



PN SPECIFICATION NO 05 /2017

## PAKISTAN NAVY SPECIFICATION 05/2017

PROMULGATION DATE:

**04 May 2017**

# **SHOES ANTI-SKID**

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**AMENDMENT RECORD**

<b>Amd No</b>	<b>Date</b>	<b>Text Effected</b>	<b>Signature and Date</b>

**REVISION NOTE**

The specification has been prepared to bring the test methods and procedures into line with up-to-date. PN requirements and facilities held in Pakistan. CINS may request to amend any test requirement/ test procedure in light of the experience emanating from its inspection history, through the feedback form placed at Annex F. However, such an alternation will be effective when the amendment is promulgated by this Directorate, and will be effective on the contracts which materialize after the promulgation date of respective amendment.

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## 1. **DESIGNATION**

1.1 Shoes Anti-Skid

## 2. **USAGE**

2.1 These shoes will be used by Military and civilian personnel in designated areas on land and onboard ships, where a level of toe protection and slip/skid resistance is deemed necessary.

## 3. **INTRODUCTION**

3.1 This specification is prepared by Directorate of Indigenous Technical Development, Karachi, to provide necessary guidance to the potential manufacturers/ suppliers of the items mentioned herein. This specification is to be used for testing and deciding upon acceptance, or otherwise, of the items mentioned. Any alteration or addition in this specification can be suggested to ITD Directorate. However, it cannot be implemented without prior approval of DITD. This specification supersedes and replaces PN Specification PN/UNIFORM/01/2003 promulgated on 01 Mar 2003 earlier in relation to the item mentioned herein. These specifications are based on newly developed and accepted Anti-Skid shoes at ITD Organization.

3.2 This specification booklet includes 06 Annexes and consists 22 pages, including the cover.

## 4. **SCOPE**

4.1 This specification covers the manufacturing / inspection requirements of Shoes Anti-Skid to be used by Pakistan Navy. This specification lays down the standard to which the stores shown under designation above should conform. It defines and lays down the quality, standard and details of materials, workmanship and finish. It also lays down the details of sampling, testing, inspection rejection, marking, preservation, packing and delivery etc.

4.2 The supplier/ manufacturer shall comply in every respect with the terms of this specification and ensure that the stores conform to it, in all respects.

## 5. **RELATED DOCUMENTS**

5.1 The standards and documents that have been referred to in this specification are:

- |    |                      |  |
|----|----------------------|--|
| a. | BS EN ISO 20345:2011 | Personal Protective equipment – Safety footwear.             |
| b. | BS EN ISO 20344:2011 | Personal Protective equipment – Test methods for footwear.   |
| c. | AATCC-20             | Determination of fiber quality.                              |
| d. | ASTM E- 478          | Standard test method for chemical analysis of Copper alloys. |
| e. | D2240-04             | Test method for Rubber Property- Durometer Hardness.         |
| f. | BS ISO 1817          | Rubber Vulcanized. Determination of the effect of liquid.    |
| g. | SATRA TM 92          | Resistance of footwear to flexing.                           |
| h. | SATRA STD 185        | Sole Adhesion tester.  |
| j. | SATRA TM77           | Flexing Machine- Water Penetration test.                     |

## 6. **TERMS & DEFINITIONS**

6.1 Definitions for the terms used in this standard are given at Annex D of this specification.

**SPECIFIC REQUIREMENTS**

**7. TECHNICAL DETAILS FOR SHOES ANTI-SKID**

7.1 The Technical Details of Anti-Skid shoes are mentioned at Annex B of this specification.

**8. MANUFACTURING DETAILS FOR SHOES ANTI-SKID**

**8.1 LAST**

8.2 All sizes of last should be equal to the one mentioned at Annex A to this specification. While manufacturing the shoes a hard material of 3.2 mm thick is to be added on the bottom of the last in order to provide a space for inserting a detachable sock.

8.3 The suppliers/ manufacturer must intimate the size roll of the last/ moulding foot in their possession conforming to the specified particulars and must get representative samples approved by the Inspecting Authority before commencing manufacture.

8.4 Details of dimensions of the specified last of various sizes i.e. from 03 to 11 are given in the Annex A of this specification.

**8.5 CONSTRUCTION**

8.6 The construction of the shoes shall be by Direct Injection Rubber and PU with the upper. The shoes shall be supplied in various sizes as mentioned at Annex A of this specification.

8.7 Measurement details of height of upper are indicated as Annex A of this specification.

8.8 The Toe cap shall be incorporated in the footwear in such a manner that they cannot be removed without damaging the footwear. Toe cap shall be as per dimension mentioned at Annex A to this specification. The toe cap shall have an edge covering with EVA (Ethyl Vinyl Acetate) foam strip for safety and comfort purposes and embossed with standard EN 12568.

