Maintenance Teams 3, Terminology, thus giving an opportunity for discussion of topics of

common interest.

NOTE from the TC 68 Secretariat: TC68/MT3, Terminology, was disbanded at the latest TC 68 meeting, TC 51 will be informed correspondingly.

There are six working groups/maintenance teams dealing with:

WG 1: Classification, composition and properties of magnetic materials;

WG 2: Measuring methods for soft and feebly magnetic materials;

MT 3 (jointly with TC 51): Terminology;

NOTE from the TC68 Secretariat: MT3 was disbanded at the latest TC 68 meeting.

WG 4: Magnetic alloys of iron-nickel, iron-cobalt, iron-aluminium and iron-aluminium silicon;

WG 5: Specifications and measurement methods for hard magnetic materials.

JWG 1 (IEC/TC68/WG1 – ISO/TC17/WG16): Specification standards for soft magnetic steels, in particular electrical steel and iron-based amorphous material

The Working Groups simultaneously constitute the Maintenance Teams for those standards which are prepared by them.

Due to changes in the IEC regulations – introduction of maintenance and project teams apart from the Working Groups – TC 68 has considered the structural problem and has come to the conclusion that it is not reasonable for such a small TC to form and maintain these three categories of bodies for this work. Instead, it was discussed with IEC Central Office and agreed that the existing Working Groups would be able to administer the terms of references of the three categories of functional groups, with responsibility for the standards falling within their terms of reference. A restriction of the number of experts per WG and per National Committee was discussed but not accepted. The Joint Working Group IEC/TC68/WG1 – ISO/TC17/WG16 (JWG) has been working successfully for many years and should continue their technically and economically relevant work of specifying magnetic materials.

#### **C. BUSINESS ENVIRONMENT**

Provide the rationale for the market relevance of the future standards being produced in the TC.

If readily available, provide an indication of global or regional sales of products or services related to the TC/SC work and state the source of the data.

Specify if standards will be significantly effective for assessing regulatory compliance.

The global magnetics and electrical engineering industries employ soft magnetic magnetic alloys and steels which are fundamental to the generation and distribution of electrical power, electrical machines and related techniques. At the other end of the spectrum of magnetic material behaviour are the magnetically hard compounds and alloys which are crucial for a large number of magneto-mechanical applications and some key areas of technical energy transformation. Whilst the worldwide quantity of all magnetic material produced is of the order of 12.5 million tonnes per year, electrical steel sheet constitutes a share of the order of 8 million tonnes, giving a market share of 4.8 billion Euro (this can vary considerably from year to year).

#### **D. MARKET DEMAND**

Provide a list of likely customers of the standards (suppliers, specifiers, testing bodies, regulators, installers, other TC/SC's etc.). Do not specify company names, only categories of customers.

The market is in need of international standards for measuring and specifying the technically relevant magnet properties of all magnetic materials. The specification standards take account, and form a consensus, of the interests of the steel manufacturing industries and of the end users, i.e. the producers of transformers, rotating electrical machines and all other electrical appliances including the whole automotive industry. The standards relating to measurement methods are intended to represent methods that are optimal with regard to the reproducibility and the

economical and efficient use of measurement systems.

**E. TRENDS IN TECHNOLOGY AND IN THE MARKET**

If any, indicate the current or expected trends in the technology or in the market covered by the products of your TC/SC.

The trends in technology which are relevant to TC68 are determined by the sustainability of fossil fuels, the reduction of carbon dioxide emission, in particular through more electric transport, exploitation of new renewable energy sources and limiting environmental burdens and hazards. New soft magnetic materials with lower specific total loss are being developed to meet the demand for energy transformers with improved efficiency. A new trend, determined by the demand for small and effective electro-mechanical devices and also for the economical production of small magnetic cores with complex geometries, is the development and use of coated iron powders as core material. These materials are expected to influence TC68 activities in the future.

**F. SYSTEMS APPROACH ASPECTS (REFERENCE - AC/33/2013)**

Does your TC/SC have a need for a systems approach?

If so:

- Will the Systems work be in a single TC or in multiple TCs? **See table below.**
- Will a Systems Evaluation Group (SEG), Systems Committee (SyC), or Systems Resource Group be required? **No**
- Is your TC/SC work of relevance to ISO? **Yes, see section B, scope of the Joint Working Group.**
- Is or are there fora or consortia working in parallel to IEC? Is there a chance to integrate this work in your TC/SC? **There are no such global international fora, regional institution working in connection or subordinated to IEC exist.**

This should not only be restricted to the customer/supplier relationships with other TC/SCs indicating types of co-operation (e.g. liaisons, joint working groups) but be of a more generic nature.

