

BRITISH STANDARD 1587 : 1949

**FILM SPOOLS
FOR 2,000 FT., 35-MM.
RELEASE PRINTS**

Price 2/- net, post free

BRITISH STANDARDS INSTITUTION

Incorporated by Royal Charter

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THIS BRITISH STANDARD, having been approved by the Cinematograph Industry Standards Committee and endorsed by the Chairman of the Engineering Divisional Council, was published under the authority of the General Council on 3rd October, 1949.

The Institution desires to call attention to the fact that this British Standard does not purport to include all the necessary provisions of a contract.

In order to keep abreast of progress in the industries concerned, British Standards are subject to periodical review. Suggestions for improvements will be recorded and in due course brought to the notice of the committees charged with the revision of the standards to which they refer.

A complete list of British Standards, numbering over one thousand, indexed and cross-indexed for reference, together with an abstract of each standard, will be found in the Institution's Yearbook.

British Standards are revised, when necessary, by the issue either of amendment slips or of revised editions. It is important that users of British Standards should ascertain that they are in possession of the latest amendments or edition.

Users wishing to be kept informed of any alteration to this standard should notify Sales and Distribution Department of the Institution, giving the number and title of the standard.

CO-OPERATING ORGANIZATIONS

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

- *Associated Photographic Film Manufacturers
- *Association of Specialised Film Producers
Board of Trade
British Film Institute
- *British Film Producers' Association
- *British Kinematograph Society
- *Cinematograph Exhibitors' Association of Gt. Britain and Ireland
Government Cinematograph Adviser
Home Office
Illuminating Engineering Society
- *Incorporated Association of Kinematograph Manufacturers Ltd.
- *Kinematograph Renters' Society
Ministry of Education
Ministry of Supply
Royal Photographic Society
16-mm. Film Exhibitors Guild

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

- Association of Film Laboratory Employers
- British Railways
- Kinematograph Projectionists and Engineers' Association
- Individual Manufacturers

BRITISH STANDARD SPECIFICATION FOR
SPOOLS FOR 2,000 FT., 35-MM.
CINEMATOGRAPH RELEASE PRINTS

FOREWORD

This British Standard is complementary to B.S. 1942, '2,000 ft., 35-mm. cinematograph release prints'; it provides for spools which will withstand the additional length and weight of these longer release prints, and will also fit most existing equipment.

Only one type of spool has been specified, which may be used for either transit or projection. It is realized that it may not always be possible to meet the provisions of this standard as soon as it is published; the primary purpose of the standard is to provide a basis for future design.

At present only spools with metal flanges have been specified, but this standard will be extended, or supplemented, if it becomes desirable in the future to take into account the use of other materials.

SPECIFICATION

SCOPE

1. This British Standard prescribes the requirements for spools with metal flanges, to take standard 2,000 ft. 35-mm. cinematograph release prints and accommodate the maximum permissible length of 2,050 ft. of film.

The standard specifies dimensions, essential points of construction, accuracy of assembly, the materials to be used, and the finish required.

The standard also provides for the need to earth the spool and film to permit discharge of any static electricity that may accumulate during use.

DIMENSIONS

2. *a.* The spool shall have an outside flange diameter of $14\frac{3}{4}$ in. to 15 in., and a hub diameter of $4\frac{1}{2}$ in. to 5 in.

b. The interval width between flanges, measured at the periphery of the hub, shall be $1\frac{1}{2}$ in. + $\frac{1}{32}$ in. — 0 in.

c. The overall width of the spool, at any point, shall not exceed 2 in.

d. The internal diameter of the centre bushing shall be 0.377 in. + 0.002 in. — 0 in.

