International Standard 686

INTERNATIONAL ORGANIZATION FOR STANDARDIZATION•МЕЖДУНАРОДНАЯ ОРГАНИЗАЦИЯ ПО СТАНДАРТИЗАЦИИ•ORGANISATION INTERNATIONALE DE NORMALISATION

Photography — 35 mm filmstrips — Specifications for double-frame and single-frame formats

Photographie — Bandes d'images fixes 35 mm — *Spécifications pour les bandes en format double et en format simple*

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Foreword

ISO (the International Organization for Standardization) is a worldwide federation of national standards bodies (ISO member bodies). The work of preparing International Standards is normally carried out through ISO technical committees. Each member body interested in a subject for which a technical committee has been established has the right to be represented on that committee. International organizations, governmental and non-governmental, in liaison with ISO, also take part in the work.

Draft International Standards adopted by the technical committees are circulated to the member bodies for approval before their acceptance as International Standards by the ISO Council. They are approved in accordance with ISO procedures requiring at least 75 % approval by the member bodies voting.

International Standard ISO 686 was prepared by Technical Committee ISO/TC 42, *Photography*.

It cancels and replaces ISO Recommendation R 686 of which it constitutes a technical revision.

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Photography — 35 mm filmstrips — Specifications for double-frame and single-frame formats

0 Introduction

This International Standard is a revision and an extension of ISO/R 686.

This International Standard establishes a parity of aspect ratios between the double-frame format and the single-frame format so that filmstrips may be produced in either format from the same artwork or master material. To facilitate production of filmstrips from a series of slides, the dimensions of the double-frame format have been selected as the mask aperture size of the nominal 24 mm × 36 mm picture area as defined in ISO 1755.

1 Scope and field of application

1.1 This International Standard specifies the film type, dimensions, layout and winding direction of 35 mm filmstrips in double-frame format and single-frame format.

This International Standard recognizes the current practice in the United States of America to use a single-frame format with a different aspect ratio.

1.2 The dimensions in this international Standard refer to filmstrips with or without accompanying sound.

1.3 This International Standard does not refer to 35 mm photographs exposed in personal cameras; image dimensions for such photography are contained in ISO 1754.

2 References

ISO 491, *Cinematography — 35 mm motion-picture film and magnetic film — Cutting and perforating dimensions.*

ISO 543, *Cinematography — Motion-picture safety film — Definition, testing and marking.*

ISO 1754, *Photography — Cameras using films 35 mm and smaller — Picture sizes.*

ISO 1755, *Photography — Projector slides — Dimensions.*

3 Definitions

For the purpose of this International Standard the following definitions apply.

3.1 filmstrip: A length of perforated, transparent, flexible material carrying a series of pictures intended for viewing as still pictures, primarily by projection.

NOTE — The terms "slidefilm" and "slide film projection roll" are synonymous with "filmstrip". However, they are no longer in common use and will be substituted by "filmstrip" as International Standards containing these terms are revised.

3.2 double-frame format: Size of images such that their pitch is equal to two cinematographic image frames, that is 8 perforations of a 35 mm perforated film.

3.3 single-frame format: Size of images such that their pitch is equal to one cinematographic image frame, that is 4 perforations of a 35 mm perforated film.

4 Film type and dimensions

4.1 Filmstrips, including their leaders and trailers, shall be made of safety-film stock, which both,

a) meets the requirements of ISO 543; and

b) has Type P perforations at a pitch of 4,75 mm as specified in ISO 491.

4.2 The dimensions of frames of filmstrips and masking of the frames shall be as given

— in figure 1 and table 1 for double-frame filmstrips; and

— in figure 2 and table 2 for single-frame filmstrips.

NOTES

1 Some filmstrip projectors hold the frame which is being projected between glass plates with the projector mask on the outside of one of the glass plates. This mask will not be in focus on the screen when the picture is correctly focused. Therefore, to ensure that the projected picture has sharp edges, an opaque border has been specified for the frame on the filmstrip.

2 Film to be used in a cartridge or automatic loading device used with some equipment may be subject to special requirements specified by the manufacturer of such a device, but the filmstrip should always conform to this International Standard.

