
वस्त्रादि — सामरिक 3 अंक गोफन
यूनिवर्सल — विशिष्टि

Textiles — Tactical 3 Points Sling
Universal — Specification

ICS 59.080.99

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भारतीय मानक ब्यूरो

BUREAU OF INDIAN STANDARDS

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FOREWORD

This Indian Standard was adopted by the Bureau of Indian Standards, after the draft finalized by the Textiles Protective Clothing Sectional Committee had been approved by the Textile Division Council.

The main role of tactical sling is to serves the tactical requirements of a specific combat scenario. It is a type of strap or harness designed to allow a shooter to carry a firearm (usually a long gun such as a rifle, carbine, shotgun, or submachine gun) on his/her person and/or aid in greater hit probability with that firearm. A tactical sling also makes simple tasks like reading maps and opening doors easier while maintaining control and accessibility to firearm. This standard has been formulated based on the extensive work carried out by Northern India Textile Research Association (NITRA) on the subject and as per the requirement of Indian paramilitary forces.

The composition of the Committee responsible for the formulation of this standard is given in Annex B.

For the purpose of deciding whether a particular requirement of this standard is complied with, the final value, observed or calculated, expressing the result of a test or analysis, shall be rounded off in accordance with IS 2 : 1960 'Rules for rounding off numerical values (*revised*)'. The number of significant places retained in the rounded off value should be the same as that of the specified value in this standard.

Indian Standard

TEXTILES — TACTICAL 3 POINTS SLING UNIVERSAL — SPECIFICATION

1 SCOPE

The specification prescribes the requirement of 'Tactical 3 points sling universal' herein referred as 'Sling'.

2 REFERENCES

The standards listed in Annex A contain provisions which through reference in this text, constitute provisions of this standard. At the time of publication, the editions indicated were valid. All standards are subject to revision and parties to agreements based on this standard are encouraged to investigate the possibility of applying the most recent editions of the standards indicated in Annex A.

3 MATERIAL AND MANUFACTURE

3.1 All the components of 'Sling' shall be manufactured to the shape, design and dimensions as per Fig. 1 to Fig. 7.

The tolerances, wherever not specified, for various dimensions given in the figures shall be as follows:

3.2 The components of the 'Sling' shall be as described in **3.2.1** to **3.2.5**.

3.2.1 The 'Sling' shall be made from 30 ± 2 mm wide nylon 6 6 tape of double woven plain weave (*see* Fig. 6) using a needle loom. Continuous filament yarn of nylon 6 6 shall be used in the manufacture of tape on needle loom. The other weave particulars of the tape shall be as given in Table 1.

Table 1 Weave Particular of Tape (Component A)
(Clause 3.2.1)

| Sl No. | Particular | Approximate Resultant Denier of Yarn | Tenacity of Single Ply Yarn, g/denier, <i>Min</i> |
|--------|-------------|--------------------------------------|---------------------------------------------------|
| (1) | (2) | (3) | (4) |
| i) | Warp | 840 | 5.0 |
| ii) | Weft | 840 | 5.0 |
| iii) | Binding end | 840 | 5.0 |

NOTES

1 Number of ends in full width, *Min* – 219 (ground = 206 and binding 13).

2 Number of picks/dm, *Min* – 198.

3.2.2 The components of the sling are shown in Fig. 1A and Fig. 1B. The component A (tape) shall be cut to the length of $2\ 140 \pm 5$ mm and shall conform to the requirements given in Table 2. The dimension of the

tape shall be as shown in the Fig. 2. Both the ends of tape shall be heat sealed properly to avoid fraying during its use. These sealed ends shall be rounded and shaped for smooth passage through the buckle. The component C shall be of 250 ± 5 mm length and shall have same specification as that of component A. The arrangement of attaching component C to Component A is shown in Fig. 1. The dimensions of component C shall be as shown in Fig. 3. The dimensions of the buckle and other accessories used in component C (*see* Fig. 1) are shown in the Fig. 3.

3.2.3 The sling shall have a shoulder pad (component B). The shoulder pad shall consist of three layers (top layer, middle layer and bottom layer) as shown in Fig. 7. The top layer shall be made of nylon 6 6 fabric and the colour or print design shall be as per the requirement of buyer. The fabric shall be a plain weave with two warp and two weft threads running together. For guidance, nylon 6 6 filament yarn of 500 denier may be used in both warp and weft direction. The bottom layer shall be made of nylon 6 6 tape of green colour of double woven plain weave using a needle loom. The other weave particular of the bottom layer shall be as given in Table 3. Top and bottom layer of component B shall conform to the requirements given in Table 4. The middle layer shall be white rubber sheet of 40 mm wide, 230 mm length and 3 mm thickness. The rubber sheet shall act as interlining. The exact placement and dimension of the shoulder pad is shown in the Fig. 2. The colour or printed pattern, if used in the top layer shall meet the color fastness properties as given in Table 4. Dyes used for dyeing and printing shall be free from banned amine when tested as per the method specified in IS 15570. The selvages of the fabric shall be firm and straight. The fabric shall be 'Heat set' and fully shrunk.

3.2.4 'Sling' shall be provided with three loops made out of 25 mm wide green colour woven elastic tape (component D). The dimensions and placement of the loops are shown in the Figs. 1 to 3. The woven elastic tape used in the loops (component D) shall meet the requirement of IS 9686 and the colour of the elastic tape shall match with the component A.