8.9 Leather used in making upper shall be of good quality full Chrome Cow Leather and should be suitable for very hard wear. The minimum thickness of various components of upper should be as that mentioned in Annex B of this specifications.

8.10 Lining used in vamp shall be of drill cloth and are bonded to the steel toe cap which is to be backed with EVA foam strip to meet safety and comfort requirements. The lining should satisfactorily withstand the moulding temperature on operations.

8.11 The tongue should be padded with compressible material, such as sponge, rubber or felt, the compressible material should be enclosed in a pocket between the tongue itself and knitted polyester lining such that the total thickness should not be less than 3.4 mm (0.12 inch). The padding should not be less than 55/8inchlong and 36/8 inch wide from top and 2 ½inchfrombottom, except near the top where it is to be rounded off (tolerance  $\pm 2\%$ ).

8.12 Good quality Nylon laces with plastic tip should be used.

8.13 Insole should be permanently attached and it shall not be possible to remove it without damaging the footwear. Full socks made up of EVA sheet covered with knitted polyester cloth, which could be detachable and washable.

8.14 All seams should be properly hammered off and all loose ends secured properly.

8.15 The upper components shall be properly skived and fitted. Skiving on the grain side is prohibited.

8.16 The upper components shall be closed by lock stitching.

8.17 The Vamp shall be joined with quarter and tongue with four rows of stitching 1.5 mm apart and number of stitches per inch (25.4) mm shall be 6-7 with  $\pm 1$  tolerance along with the suitable binding material.

8.18 The counter shall be stitched with four rows of stitching 1.5 mm apart and no. of stitches per inch (25 mm) shall be 6-7 in number with  $\pm 1$  tolerance.

8.19 The number of stitches per inch (25 mm) shall be 6-7 in numbers at the back seam which shall be stitched, taped and again stitched with single row of stitching on either side.

8.20 Six pairs of Eyelets Brass Black shall be fitted on each side / facing which will clinch properly without being distorted or de-shaped. The eyelets shall be spaced equidistant at 22 mm. First eyelet being 19 mm from top of the edge of the quarter and 16 mm away from the edge of the facing, distance between eyelets are shown at Annex C of this specification.

8.21 The counter stiffeners shall be skived properly so that no ridge is formed in the finished Shoes. They shall be reinforced and made hard.

8.22 The insole shall be properly feathered, snuffed and moulded to the bottom shape (contour) of the last.

8.23 The shoes shall remain on the last at least for 24 Hours.

8.24 The vulcanization of sole to the upper shall be done by high-pressure type Moulding Machine, provided with the thermo-regulate heater in bottom and the two side moulds. Pressure control/gauge and auto time controlling devices. A piece of compounded Rubber cut to the approximate shape of the sole and correct height for the size of the Mould known as sole Mould in the machine. The Blank may be pre-heated in a cabinet upto desired temperature immediately before moulding.

8.25 Flash and spew on edge of the moulding last and the surplus material on the sole and heel shall be properly trimmed off/removed.

8.26 A Spare pair of laces round Nylon with plastic tip 50 inch shall be supplied with each pair of Shoes. Finish of tips shall be good.

8.27 The midsole is bonded with the outer sole by using any suitable adhesive, reinforced with textile, to improve bonding quality, loose bonding sample should be rejected.

Note: Usage of nails in manufacturing of Anti-skid shoes shall be strictly prohibited.

## **9. QUALITY OF WORKMANSHIP AND FINISHING**

9.1 Workmanship and finish of the shoes shall be equal to the sealed sample. It shall be best of its class and to the entire satisfaction of the inspector.

**10. TESTING**

10.1 The material shall be subjected to tests laid down in this specification at Annex B of this specification and related documents. At least two pair of shoes of same or different sizes will be required to complete relevant test mentioned at Annex B of this specification. The material may also be subjected to such tests which are deemed necessary by the inspection authority in order to determine their suitability. Inspecting Authority reserves the right to get the B/R samples tested from any reputable Laboratory other than PN. Test mentioned at Annex B are depicted mostly from BS EN ISO 20345: 2011. However, any test considered important by Inspecting Authority other than Annex B may also be conducted from BS EN ISO 20345.

**11. TENDER SAMPLE**

11.1 Tender sample to be approved by INS

11.2 For each contract following material shall be supplied by the manufacturer at the time of tendering.

i. Shoes (Anti Skid)	05 in No.(two different sizes)
ii. Manufacturing last	One pair
iii. Pattern (cut component complete set)	One set of same size
iv. Leather for uppers	1' x 1' (02 pieces)
v. Thread for upper closing	50 gms
vi. Eyelets	06 in number
vii. Steel toe cap	02 Pairs (two different sizes)
viii. Laces	02 in Nos.
ix. Lining Material	02 meters
x. Binding adhesive	0.5 Kg.
xi. Padding material	1' X 1'
xii. Sole	02 Pairs (two different sizes)
xiii. Socks	02 Pairs (two different sizes)

**12. ADVANCE SAMPLE**

12.1 Advance sample or pre-production sample, when required, shall be submitted in accordance with terms of the contract for inspection, testing as per para 7 and 8 above and approved by CINS. The minimum quantities required are 05 pairs alongwith samples of materials used in manufacturing of antiskid shoes for inspection.