5 Layout of filmstrips

5.1 The layout of double-frame filmstrips shall be as given in figure 3, and for single-frame filmstrips as given in figure 4. These figures represent the film as viewed by an operator who faces the screen.

5.2 The trimming of the leading and trailing ends of the filmstrip shall be a straight cut located between perforations and nominally 90° to the edge of the film. The cut shall be not less than 1 mm from any perforation.

5.3 Each of the first two frames of the filmstrip (S1 and S2) shall be marked with the word "START" in large, clear block letters on a dark background. The word "START" shall be written in a parallel direction to the largest dimension of the frame as shown in figures 3 and 4.

NOTE — For non-English speaking countries, it is permissible to add to the word "START" the equivalent mark or word appropriate to the country of use.

5.3.1 For filmstrips produced in colour, the background of the "START" frames S1 and S2 shall be green.

5.3.2 For filmstrips produced in black-and-white, the background of the "START" frames S1 and S2 shall be black.

5.3.3 If an identification dot is used, it shall be 3 to 5 mm in diameter and appear in the lower left-hand corner of the picture area of the "START" frames as shown in figures 3 and 4.

5.4 Any information identifying the filmstrip shall run parallel to the film edges and shall appear

— in frames S3 and S4 of the double-frame format (see figure 3);

— in frames S3, S4, S5 and S6 of the single-frame format (see figure 4).

5.5 The distance D_L from the cut leading end of the filmstrip to the leading edge of the focus frame shall be not less than 170 mm.

5.6 The focus frame shall contain a pattern that enables the operator to centre and focus the image on the projection screen.

If sound accompanies the filmstrip, the focus frame shall also contain a notation indicating the frame for starting an accompanying sound recording.

5.7 An opaque frame shall appear between the focus frame and the title frame so that the focus frame is not kept in view, and the title frame is not revealed, until the presentation begins.

5.8 A title frame, or the first subject information frame, shall appear

— no sooner than the seventh frame, S7, of the double-frame format (see figure 3);

— no sooner than the eleventh frame, S11, of the single-frame format (see figure 4).

5.9 The distance D_T from the trailing edge of the "THE END" frame (or the last subject information frame) to the trailing end of the filmstrip shall not be less than 150 mm.

5.10 It is recommended that the number of frames in a filmstrip, including the "TITLE" frame and the "THE END" frame, should not exceed 50.

NOTE — More frames are required for some particular applications, for example audio-visual language programmes, but it is preferred that 100 frames are not exceeded. (See also 5.11.)

5.11 It is recommended that the overall length of a filmstrip should not exceed 2,3 m.

NOTE — Double-frame filmstrips having more than 50 frames, as provided for in the note to 5.10 cannot comply with this recommendation.

5.12 The word "STOP" shall be marked in large, clear letters on a dark background on the last two frames as shown in figures 3 and 4.

NOTE — For non-English speaking countries, it is permissible to add to the word "STOP" the equivalent mark or word appropriate to the country of use.

5.12.1 For filmstrips produced in colour, the background of the "STOP" frames shall be red.

5.12.2 For filmstrips produced in black-and-white, the background of the "STOP" frames shall be black.

5.13 In any one filmstrip, all the pictures are in frames of constant size. The orientation of the images in their respective frames shall be consistent within the strip and the orientation of the image shall be as follows:

5.13.1 Double-frame filmstrips.

The preferred format is for the horizontal plane of the image to be parallel to the edges of the filmstrip (see figure 3).

A format with the horizontal plane at right angles to the edge of the filmstrip is recognized for five years from the date of publication of this International Standard, to meet the requirements of existing filmstrips.

5.13.2 Single-frame filmstrips.

The horizontal plane of the image shall be at right angles to the edges of the filmstrip (see figure 4).

6 Winding direction

Filmstrips shall be wound in such a way that when viewed from the outside of the roll, with the pictures upright, these pictures are also laterally correct.