3.2.5 The metallic parts (Sling locking buckle — 1 number, D-rings — 2 numbers, Goods holding hook — 1 number, Buckle — 1 number) used in the 'Sling' shall conform to IS 2062 (except for the shape and dimensions). The colour and finish of the metallic

Table 2 Requirements of Tape (Component A)
(Clause 3.2.2)

| Sl No. | Characteristics | Requirements | Method of Test, Ref to |
|--------|----------------------------------------------------------------------------|--------------|------------------------|
| (1) | (2) | (3) | (4) |
| i) | Nature of filament | Nylon 6 6 | IS 667 |
| ii) | Width, mm | 30 ± 2 | - |
| iii) | Mass per linear meter of tape, g | 50 ± 2 | Appendix A of IS 4727 |
| iv) | Breaking strength (full width × 20 cm), N, <i>Min</i> | 5 800 | IS 1969 (Part 1) |
| v) | Colour fastness to light | 5 or better | IS 2454 |
| vi) | Colour fastness to rubbing: | | IS 766 |
| | a) Dry | 4 or better | |
| | b) Wet | 4 or better | |
| vii) | Colour fastness to washing C(3): | | IS/ISO 105 C10 |
| | a) Change in colour | 4 or better | |
| | b) Staining on adjacent fabric | 4 or better | |
| viii) | Dimensional change due to relaxation, both directions, percent, <i>Max</i> | 2.0 | IS 2977 |
| ix) | pH value of aqueous extract (Cold method) | 6.0-8.0 | IS 1390 |

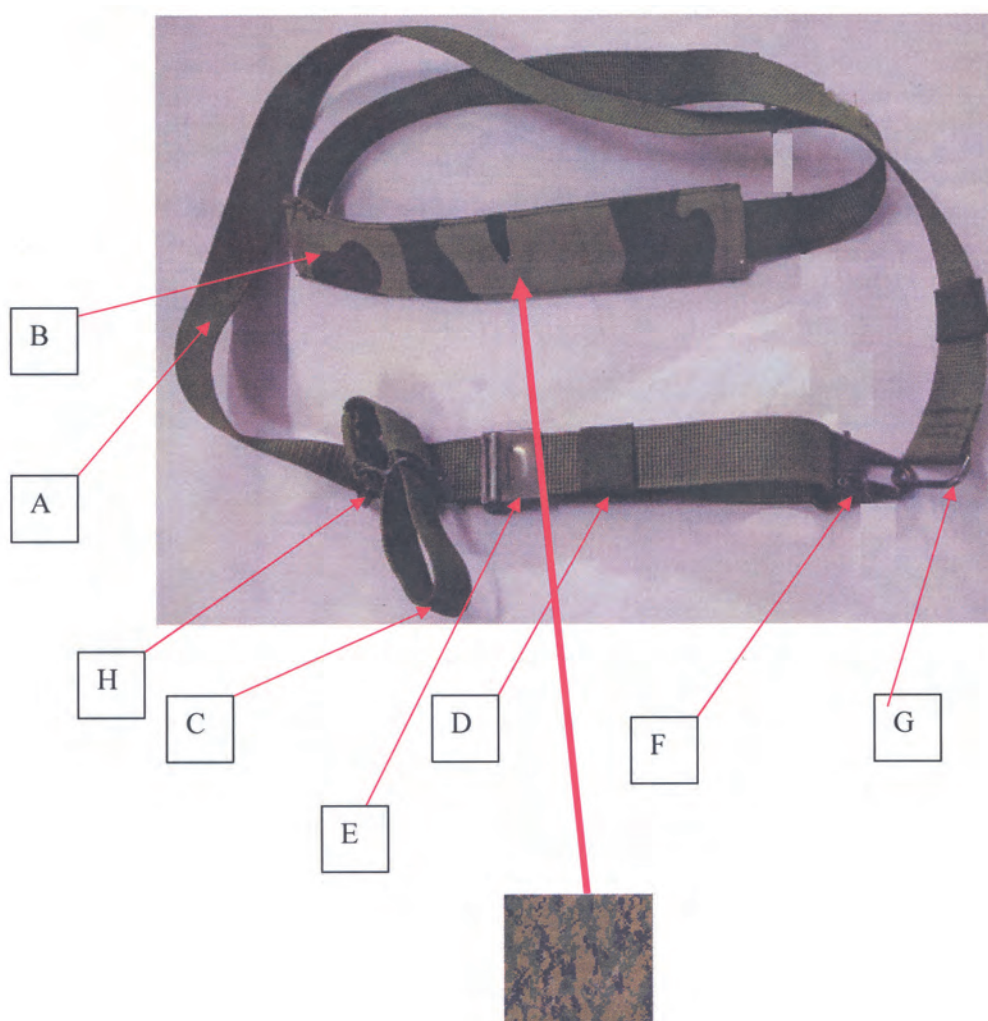


FIG. 1A TACTICAL 3 POINTS SLING UNIVERSAL
(COMPONENT WISE DESCRIPTION IS GIVEN IN THE FIG. 1B)


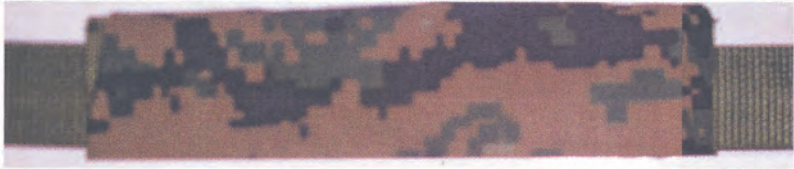






| Component number | Component |
|-----------------------------|-------------------------------------------------------------------------------------|
| A (30 mm wide Tape) |  |
| B (Shoulder pad) |  |
| C (30 mm wide Tape) |  |
| D (Elastic Loop) |  |
| E (Sling locking buckle) |  |
| F (Goods holding hook) |  |
| G (D-Ring) |  |
| H (Buckle) |  |

