



PAKISTAN NAVY SPECIFICATION 01/2019

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COMBAT SHOES BLACK WITH ZIPPER

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AMENDMENT RECORD

Amd No	Date	Text	Signature and Date

REVISION NOTE

The specification has been prepared to bring the test methods and procedures in 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 alteration 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 Combat Shoes Black with Zipper.

2. **USAGE**

2.1 These shoes will be used by Officers of Pak Navy with GSDC Dress No.4B.

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 DNS. This specification supersedes and replaces PN Specification promulgated earlier in relation to the item mentioned herein. These specifications are based on sample approved by Dress Committee.

3.2 This specification booklet includes 06 Annexes and consists 29 pages, including the cover.

4. **SCOPE**

4.1 This specification covers the technical/ manufacturing requirements of Combat Shoes Black with Zipper to be used by Officers of Pakistan Navy. It defines and lays down the quality standards, and details of materials, workmanship and finish. It also defines briefly requirement and process of sampling, testing, inspection acceptance/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. AATCC-20 Fiber Analysis –Qualitative.
- b. ASTM E- 478 Standard test method for chemical analysis of Copper alloys.
- c. D2240-04 Test method for Rubber Property- Durometer Hardness.
- d. BS ISO 1817 Rubber, Vulcanized or thermoplastic. Determination of the effect of liquid.
- e. SATRA TM 92 Resistance of footwear to flexing.
- f. SATRA STD 185 Sole Adhesion tester.
- g. SATRA TM77 Flexing Machine- Water Penetration test.
- h. SATRA STM 461 Circular Rub Fastness Tester.
- i. ISO 1833 Textile – Quantitative chemical analysis.
- j. ISO 3801 Determination of mass per unit length and area.
- k. ISO 7211/2 Determination of number of threads per unit length.

- m. ISO 7211/5 Determination of linear density of yarn removed from fabric.
- n. ISO 105-C03 Colour fastness to washing: Test 3.
- o. ISO 13934-01 1999 Textile- Determination of maximum force and elongation at maximum force using the strip method.
- p. ISO 13937-01 1999 Textile- Determination of tear force using ballistic pendulum method (Elmendorf).
- q. ISO 17235 – 2016 Leather- physical and mechanical tests- Determination of Softness.
- r. ISO 17131 :2012 Leather – identification of leather with microscopy.
- s. ISO 10195: 2018 Leather – Chemical determination of Chromium (VI) content in leather.
- t. ISO 3377-2 Leather - Determination of tear load.
- u. ISO 4674 – 1 Rubber or plastic – coated fabrics - Determination of tear resistance. Constant rate of tear method.
- v. TM 319 Determination of para-nitrophenol in leather by infra-red analysis.
- w. ISO 20864:2004 Footwear – Test Method for stiffeners and toe puffs.

6. TERMS & DEFINITIONS

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

7. TECHNICAL DETAILS OF COMBAT SHOES BLACK WITH ZIPPER

7.1 The Technical Details of Combat Shoes Black with Zipper are mentioned at Annex B of this specification.

8. MANUFACTURING DETAILS OF COMBAT SHOES BLACK WITH ZIPPER

8.1 LAST

8.2 All sizes of last should be equal to the one mentioned at Annex C to this specification.

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 of last approved by the Inspecting Authority before commencing manufacture.

8.4 Details of dimensions of the specified last of various sizes i.e. from 05 to 14 are given in the Annex C 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 C of this specification.

8.7 The Toe puff stiffener shall be incorporated in the footwear in such a manner that they cannot be removed without damaging the footwear.

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

8.9 Lining used in vamp shall be of drill cloth and are bonded to the toe puff stiffener. The lining should satisfactorily withstand the moulding temperature on operations.

8.10 The tongue should be composed of three layers of leather lined with polyester and interlined with foam. Tongue shall be attached with vamp from bottom cordura nylon fabric is used.

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

8.12 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 interlined with grey fabric, which could be detachable and washable.

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

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

8.15 The upper components shall be closed by lock stitching.

8.16 10 pairs of Eyelets Brass are used as per approved sample held with CINS. Placements of eyelets are shown in drawing at Annex D of this specification.

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

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

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

8.20 The vulcanization of sole to the upper shall be done by high-pressure type Moulding Machine, provided with the thermo-regulated heater in bottom, 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.

8.21 Flash and spew on edge of the moulding last and the surplus material on the

sole and heel shall be properly trimmed off/ removed.

8.22 A Spare pair of laces round Nylon with plastic tip 200 cm shall be supplied with each pair of shoes. Finish of tips shall be good.

8.23 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 Combat 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. Sealed/ Approved sample is either held with DNS/ CINS or accepted/approved from bulk supply held with CINS.

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 tests 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. However, any test considered important by Inspecting Authority other than Annex B may also be conducted in order to check its suitability.

11. TENDER SAMPLE

11.1 Tender sample to be approved by TSR Committee.

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

i.	Shoes (Combat Black with zipper)	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.	Laces	02 in Nos.
viii.	Lining Material	02 meters
ix.	Sole	02 Pairs (two different sizes)
x.	In Sole	02 Pairs (two different sizes)
xi.	Toe Puff and counter stiffener	02 each
xii.	In socks	02 Pairs (two different sizes)
xiii.	Cordura fabric	01 meter

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 and testing as per Annex B, C and D and approved by CINS. The minimum quantities required are 05 pairs alongwith samples of materials used in manufacturing of Combat shoes with zipper as mentioned above.

