SMB/3625/R

STRATEGIC POLICY STATEMENT

IEC/TC or SC	Secretariat	Date
68	Germany	2007-12

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

Title of TC
Magnetic Alloys and Steels

A. Background

The Technical Committee was formed in 1968. Since its inception the Secretariat has been held by Germany and the Chairmanship by Great Britain.

The Technical Committee scope is:

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

Within this field the Committee has issued 23 standards and 3 Technical Reports, 11 of the standards referring to material classification and specifications and 12 referring to measurement methods for their relevant magnetic and other physical quantities. The scope also includes contribution to the maintenance and extension of the chapters 121 and 221 of the International Electrical Vocabulary.

Participating countries:
Presently, there are 14 P-members in TC68: Austria, Belgium China, Czech Republic, Finland, France, Germany, Italy, Japan, Rep. of Korea, Russian Federation, Sweden, U.S.A. and United Kingdom.

Liaison:
Liaison is maintained with ISO/TC 17 "Steel" and with IEC/TC 51 "Magnetic components and ferrite materials". Liaison with ISO/TC 17 is through the joint working group IEC/TC 68/WG 1 - ISO/TC 17/WG 16 which is responsible for the specification of magnetic steels. Liaison with TC 51 is through exchange of documents with occasional holding of joint meetings of the respective Working Groups, thus giving an opportunity for discussion of topics of common interest.

Working Groups and Maintenance Teams:
There are five working groups dealing with

WG 1 Classification, composition and properties of magnetic materials
WG 2 Measuring methods for determining magnetic and other physical properties;
MT 3 Terminology;
WG 4 Magnetic alloys of iron-nickel, iron-cobalt, iron-aluminium and iron-aluminium silicon;
WG 5 Hard magnetic alloys and ceramic materials.

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

Relationship to CEN/CENELEC:
In the context of the single market in the European Community, the European Technical Committee responsible for Magnetic Steels (ECISS TC 24) is using the IEC Standards, many of them without

modification, as the basis for new European Standards.

The IEC Standards of TC68 form the basis of the European Standards under the control of Technical Committee ECISS TC24. A recent agreement between CEN and CENELEC allows TC24 to produce both the measurement standards and the material specification standards.

B. Environment

B.1 Business environment

Magnetic steels and alloys are key materials in the design and performance of almost all power electrical and electronic equipment, both static and rotating. Although the market for power electrical equipment is expanding significantly only in China and third world countries, competition for all markets is intense and manufacturers are continually seeking improved electromagnetic performance which can only come from improved magnetic and insulation materials.

B.2 Market demand

(see B1 and B3)

B.3 Trends in technology and trade

The development of new permanent magnet materials has been such in recent years, with the appearance of the rare-earth alloy materials and resin bonded composed materials, that they have been and are becoming a viable alternative to the electromagnet as a source of magnetic potential in magnetic circuits for quite large equipments.

The development of rapidly quenched amorphous and nanocrystalline materials is proceeding in several countries and these materials have considerable attractions as an alternative to conventional magnetic steels in distribution transformers, higher frequency equipment and sensors. On the other hand the highest quality grain-oriented electrical steel shows continued quality improvement. All these developments are leading to demands for amendments to existing product standards and to the creation of new ones.

B.4 Ecological environment

The striving for lower energy consumption and capitalisation of losses is resulting in the continuing development of materials with lower magnetic loss and higher permeability

C. Work programme

C1 Current work

The current improvements in technology referred to in Section 2 "Environment" will mean a need to revise existing material standards every 5 or 6 years.
Some rationalization of the measurement standards is required which can be achieved by the creation of new ones and the pruning of existing ones.. TC68 has taken into account the developments in digital techniques and has introduced the particular aspects of this technique into the standard for the measurement of magnetic properties of magnetic steels in order to take advantage of this technique with respect to the automation and extended acquisition of information. It is also recognized that the magnetostriction characteristics of electrical steels are a significant contribution to transformer noise, and work on a comprehensive Technical Report on the measurement techniques on this field has been started recently.. The same holds for the elevated temperature stability and the magnetization performance of permanent magnets.

Detailed lists of the standards and revisions currently in preparation are given in Appendices A and B, respectively.

C.2 Resources/infrastructure needed

The infrastructure of TC68 has been tried, tested and well established for many years. The organisation of the Working Group meetings, interchange of experience between the Working Groups, and the necessary liaisons are carried out in the most effective and proper way.