FIG. 1B COMPONENT-WISE DESCRIPTION

Table 3 Weave Particular of Bottom Layer of Shoulder Pad (Component B)
(Clause 3.2.3)

| Sl No. | Particular | Approximate Resultant Denier of Yarn | Tenacity of Single Ply Yarn, g/denier, Min |
|--------|-------------|--------------------------------------|--------------------------------------------|
| (1) | (2) | (3) | (4) |
| i) | Warp | 840 | 5.0 |
| ii) | Weft | 840 | 5.0 |
| iii) | Binding end | 420 | 5.0 |

NOTES

1 Number of ends in full width, *Min* – 150 (ground=120 and binding 30).

2 Number of picks/dm, *Min* – 166.

Table 4 Requirements of Shoulder Pad (Component B)
(Clause 3.2.3)

| Sl No. | Characteristic | Requirement | Method of Test, Ref to |
|--------|-----------------------------------------|-------------|------------------------|
| (1) | (2) | (3) | (4) |
| i) | Top layer (Disruptive printed): | | |
| | a) Nature of filament yarn | Nylon 6 6 | IS 667 |
| | b) End/dm, <i>Min</i> | 186 (2 ply) | IS 1963 |
| | c) Picks/dm, <i>Min</i> | 114 (2 ply) | IS 1963 |
| | d) Width, mm | 66 ± 2 | IS 1954 |
| | e) Mass, g/m ² | 260 to 270 | IS 1964 |
| | f) Colour fastness to washing C(3): | | IS/ISO 105 C10 |
| | 1) Change in colour | 4 or better | |
| | 2) Staining on adjacent fabric | 4 or better | |
| | g) Colour fastness to rubbing: | | IS 766 |
| | 1) Dry | 4 or better | |
| | 2) Wet | 4 or better | |
| | h) Colour fastness to light | 5 or better | IS 2454 |
| ii) | Bottom layer (Nylon Tape – 50 mm wide): | | |
| | a) Nature of filament yarn | Nylon 6 6 | IS 667 |
| | b) Width, mm | 50 ± 2 | IS 1954 |
| | c) Mass per linear meter, g | 50 ± 2 | IS 1964 |
| | d) Colour fastness to washing C(3): | | IS/ISO 105 C10 |
| | 1) Change in colour | 4 or better | |
| | 2) Staining on adjacent fabric | 4 or better | |
| | e) Colour fastness to rubbing: | | IS 766 |
| | 1) Dry | 4 or better | |
| | 2) Wet | 4 or better | |
| | f) Colour fastness to light | 5 or better | IS 2454 |

NOTE — Test shall be carried out after proper conditioning as per IS 6359.

parts shall be as per the buyer requirement. The dimensions and mode of attaching the metallic parts to the ‘Sling’ shall be as given in the Figs. 1 to 5.

4 STITCHING

4.1 All the items used in the ‘Sling’ shall be machine stitched with nylon sewing thread. The heavy duty CNC bar tacking machine (Bar tacking of minimum 30 mm length and minimum 3 mm width) shall be used to attach metallic parts. Single needle lock stitch having 30 to 35 stitches per dm shall be used to fabricate shoulder pad. The stitching shall be done with even tension and all loose ends shall be securely fastened off.

4.2 Nylon sewing thread of green shade (match with component A colour) confirming to variety No. H1 of IS 4229 shall be used.

5 WORKMANSHIP AND FINISH

5.1 In appearance, shape, workmanship and finish and in all respects not defined in this specification, ‘Sling’ shall conform to the sealed sample held in the custody of the buyer.

5.2 The ‘Sling’ shall be visually examined and the non-metal components of the ‘Sling’ shall be evenly stitched, free from missed stitches wherever stitching is done.

5.3 The colour of the sewing thread used for stitching shall not bleed or stains. The ‘Sling’ shall be free from dyeing defects.

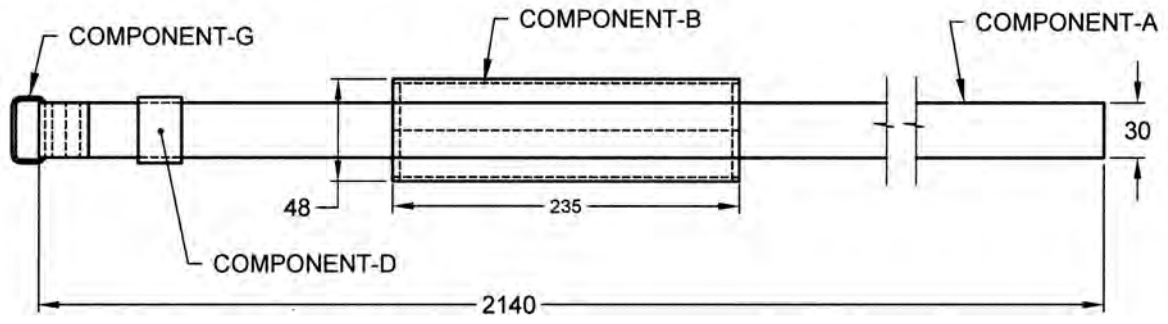
5.4 The metal components of ‘Sling’ shall be free from burrs, flaw, cracks, sharp/rough edges and other defects. The surface finish of the metal fittings shall be smooth.