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, which ever 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/ manufacturers 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 Annex B, C and D.

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 Combat Shoes black with zipper may be carried out by CINS if deemed necessary.

13.4 Inspection/ Acceptance and Rejection of Stores. Inspection/ acceptance is to be carried out up 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 **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.

13.13 **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

While stamping of accepted/ rejected stores 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.** Combat Shoes black with zipper 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 is 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 Combat Shoes black with zipper.
- 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 Combat Shoes black with zipper are stored at temperature below 30°C and at low level humidity.

Note:

1. Firm shall provide a shelf life certificate for a period of 4 years at the time of inspection.
2. Firm will provide a certificate that CORDURA fabric being used is branded.

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

- Pair of shoes shall be packed in a neat, dry and clean condition in standard wrapping paper and further packed in shoe box as per drawing at Annex D.
- 10 X such boxes of one size only shall be packed in suitable size of 07 x ply thick carton.
- 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.
- The total weight of package shall not exceed 35kg.
- Each carton packing shall be securely and properly packed.
- Firm will attach brand tags in respect of Cloth CORDURA with each boot.

17. IDENTIFICATION LABEL Each shoe shall bear following clear and indelible information on Main Label attached on inside edge of zipper:

- a. Item name/ item description with size and NSN/ patt no.
- b. Contract number and Date.
- c. Year of manufacture.
- d. Firm's name, initials, or trade mark.
- e. Batch no.

18. **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., Description of stores, 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. Description of stores, size, quantity, contract No, and date, I/Note No. or voucher no. and date, consignee, Manufacturer/ firm's name, date of packing and packer's signature.

19. **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/002/80 with clearly defined characters as described below:

a. On Front and Top

- (1) Consignee Address.
- (2) Contract No and date.
- (3) Description of Stores Packed and NSN/Patt no.
- (4) Quantity of the Item packed.

b. On Back

- (1) Manufacturers name / Firm's name.
- (2) Voucher No. or inspection note no. and date.
- (3) The No. of individual Package and the total No of Packages in the consignment joined by the word 'of' e.g. 2 of 300.
- (4) Weight of the package.
- (5) Month and year of packing.

20. **DELIVERY**

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

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

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

xxxxxx SD xxxxxx
ASIF ALI PIRZADA
Commander Pakistan Navy
DID

Annexes:

A. Terms & Definitions.

- B. Technical Details of Combat Shoes black with zipper.
- C. Measurements and Dimensions.
- D. Drawings of Combat Shoes black with zipper and Packing.
- E. Guideline for Inspection –General Defects.
- F. Feed Back Form.

Distribution:

DP (N)

CINS

DNS

CO PNCSD

ANNEX A TO
PN SPECIFICATION NO.01/2019
PROMULGATION DATE 08 Jan 2019

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.

TECHNICAL DETAILS OF COMBAT SHOES BLACK WITH ZIPPER

S.NO	ITEM	REQUIREMENT
<u>UPPER LEATHER (VAMP, COUNTER & EYELET FACING PUTTEE)</u>		
1.	Identification of leather	Cow full Grain plain
2.	Finish	Semi Aniline Finish
2.	Thickness	1.8 ~ 2.0 mm
3.	Softness	7.2 ~ 7.4 mm
4.	Chromium %	3.7 ~ 6.0%
5.	Shrinkage	3.% (Max)
6.	Tensile Strength	225 kg/cm ²
7.	Tear Strength (Kg/cm Thickness)	45 kg /cm thickness
8.	Dye fastness to Rubbing a. Dry (500 revs) b. Wet (50 revs)	GS 4 or better GS 4 or better
9.	Flexibility	No crack at 50,000 cycles
10.	Para-nitro Phenol	Shall be present
11.	Oil Repellency (Resistant to Liquid hydrocarbons) (UNE-EN ISO 14419:2000)	7
12.	Water Vapor Permeability (UNE-EN ISO 14268)	20 mg/cm ² .h (Min)
13.	Impermeability Water Dynamics (UNE EN ISO 5403:2003) a. Water Absorption at 2 h (%) b. Break through Time (min) c. Amplitude (%)	20 > 120 10
14.	Harmful Materials a. Azo Dyes b. Formaldehyde Content c. Chrome VI (UNE-EN ISO 17075: 2008)	Should not present Less than 22 mg/Kg Less than 3 ppm* *Component mg/ Kg Skin
15.	Shade	Black

CLOTH CORDURA NYLON AT TONGUE AND VAMP WINDOW

1.	Material	Nylon
2.	Wt/Sq m	245 gms
3.	Weave	Plain
4.	Shrinkage	

	a. Warp	3.0%(MAX)
	b. Weft	3.0%(MAX)
5.	Linear Density	
	a. Warp	1000+100 Den
	b. Weft	1000+100 Den
6.	Breaking Strength (7.6 x 1.8 cm BG)	
	a. Warp	390+20 kg
	b. Weft	390+20 kg
7.	Washing Test	
	a. Change in Shade	GS 4 or better
	b. Staining on Cotton	GS 4 or better
	c. Staining on Nylon	GS 4 or better
8.	Shade	Black
9.	Nature of dye	Any Dye (Sulphur free)
10.	Water repellency Standard	Grade V

