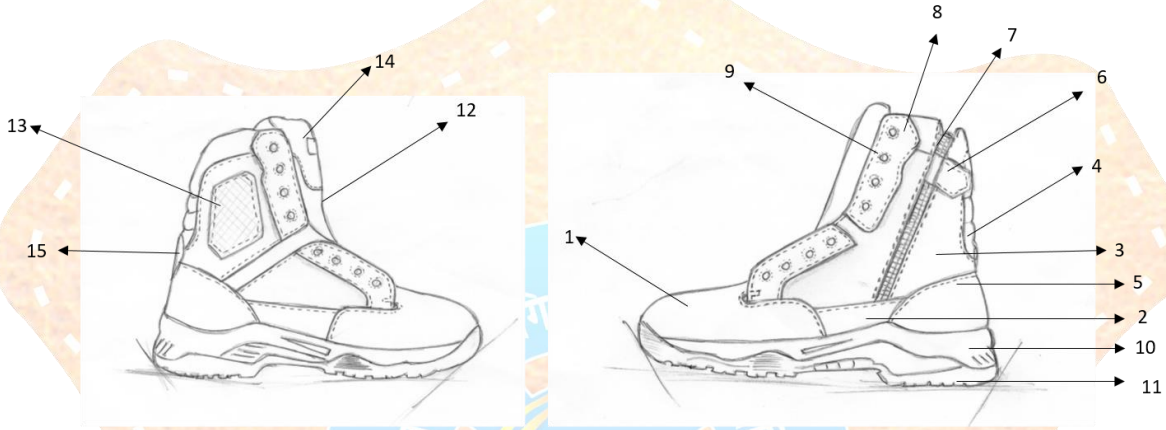
BOOT SPECIFICATION FOR THE TROOPS OF VALLEY QUICK ACTION TEAM (QAT) PERSONNEL:

DESIGN



Outside view

1.UPPER –VAMP-LEATHER

2.UPPER –WAIST WING –LEATHER

3.UPPER –QUARTER –FABRIC –POLYESTER

4.UPPER-EXTENDED COUNTER –PU COATED FABRIC

5.UPPER –COUNTER –LEATHER

6. ZIPPER FLAP (VELCRO)-POLYESTER

7.SLIDE FASTENER (ZIP)-NYLON

8.EYELET FACING –LEATHER

Inside view

9.EYELET –NYLON

10.MIDSOLE-EVA

11.OUTSOLE-RUBBER

12.TONGUE-TEXTILE –POLYESTER

13.ANKLE PROTECTION-RUBBER

14. LOGO PATCH-PU COATED FABRIC

15.BACK STRAP – LEATHER

Figure is for reference only

S No	Parameter	Material	Method
1	Design	Half-knee boot	As per IS 15298 part 2, class 1, Design C
2	Size & fittings	UK Size 4 to 12 & G/H Fitting	As per IS 1638
3	Construction & Sole attaching Lasting Sole attaching	 Cemented lasting Stuck on process	-
4	Height of the upper	Given in Annex A	IS 15298-part 1 class -6.2
5	Eyelet	Nylon	8 nos. Each side
6	Zipper with gazette inside	Nylon zip with Aluminum black coloured runner Gazette material - PU coated stretch fabric	-
7	Zipper Flap with Velcro	Velcro(polyester) strap with webbing tape Top portion of the flap made of rubber	-
8	Toe and counter Stiffener	Thermoplastic	Thickness Toe puff stiffener -1.5 mm Counter stiffener -2.0 mm
9	Bellows Tongue	Polyester fabric Logo patch -PU coated fabric Bellows tongue –PU coated stretch fabric	Logo patch attached on tongue portion Bellows tongue is attached with quarter and tongue portion
10	Sole	Midsole – EVA Outsole –Nitrile Rubber	Multi-layer sole -anti skid tread pattern, Density EVA midsole– Min 0.30 g/cc Rubber Outsole- max 1.20 g/cc
11	Ankle protection	Rubber	Thickness –min 5.0 mm Density-max 1.15g/cc
12	Collar and Tongue foam	PU	Density-min 0.04 g/cc Thickness Min 15mm
13	Shank	Fibre reinforced plastic shank	Length – 11.5 cm Width 15mm

SPECIFICATION FOR HALF KNEE BOOT AND COMPONENTS

UPPER –LEATHER PORTION - VAMP, COUNTER, BACKSTRAP, WAIST WING, EYELET FACING			
MATERIAL: LEATHER (FULL GRAIN COW LEATHER WITH FINISHING COAT)			
S NO	**TEST PARAMETER**	**REQUIREMENTS**	**TEST METHOD**
1	Thickness, mm	Min 1.80	IS 5914 LP-1 / ISO 2589
2	Tensile strength, MPa	Min 18	IS 15298 PART-1(6.4)/ ISO 3376
3	Tear strength, N	Min 150	IS 15298 PART-1(6.3)/ ISO 3376-2
4	Water vapour permeability, $mg/cm^2/hr.$	Min 0.8	IS 15298 PART-1(6.6)/ ISO 14268
5	Water vapour co-efficient, mg/cm^2	Min 20	IS 15298 PART-1(6.8)/ ISO 17229
6	Water resistance Water absorption %, Max Water penetration Grams, Max	 30 0.2	ISO 5403-01