5.5 The ‘Sling’ shall be free from any other defect which may significantly mark the appearance or serviceability.

6 SEALED SAMPLE

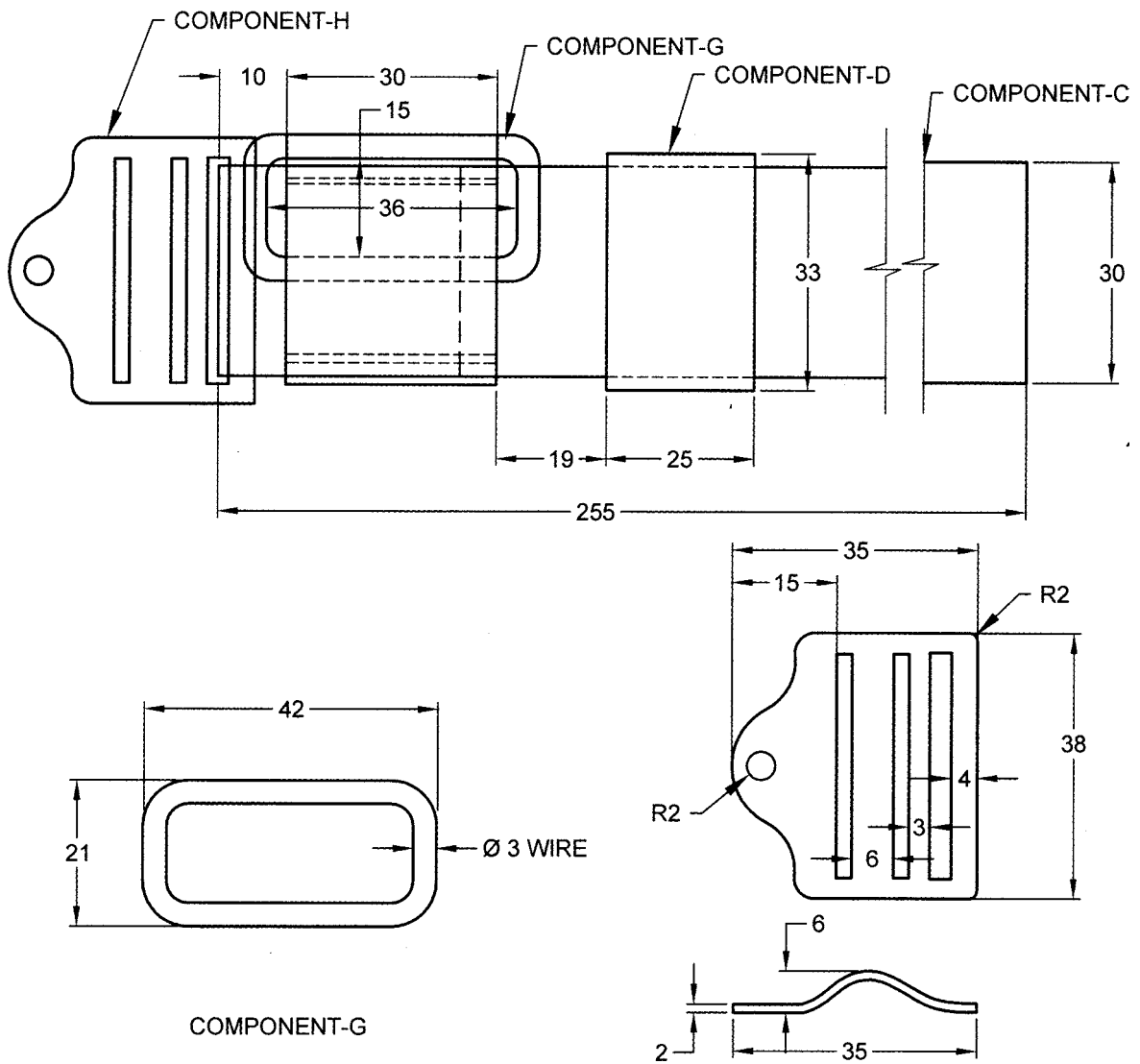
6.1 In order to illustrate or specify the indeterminable characteristics such as general appearance, shape, feel and design and finish of the ‘Sling’, a sample has been agreed upon and sealed, the supply shall be in conformity with the sample in such respects.

