
Specification for
**Projector spools for 8 mm Type S
and 8 mm Type R spools
for motion picture film**

This British Standard, having been approved by the Cinematograph Industry Standards Committee, was published under the authority of the Executive Board on 21 December, 1973.

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The following BSI references relate to the work on this standard:
Committee reference CME/24/2 Draft for comment 70/16228

Co-operating organizations

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

Association of Cinematograph Television and Allied Technicians	Federation of Specialised Film Associations
*British Broadcasting Corporation	*Film Laboratory Association
*British Film Institute	*Film Production Association of Great Britain
*British Kinematograph, Sound and Television Society	Illuminating Engineering Society
British Photographic Manufacturers' Association	*Incorporated Association of Kinematograph Manufacturers Limited
*Cinematograph Exhibitors' Association of Great Britain and Ireland	*Independent Television Companies Association
Department of Employment	*Kinematograph Renters' Society
Department of Trade and Industry	Ministry of Defence, Army Department
	Royal Photographic Society

The 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:

Association of Independent Cinemas	Independent Broadcasting Authority
British Radio Equipment Manufacturers' Association	Newsreel Association of Great Britain & Ireland Ltd
Electronic Components Board	Royal Naval Film Corporation

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Foreword

This British Standard has been prepared under the authority of the Cinematograph Industry Standards Committee.

The standard includes the requirements for both 8 mm Type R and Type S spools for motion picture film.

The Type R spool is a revision of BS 2013, 'Projector spools for 8 mm cinematograph film', which will subsequently be withdrawn.

The principal changes in this revision are the introduction of metric units and changes to some of the dimensions in order to bring them in line with international requirements.

The requirements of the Type S spool are in line with the recommendations of Technical Committee TC 36, Cinematography, of the International Standards Organization (ISO).

Throughout the standard care has been taken to avoid unnecessary restriction of freedom of design and provision has been made for the required strength in establishing the dimensions of the spools.

NOTE. Attention is drawn to certification facilities offered by BSI; see the inside back cover of this standard.

British Standard Specification for

Projector spools for 8 mm Type S and 8 mm Type R spools for motion picture film

1. General

1.1 Scope

Section 2 of this British Standard specifies the requirements for projector spools for 8 mm Type S motion picture film for 15 m (50 ft) to 360 m (1200 ft) capacity.

Section 3 specifies the requirements for projector spools for 8 mm Type R (regular) motion picture film for 15 m (50 ft) to 240 m (800 ft) capacity.

The standard also specifies dimensions, essential features of construction, accuracy of assembly and finish.

1.2 Materials and construction

The flanges shall be designed and made of material that will not crack or take on a permanent set, and the bore shall be capable of withstanding the expected degree of wear. If non-metallic material is used it shall be non-flammable, and it is desirable that it shall possess anti-static properties.

The hub may be of either solid or hollow construction and shall be so designed as to provide for the following:

- (1) the spindle mounting and drive specified in 2.3 for Type S spools and 3.3 for Type R spools;
- (2) a method of film attachment complying with 2.4 for Type S spools and 3.4 for Type R spools;
- (3) the finger holes specified in 1.5

The flanges shall be firmly and rigidly attached to the hub, so that they will not come apart under normal conditions of use. They shall be designed so as to provide the flat clamping faces specified in 1.4.

The flanges may be ribbed but such ribbing shall be designed so that there is no continuous concentric groove which would permit a layer of film to move laterally. Ribbing shall not encroach on the clamping face, and the width over the ribbing and over any rolled edge at the periphery of the flange shall not exceed the overall width specified in Table 1 for Type S spools and Table 4 for Type R spools.

All parts of the spools shall be free from sharp edges.

1.3 Finish

The spool shall be resistant to corrosion under normal conditions of use, and any finish shall not be detrimental to the film.

1.4 Clamping face

The flange shall have at its centre a flat clamping face which shall be free from any projection, and shall have a minimum diameter of 25.5 mm (1.0 in).

1.5 Finger and lightening holes

The flanges of all sizes of spools may be provided with such finger holes and lightening holes as the manufacturer may desire.

The shape of these holes shall be at the discretion of the manufacturer, and one pair of holes may be so shaped as to furnish the access holes required in 2.4 for Type S spools and in 3.4 for Type R spools.

1.6 Running balance

The finished spool shall provide a satisfactory running balance.

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2. Projector spools for 8 mm Type S motion picture film

2.1 Nominal sizes

The nominal sizes of Type S spools shall be as follows:

Capacity		
Metres	Size	Feet
15	7	50
30	10	100
60	13	200
90	16	300
120	18	400
180	24	600
240	27	800
300	29	1000
360	31	1200

NOTE. The spool size is the nominal diameter of the flanges in centimetres.

2.2 Dimensions

The spools shall conform to the requirements specified in 1.4, 2.3 and 2.5 and Tables 1, 2 and 3.