LINING AT VAMP & INTERLINING OF TONGUE AND QUARTER

1.	Material	Cotton (grey fabric)
2.	Weave	Drill
3.	Wt / Sq m	310 + 5 grams
4.	Breaking Strength (10.2 x 16.8 cm BG)	
	a. Warp	200 + 10 kg
	b. Weft	125 + 5 kg
5.	Color	Black

LINING AT QUARTER, COUNTER & TONGUE

1.	Material	100% Polyester
2.	Wt / Sq meter	180 + 5 grams
3.	Thickness	4.5 – 5.0 mm
4.	Shade	Black
5.	Weave	Knitted

FOAMIC SHEET ON COLLAR, QUARTER AND TONGUE

1.	Material	Polyurethane (Open cell)
2.	Density	0.020 + 0.005 g/cc
3.	Cell count (per linear 25 mm)	80-90
4.	Thickness	11 – 12 mm

EYELETS WITH SHANK AND CURVED WASHER

1.	Material	Brass
2.	Composition	
	a. Copper	70% + 5
	b. Zinc	30% + 5
3.	Dia	
	a. Inner	6 + 0.5 mm
	b. Outer	

		10 \pm 0.5 mm
4.	Coating	Powder Coated
5.	Colour	Black

LACES

1.	Material	Nylon 100%
2.	Construction	16 thread, 4 fold each multifilament
3.	Cross-Sectional Shape	Circular
4.	Nature of Dye	Any dye (Sulphur free)
5.	Dye Fastness to Washing	GS 4 or better
6.	Dye Fastness to Light	Class IV or better
7.	Breaking Strength (7" B.G)	75 kg (Min)
8.	Length with Tips	200 cm
9.	Tip	
	a. Material	Plastic
	b. Length	1.5 \pm 0.2 cm
10.	Color	Black

ZIPPER MATERIAL SPECIFICATION

1.	Tape	Polyester 100%
2.	Elements	POM (Polyoxymethylene) Chips
3.	Zipper parts (Top Stop)	POM (Polyoxymethylene) Chips
4.	Zipper parts (Slider & Bottom Stop)	Zinc Alloy
5.	Chain width (mm)	7.40 (\pm 0.18)
6.	Chain thickness (mm)	3.00 (\pm 0.12)
7.	Element head (mm)	2.60 (\pm 0.08)
8.	Element pitch (mm)	4.16 (\pm 0.04)
9.	Bottom stop thickness (mm)	2.98 (\pm 0.08)
10.	Top stop thickness (mm)	3.00 (\pm 0.12)
11.	Total chain width (mm)	34.0 (\pm 0.08)
12.	Exposed tape width (mm)	13.3 (\pm 0.04)

ZIPPER PERFORMANCE TESTING

1.	Operating Force (N)	MAX 6.9
2.	Crosswise (N)	MIN 400
3.	Element slippage (N)	MIN 60

4.	Element pull-off (N)	MIN 70
5.	Folder cross wise(N)	MIN 150
6.	Top stop strength (N)	MIN 120
7.	Bottom stop holding strength (N)	MIN 120
8.	Slider lock strength 90°/45° (N)	MIN 50
9.	Slider lock strength 90°/45° (N)	MIN 170
10.	Durability (cycles)	500 cycles

INSOCKS

1.	Material	Closed cell foam laminated with knitted fabric
2.	Thickness (complete)	4.5 ~ 5.0 mm
3.	Foam Density	0.3 g/cc \pm 0.01g/cc
4.	Knitted Fabric a. Material b. Wt / Sq m c. Weave d. Shade	100% Polyester 180 \pm 5 gms Knitted Black

INSOLE

1.	Material	Cellulose board like Texon or equivalent
2.	Thickness	2.5 – 3.0 mm
3.	Split Tear	30 N / cm (Min)
4.	Flex Index	3.5 (Min)

STITCHING THREAD

1.	Material	Nylon
2.	Construction	3 cord each multifilament
3.	Linear density	3/ 500 \pm 30 Den
4.	Shade	Black
5.	Washing – 2 a. Change in shade b. Staining on Cotton c. Staining on Wool	GS 4 or better GS 4 or better GS 4 or better
6.	Dye Fastness to Light	Class IV or better
7.	Breaking Strength	6 kg/cm ² Min
8.	Nature of dye	Acid dye

TOE PUFF AND COUNTERS STIFFENER

1.	Material	Non-woven thermoplastic (TP-8) or equivalent double face adhesive coated
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2.	Thickness	2.0 mm (Min)
3.	Collapsing load(Dome test)	130.160 N (min)
4.	Extension at break	15-20%
5.	Shape retention	60-80% (min)
6.	Peel Strength	6N/cm (min)

OUTER SOLE

1.	Material	Nitrile Rubber
2.	Hardness	65 – 70 IRHD
3.	Abrasion (max)	130 mm ³
4.	Density	1.20 ± 0.05 g/cc
5.	Shade	Black
6.	Design	Chevron Tread

MID SOLE

1.	Material	PU Polyether Direct Injection on DESMA Machine
2.	Hardness	50 - 55 IRHD
3.	Density	0.38 ± g/cc
4.	Shade	Black