6.2 The custody of the sealed sample shall be a matter of prior agreement between the buyer and seller.



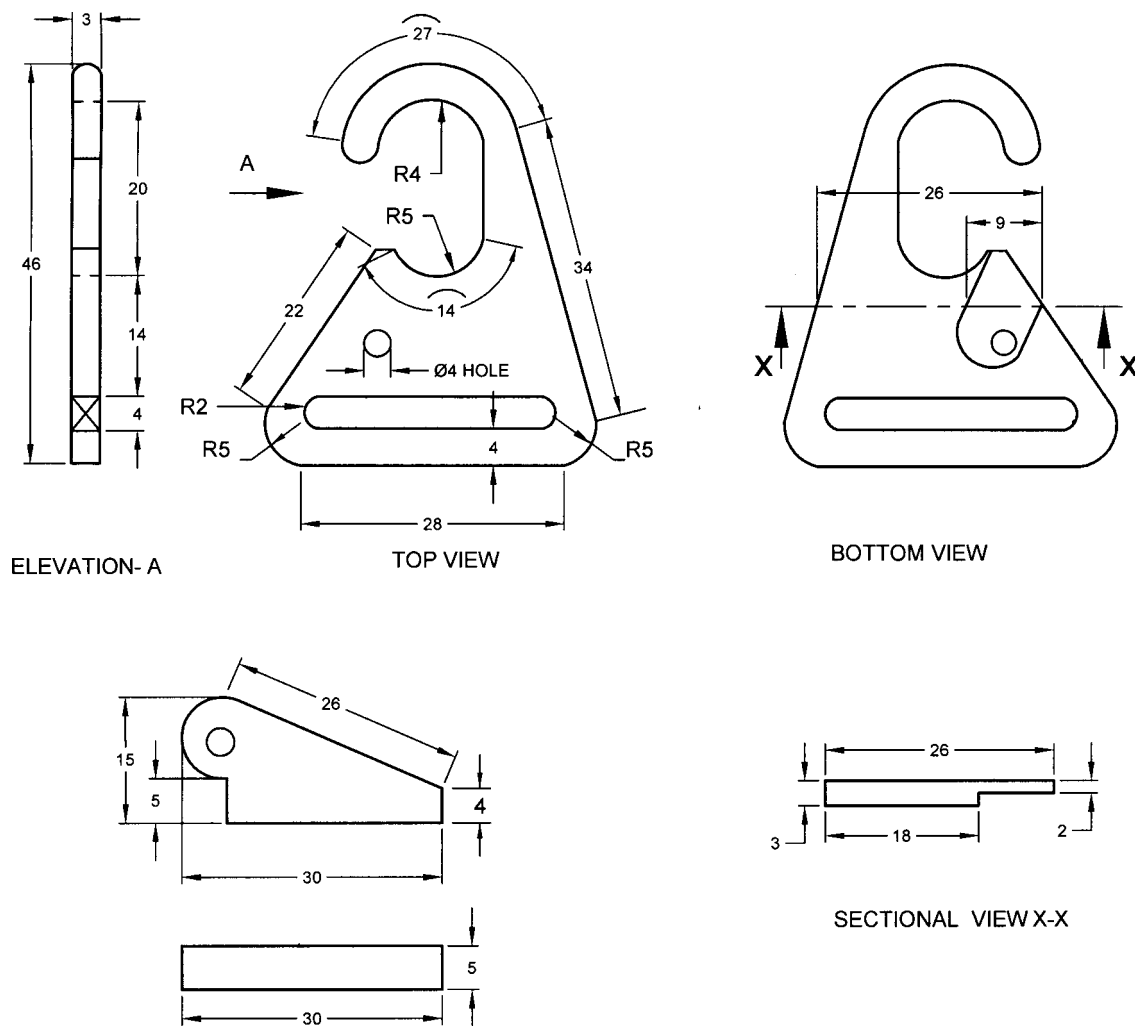
All dimensions in millimetres.

FIG. 2 DIMENSIONS OF VARIOUS COMPONENTS OF 'SLING'



All dimensions in millimetres.

FIG. 3 ATTACHMENT OF VARIOUS COMPONENTS TO COMPONENT-C OF 'SLING'



All dimensions in millimetres.

FIG. 4 DIMENSIONS OF GOODS HOLDING HOOK (COMPONENT-F) OF 'SLING'

7 MARKING

7.1 The 'Sling' shall be legibly and indelibly marked with the following information by affixing a label:

- Name of the product;
- Manufacturer's name, initials or trade-mark;
- Batch number;
- Date of manufacture; and
- Any other information required by the law in force and/or by the buyers.

7.2 BIS Certification Marking

The 'Sling' may also be marked with the Standard Mark.

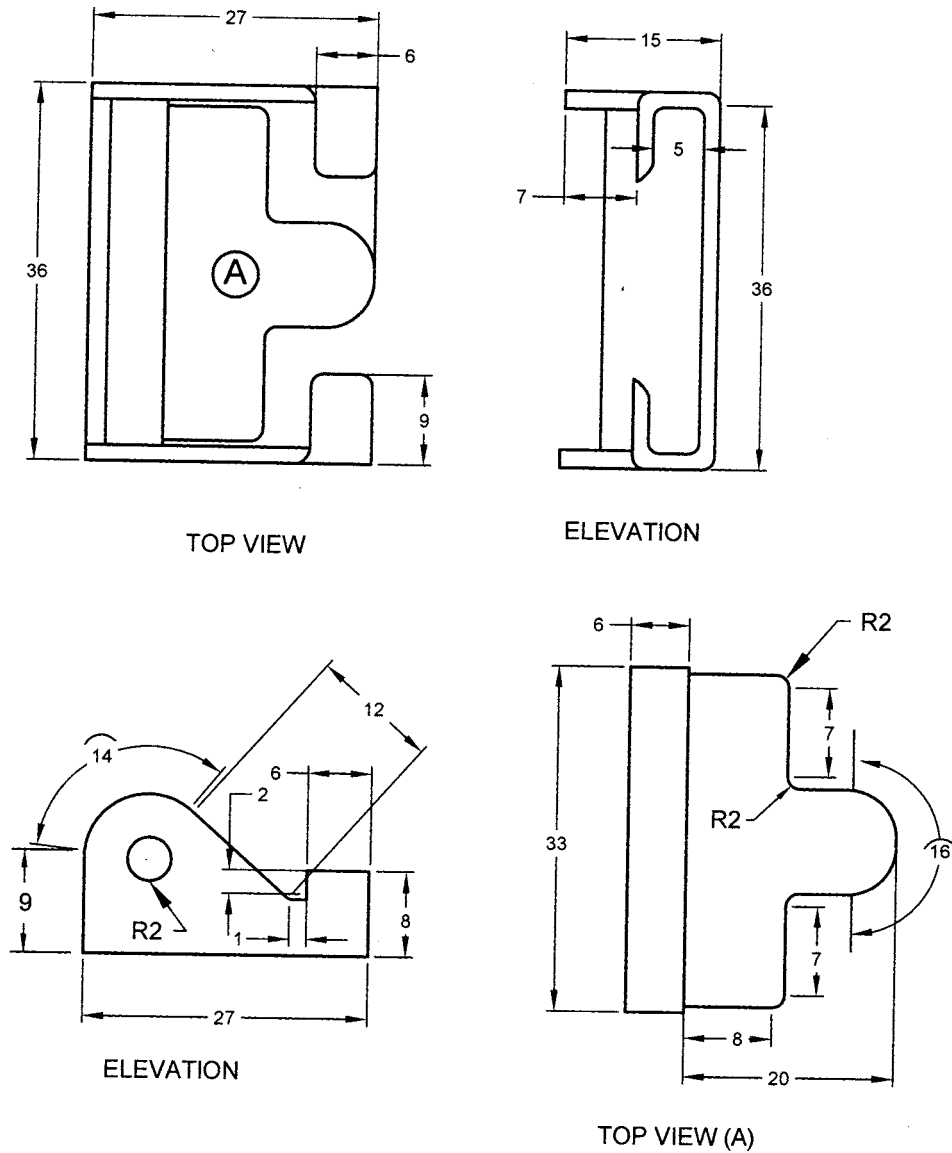
7.2.1 The use of the Standard Mark is governed by the provisions of the *Bureau of Indian Standards Act, 2016* and Rules and Regulations made thereunder. The details of the conditions under which a license for the use of the Standard Mark may be granted to