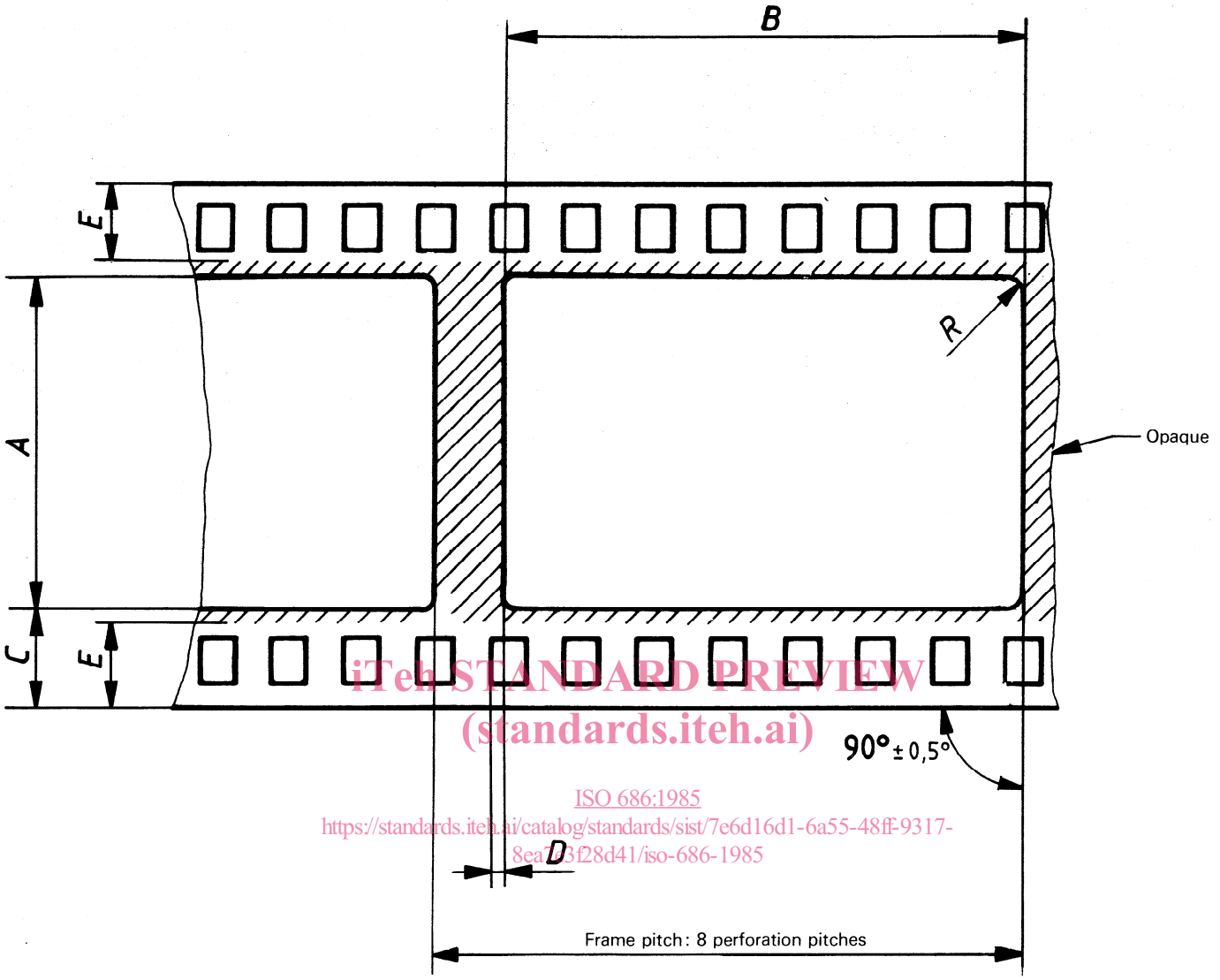


Figure 1 — Double-frame filmstrip — Frame layout

Table 1 — Dimensions of double-frame format

Dimension	mm
A	$22{,}5\ ^{0}_{-0{,}1}$
B	$34{,}3\ ^{0}_{-0{,}1}$
C	6,25 ± 0,10
D	see the note
E	5,0 max.
R	0,40 max.

NOTE — Dimension *D* is not specified, but its maximum variation for all frames of a filmstrip should not exceed 0,5 mm.