PERFORMANCE TEST OF WHOLE SHOE

1.	Water Resistivity*	Boot should be water resistant for min 30 x minutes
2.	Identification of Leather	Cow Full Grain
3.	Flexing/ Cracking of upper & Sole	No damage less than 50,000 cycles
4.	Height of Upper (Length of Leg)	Length of leg when lasted shall not be less than 203 mm (8 inches) for size – 8. Whereas; other sizes increasing or decreasing by approx. 3mm from size to size.
5.	Stitch / 25 mm	7-8
6.	Thickness of Sole for size 8	
	a. At Toe b. At Heel	30 mm (increase and decrease with increment or 49 mm decrement in size)
7.	Bond Test (ISO 20346:2004 (E) and ISO 20344:2004)	The bond strength shall not be less than 4.0 N/mm. Unless there is tearing of the Sole, in which case the bond shall not be less than 3.0 N/mm
8.	Seepage Test **	No staining/ seepage of water through upper seams
9.	Shade	Black

SEAM FILLER

1.	Paraffin Wax	30 %
2.	Stearic Acid	30 %
3.	Solvent Oil	40 %

Note:

***Water resistivity.** A pair of white cotton socks of an appropriate size properly stuffed with pieces of cloth shall be inserted in the boot. The boot shall then be immersed in water containing a water level upto lower edge of third speed lacing hook from top. Boot tested should not show signs of wetting on sock/seepage of water at interval of 30min.

****Seepage Test** A pair of white cotton socks of an appropriate size properly stuffed with pieces of cloth shall be inserted in the boot. The boot shall then be immersed in water containing water soluble dye for 2 min. Boot shall be immersed above the sole / heel height and be flexed twice at interval of 30 sec. Not more than 5% of boot tested should show signs of staining on socks/ seepage of water through upper seams.

ANNEX C TO
PN SPECIFICATION NO.01/2019
PROMULGATION DATE 08 Jan 2019

MEASUREMENTS AND DIMENSIONS

SIZE ROLL OF LAST MEASUREMENTS IN MILLIMETERS

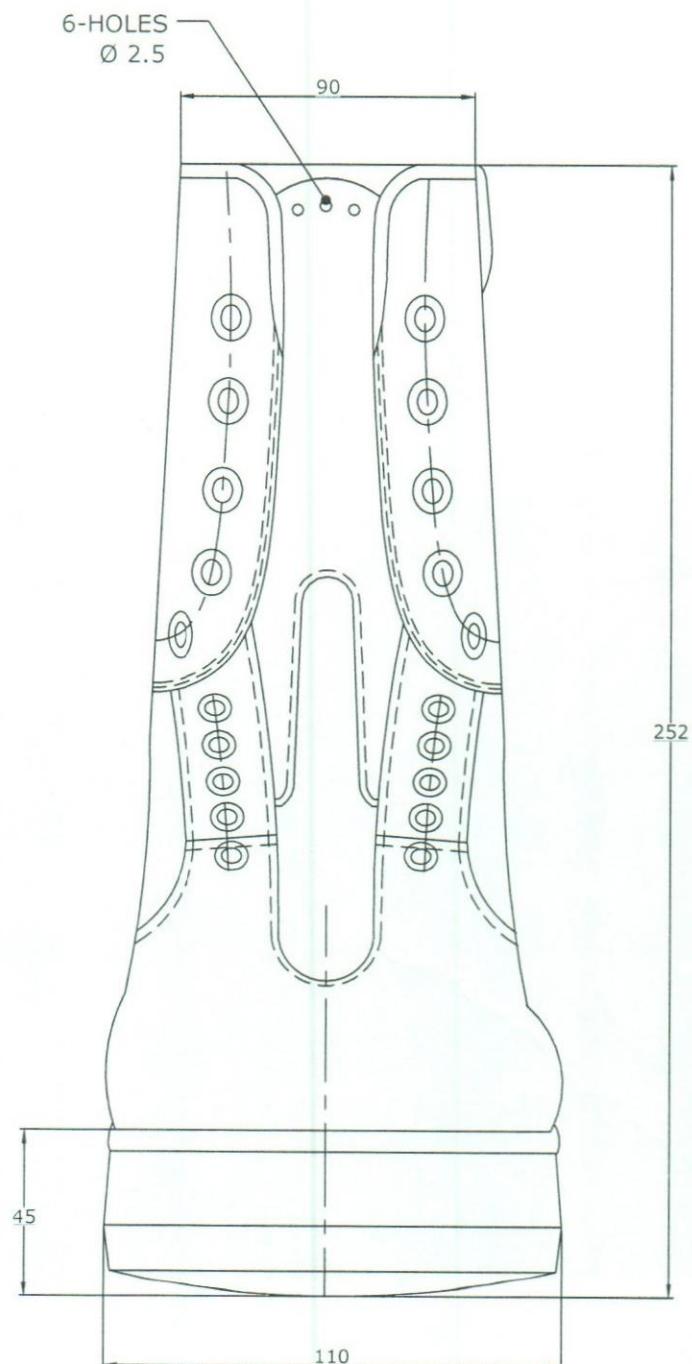
SIZE OF FOOTWEAR	LENGTH ON SIZE STICK/ BOTTOM LENGTH
5	239 - 242
6	248 - 252
7	257 - 260
8	265 - 268
9	274 - 277
10	282 - 285
11	290 - 293
12	299 - 302
13	307 - 310
14	315 - 318