HUB

3. *a.* The hub may be of any suitable material or construction; the bore shall be of a suitable bearing material.

b. Provision shall be made for securing the end of the film by means of a slit or slits cut across the full width of the hub parallel with its axis. The slits shall have a minimum depth or clearance of $\frac{1}{2}$ in. and shall be approximately $\frac{1}{16}$ in. wide.

c. The hub shall be designed so that a driving-pin can be inserted through each of the holes specified in Clause 4 *d* and the fingers of an operator can project through the finger-holes specified in Clause 4 *e*.

d. If the hub is made of an electrical insulating material, provision shall be made for each flange to make an electrical connection with the spindle, when in use.

e. It is recommended that the hub should be finished in a distinctive way, preferably in white, to help a projectionist to distinguish the film from the hub, during operation.

FLANGES

4. *a.* The flanges shall be made either:—

(i) Of 20 I.S.W.G. or thicker steel, with rib-heights and rolled edges of the dimensions given in Fig. 1; or

(ii) Of a non-corrosive alloy or using a different form of construction, provided that the remaining requirements of this standard are met and that the completed spools are of equivalent rigidity, elasticity and strength to those of spools conforming to (i) above and to Fig. 1.

b. Each flange shall be formed with six radial ribs and six lightening holes. The ribs shall have a sufficient area of flat contact surface to provide adequate bearing surface for the edges of the film. The lightening holes shall be not less than 3 in. wide at their widest points and shall expose the film down to the hub. The form of the ribs is optional provided that they comply with the dimensions given in Fig. 1.

The height of the ribs shall be $\frac{1}{64}$ in. less than the height of the peripheral rolled edge, to allow for stacking.

c. The ribbing shall be broken so that there is no continuous concentric grooving which would permit layers of film to move laterally (see Fig. 1).

d. Four holes shall be provided in each flange, at an angle of 90° , to engage with a driving-pin of $\frac{3}{16}$ in. maximum diameter at a centre-distance which may be either $\frac{1}{16}$ in. or $\frac{1}{2}$ in. from the axis of a $\frac{3}{8}$ in. spindle and parallel to it. These holes may conveniently take the form of radial slots.

e. Four finger-holes not less than $\frac{3}{4}$ in. in diameter shall be provided in each flange, at an angle of 90° and at a distance of $1\frac{1}{4}$ to $1\frac{1}{2}$ in. from the centre of the spool.

f. Flanges shall be free from warping or buckling and shall run true to within $\frac{1}{16}$ in. on each flange, when the reel is spun on a $\frac{3}{8}$ in. shaft.

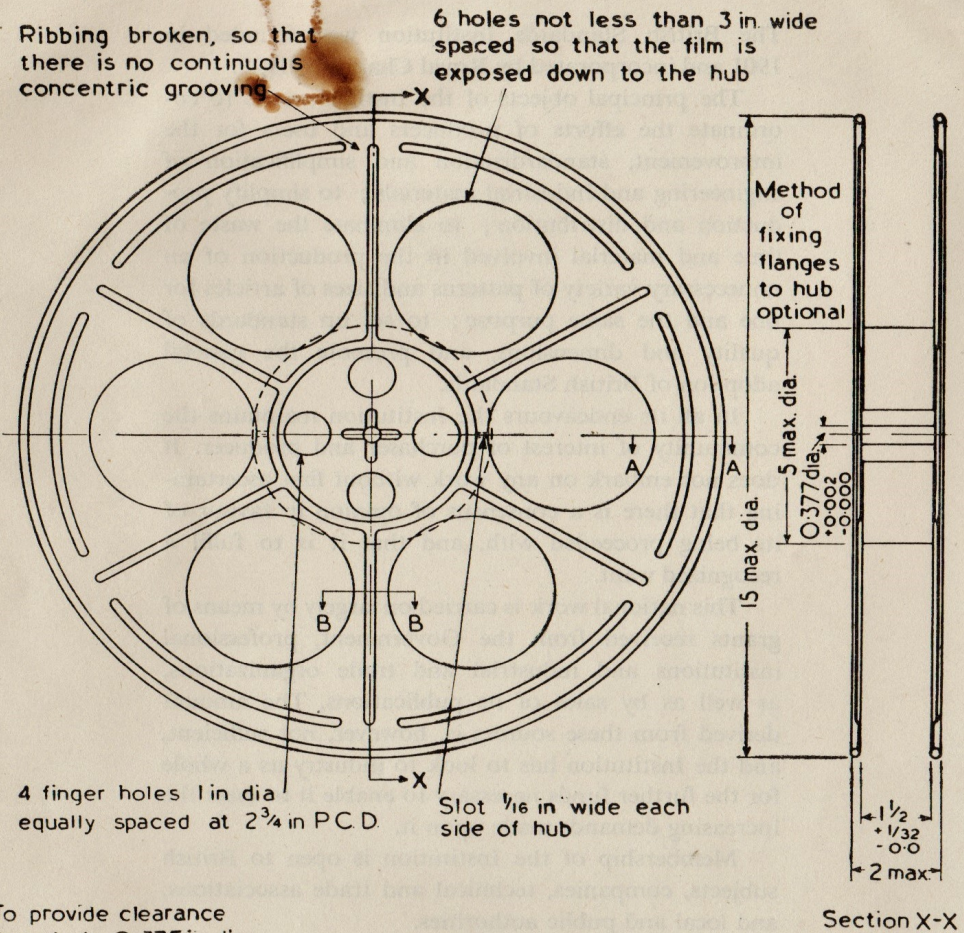
g. The flanges shall be firmly and rigidly attached to the hub, so that they will not come apart under normal conditions of use.