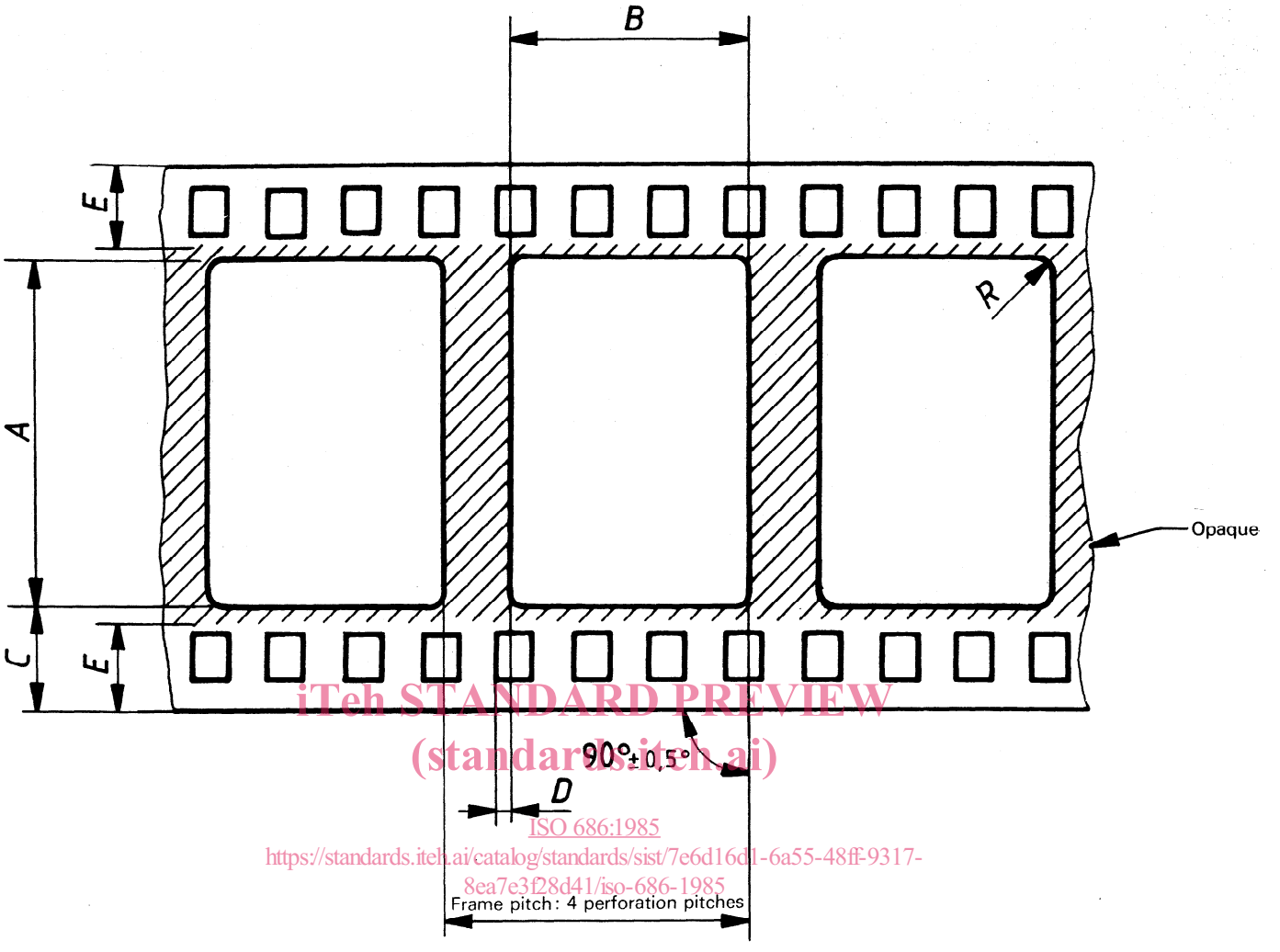


Figure 2 — Single-frame filmstrip — Frame layout

Table 2 — Dimensions of single-frame format

Dimension	mm
A	$22{,}5\ ^{0}_{-0{,}1}$
B (see note 1)	$14{,}8\ ^{0}_{-0{,}1}$
C	6,25 ± 0,10
D	see note 2
E	5,0 max.
R	0,40 max.