HEIGHT OF UPPER

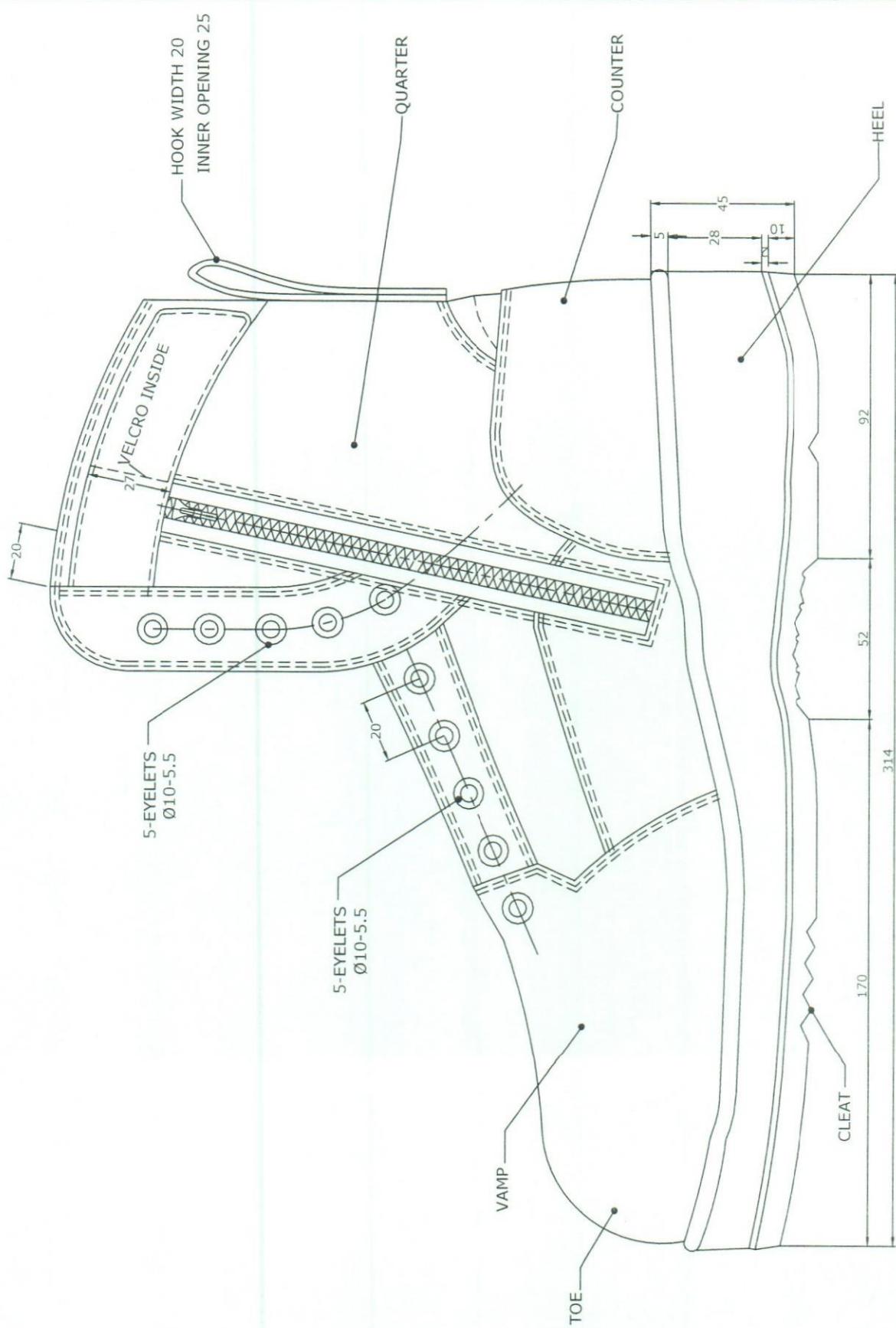
SIZE OF FOOTWEAR	HEIGHT (mm)
5	194
6	197
7	200
8	203
9	206
10	209
11	212
12	215
13	218
14	221

Note: Tolerance of ± 05 mm.