12.2 Whenever Tender, Advance or pre-production sample is not required, the suppliers / manufacturer are advised in their own interest to submit to the Inspecting Officer or his representative an initial delivery of One % of the contract or ten pairs, whichever are more alongwith samples of materials for inspection.

12.3 The approval of the sample mentioned in Para 11 & 12 authorizes the commencement of bulk production but does not relieve the suppliers/ manufactures from compliance with all the provisions of this specification. One approved sample shall be properly sealed by INS and returned to the firm for guidance; rest of the approved sample shall be retained by INS for future use in bulk Inspection.

12.4 The Pre-production sample shall be manufactured by the manufacturer with the same facilitates which will be used for manufacture of the bulk items.

12.5 Firm shall provide advance sample along with quality verification reports of shoes from an accredited laboratory.

13 **INSPECTION**

13.1 **Bulk representative sample** B/R random sampling will be carried out as per rules in vogue.

13.2 **Bulk Inspection** Bulk inspection will be carried out after satisfactory completion of Visual Examination and Testing of B/R Sample as per para 7 and 8 above.

13.3 **Inspection of Shoes** 100% of the offered store shall be inspected. The guide lines for such examination/inspection are listed at Annex E. Stage inspection of anti-skid shoes may be carried out by CNS if deemed necessary.

13.4 **Inspection/ Acceptance and Rejection of Stores** Inspection/ acceptance is to be carried out to the satisfaction of Chief Inspector Naval Stores.

13.5 The shoes shall be examined for the correctness of material, shape, design, dimension, size, workmanship and finish.

13.6 All shoes shall be inspected in pairs and shall be accepted and rejected as pairs. Defective lasting, mouldings and damages to upper and insoles during moulding are to be especially checked.

13.7 CINS reserves the right to reject the whole supply in case, upon examination, material or packing of any sample or portion of the consignment is found NOT CONFORMING to this specification.

13.8 If on examination of 5% of any delivery, 20% of those examined from bulk supply are found NOT CONFORMING to this specification in respect of the material, pattern, dimensions, workmanship and finish, the whole consignment may be rejected without any compromise.

13.9 All stores and packing NOT fully in accordance with this specification shall be rejected.

13.10 Shoes with major defects as described in Annex E of this specification will be rejected.

13.11 **Responsibility for Inspection** The supplier is responsible for the performance of all inspection requirements (examinations and tests) as specified herein. PN reserves the right to perform any of the inspections set forth in the specification where such inspections are deemed necessary to ensure supplies and services conform to prescribed requirements.

13.12. **Responsibility for Compliance** The inspection set forth in this specification shall become a part of the supplier's overall inspection system or quality program. The absence of any inspection requirements in the specification shall not relieve the contractor of the responsibility of ensuring that all products or supplies submitted to PN for acceptance comply with all requirements of the contract. Sampling inspection, as part of manufacturing operations, is an acceptable practice to ascertain conformance to requirements, however, this does not authorize submission of known defective material, either indicated or actual, nor does it commit PN to acceptance of defective stores (material).

13.13 **Replacement by the Contractor** The supplier manufacture is responsible for replacement of the consignment or any part thereof whenever it is found to be not conforming



to this specification. The supplies so tendered in replacement, shall be subjected to testing/Inspection and acceptance by the Inspecting Officer.

13.14 **Responsibility for Safety** The supplier/manufacturer is wholly responsible for the safety of supplies during inspection, storage at firm's premises, proper packing, dispatch and delivery up to consignee.

14 **STAMPING OF ACCEPTED/ REJECTED STORES BY THE INSPECTOR** Following instructions are to be followed:

14.1 **Stamping of Accepted Stores** The acceptable shoes shall be stamped with Inspector's Individual Acceptance Mark's. The stamping shall be legible.

14.2 **Stamping of Rejected Stores** The rejected shoes shall be marked with Inspector's Rejection Mark's to avoid re-submission by the supplier.

14.3 The Inspector is the authority in all matters pertaining to inspection.

## 15 **SPECIAL INSTRUCTIONS**

15.1 **CARE LABEL INSTRUCTIONS** Shoes Anti-skid are capable of being cleaned by using conventional means to maintain smart & functional appearance. Following care instructions in the form of leaflet shall be provided in English and Urdu with each pair of shoe:

- Clean the shoes with a damp cloth using a solution of water and mild soap.
- To extend the life and maintain suppleness of the upper apply a shoe care product appropriate to the upper.
- The sole of shoes shall be cleaned frequently when feel necessary using conventional means to maintain smart and functional appearance.