NOTES

1 It is recognized that in the United States of America, current practice for single-frame filmstrips has dimension *B* equal to 16,97 ± 0,08 mm.

2 Dimension *D* is not specified, but its maximum variation for all frames of a filmstrip should not exceed 0,5 mm.

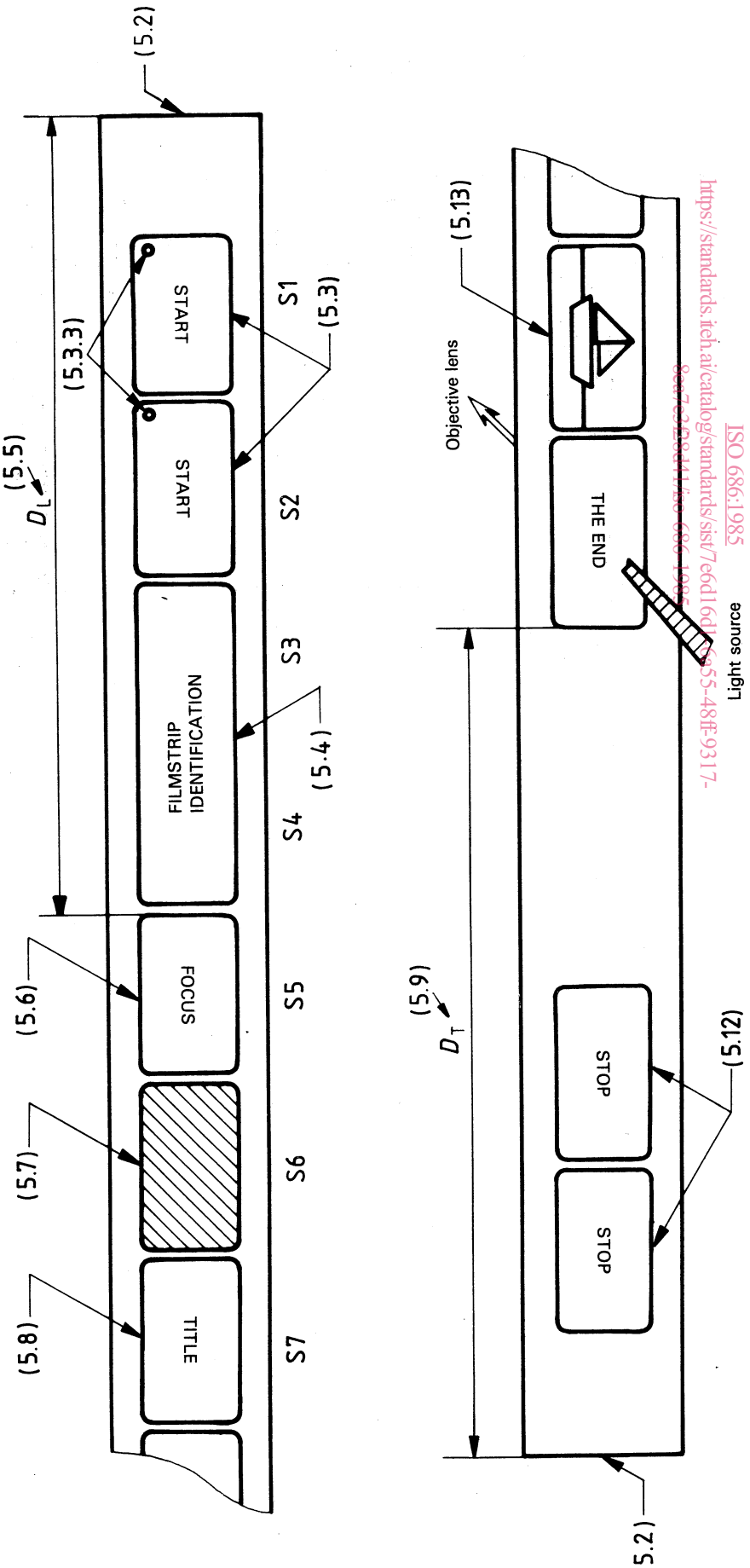