UPPER – FABRIC PORTION –QUARTER			
MATERIAL: FABRIC (POLYESTER)- EXTENDED QUARTER			
1	Thickness, mm	Min 0.60	IS 15298 PART-1(6.1)
2	GSM, g/m^2	Min 325	ISO 3801
3	Tear strength, N	Min 30	IS 15298 PART-1(6.3)/ ISO 4674-1
4	Water vapour permeability, $mg/cm^2/hr.$	Min 0.8	IS 15298 PART-1(6.6)/ ISO 14268
5	Water vapour co-efficient, mg/cm^2	Min 20	IS 15298 PART-1(6.8)/ ISO 17229

UPPER- EXTENDED COUNTER			
MATERIAL: COATED FABRIC (PU)			
1	Thickness, mm	Min 1.7	IS 15298 PART-1(6.1)
2	GSM, g/m^2	Min 500	ISO 3801
3	Tear strength, N	Min 30	IS 15298 PART-1(6.3)/ ISO 4674-1
4	Water vapour permeability, $mg/cm^2/hr.$	Min 0.8	IS 15298 PART-1(6.6)/ ISO 14268
5	Water vapour co-efficient, mg/cm^2	Min 20	IS 15298 PART-1(6.8)/ ISO 17229

BELLOWS TONGUE			
MATERIAL: POLYESTER FABRIC			
1	Thickness, mm	Min 0.60	IS 15298 PART-1(6.1)
2	Tear strength, N	Min 30	IS 15298 PART-1(6.3) ISO 4674-1

LINING			
MATERIAL: MESH FABRIC (POLYESTER)- - LINING SANDWICH WITH EVA FOAM			
1	Thickness, mm (including EVA foam with backer fabric)	Min 2.50	IS 15298 PART-1(6.1)
2	GSM, (including fabrics and foam) g/m^2	Min 200	ISO 3801
3	Tear strength, N	Min 15	IS 15298 PART-1(6.3) ISO 4674-1
4	Abrasion resistance, a) Dry b) Wet	Shall not develop any hole before 25600 cycles Shall not develop any hole before 12800 cycles	IS 15298 PART-1(6.12) ISO 12947-02
5	Water vapour permeability, $mg/cm^2/hr$	Min 2	IS 15298 PART-1(6.6)/ ISO 14268
6	Water vapour co-efficient, mg/cm^2	Min 20	IS 15298 PART-1(6.8)/ ISO 14268

INSOLE -CELLULOSE BOARD NON-WOVEN (BLACK COLOUR)			
S NO	**TEST PARAMETER**	**REQUIREMENTS**	**TEST METHOD**
1	Thickness, mm	Min 2.0	IS 15298 PART-1(6.1);2015
2	Abrasion Resistance	No Surface Tear At 400 Cycles	IS 15298 PART-1(7.3);2015/ ISO 20868
3	Water absorption, mg/cm^2 Desorption, %	Min 60 Min 70	IS 15298 PAR 1(7.2);2015/ ISO 22649

INSOCK(ANTI-FATIGUE) –CUSHIONED PU WITH FABRIC (POLYESTER) AND PERFORATED FOREPART			
S NO	**TEST PARAMETER**	**REQUIREMENTS**	**TEST METHOD**
1	Thickness, mm PU foam with textile Forepart Heel Textile	 Min 5.0 Min 7 Min 0.75	IS 15298 PART-1(6.1)
2	Foam Density, g/cc	0.30-0.35	ISO 2781
3	Abrasion resistance, a) Dry b) Wet	 Shall not develop any hole before 25 600 cycles Shall not develop any hole before 128 00 cycles	IS 15298 PART-1(6.12)/ ISO 12947-02
4	Water absorption, mg/cm^2 Desorption, %	Min 60 Min 70	IS 15298 PART1(7.2);2015 /ISO 22649

ROUND LACE WITH PLASTIC TAG - POLYESTER			
S NO	**TEST PARAMETER**	**REQUIREMENTS**	**TEST METHOD**
1	Lace length, cm	Min 190	MEASUREMENT
2	Breaking strength, N	Min 250	IS 4778, SATRA TM 74
3	Lace to lace abrasion, cycles, Min Lace to eyelet abrasion, cycles, Min	No damage at 5000 No damage at 5000	IS 8085 (Part 17) /ISO 22774