The Technical Committee is dependent on experts from industry for their continuing support; especially in the preparation of the specification standards. With the ever increasing pressures on these experts from their sponsoring organisations, their time must be used effectively and economically. The electronic mail procedures have brought considerable improvements in forwarding information and circulating documents.

D. Future work

The Committee has issued 23 standards and 3 Technical Reports and has revised most of them since its inception, and there are still some in preparation. Some of these standards have been subject to one or more amendments. The future work load will therefore mainly comprise the ongoing amendment of these standards to reflect the development of the market. There will also be a need for new standards for new materials such as the amorphous materials and looking further ahead the developments in superconductivity may well need the assessment of parameters currently of no general interest. The sensitivity of the properties of some new materials to temperature is already leading to a realization that in future, specification and measurement of characteristics at ambient temperature for these materials will no longer be sufficient. Moreover, the need for more efficient measurement methods will require further standardization activities.

In general, the need for new or improved measurement techniques springs from 3 sources:

1 The need to measure new materials whose characteristics lie outside the scope of existing methods;

2 The incentive to make use of new electronic devices which allow improved measurement precision and automation;

3 The desire of manufacturers to minimize the cost of testing products.

E. Maintenance cycle

Publication No.	Date of Publication	Review Date	Maintenance result date	Responsibility (Mainten. Team)
IEC 60404-1 Ed.2.0	2000-08-30	2009	2012	1
IEC 60404-1-1 Ed.1.0	2004-04-20	2009	2012	1
IEC 60404-2 Ed.3.0	1996-03-28	MWIP	2006	2
IEC 60404-3 Ed.2.0	1992-03-15	MWPI	2011	2
IEC 60404-3 Amd.1 Ed.2.0	2002-09-25	MWPI	2011	2
IEC 60404-3 Ed.2.1	2002-10-29	MWPI	2011	2
IEC 60404-4 Ed.2.0	1995-02-15	MWIP	2009	2
IEC 60404-4 Amd.1 Ed.2.0	2000-08-01	MWIP	2009	2
IEC 60404-4 Ed.2.1	2000-11-28	MWIP	2009	2
IEC 60404-5 Ed.2.0	1993-10-21	2009	2012	2
IEC 60404-5 Amd 1 Ed.2.0	2007-04	2009	2012	2
IEC 60404-6 Ed.2.0	2003-06-24	MWIP	2007	2
IEC 60404-7 Ed.1.0	1982-01-01	2009	2012	2
IEC 60404-8-1 Ed.2.0	2001-04-11	2010	2013	5
IEC 60404-8-1 Amd.1	2004-05-06	2010	2013	5
IEC 60404-8-1 Ed.2.1	2004-07-14	2010	2013	5
IEC 60404-8-3 Ed.3.0	2005-08-11	2009	2012	1
IEC 60404-8-4 Ed.2.0	1998-05-20	2009	2012	1
IEC 60404-8-5 Ed.1.0	1989-04-30	2010	2013	1
IEC 60404-8-6 Ed.2.0	1999-04-28	2009	2012	4
IEC 60404-8-6 Amd 1	2007-04	2009	2011	4
IEC 60404-8-6 Ed.2.1	2007-06	2009	2011	4
IEC 60404-8-7 Ed.2.0	1998-05-20	MWIP	2008	1
IEC 60404-8-8 Ed.1.0	1991-09-15	2010	2013	1

Publication No.	Date of Publication	Review Date	Maintenance result date	Responsibility (Mainten. Team)
IEC 60404-8-9 Ed.1.0	1994-08-30	2009	2012	4
IEC 60404-8-10 Ed.1.0	1994-11-16	MWIP	2008	1
IEC 60404-9 Ed.1.0	1987-09-15	2010	2013	2
IEC 60404-10 Ed.1.0	1988-08-30	2009	2012	2
IEC 60404-11 Ed.1.0	1991-09-15	2007	2011	2
IEC 60404-11 Amd.1 Ed.1.0	1998-07-24	2007	2011	2
IEC 60404-11 Ed.1.1	1999-01-21	2007	2011	2
IEC 60404-12 Ed.1.0	1992-11-30	2010	2013	2
IEC 60404-13 Ed.1.0	1995-09-20	2009	2012	2
IEC 60404-14 Ed.1.0	2002-06-27	2010	2014	2
IEC 61807 TR Ed.1.0	1999-10-20	2009	2012	2
IEC 62331 TR Ed.1.0	2005-02-23	2009	2019	2
IEC 62383 TR Ed.1.0	2006-01	2010	2013	2

Name or signature of the secretary
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