manufacturers or producers may be obtained from the Bureau of Indian Standards.

8 PACKAGING AND PACKING

The 'Sling' shall be delivered in a clean and dry condition. Ten such 'Sling' shall be made into one unit pack (bundle) by suitably folding, placing one over the other and then suitably tying them with three ply twine jute (*see* IS 1912).

Sixteen such bundles shall form one bale. These bales shall be packed in such a way that it ensures full protection to the contents of the bale. Hessian cloth shall be used to cover the bale. This cloth shall securely sewn around the bale. The bale shall be stitched with double three ply jute twine with not less than twelve stitches per dm, taking care not to pierce the inner wrapping during stitching. Sufficient Hessian cloth shall be pulled out each other to form 'ears' of about 15 cm in length. The bale shall be



All dimensions in millimetres.

FIG. 5 DIMENSIONS OF SLING LOCKING BUCKLE (COMPONENT-E)

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| B | X | X | X | | X | X | X | | X | X | X | | |
| F | | | X | | | | X | | | | X | | X |
| B | X | | X | X | X | | X | X | X | | X | X | |
| F | X | | | | X | | | | X | | | | X |
| | F | B | F | B | F | B | F | B | F | B | F | B | b |

NOTE — One binding (stitching) end in the weave represents four threads in the fabric.
One pick in the weave repeat represents two picks in the fabric.

All dimensions in millimetres.

FIG. 6 NYLON TAPE (30 mm)-WEAVE REPEAT (F-FACE, B-BACK B-BINDING END)

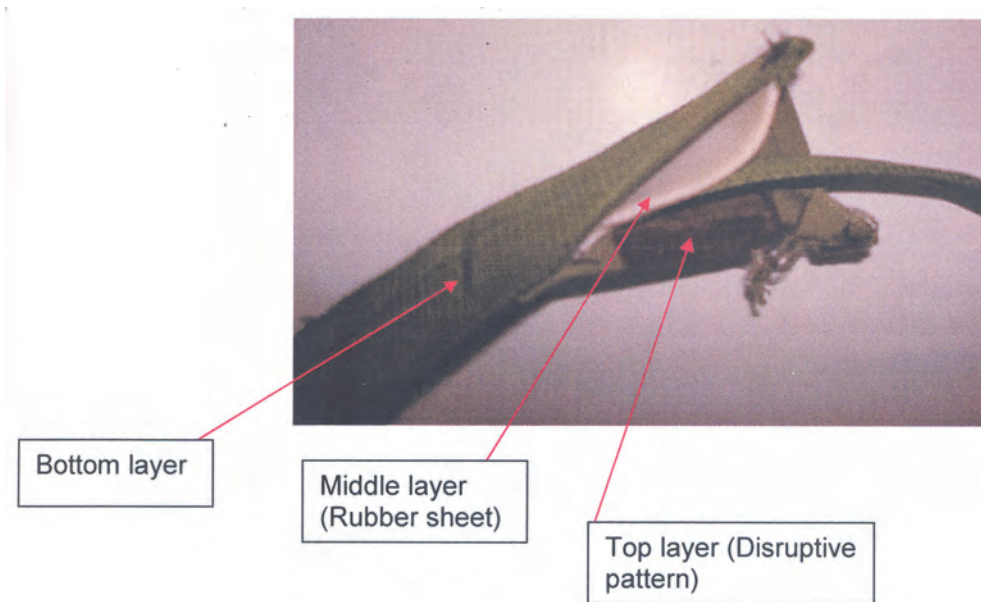


FIG. 7 ASSEMBLY OF SHOULDER PAD OF “SLING”