**Note:** Firm shall provide usage warranty of one year at the time of inspection.

15.2 **PACKING/ STORAGE INSTRUCTIONS** Polyurethane are prone to degradation due to Hydrolysis damage when they are stored in warm, moist conditions for long period. Firm will ensure adequate storage by providing preferably silica gel bags and holes in the box of each pair of shoe or by any other means upto the satisfaction of inspecting authority. Following packing/ storage instructions shall be provided in English as well as Urdu with the packing list during inspection and with each pair of shoes in the form of leaflet for convenience of Depots and end user:

- Store in a dry and well-ventilated area.
- Frequent usage actually prolongs the life of Anti-Skid shoes.
- Use of poly bags for storage of shoes shall be prohibited.
- In ware houses storage of Polyurethane (PU) soled shoes at higher temperature will shorten the overall storage life of the product. It is recommended that PU sole Antiskid Shoes are stored at temperature below 30°C and at low level humidity.

**Note:** Firm shall provide a shelf life certificate for a period of 4 years at the time of inspection.

16. **PACKING DETAILS** The store when ordered to be delivered 'PACKED' shall be packed as follows:

- The pair of shoes shall be packed in a neat, dry and clean condition in standard packaging card board box as per drawing at Annex C.
- Ten pairs Shoes of one size only shall be packed in a thick Boxboard/Flouring. Packing of mixed sizes shall be avoided and shall not be normally permitted.
- The empty spaces if any shall be filled with suitable cushioning materials.
- Strapping shall be done in accordance with the instruction of Inspecting officer.
- The total weight of package shall not exceed 35kg.
- Each Box Board packing shall be securely and properly packed.

17. **IDENTIFICATION LABEL** Each shoe shall bear the following information on Main Label attached on inside edge of collar, as indicated in the drawing at Annex C of this specification:

- a. Item name/ item description with size and NSN No.
- b. Contract number and Date.
- c. Year of manufacture.
- d. Contractor's name, initials, or trade mark.
- e. Batch no.
- f. Symbol of appropriate protection provided.
- g. Reference of International standard ISO 20345:2011.

18. **CERTIFICATION** Firm will provide hydrolysis certification of poly urethane from BASF.

19. **PACKING LIST** Firm is bound to provide a packing list of store offered for inspection alongwith the challan, which include complete details about the store i.e Pattern No. Designation, quality packed, size, quantity, contract No, and Date, Challan No. and Date. A packing list shall be enclosed after completion of inspection with each packed box giving full details about the stores packed i.e. Pattern No. Designation, quality packed, size, quantity, contract No, and Date, I/Note No. or voucher No. and date, consignee, Consignor, Date of packing and packer's signature.

20. **MARKING OF STORES** In addition to any special marking required by contract or order, the marking of packages shall be stenciled with quick drying Black ink/ Paint in accordance with Specification No. NS/MISC/002/80with clearly defined characters as described below:

- a. On Front and Top
  - (1) Catalogue No and Designation of the store packed.
  - (2) Contract No and date.
  - (3) Quantity of the Item packed.
- b. On Back
  - (1) Consignee address.
  - (2) Designation i.e Railway Station.
  - (3) Weight of the Package.
  - (4) The No. of individual Package and the total No of Packages in the consignment joined by the Word 'of 'e.g. 2 of 300.
- c. On Bottom
  - (1) Consignor's Name.
  - (2) Voucher No. or inspection note no. and date.
  - (3) Month and year of packing.

21. **DELIVERY**

21.1 The consignment of store will be delivered in accordance with the terms of contract.

21.2 The store shall be delivered in Brand new, clean and dry condition.

21.3 The contractor / manufacturer is fully responsible for the safety of the supplies during inspection, storage at firms premises proper packing, dispatch and delivery up to consignee.

**xxxxSDxxxx**  
**IJAZ AHMAD**  
Captain Pakistan Navy  
Director

Annexes:

- A. Measurements and Dimensions
- B. Technical Details of Shoes Anti-Skid
- C. Drawings of Shoes Anti-Skid and Packing
- D. Terms & Definitions
- E. Guideline for Inspection – Specific Parts Defects
- F. Feed Back Form

Distribution:

DNS

DP (N)

CINS

CO PNCSD

## **MEASUREMENTS AND DIMENSIONS**

### **SIZE ROLL OF LAST MEASUREMENTS IN MILLIMETERS**

<b>NSN / Pattern No.</b>	<b>SIZE OF FOOTWEAR</b>	<b>GIRTH</b>	<b>LENGTH ON SIZE STICK/ BOTTOM LENGTH</b>
0017500000962	3	225	239
0017500000958	4	230	247
0017500000959	5	235	255
8430505000919	6	240	263
8430505000915	7	245	271
8430505000916	8	250	279
8430505000917	9	255	287
8430505000918	10	260	295
8430505000920	11	265	303

