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Indian Standard
SPECIFICATION FOR HOCKEY SHOES

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Indian Standard

SPECIFICATION FOR HOCKEY SHOES

0. FOREWORD

0.1 This Indian Standard was adopted by the Indian Standards Institution on 21 January 1975, after the draft finalized by the Footwear Sectional Committee had been approved by the Chemical Division Council.

0.2 This standard deals with hockey shoes with rubber sole of antislip design and canvas upper in 'U' throat low cut quarter. As the title signifies, this type of shoes may be used by hockey players. It may also be used for any other purpose, where it is suitable.

0.3 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*. The number of significant places retained in the rounded off value should be the same as that of the specified value in this standard.

1. SCOPE

1.1 This standard prescribes the requirements, methods of sampling and tests for hockey shoes with rubber sole and canvas upper in 'U' throat low cut quarter.

2. TERMINOLOGY

2.1 For the purpose of this standard, definitions given in IS : 2050-1967† shall apply.

3. REQUIREMENTS

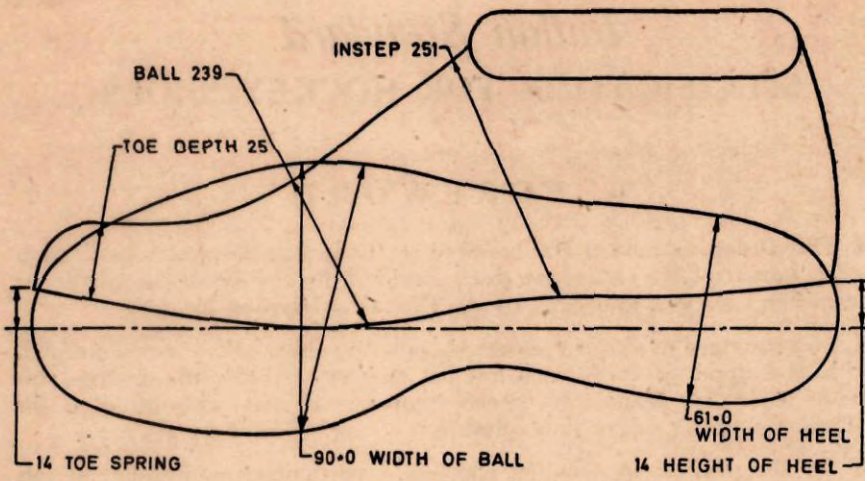
3.1 Last Shape and Design — The shoe shall be made on last strictly according to the measurement chart given in Table 1 and shall be made to the design, shape and dimensions according to Fig. 1.

3.2 Material

3.2.0 The shoes shall be manufactured out of materials as prescribed in 3.2.1 to 3.2.9.

*Rules for rounding off numerical values (*revised*).

†Glossary of footwear terms.



All dimensions in millimetres.

FIG. 1 DIMENSIONS FOR SIZE 7 OF HOCKEY SHOES

TABLE 1 MEASUREMENT CHART OF LASTS FOR HOCKEY SHOES
(Clause 3.1)

All dimensions in millimetres.

SL No.	ENGLISH SIZE	LENGTH OF INSOLE	WIDTH OF BALL	WIDTH OF HEEL	GIRTH OF BALL	GIRTH OF INSTEP
(1)	(2)	(3)	(4)	(5)	(6)	(7)
i)	4	241.5	84	56.8	221	233
ii)	5	250.0	86	58.2	227	239
iii)	6	258.5	88	59.6	233	245
iv)	7	267.0	90	61.0	239	251
v)	8	275.5	92	62.4	245	257
vi)	9	284.0	94	63.8	251	263
vii)	10	292.5	96	65.2	257	269
viii)	11	301.0	98	66.6	263	275
ix)	12	309.5	100	68.0	269	281

3.2.1 *Fabric Upper* — Bleached ribbed duck conforming to Variety No. of IS : 1422-1970* shall be used as an outer layer and cotton 'Turkish towel' as an inner layer (lining). The two fabrics shall be firmly adhered together with rubber compound.

*Specification for cotton duck (first revision).

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3.2.2 Lining Material — Complete upper with tongue, cotton Turkish towel conforming to IS : 7057-1973* shall be used. For sock and counter stiffener covering, the same cotton Turkish towel shall be used. The colour shall be faded blue or as agreed to between the purchaser and the supplier.

3.2.3 Binding Material — Bleached cotton cloth matching the shade of the upper shall be used.

3.2.4 Stiffening Material — For counter, rubberized Turkish towel and for toe puff, rubberized fabric shall be used.

3.2.5 Bottom Material — The rubber used for sole shall be compounded from natural or synthetic rubber or from a blend of the two with or without the use of reclaimed rubber.

3.2.6 Thread for Uupper Closing — Rot proof cotton thread conforming to Variety No. 32 (9.8 tex × 6) and Variety No. 29 (16 tex × 6) of IS : 1720-1969† shall be used.

3.2.6.1 The colour of the thread shall match the colour of the upper.

3.2.7 Bottom Filling Material — Black and white rag shall be used.

3.2.8 Eyelets — 6 pieces of aluminium eyelets, coated or enamelled, matching the colour of the upper shall be used per facing.

3.2.9 Fabric Laces — The shoes shall be provided with braided fabric laces, flat, conforming to designation L/90/23 of IS : 4778-1968‡.

3.3 Components

3.3.1 Individual components of the shoe shall comply with the thickness and material requirements prescribed in Table 2.

3.3.2 Individual rubber components of the shoe shall conform to the physical requirements prescribed in Table 3.

3.3.3 Ageing — All rubber components shall withstand ageing without developing any signs of brittleness or tackiness at $100 \pm 1^\circ\text{C}$ for 24 hours in an air-oven, in accordance with the method prescribed in IS : 3400 (Part IV)-1965§.