If there is no need for a systems approach as outlined in AC/33/2013, is it intended a TC would not be requested to report on general systems approach considerations such as customer/supplier relationships, liaisons, joint WGs, etc. as referenced in the system approach matrix illustrated in slide 14 of the presentation attached to AC/37/2006?

**There is no such intention within IEC TC68.**

**TC 68 System approach relevance**

Component committees (TC 68 – role of customer)	IEC/TC 1	Terminology
	IEC/TC 85	Measuring equipment for electrical and electromagnetic quantities
System committees (TC 68 – role of supplier)	IEC/TC 2	Rotating machinery
	IEC/TC 14	Power transformers
	IEC/TC 29	Electroacoustics
	IEC/TC 38	Instrument transformers
	IEC/TC 51	Magnetic components and ferrite materials
	IEC/TC 77	Electromagnetic compatibility
	IEC/TC 88	Wind turbines
	TA 12	Energy efficiency
Other committees	ISO/TC 17	Specification standards for soft magnetic steels, in particular electrical steel (forming JWG IEC/TC68/WG1-ISO/TC17/WG16 with TC68)

The work of TC 68 is of relevance to ISO TC 17. As mentioned in Section B the joint working

group is established between both committees.

**G. CONFORMITY ASSESSMENT**

With reference to clause 33 of Part 2 of the ISO/IEC directives, are all your publications in line with the requirements related to conformity assessment aspects? **Yes, they are.**

Will the TC/SC publications be used for IEC Conformity Assessment Systems (IECEE, IECEx, IECQ, IECRE)? **There is no knowledge of such use.**

Will any of your standards include test specifications, reproducible test requirements, and test methods? **Yes, this is included in all standards on measurement methods.**

Are there likely to be special conformity assessment requirements generated by any standards projects? If yes, list which projects. **No.**

With reference to clause 6.7 of Part 2 of the ISO/IEC directives, TC 68 publications are in line with the requirements related to conformity assessment aspects.

Although TC 68 publications do include test specifications, requirements of test reproducibility and test methods in all TC 68 standards on measurement methods, there is no knowledge or foreseen usage of TC 68 publications for IEC Conformity Assessment Systems (IECEE, IECEx, IECQ, and IECRE).

**H. HORIZONTAL ISSUES**

Indicate here how the TC/SC deals with horizontal issues such as energy efficiency, environmental aspects, safety, security...

Provide information on the interaction with SMB Advisory Committees, if applicable.

TC 68 deals with these issues with respect to backing the forward-looking development of the relevant intrinsic physical material properties having a positive impact on these issues, by developing and adapting related measurement and specification standards (see also items C and D). The direction of the progress is unambiguous and does not need input from outside, whilst the outward effect of the work of TC 68 might be characterized by the relationships mentioned in section F. Thus, we cannot recognize an applicability of interaction with SMB Advisory Committees so far.

**I. 3-5 YEAR PROJECTED STRATEGIC OBJECTIVES, ACTIONS, TARGET DATES**

STRATEGIC OBJECTIVES 3-5 YEARS	ACTIONS TO SUPPORT THE STRATEGIC OBJECTIVES	TARGET DATE(S) TO COMPLETE THE ACTIONS
<p>Consideration of the specifications of electrical steel measured by means of single sheet testers in accordance with IEC 60404-3, with the intention of supplementing the specification standard IEC 60404-8-7 at their next revision by the addition of corresponding SST reference values for high permeability electrical steel.</p>	<p>Measurement comparisons arranged by the JWG and experiments relevant with regard to usage as a basis for this strategic objective have been conducted. The remarkable results of these actions were published recently in IEC TR 62981. They have to be discussed further in detail by a special task group to determine their impact on the next edition of IEC 60404-8-7.</p>	<p>The stability date of the currently revised standard for the specification of grain-oriented electrical steel, IEC 60404-8-7 Ed.4.0, was fixed to a short period (i.e. 2020) so that the next revision containing the intended changes can be realized in about 4 years' time.</p> <p>2021.</p>
<p>Revision of IEC 60404-3 with an attempt to take account of yokes' impact on the systematic error of</p>	<p>The revision of this otherwise proven and useful standard is resting in PWI stage until longsome studies will result in</p>	<p>It was decided to keep this project in the PWI stage, a possible target date for</p>

the method.	relevant findings. The studies are still going on.	completing the revision may be 2020.
Measurement methods for magnetostriction for relevant applications of grain-oriented electrical steel and as a quantity relevant to environmental aspects.	Measurement comparisons arranged by WG2 and discussions on their results with the intention to select the best method for the corresponding standard. Sample procurement problems are presently being solved.	2021
Note: The progress on the actions should be reported in the RSMB.		