### **HEIGHT OF UPPER**

<b>SIZE OF FOOTWEAR</b>	<b>HEIGHT (mm)</b>
3	103-124
4	104-127
5	104-130
6	107 –133
7	110 –136
8	113 –139
9	116 – 142
10	119 –145
11	122 – 148

### **MEASUREMENT OF TOE CAPS**

<b>SIZE OF FOOTWEAR</b>	<b>TOE HEIGHT</b>	<b>OUTSIDE HEIGHT</b>	<b>INSIDE HEIGHT</b>	<b>WIDTH FROM MAX AREA</b>	<b>MINIMUM INTERNAL LENGTH (mm)</b>
3	20	18	20	115	34
4	21	20	22	120	36
5	22	22	24	125	36
6	23	24	26	130	38
7	24	26	28	135	39
8	25	28	30	140	39
9	26	30	32	145	40
10	27	32	34	148	40
11	28	34	36	151	42

Note: Tolerance of  $\pm 0.5$  mm

**TECHNICAL DETAILS FOR SHOES ANTI-SKID**

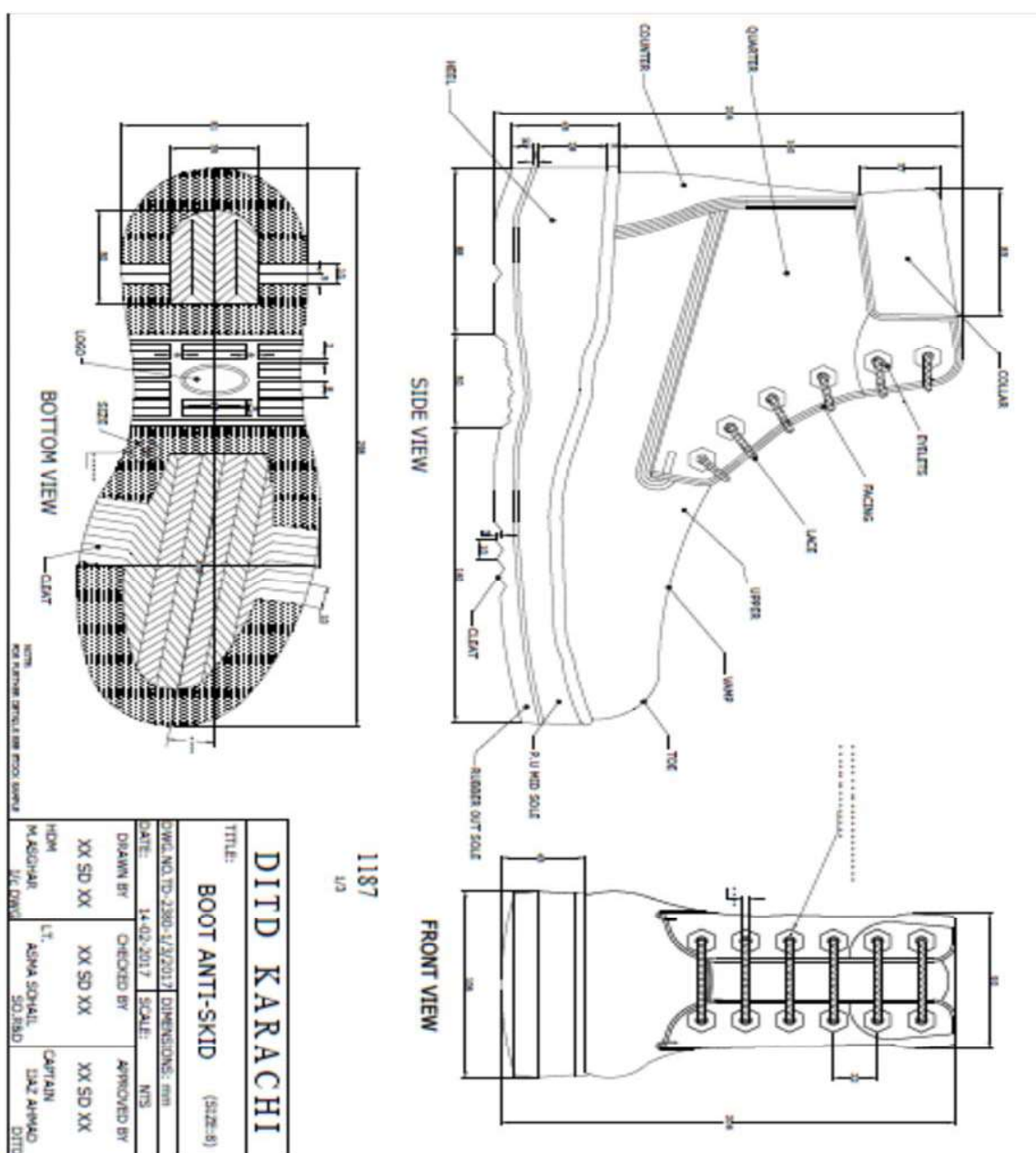
S NO	ITEM	REQUIREMENT
	<b>MATERIAL SPECIFICATIONS</b>	
01.	Classification	Class 1 of BS EN ISO 20345
02.	Design	B (Ankle Boot) of BS EN ISO 20345
03.	Color	Black
04.	Weight per pair of shoe	1500-1800 gms
05.	Height of Upper	As per Annex B of this specs measured as per BS EN ISO 20345, 5.2.2
06.	<u>Upper</u>	
	(a) Vamp	
	i. Material	Cow Full Grain Leather
	ii. Thickness	1.6 – 1.8 mm
	(b) Quarter	
	i. Material	Cow Full Grain Leather
	ii. Thickness	1.6 – 1.8 mm
	(c) Counter	
	i. Material	Cow Full Grain Leather
	ii. Thickness	1.4 – 1.6 mm
	(d) Tongue	
	i. Material	Cow leather
	ii. Thickness	1.0-1.10mm
	(e) Collar	
	i. Material	Cow Leather
	ii. Thickness	1.4 – 1.6 mm
07.	<u>Padding</u>	
	(a) Tongue	
	i. Material	Foam
	ii. Thickness	3-4 mm (min)
	(b) Collar	
	i. Material	Foam with EVA sheet
	ii. Thickness	5-6 mm (foam) 1.63 (EVA)
08.	<u>Lining Material</u>	
	(a) Vamp	
	i. Material	Fabric drill cloth ( Color off White)
	ii. Weight/sq meter	310 gms
	(b) Quarter I	
	i. Material	Knitted polyester lining
	(c) Tongue	
	i. Material	Goat leather
	ii. Thickness	0.7-0.9
09.	Socks	
	i. Material	EVA Black with black knitted polyester fabric lining on top