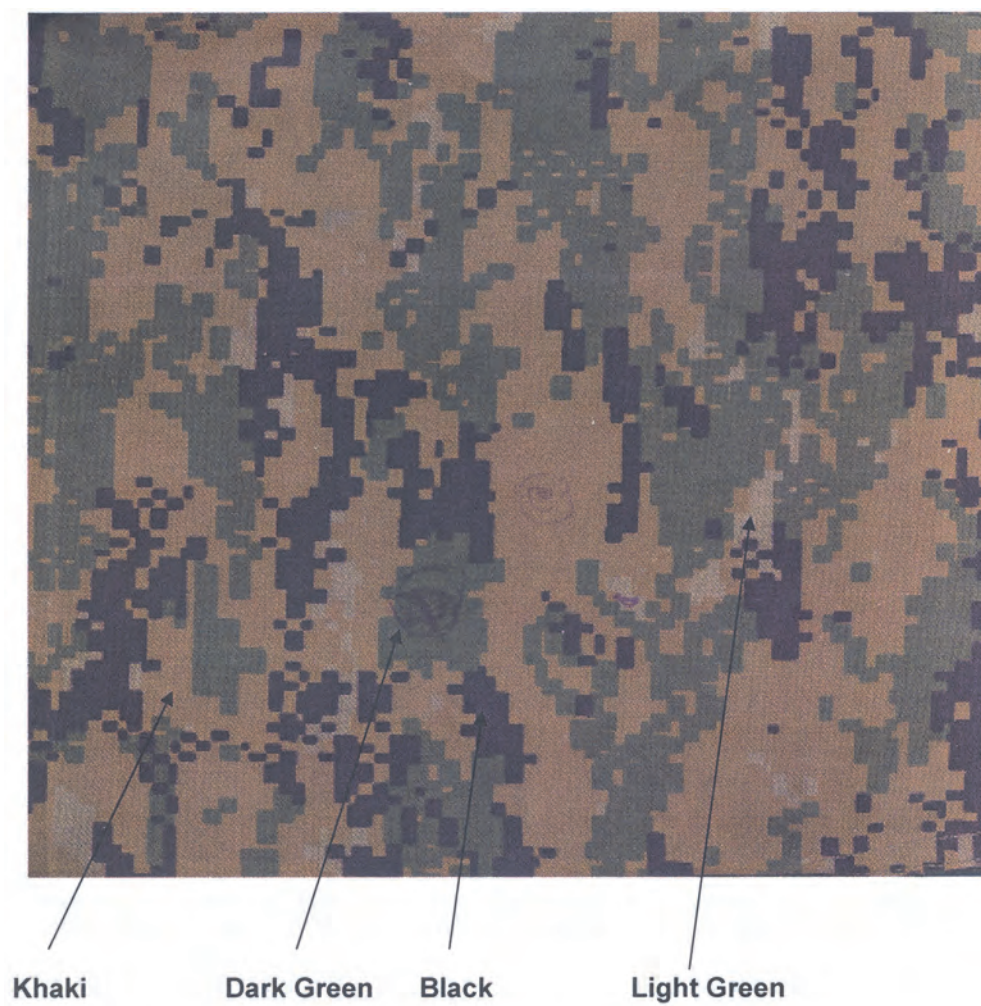


FIG. 8 DISRUPTIVE PRINT CLOTH USED IN SHOULDER PAD-TOP LAYER (FOR COLOUR IDENTIFICATION ONLY)
(FOR TRUE COLOURS REFER SEALED SAMPLE)

suitably secured by fastening with 12 mm polypropylene strap.

Before dispatch each bale/package shall be legibly marked by stencil showing the following information:

- Name of the product;
- Quantity packed in the bale/package;
- Serial number of the bale/package;
- Month and Year of packing;
- Name/Trade-mark of the manufacture;
- Gross weight of the bale/package, in kg; and
- Name and address of the consignee.

9 SAMPLING AND CRITERIA FOR CONFORMITY

9.1 The sampling procedure detailed in **9.2** and **9.3** shall give desired protection to the buyer and the seller, provided that the lot submitted for inspection is homogeneous. To achieve this, the manufacturer shall maintain a system of process control at all stages of manufacturing ensuring the 'Sling' tendering by him for

inspection to comply with the requirements of this standard in all respects [see IS 397 (Part 1) and IS 397 (Part 2)].

9.2 The manufacturer shall offer the stores serially numbered and arranged in such a way that the entire lot is accessible to the inspecting officer. The conforming of a lot to the requirement of this specification shall be determined on the basis of the tests carried out on the samples selected from it. The number of samples shall be selected at random in accordance with Table 5.

9.3 The number of test samples and the criterion for conformity for various characteristics shall be as given in Table 6.

9.4 Lot

For the purpose of conformance inspection and test sampling, a lot is defined as all the completed 'Sling' of the same size and type, with same assemblies, produced under similar condition, using the same production processes and materials, and being offered for delivery at one time to buyer against a dispatch note.

Table 5 'Tactical 3 Points Sling Universal' to be Selected from a Lot and Permissible Number of Non-Conforming Sling(s)
(Clause 9.2)

| Sl No. | Lot Size | Non-Destructive Testing | | Destructive Testing | |
|--------|-----------------|--------------------------------|-----------------------------------------------|--------------------------------|-----------------------------------------------|
| | | No. of Sling(s) to be Selected | Permissible Number of Non-Conforming Sling(s) | No. of Sling(s) to be Selected | Permissible Number of Non-Conforming Sling(s) |
| (1) | (2) | (3) | (4) | (5) | (6) |
| i) | 0 – 300 | 10 | 1 | 2 | 0 |
| ii) | 301 – 500 | 20 | 2 | 3 | 0 |
| iii) | 501 – 1 000 | 30 | 3 | 5 | 0 |
| iv) | 1001 – 3 000 | 50 | 5 | 8 | 1 |
| v) | 3 001 and above | 80 | 5 | 13 | 2 |