SLIDE FASTENER (ZIP): ZIP(NYLON) AND RUNNER (METAL)			
S NO	**TEST PARAMETER**	**REQUIREMENTS**	**TEST METHOD**
1	Fatigue resistance, cycles,	Min 2000	IS 3148/ISO 10751
2	Security of puller attachment strength, N	Min 250	IS 3148/ISO 10734
3	Lateral strength, N	Min 250	IS 3148/ISO 10748,

GAZETTE INSIDE FOR ZIPPER & BELLOWS TONGUE -PU COATED STRETCH FABRIC			
S NO	**TEST PARAMETER**	**REQUIREMENTS**	**TEST METHOD**
1	Thickness, mm	Min 0.60	IS 15298 PART-1(6.1)
2	Tear strength, N	Min 15	IS 15298 PART-1(6.3) ISO 4674-1

OUTSOLE: (NITRILE RUBBER)			
S NO	**TEST PARAMETER**	**REQUIREMENTS**	**TEST METHOD**
1	Abrasion resistance, mm^3	Max 150	IS 15298(5.11): 2015 / ISO 4649,
2	Tear strength, N/mm	Min 8	IS 15298 (8.2)/ISO 20871
3	Bennewert Flexing At 30000 Cycles, cut growth, mm	Max 6	IS 15298(8.4): 2015/ ISO 20344
4	Oil resistance, %	Increase in volume shall be not greater than 12 %	IS 15298(5.11): 2015 / ISO 20344
5	Resistance to hot contact at 300 °C	No melting /fusing	IS 15298(8.7) 2015 / ISO 20344
6	Thickness, min, Sole thickness (d1), mm Cleat height(d2), mm	 10 2.5	IS 15298(8.1) 2015

WHOLE FOOTWEAR:

S NO	TEST PARAMETER	REQUIREMENTS	TEST METHOD
1	Bond strength, Upper to midsole/outsole, N/mm, Min	4 for bonding failure 3 for material tear	IS 15298 (5.2) / ISO 17708
2	Inter layer bond strength, Midsole to outsole, N/mm, Min (applicable only for multilayer sole)	4 for bonding failure 3.0 for material tear	IS 15298 (5.2) / ISO 17708
3	Water resistance on complete shoe,	Total wetted area inside the footwear shall be not greater than 3 cm^2	IS 15298 (6.15)
4	Slip resistance, COF, Slip resistance on ceramic tile floor with sodium lauryl sulphate (NaLS) solution forward heel slip forward flat slip Slip resistance on steel floor with glycerine Forward heel slip Forward flat slip	 ≥0.28 ≥0.32 ≥0.13 ≥0.18	IS 15298(5.11): 2015 / ISO 13287
5	Seat region energy absorption, J	Min 20	IS 15298(5.14): 2015/ ISO 20344
6	Heat insulation, °C	Max 22	IS 15298(5.12): 2015/ ISO 20344
7	Cold insulation, °C	Max 10	IS 15298(5.13): 2015/ ISO 20344

HAZARDOUS CHEMICAL REQUIREMENTS FOR FOOTWEAR:

Critical chemical substances in footwear materials may adversely affect the wearer or create environmental effects due to their chemical reactivity. Screening of such compounds is necessary as they are known for their toxicity, carcinogenicity and mutagenicity or allergic to consumers.

Footwear and its components shall confirm according to IS 17011:2018 Table 1, category 1 & 2

ACCEPTANCE FOR NON-DESTRUCTIVE TEST FOR SHOES (VISUAL ASSESSMENT)

S. No	Property	Remarks
1	Aesthetic appearance	Acceptable or Unacceptable
2	Clean feather line	Acceptable or Unacceptable
3	Colour matching as per sample	Acceptable or Unacceptable
4	Quality of stitch	Acceptable or Unacceptable
5	Free from protrusion in bottom sole	Acceptable or Unacceptable
6	Smooth surface finish	Acceptable or Unacceptable
7	Quality of construction	Acceptable or Unacceptable

WARRANTY

Storage Warranty

The storage warranty is for 6 months i.e. the footwear should not deteriorate for the period it is stored in the warehouse/depot until disbursement to QAT personnel.

Usage Warranty

The usage warranty is for 12 months from the date of issue i.e. footwear shall not deteriorate in quality until 12 months after disbursement to the QAT personnel.

Manufacturing cost

The approximate manufacturing cost in tune with the above prescribed specifications is **Rs.1300-1500 (Excluding GST)**

Annex A

Height of Upper:

The height of the upper, when measured in accordance with 6.2 of IS 15298 (Part 1), shall confirm given in Table

S No.	SHOE SIZE	HEIGHT
1	4	207 ± 2
2	5-6	213 ± 2 mm
3	7-8	220 ± 2 mm
4	9-10	227 ± 2 mm
5	11-12	234 ± 2 mm