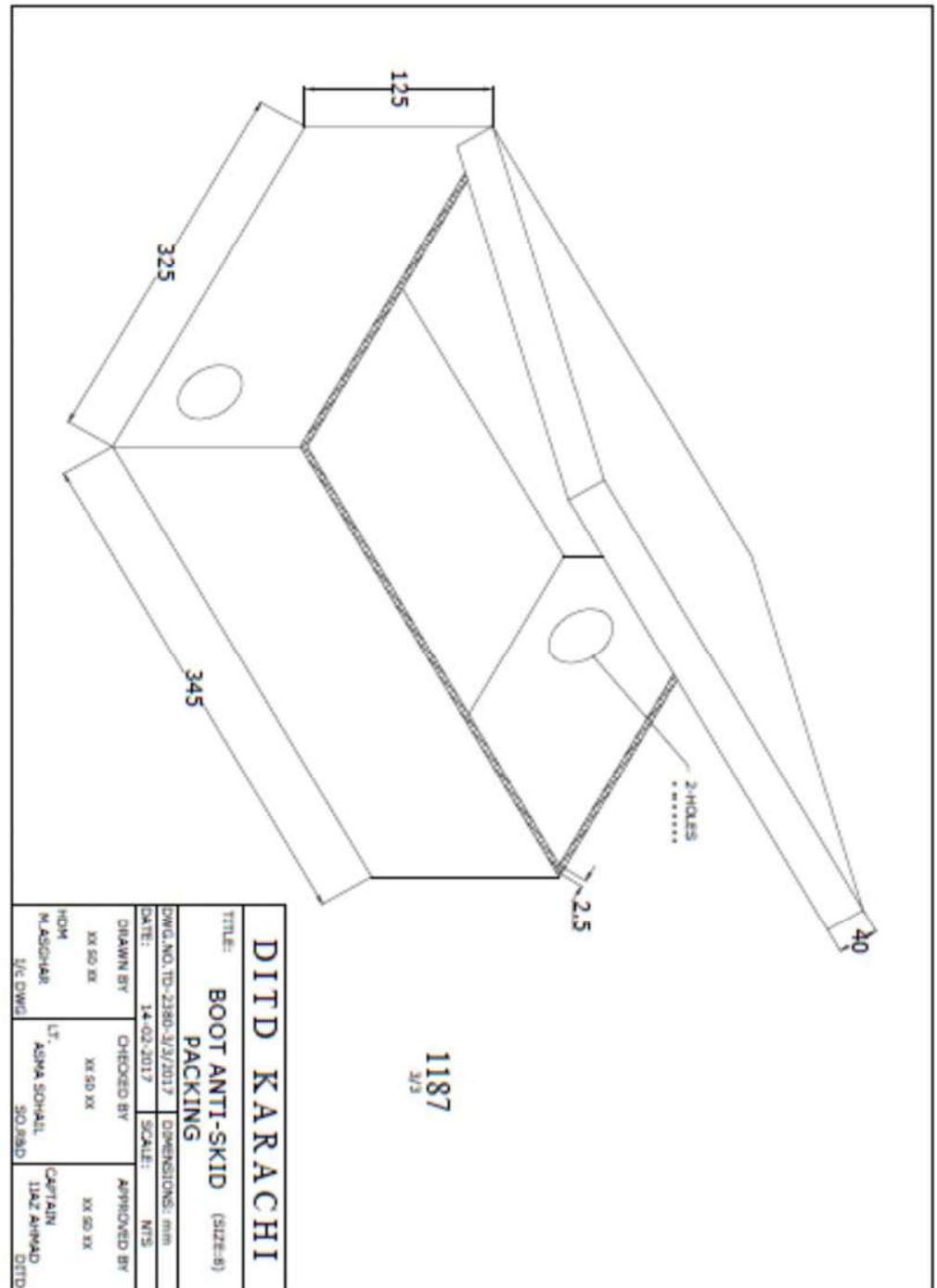
	ii. Thickness	Design as per drawing at Annex B of this specifications
10.	Counter Stiffener i. Material ii. Thickness	Thermoplastic 1.4 mm
11.	Safety toe Cap i. Material  ii. Thickness iii. Internal length of toe cap	Steel free from burrs with anti rust coating 1.5 – 1.6 mm Annex C of this specs BS EN ISO 20345, 5.3.2.2
12.	Stitching Thread i. Material ii. Count	Nylon 50/3
13.	Eyelets i. Material ii. Diameter	Brass Black 5 mm
14.	Laces i. Material ii. Length iii. Diameter	Round Nylon with plastic tip of 13 mm 50" 3-4 mm
15.	Insole i. Material ii. Thickness	Non-Woven cellular fibre board 2.5 – 3.0 mm
16.	Mid-Sole i. Material ii. Thickness  iii. Density	PU As per attached drawings of this specifications 0.45±0.03
17.	Outer Sole i. Material ii. Thickness  iii. Tread design iv. Cleat area v. Cleat Height	Nitrile Rubber In accordance with table 17 BS EN ISO 20345 Cleats with Chevron design suitable for Anti-Skid requirement In accordance with BS EN ISO 20345, 5.8.1.2 In accordance with table 17 BS EN ISO 20345
18.	Non-metallic anti-penetration insert	Kevlar
<b>PERFORMANCE TESTING</b>		
19.	<u>Whole footwear</u>  a. Toe Cap (i) Impact resistance of safety footwear  (ii) Compression resistance of safety footwear  (iii) Corrosion resistance of metallic toe cap	Impact of 200 J clearance under toe cap in accordance with table 6 of BS EN ISO 20345  Compression load of 15 KN clearance under toe cap in accordance with table 6 of BS EN ISO 20345 Not more than three areas of corrosion