3.3.4 Colour Fastness — The dyed fabric prescribed in this standard shall be fast to daylight and mechanical washing as agreed to between the purchaser and supplier.

*Specification for Turkish towel.

†Specification for cotton sewing threads (*first revision*).

‡Specification for cotton laces for footwear.

§Methods of test for vulcanized rubbers: Part IV Accelerated ageing.

TABLE 2 REQUIREMENTS OF INDIVIDUAL COMPONENTS OF CANVAS HOCKEY SHOES
(Clause 3.3.1)

Sl. No.	COMPONENTS	MATERIALS	THICKNESS, Min mm
(1)	(2)	(3)	(4)
i)	Outer sole (built up construction, callendered)	Rubber	5.5
ii)	Golosh (foxing side)	Rubber	2.0
iii)	Innersole (without fabric covering)	Black rag	1.2
iv)	Sock (with extended arch)	Prevulcanized sponge with fabric cover	3.5
v)	Bottom filling	Black rag	1.5
vi)	Counter (stiffener without fabric cover)	Rubber	1.4
vii)	Toe cap	Rubber	1.8
viii)	Heel toe	Rubber	0.7

TABLE 3 PHYSICAL REQUIREMENTS OF RUBBER COMPONENTS
(Clause 3.3.2)

Sl. No.	CHARACTERISTIC	GOLOSH, TOE CAP	OUTER SOLE	METHOD OF TEST, REF TO
(1)	(2)	(3)	(4)	(5)
i)	Relative density, Max	1.45	1.20	IS : 3400 (Part IX)-1967*
ii)	Hardness IRHD	55 ± 5	60	IS : 3400 (Part II)-1965†
iii)	Flexing resistance, number of cycles, Min:			IS : 3400 (Part XVI)-1974‡
	a) Initial crack	—	120 000	
	b) 600 percent cut growth	100 000	150 000	
iv)	Change in initial hardness after accelerated ageing for 24 h at 100 ± 1°C	+5 -0	—	{ IS : 3400 (Part IV)-1965§ IS : 3400 (Part II)-1965†

*Methods of test for vulcanized rubbers: Part IX Relative density and density.

†Methods of test for vulcanized rubbers: Part II Hardness.

‡Methods of test for vulcanized rubbers: Part XVI Measurement of cut growth of rubber by use of Ross flexing machine.

§Methods of test for vulcanized rubbers: Part IV Accelerated ageing.

3.4 Manufacture

3.4.1 The shoes may be manufactured to the design recommended in Fig. 2.



FIG. 2 HOCKEY SHOES

3.4.2 The shoes shall be made on metallic last conforming to IS : 7329-1974* the measurement for which shall be in accordance with **3.1** and Table 1 of this standard.

3.4.3 The canvas upper shall be lined with cotton Turkish towel.

3.4.4 The upper shall be stitched with lock stitching machine, with 4 to 5 stitches per centimetre by means of Variety No. 32 and Variety No. 29 cotton sewing thread, using Variety No. 32 for back seam joining and tongue joining and No. 29 for remaining seams. The top throat, tongue, facing end and counter stiffener edge shall be bound with cotton cloth binding of 19 mm width using No. 32 thread. The details of threads are given in **3.2.6**.

3.4.5 The back seam of quarter shall be reinforced with a folded strip similar to the upper material and 20 mm in width.

3.4.6 The tongue shall be cushioned with 10 mm thick PVC sponge lined with cotton Turkish towel and then fixed with 3 rows of stitching.

3.4.7 Six pieces of aluminium eyelets shall be fitted in each facing.

*Specification for metallic last for safety rubber canvas ankle boots.

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3.4.8 The toe shall be reinforced with a piece of designed rubber shaped toe caps. The counter stiffener shall be set from the bottom of lining and bound flat on the top edge with matching lining cloth bias binding.

3.4.9 The joint of the lasted upper and sole shall be strengthened with designed white golosh (foxing), 22 mm in width on both sides. Top of golosh (foxing) shall be coloured up to 3 mm width, the colour being as agreed to between the purchaser and the supplier. The golosh shall not extend below the edge of the sole.

3.4.10 Vulcanized rubber heel tab, 22 mm in width and 40 mm long printed with the trade-mark (as agreed to between the purchaser and supplier), may be fixed at the heel portion on golosh.

3.5 Finish

3.5.1 Each pair of shoe shall be provided with a pair of fabric laces of the quality prescribed in 3.2.9.

3.5.2 In appearance, general workmanship, finish and in all other respects, not defined in this specification, the shoe shall be equal to that of the sample approved by the purchaser.

4. MARKING AND PACKING

4.1 Marking — The manufacturer's name; size of shoe and recognized trade-mark, if any; shall be legibly stamped.

4.1.1 The shoes may also be marked with the ISI Certification Mark.

NOTE — The use of the ISI Certification Mark is governed by the provisions of the Indian Standards Institution (Certification Marks) Act and the Rules and Regulations made thereunder. The ISI Mark on products covered by an Indian Standard conveys the assurance that they have been produced to comply with the requirements of that standard under a well-defined system of inspection, testing and quality control which is devised and supervised by ISI and operated by the producer. ISI marked products are also continuously checked by ISI for conformity to that standard as a further safeguard. Details of conditions under which a licence for the use of the ISI Certification Mark may be granted to manufacturers or processors, may be obtained from the Indian Standards Institution.

4.2 Packing — The shoe shall be packed in cardboard boxes, or as agreed to between the purchaser and supplier.

5. SAMPLING AND CRITERIA FOR CONFORMITY

5.1 Sampling and criteria for conformity of hockey shoes shall be as prescribed in IS : 6368-1971*.

*Methods for sampling of rubber and rubber combination footwear.