

Magnetic materials —

Part 5: Permanent magnet (magnetically hard) materials: Methods of measurement of magnetic properties

Committees responsible for this British Standard

The preparation of this British Standard was entrusted to Technical Committee ISE/NFE/5, Magnetic alloys and steels, upon which the following bodies were represented:

- Association of Manufacturers Allied to the Electrical and Electronic Industry (BEAMA Ltd.)
- British Steel Industry
- Department of Trade and Industry (National Physical Laboratory)
- Electricity Supply Industry in England and Wales
- Electronic Components Industry Federation
- GAMBICA (BEAMA Ltd.)
- Institute of Physics
- Rotating Electrical Machines Association (BEAMA Ltd.)
- Sunderland Polytechnic (Magnet Centre)
- Transmission and Distribution Association (BEAMA Ltd.)
- Wolfson Centre for Magnetics Technology
- Coopted members

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National foreword

This Part of BS 6404 has been prepared by Technical Committee ISE/NFE/5. It is technically equivalent to IEC 404-5:1993 *Permanent magnet (magnetically hard) materials — Methods of measurement of magnetic properties*, published by the International Electrotechnical Commission (IEC).

This Part of BS 6404 supersedes BS 6404-5:1986 which is withdrawn. This edition reflects improvements in measuring instrumentation and magnetizing techniques. In place of two separate chapters for materials of low and high intrinsic coercivity, the standard now has one set of measurement procedures for all materials, but with two methods of magnetizing the test specimen either in an electromagnet or external to the electromagnet in a superconducting coil or pulse magnetizer. Convenience will dictate the method used, but in general, high intrinsic coercivity materials will need to be magnetized by one of the latter methods.

This standard is one of the series of British Standards based on the IEC 6404 series *Magnetic material*. The Part numbers of the British Standard follows the Parts of the IEC publication. The following Parts of the British Standard have been published or will shortly be published.

- *Part 1: Classification;*
- *Part 2: Methods of measurement of magnetic, electrical and physical properties of magnetic sheet and strip;*
- *Part 3: Methods of measurement of specific total losses of magnetic sheet and strip by means of a single sheet tester;*
- *Part 4: Methods of measurement of the d.c. magnetic properties of solid steels;*
- *Part 6: Methods of measurement of the magnetic properties of isotropic nickel-iron soft magnetic alloys, types E1, E3 and E4;*
- *Part 8: Individual materials;*
- *Section 8.1: Specification for magnetically hard materials;*
- *Section 8.2: Specification for cold-rolled, magnetic, non-oriented, alloyed steel strip delivered in the semi-processed state;*
- *Section 8.3: Specification for cold-rolled, magnetic, non-oriented, non-alloyed steel strip delivered in the semi-processed state;*
- *Section 8.4: Specification for cold-rolled, magnetic, non-oriented, magnetic steel sheet and strip delivered in the finally annealed state;*
- *Section 8.5: Specification for steel sheet and strip with specified mechanical properties and magnetic permeability;*
- *Section 8.6: Specification for soft magnetic metallic materials;*
- *Section 8.7: Specification for grain-oriented magnetic steel sheet and strip;*
- *Section 8.8: Specification for thin magnetic steel strip for use at medium frequencies;*
- *Section 8.9: Sintered soft magnetic materials;*
- *Section 8.10: Specification for magnetic materials for use in relays;*
- *Part 9: Methods for determination of the geometrical characteristics of magnetic steel sheet and strip;*
- *Part 10: Methods of measurement of magnetic properties of magnetic steel sheet and strip at medium frequencies;*
- *Part 11: Method of test for the determination of surface insulation resistance of magnetic sheet and strip;*

— *Part 12: Guide to methods of assessment of temperature capability of interlaminar insulation coatings.*

Additional Parts and Sections of IEC 404 will be published and are expected to provide a basis for additional Parts of BS 6404.

Cross-references

International standard	Corresponding British Standard
	BS 4727 <i>Glossary of electrotechnical, power, telecommunication, electronics, lighting and colour terms</i> Part 1 <i>Terms common to power, telecommunications and electronics</i>
IEC 50 (121):1978	Group 01:1983 <i>Fundamental terminology</i> (Technically equivalent)
IEC 50 (151):1978	Group 02:1980 <i>Electrical and magnetic devices terminology</i> (Technically equivalent)
IEC 50 (221):1990	Group 07:1991 <i>Magnetic materials and components</i> (Identical) BS 6404 <i>Magnetic materials</i> Part 8 <i>Individual materials</i>
IEC 404-8-1:1986	Section 8.1:1988 <i>Specification for magnetically hard materials</i> (Identical)

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Summary of pages

This document comprises a front cover, an inside front cover, pages i to iv, pages 1 to 10, an inside back cover and a back cover.

This standard has been updated (see copyright date) and may have had amendments incorporated. This will be indicated in the amendment table on the inside front cover.