	b. Specific ergonomic feature c. Slip resistance requirement  d. Flexing Resistance after 80,000 cycles e. Water resistance	measuring not more than 2 mm in any direction BS EN ISO 20345, clause 5.3.4 In accordance with BS EN ISO 20345, clause 5.3.5.4 And In accordance with STM 144 Steel Floor (Dry) Heel : 0.6 Toe : 0.6 Steel Floor (Water) Heel : 0.4 Toe : 0.4 No cracks observed on upper and sole As per BS EN ISO 20345, clause 6.2.5
20.	Upper (a) pH value (b) Chromium VI content (c) Tear Strength (d) Tensile Strength (e) Circular rub fastness test	Not less than 3.2 as per clause 5.4.7 Not exceeding 3.0 mg/kg, as per 5.4.9 As per BS EN ISO 20345, as per 5.4.3 As per BS EN ISO 20345, as per 5.4.4 No damage of leather and staining of dry felt for wet felt GS 4 after 50 cycles in wet and dry conditions
21.	Vamp And Quarter Lining (a) pH value (b) Abrasion resistance (c) Tear Strength	Not less than 3.2 as per clause 5.4.7 As per ISO 20345, clause 5.5.2 As per ISO 20345, clause 5.5.1
22.	Insole and In sock (a) pH value (b) Water absorption and desorption of insole As per BS EN ISO 20345:2011 (c) Abrasion Resistance (d) Hardness of socks	Not less than 3.2 Water absorption > 70 mg/cm <sup>2</sup> Water desorption not less than 80 % As per BS EN ISO 20345, clause 5.7.4 35-40 IRHD
23.	Out Sole (a) Upper/outsole Bond Strength At Toe At Heel  (b) Hardness Outer Rubber Sole PU Mid sole  (c) Resistance to hot contact  (d) Sole of the shoes is resistant to fuel& oil	25 kg Minimum 39 kg Minimum  65 -70 IRHD 55 - 60 IRHD  BS EN ISO 20345:2011, clause 6.4.1 BS EN ISO 20345:2011, clause 6.4.2.
24.	Laces (a) Abrasion resistance  (b) Tensile strength	BS 953: 1979 clause 8, not less than 11,000 cycles BS 5131: Section 3.7, not less than 500N.
25	Non-metallic anti-penetration insert	BS EN ISO 20344:2011, 5.8.3, no nail should protrude from the sample









