

Specification for

Paper tape for data processing —

Part 1: Unpunched paper tape

Co-operating organizations

The Data Processing Industry Standards Committee, under whose supervision this British Standard was prepared, consists of representatives of the following Government departments and scientific and industrial organizations:

Aslib
 British Computer Society Ltd.*
 British Electrical and Allied Manufacturers' Association*
 British Federation of Master Printers*
 British Paper and Board Makers' Association*
 British Railways Board
 British Telecommunication Research Ltd.
 Business Equipment Trade Association*
 Civil Service Department*
 Committee of London Clearing Bankers
 Data-Processing Management Association
 Electricity Council, The Central Electricity Generating Board and the Area Boards in England and Wales
 Electronic Engineering Association*
 Engineering Equipment Users' Association
 Government Communications Headquarters*
 Institute of Chartered Accountants in England and Wales
 Institute of Cost and Works Accountants
 Institute of Municipal Treasurers and Accountants (Incorporated)
 Institution of Electrical Engineers
 Institution of Mechanical Engineers
 London Transport Executive
 Machine Tool Trades Association
 Ministry of Technology
 National Coal Board*
 National Computing Centre Limited
 National Research Development Corporation
 Post Office*
 Radio and Electronic Component Manufacturers' Federation
 Society of British Aerospace Companies
 Technical Section of the British Paper and Board Makers' Association
 Telecommunication Engineering & Manufacturing Association

The Government departments and scientific and industrial organizations marked with an asterisk in the above list, together with the following, were directly represented on the committee entrusted with the preparation of this British Standard:

Confederation of British Industry
 H.M. Stationery Office
 Ministry of Defence (Army Dept.)
 Ministry of Technology — Computer Advisory Service, Technical Support Unit
 Ministry of Technology — National Physical Laboratory
 Research Association for the Paper and Board, Printing and Packaging Industries (PIRA)

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Foreword

This standard makes reference to the following standards publications:

BS 308, *Engineering drawing practice*.

BS 410, *Test sieves*.

BS 1796, *Methods for the user of BS fine mesh test sieves*.

BS 2924, *Methods for the determination of pH value, conductivity, and chloride and sulphate contents of aqueous extracts of paper and board*.

BS 2987, *Notes on the application of statistics to paper testing*.

BS 3430, *Method for the sampling of paper and board for testing*.

BS 3431, *Method for the conditioning of paper and board test samples*.

BS 3432, *Method for the determination of paper substance*.

BS 3631, *Method for the determination of the ash content of paper*.

BS 3880, *Paper tape for data processing — Part 2: Dimensions and location of punched holes in paper tape — Part 3: Implementation of codes on paper tape — Part 4: General requirements for data interchange on punched paper tape*.

BS 3983, *Methods for the determination of the thickness and bulk of paper*.

BS 4415, *Method for the determination of tensile strength of paper and board*.

BS 4468, *Method for the determination of the internal tearing resistance of paper*.

Paper tape is one of the three main media for input and output in connection with computer installations and for the recording and storage of data. The group of standards under the general heading BS 3880, "*Paper tape for data processing*", sets out the specification in logical order, that is to say, according to the life of the tape from paper stock to the medium through which the data is transferred. The revision of the former standard, BS 3880:1965, was made necessary by the publication of further specifications, and the information contained within this earlier standard is now separated into the relevant publications within the group under the general heading BS 3880, "*Paper tape for data processing*", and is in conformity with related publications of the International Organization for Standardization (ISO)¹⁾. The parts of the standard in this group are as follows:

- 1) This Part 1, "*Unpunched paper tape*", deals with the properties of the material, and methods of testing and the dimensions of the unpunched tape. The relatively small amount of information required by the paper converter to supply coils of unpunched tape ready for use, which formerly appeared in BS 3880:1965, has been included in this Part of the present edition of the standard so that all the requirements of the unpunched paper tape are embraced within this one document.
- 2) Part 2, "*Dimensions and location of punched holes in paper tape*", specifies the dimensions of the punched holes at the time of punching and the location of the feed holes with respect to the data holes in the tape.
- 3) Part 3, "*Representation of codes on paper tape*", specifies the punched hole pattern that corresponds to each of the bit patterns by which characters are represented.
- 4) Part 4, "*General requirements for data interchange on punched paper tape*", specifies the handling and the storage requirements to effect satisfactory interchange of data on punched paper tape.

¹⁾ ISO 1154, "*Information processing — Punched paper tape — Dimensions and location of feed holes and code holes*".

ISO 1729, "*Information processing — Unpunched paper tape — Specification*".

Paper tape has the disadvantage inherent in its basic material which is so much affected by changes in ambient conditions. The dimensional specification is dependent upon the properties of the material, the conditions under which the tape should be used and the reading technique employed. It was not possible, however, to publish the specification for properties and methods of test, and for dimensions at the same time, but, because of the urgent need in industry, and because its content was already universally accepted, the dimensional specification was issued as soon as drafting was complete and appeared as BS 3880:1965.

The thickness and tolerance of the paper stock is given within that section devoted to the properties of the material because the control of thickness is an inherent feature of the paper-making process; its measurement is, therefore, a measurement of one of the properties of the paper. Moreover, its definition and measurement involve comparatively complex techniques and statistical sampling²⁾.

The properties dealt with in this Part of the standard are important to the user of these tapes as they effect their reliability, the length of their useful life and the life of the hardware such as punches with which they are used. Dimensional stability is of the utmost importance and a method of determining stability is given in an appendix. The appendices include well tried procedures for determining the quality of the tape.

This standard conforms to the agreements reached within ISO. Within ISO 1729³⁾, alternative methods of test have been given, but in this standard, where appropriate, reference has been made to British Standards. Where no British Standard is available, the recommended test method is given in an appendix.

It has been considered necessary to divide this Part of the standard into two sections to include additional chemical parameters which do not appear in ISO 1729³⁾. These parameters, chloride content, sulphate content and surface resistivity, are intended for certain storage and electrostatic conditions and are not mandatory. Users wishing to order their paper tape with these extra properties will have to ask for them specifically.

Punched tape is rapidly developing as an input medium for the numerical control of machine tools and other industrial processes. In some of these the operating conditions are much harsher than the normal data processing requirements, and it has been found necessary, in some instances, to develop materials other than paper to cope with the more stringent conditions. Consequently, as this and its complementary specifications refer to tape made from paper, they may not be adequate for the machine tool and other industries. At a later date these other special requirements are to be investigated to see if it is possible to cover their specific needs.

It is thought that the specification of stiffness of the paper may be desirable for successful operation of paper tape and this parameter may be included at a later date.

As in the case of the other standards in the series, this has been prepared under the authority of the Data Processing Industry Standards Committee.

²⁾ See BS 2987, "Notes on the application of statistics to paper testing".

³⁾ ISO 1729, "Information processing — Unpunched paper tape — Specification".

A British Standard does not purport to include all the necessary provisions of a contract. Users of British Standards are responsible for their correct application.

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Summary of pages

This document comprises a front cover, an inside front cover, pages i to vi, pages 1 to 14, 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.