FINISH

- 5. a. The spool shall be free from sharp edges.
- b. The finish shall protect the spool adequately against corrosion under normal conditions of use.
- c. The finish shall not prevent the discharge of static electricity from the film to the spindle of the projector or winding machine.

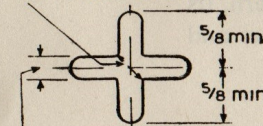
RUNNING-BALANCE

- 6. The spool, when made up, shall provide a satisfactory running-balance.



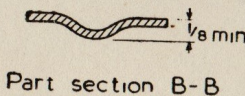
4 finger holes 1 in dia equally spaced at 2 3/4 in P.C.D. Slot 1/16 in wide each side of hub

To provide clearance for shaft \varnothing 375 in dia

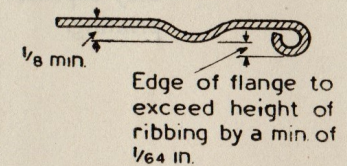


4 slots to provide clearance for driving pin 3/16 in max dia

Detail of centre hole
Scale:—Full size



Part section B-B
To show rib formation
Scale:—Twice full size



Part section A-A
Detail of edge of flange
Scale:—Twice full size

Fig. 1. Spools for 2,000 ft., 35-mm. cinematograph release prints.

All dimensions in inches

BRITISH STANDARDS INSTITUTION

The British Standards Institution was founded in 1901 and incorporated by Royal Charter in 1929.

The principal objects of the Institution are to co-ordinate the efforts of producers and users for the improvement, standardization and simplification of engineering and industrial materials; to simplify production and distribution; to eliminate the waste of time and material involved in the production of an unnecessary variety of patterns and sizes of articles for one and the same purpose; to set up standards of quality and dimensions, and promote the general adoption of British Standards.

In all its endeavours the Institution maintains the community of interest of purchaser and producer. It does not embark on any work without first ascertaining that there is a consensus of opinion in favour of its being proceeded with, and that it is to fulfil a recognized want.

This national work is carried on largely by means of grants received from the Government, professional institutions and industrial and trade organizations, as well as by sales of its publications. The amount derived from these sources is, however, not sufficient, and the Institution has to look to industry as a whole for the further funds necessary to enable it to meet the increasing demands made upon it.

Membership of the Institution is open to British subjects, companies, technical and trade associations, and local and public authorities.

The Institution is a non-profit making concern, its only expenses being staff salaries, office expenses and printing.