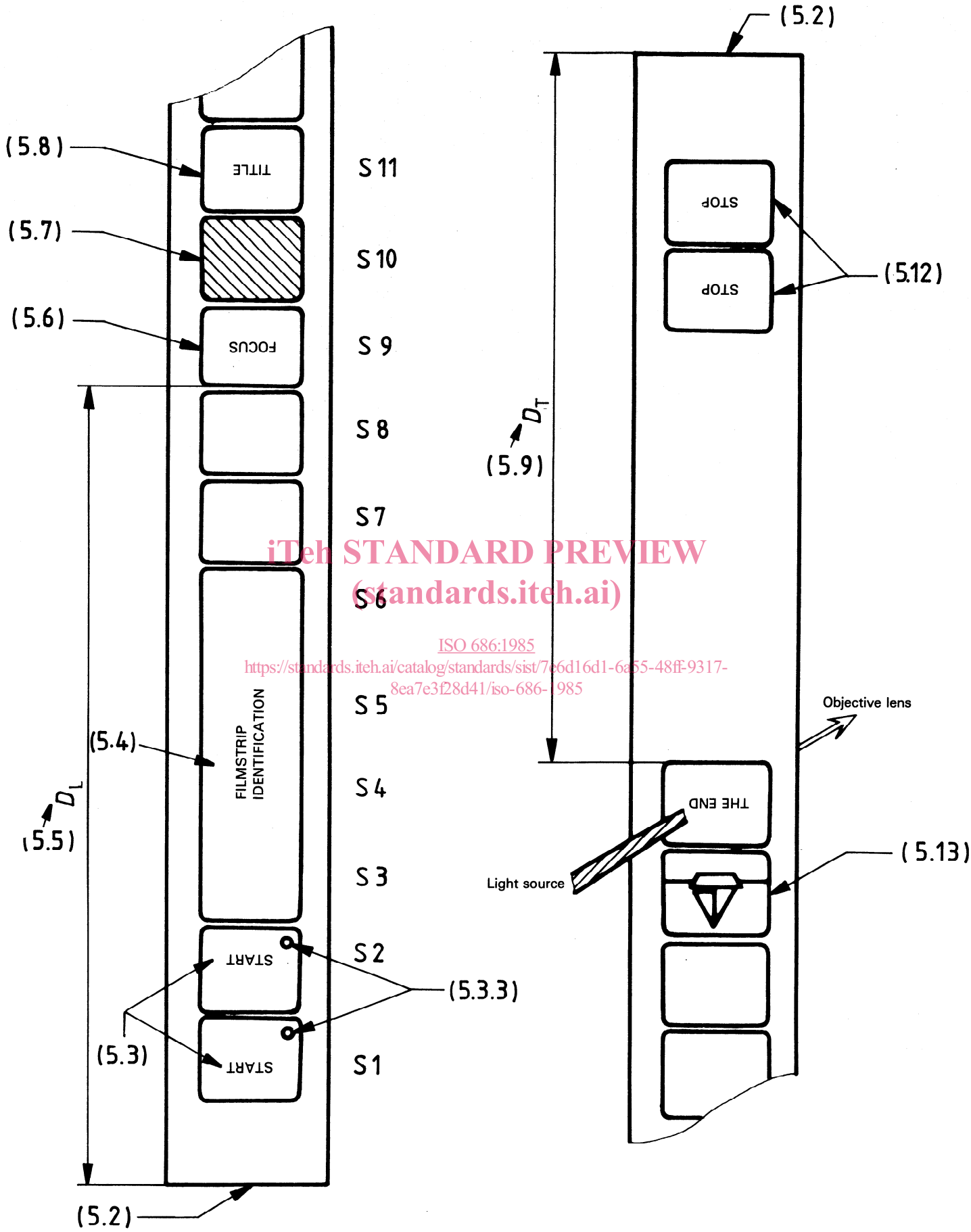


Figure 3 — Layout of double-frame filmstrip showing also preferred image orientation

(NOTE — Arrowed numbers refer to clauses in text.)



(NOTE — Arrowed numbers refer to clauses in text).

Figure 4 — Layout of single-frame filmstrip showing also image orientation