Table 6 Criterion for Conformity
(Clause 9.3)

| Sl No. | Characteristic | Number of Test Samples | Criteria for Conformity |
|--------|----------------------------------------------------------------|-------------------------------------------------------------|------------------------------------------------------------------------------------------|
| (1) | (2) | (3) | (4) |
| i) | Dimensions, numbers of ends and picks and freedom from defects | All the sling(s) selected according to the col 3 of Table 5 | Non-conforming sling(s) not to exceed the corresponding number given in col 4 of Table 5 |
| ii) | Weight and mass per linear meter | All the sling(s) selected according to the col 3 of Table 5 | Each sling shall satisfies the relevant requirement |
| iii) | All other requirements | All the sling(s) selected according to the col 5 of Table 5 | Non-conforming sling(s) not to exceed the corresponding number given in col 6 of Table 5 |

ANNEX A

(Clause 2)

LIST OF REFERRED INDIAN STANDARDS

| <i>IS No.</i> | <i>Title</i> | <i>IS No.</i> | <i>Title</i> |
|-----------------|----------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 397 | Method for statistical quality control during production | 1969 (Part 1) : 2009 | Textiles — Tensile properties of fabrics — Determination of maximum force and elongation at maximum force: Part 1 Strip method |
| (Part 1) : 2003 | Control charts for variable (<i>second revision</i>) | | (<i>third revision</i>) |
| (Part 2) : 2003 | Control charts for attributes (<i>third revision</i>) | 2062 : 2011 | Hot rolled medium and high tensile structural steel — Specification |
| 667 : 1981 | Methods for identification of textile (<i>first revision</i>) | | (<i>seventh revision</i>) |
| 766 : 1988 | Method for determination of colour fastness of textile materials to rubbing (<i>first revision</i>) | 2454 : 1985 | Methods for determination of colour fastness of textile materials to artificial light (Xenon lamp) (<i>first revision</i>) |
| 1390 : 1983 | Methods for determination of pH value of aqueous extracts of textile Materials (<i>first revision</i>) | 2977 : 1989 | Fabrics (other than wool)— Method for determination of dimensional changes on soaking in water (<i>first revision</i>) |
| 1912 : 1984 | Specification for country jute twine (<i>second revision</i>) | 4229 : 1992 | Textiles — Nylon sewing threads for aerospace purposes — Specification |
| 1963 : 1981 | Methods for determination of threads per unit length in woven fabrics (<i>second revision</i>) | | (<i>second revision</i>) |
| 1954 : 1990 | Determination of length and width of woven fabrics — Methods (<i>second revision</i>) | 4727 : 1968 | Specification for nylon webbing for aeronautical purposes |
| 1964 : 2001 | Textiles — Methods for determination of mass per unit length and mass per area of fabrics (<i>second revision</i>) | 6359 : 1971 9686 : 1980 IS/ISO 105 Part C10 : 2006 | Method for conditioning of textiles Specification for elastic tape Textiles — Tests for colour fastness Colour fastness to washing with soap or soap and soda |

ANNEX B*(Foreword)***COMMITTEE COMPOSITION**

Textiles Protective Clothing Sectional Committee, TXD 32

| <i>Organization</i> | <i>Representative(s)</i> |
|------------------------------------------------------------------------------|-----------------------------------------------------------------------------|
| Northern India Textile Research Association, Ghaziabad | DR ARINDAM BASU (<i>Chairman</i>) DR M. S. PARMAR (<i>Alternate</i>) |
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| Fire Retardant Association of India, New Delhi | SHRI P. V. MURALI MOHAN |
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| Indian Institute of Technology, New Delhi | DR V. K. KOTHARI |
| Indian Technical Textile Association, Mumbai | DR ANUP RAKSHIT SHRI BASANT LOHIA (<i>Alternate</i>) |
| Intertek India Pvt Ltd, Gurugram | SHRI HEMANT PARAB SHRI SUNDAR KRISHNAN (<i>Alternate</i>) |
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| Oil Industry Safety Directorate, New Delhi | REPRESENTATIVE |
| Office of Textile Commissioner, Mumbai | SHRI AJAY PANDIT SHRI M. BALASUBRAMANIAN (<i>Alternate</i>) |
| RDSO, Lucknow | REPRESENTATIVE |
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| System 5S Private Limited, Chennai | SHRI SUDHIR TAKKER SHRIMATI BHAVNA S. R. TAKKAR (<i>Alternate</i>) |
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| The Bombay Textile Research Association, Mumbai | SHRIMATI L. M. CHANDRAKALA |
| TUV Rheinland India Pvt Ltd, Gurugram | SHRI CHARAN SINGH |
| BIS Directorate General | SHRI AWADH KISHORE, Scientist 'E' and Head (TXD) [Representing Director General (<i>Ex-officio</i>)] |

Member Secretary
SHRI J. K. GUPTA
Scientist 'D' (TXD), BIS

Bureau of Indian Standards

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Review of Indian Standards

Amendments are issued to standards as the need arises on the basis of comments. Standards are also reviewed periodically; a standard along with amendments is reaffirmed when such review indicates that no changes are needed; if the review indicates that changes are needed, it is taken up for revision. Users of Indian Standards should ascertain that they are in possession of the latest amendments or edition by referring to the latest issue of 'BIS Catalogue' and 'Standards : Monthly Additions'.

This Indian Standard has been developed from Doc No.: TXD 32 (11425).

Amendments Issued Since Publication

| Amend No. | Date of Issue | Text Affected |
|-----------|---------------|---------------|
| | | |
| | | |
| | | |
| | | |

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