2.3 Spindle mounting and drive

2.3.1 General. Each flange (or the entire hub if of solid construction) shall have a round hole of diameter $12.75 +0.15 -0$ mm ($0.502 +0.006 -0$ in) at its centre. In addition, driving slots conforming to the requirements stated in 2.3.2 below shall be provided for ease of loading. The spindle hole may be formed by a sleeve, or there may be an air space between the spindle holes in the flanges, depending on the type of construction.

2.3.2 Driving slots. The flanges of the spool shall have three radial driving slots placed at approximately 120° and conforming to Fig. 2 and the dimensions in Table 2. The driving slots of both flanges shall be aligned, and the spool shall fit on a test spindle of 12.7 mm (0.50 in) diameter with a radial spindle drive key having an axial length from the spindle boss greater than the clamping face width of the spool; a thickness of 1.47 mm (0.058 in) and the height measured as a radius from the spindle axis of 9.1 mm (0.36 in).

NOTE. The holes should be so aligned that the spool runs true in compliance with the requirements of 2.5.

2.3.3 Concentricity. The surface of the hub and the periphery of the flanges shall be concentric with the spindle holes to within 1.0 mm (0.04 in) total indicator reading.

2.4 Film attachment

2.4.1 Provision shall be made for securing the end of the film in such a manner as to accept the full width of the film, and such that the film will be freely released at the end of its run, except where automatic rewind equipment is fitted.

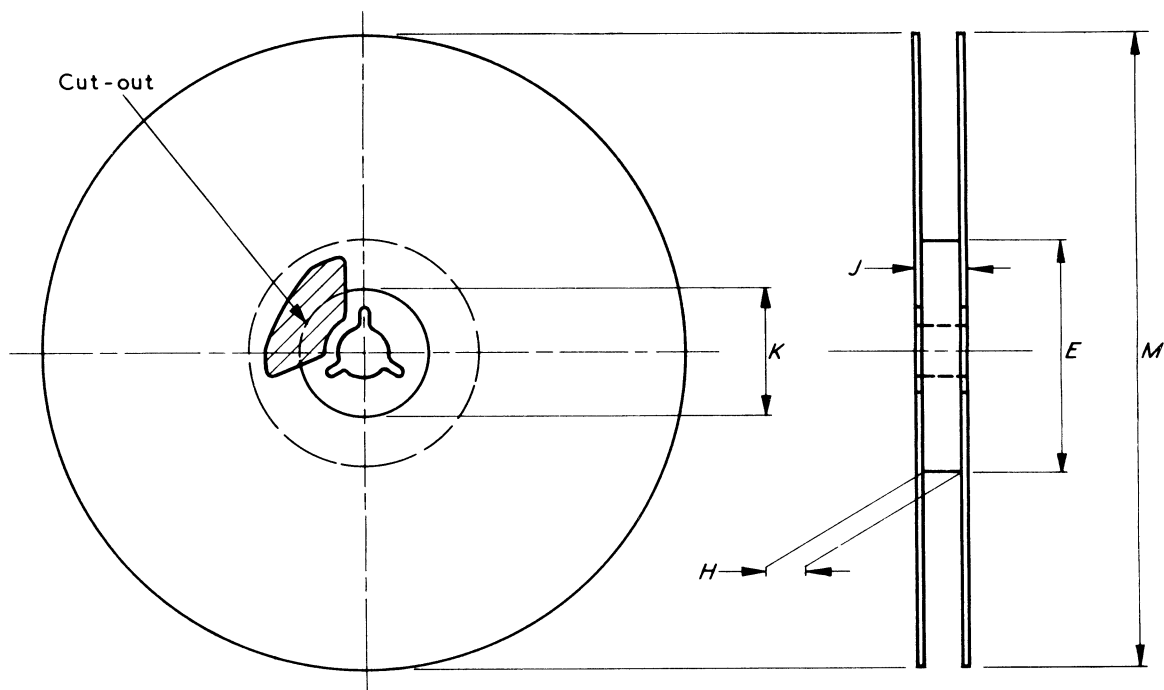
2.4.2 Where the film attachment is provided only by a slot in the spool hub, a minimum cut-out in the hub is required for easy access to the film end. This also provides for insertion of a film retention plug or clip, if desired for automatic rewind equipment. The area shown in Fig. 1 represents one type of cut-out which may be used. The cut-out area shall be in both flanges so that a retaining clip of clamping face width can be accommodated.

2.5 Lateral run-out

The flanges shall be free from warping or buckling.

Each finished spool shall be tested for true running by being mounted on a true spindle fitted with an accurately normal clamping face to which the spool is clamped as in service on a projector.

When the mounted and clamped spool is rotated, each flange at its periphery shall run true, in a plane perpendicular to the axis of the spindle, within the maximum volume of rotation envelope (see Fig. 3) and within the limits stated in 2.3.3.



NOTE. Depending on the thickness of flange material chosen the area of diameter K may be depressed flush or raised.

Fig. 1. Projector spools for 8 mm Type S motion picture film