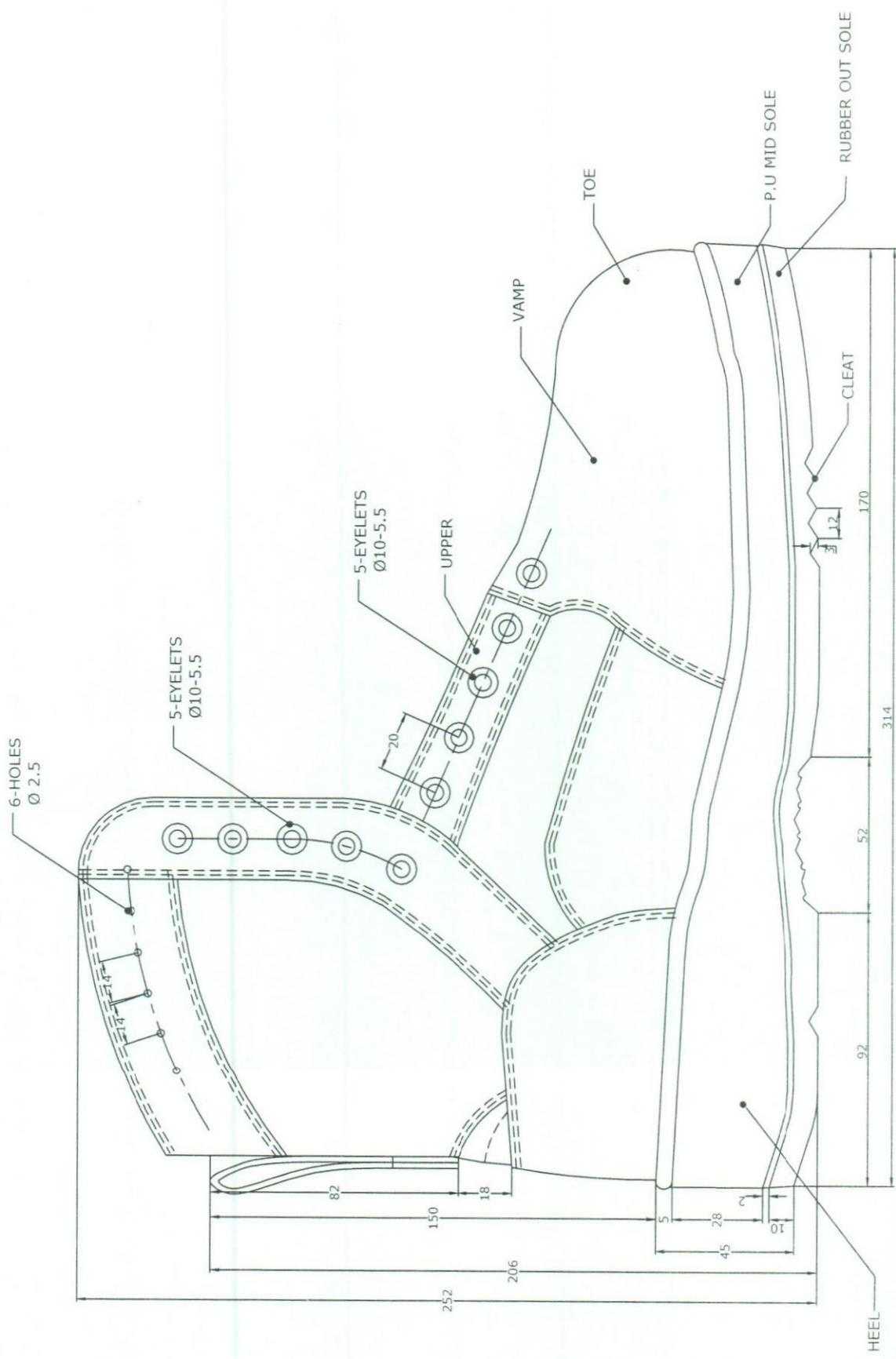
DRAWING OF COMBAT SHOES BLACK WITH ZIPPER AND PACKING



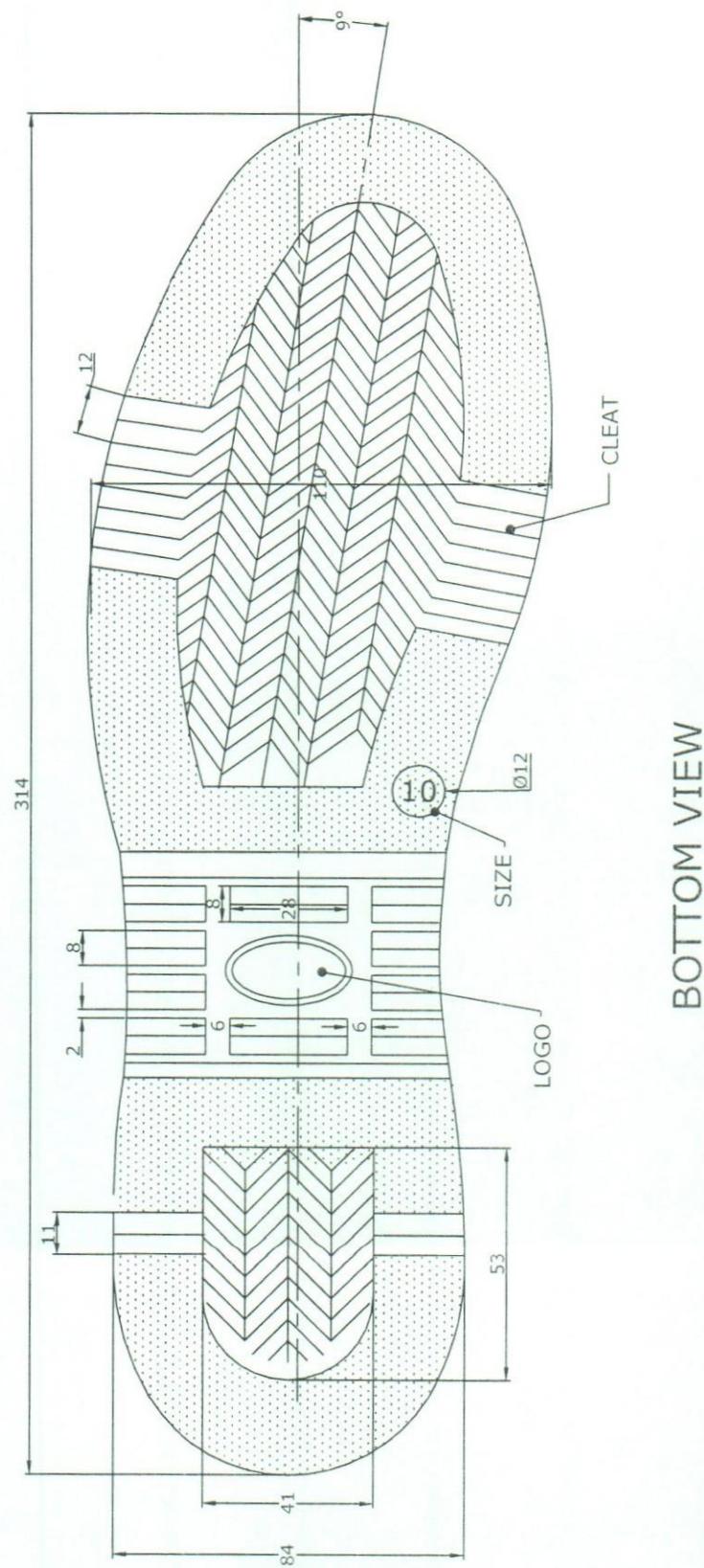
FRONT VIEW



LEFT SIDE VIEW



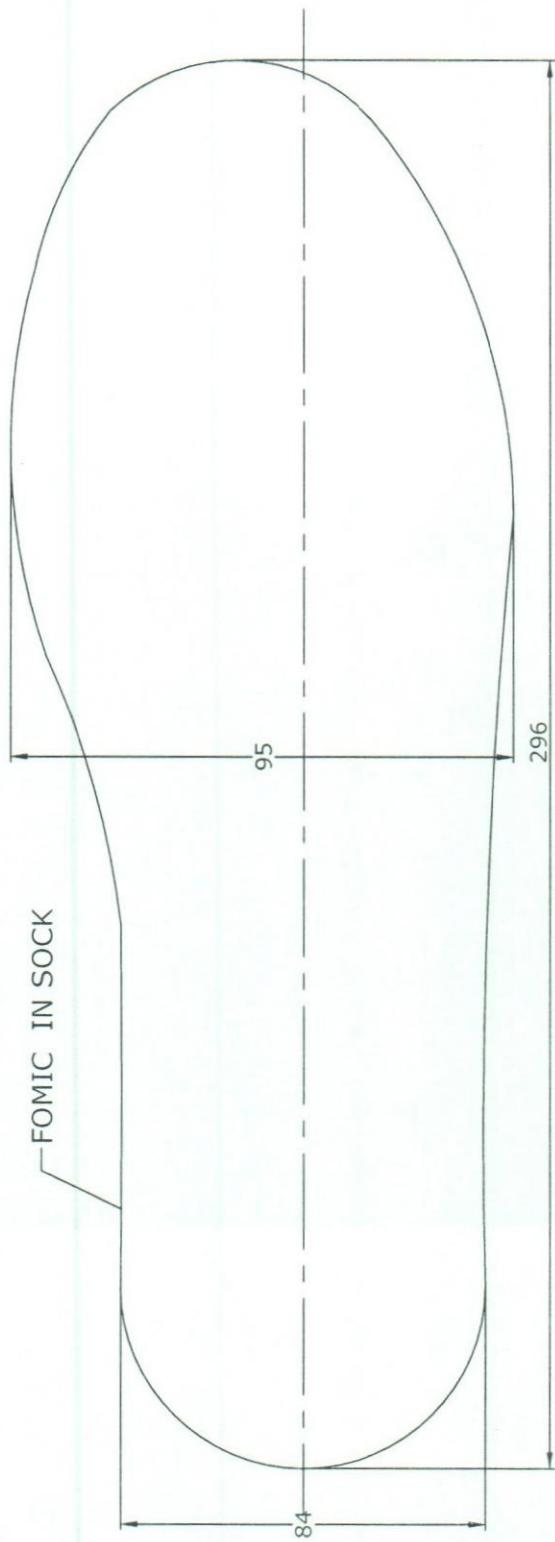
RIGHT SIDE VIEW



BOTTOM VIEW

12

FOMIC IN SOCK

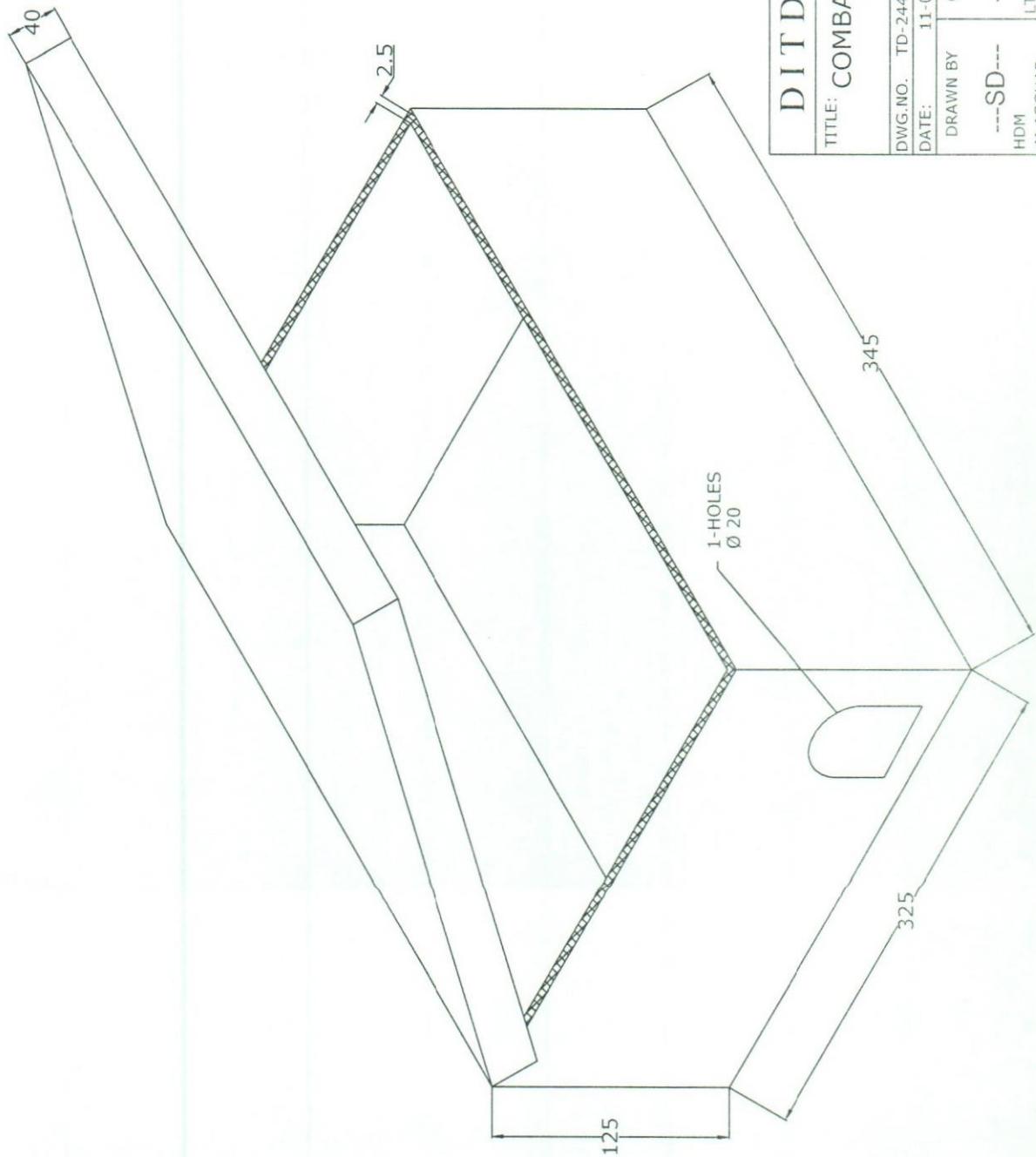


IN SOCK BOTTOM VIEW



IN SOCK SIDE VIEW

1249



DITD KARACHI
TITLE: COMBAT BOOT WITH ZIPPER
PACKING

DWG.NO.	TD-2442/2018	DIMENSIONS: mm	
DATE:	11-09-2018	SCALE:	NTS
DRAWN BY	CHECKED BY	APPROVED BY	
-----SD----- HDM MASGHAR	-----SD----- LTCDR ASMA SOHAIL	-----SD----- CDR AZHAR MIR	
I/C DWG	SO.R&D	DITD	

ANNEX E TO
PN SPECIFICATION NO.01/2019
PROMULGATION DATE 08 Jan 2019

<u>GUIDELINES FOR INSPECTION – GENERAL DEFECTS</u>			
Defect	Description	Major	Minor
Pairing	Not properly paired i.e. right and left not of the same size and fitting. Wide variation in appearance of color.	X	