### **TERMS & DEFINITIONS**

1. **Inspection Authority**. Chief Inspector of Naval Stores (CINS). His verdict in respect of inspection matters is to be taken as final.
2. **Inspecting Officer**. An officer nominated by the Chief Inspector of Naval Stores (CINS) for carrying out inspection of stores supplied by the supplier, against a specified contract or order, in accordance with the particulars stipulated therein.
3. **Inspector**. The term inspector shall include the "Inspection Authority", inspecting officer and their representatives, duly authorized for the purpose of discharging inspection duties involved.
4. **Sealed Pattern**. It denotes a pattern, sealed and signed by the Inspection Authority & held in his custody, and represents the standard of store in respect of materials, dimensions, design, workmanship and finish, etc. There is only one sealed pattern for each store, which cannot be removed from custody of the inspection authority.
5. **Girth** It is the circumference of the widest part of the toe.

ANNEX E TO  
PN SPECIFICATION NO.05/2017  
PROMULGATION DATE 04 MAY 2017

<b><u>GUIDELINES FOR INSPECTION – GENERAL DEFECTS</u></b>			
<b>Defect</b>	<b>Description</b>	<b>Major</b>	<b>Minor</b>
Pairing	Not properly paired i.e. right and left not of the same size and fitting	X	
	Wide variation in appearance of colour	X	
Colour cleanliness and finish	Not specified colour	X	
	Colour not uniform, spots and stains clearly noticeable at a distance of 3 feet (914mm)	X	
	Colour not uniform, spots and stains not plainly visible at a distance of 3 feet (914mm)		X
	Sole and heel edges not properly finished		X
Design, pattern size	Not as specified	X	
	Foreign Object Damage (FOD) free as same can cause catastrophic damage particularly while working in confined areas	X	
	Incorrectly lasted upper	X	
Material	Any components or items not fabricated from the specified materials	X	
Upper leather	Leather not chrome full grain Cow Leather deeply snuffed i.e. fibre structure damaged	X X	
	One or more of the following imperfections: Grub or tick marks opened or badly healed scratches, flay cut, brands, bony, loose, wrinkles or other inferior leather	X	
	Wrinkles not seriously affecting appearance or serviceability		X
	Stretchy vamp	X	
	Stiff tongue	X	
	Flesh side with rough fiber	X	
	Skiving not done or excessively done	X	
	Damage to upper compounds	X	
Construction and workman ship	Any Component or assembly misplaced. Operation committed or not properly performed seriously affecting serviceability or appearance	X	
	Components poorly positioned	X	
	Excessive roughness	X	
Sole	Poor sole adhesion	X	
	Improper trimming of moulded surface	X	
	Damaged outer sole design	X	
	Pits or air bubbles observed on midsole	X	

	Improper /wrong size marking	X	
Laces & stitching	Any open seam	X	
	Stitching omitted where required	X	
	Loose tension resulting in puckering or damaging the leather	X	
	Stitching incorrectly finished off	X	
Counters	Soft counter (Stiffeners)	X	
Steel Toe cap and its Back seam	Toe soft on top and sides	X	
	Ridges formed on the inside affecting comfort of wearer	X	
	Steel toe cap missing	X	
	Steel toe cap without standard embossing	X	
Inner sole	Insoles not properly feathered, not likely to affect comfort		X
Eyelets	Not the same number of eyelets in each row	X	
	Eyelets not properly Spaced within the row or misalignment between the rows to an extent interfering proper locking	X	
	Number of eyelets less than specified but each row having the same number	X	
	Not specified size	X	
	Poor quality of eyelets	X	
Marking	Missing incomplete, incorrect, and illegible	X	
	Special instructions are missing	X	
Laces	Missing	X	
	Spare pair of laces missing	X	
	Rough and substandard	X	
Identification label	Missing	X	

ANNEX F TO  
PN SPECIFICATION NO.05/2017  
PROMULGATION DATE 04 MAY 2017

**FEED BACK FORM**

Item Designation: \_\_\_\_\_

Pattern #: \_\_\_\_\_

Parent Equipment: \_\_\_\_\_

PN SPEC #: \_\_\_\_\_

Problem Faced: \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

Technical Solution: \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

Financial Effect (if any): \_\_\_\_\_

\_\_\_\_\_

Name Stamp

**COUNTERSIGNED**

Name Stamp