Color cleanliness and finish	Not specified color. Color not uniform, spots and stains clearly noticeable at a distance of 3 feet (914mm). Color not uniform, spots and stains not plainly visible at a distance of 3 feet (914mm). Sole and heel edges not properly finished.	X X X	
Design, pattern size	Not as specified. Foreign Object Damage (FOD) free, as same can cause catastrophic damage particularly while working in confined areas. Incorrectly lasted upper.	X 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. 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. Wrinkles not seriously affecting appearance or serviceability. Stretchy vamp. Stiff tongue. Flesh side with rough fiber. Skiving not done or excessively done. Damage to upper compounds.	X X X	X
Construction workmanship	Any Component or assembly misplaced. Operation committed or not properly performed seriously affecting serviceability or appearance. Components poorly positioned. Excessive roughness.	X	
Sole	Poor sole adhesion. Improper trimming of moulded surface. Damaged outer sole design. Pits or air bubbles observed on midsole.	X X X	

	Improper /wrong size marking.	X	
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 and toe puff stiffener	Soft counter or stiffeners.	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	
	Cut marks observed.	X	
Identification label	Missing.	X	
Packing	Not as per specification and substandard.	X	

ANNEX F TO
PN SPECIFICATION NO.01/2019
PROMULGATION DATE 08 Jan 2019

FEED BACK FORM

Item Designation: _____

Pattern #: _____

Parent Equipment: _____

PN SPEC #: _____

Problem Faced: _____

Technical Solution: _____

Financial Effect (if any): _____

Name Stamp

COUNTERSIGNED

Name Stamp