



**PRODUCT MANUAL FOR
POLYVINY CHLORIDE (PVC) INDUSTRIAL BOOTS
ACCORDING TO IS 12254: 1993**

This Product Manual shall be used as reference material by all Regional/Branch Offices & licensees to ensure coherence of practice and transparency in operation of certification under Scheme-I of Bureau of Indian Standards (Conformity Assessment) Regulations, 2018 for various products. The document may also be used by prospective applicants desirous of obtaining BIS certification licence/certificate.

1.	Product	:	IS 12254: 1993
	Title	:	POLYVINYL CHLORIDE (PVC) INDUSTRIAL BOOTS
	No. of Amendments	:	NIL
2.	Sampling Guidelines:		
a)	Raw material	:	Fabric, Eyelets & shoelaces and Steel Toe Caps shall conform to the requirements in Cl. 4 of IS 12254:1993
b)	Grouping guidelines	:	NA (each size, style and type of boots to be tested to cover it in the scope of licence)
c)	Sample Size	:	05 pairs
3.	List of Test Equipment	:	Please refer ANNEX –A
4.	Scheme of Inspection and Testing	:	Please refer ANNEX –B
5.	Possible tests in a day:		
	Please refer ANNEX - C		
6.	Scope of the Licence :		
	“Licence is granted to use Standard Mark as per IS 12254:1993 with the following scope ”		
	Name of the product	PVC Industrial boots	
	Style of Boots	Ankle/ Half Knee / Short Knee/ Knee/ Thigh	
	Size or (Leg) height	Height in mm to be mentioned separately for men and women for each style of boots	
	Type	Fabric lined / With / Without steel toe	

ANNEX-A

TO PRODUCT MANUAL
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List of Test Equipment

Major test equipment required to test as per the Indian Standard

Sl. No.	Test Equipment	Tests used in with Clause Reference
1	Thickness dial gauge calibrated in 0.1 mm or an equivalent apparatus, Graduated eyepiece with 0.1 mm scale spacing of c . e travelling microscope or screw gauge	Thickness,5.3.1/5.3.2
2	Vernier Caliper	Shape and design and thickness 5.3.1/5.3.2
3	Durometer Type A	Hardness,5.4
4	Balance (1 mg), balance Straddle, Beaker of 250 ml, 0.1 mm dia copper wire,	Relative Density,5.5
5	Hot Air Oven (135±5°C), Dessicator, Balance (0.1 g)	Volatility, 5.6
6	Nessler cylinder and reagents as per IS 12240 (Part 5):1988, Balance (1 mg)	Lead Content,5.7
7	Tensile Testing Machine with speed provision of 100 m per minute, Suitable solvent like ethyl methyl ketone or leather splitting machine	Tensile Requirements,5.8
8	Flexing machine (Satra Ross Type), refrigerated cabinet (-5±2°C), piercing chisel,	Resistance to Cut Growth (Flexing Test) for Sole, 5.9
9	Apparatus for determination of resistance to flexing as per IS 12240 (Part 8)	Resistance to Flexing for Upper, 5.10
10	Steel Ruler	Leg Height,5.11
11	Leakage Resistance Testing With Pressure Gauge	Leakage Resistance,5.12
12	Cold Flex Temperature Testing Machine, Dewar Flask or thermal chamber, thermometer accurate to 1°C, timer, heat transfer medium (acetone, ethanol, butanol),dead-weight type dial micrometer – 0.01 mm LC	Cold Flex Temperature, 5.13
13	Impact Tester	Performance,5.15
11	Conditioning chamber	Conditioning of samples
12	Lab Sample Cutting Press	Tensile Requirements, Resistance to Cut Growth (Flexing Test) for Sole, Resistance to Flexing for Upper, 5.8/5.8.1/5.9/5.10
13	Thermometer	NA
14	Weight Box	NA
25	Dumb Bell Die	Tensile Requirements,5.8/5.8.1/

26	2mm Piercing Chisel	Resistance to Cut Growth (Flexing Test) for Sole, Resistance to Flexing for Upper, 5.9/5.10
27	Grinding Machine For Sample Preparation	Tensile Requirements, Resistance to Cut Growth (Flexing Test) for Sole, Resistance to Flexing for Upper, 5.8/5.8.1/5.9/5.10
28	Glassware	Lead Content,5.7
29	Eyeglass	-do-5.7
30	Whatman Filter paper	-do-5.7
31	White Marker	Tensile Requirements,5.8/5.8.1

The above list is indicative only and may not be treated as exhaustive.

ANNEX – B

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(SCHEME OF INSPECTION AND TESTING)

1. LABORATORY - A laboratory shall be maintained which shall be suitably equipped (as per the requirement given in column 2 of Table 1) and staffed, where different tests given in the specification shall be carried out in accordance with the methods given in the specification.

1.1 The manufacturer shall prepare a calibration plan for the test equipments.

2. TEST RECORDS – The manufacturer shall maintain test records for the tests carried out to establish conformity.

3. PACKING AND MARKING – The Standard Mark, as given in the Schedule of the licence, shall be stamped on the underside of each style of PVC boot, provided always that the product so marked conform to requirements of the specification.

3.1 Packing and marking shall be done as per the provision of IS 12254:1993. In addition, the following details shall be mentioned on each container/package:-

- a) BIS Licence No. CM/L-----.
- b) BIS website details i.e. –“For details of BIS certification please visit www.bis.gov.in”.

4. CONTROL UNIT –Finished PVC Industrial Boots-PVC Boot of one style produced in a day from the same consignment of raw material shall constitute a control unit.

5. LEVELS OF CONTROL - The tests as indicated in column 1 of Table 1 and the levels of control in column 3 of **Table 1**, shall be carried out on the whole production of the factory which is covered by this plan and appropriate records maintained in accordance with paragraph 2 above.

5.1 All the production which conforms to the Indian Standards and covered by the licence should be marked with Standard Mark.

6. REJECTIONS – Disposal of non-conforming product shall be done in such a way so as to ensure that there is no violation of provisions of BIS Act, 2016.

Table 1 Levels of Control
POLYVINYL CHLORIDE (PVC) INDUSTRIAL BOOTS
ACCORDING TO IS 12254: 1993.
(Scheme of Inspection and Testing)

(1)				(2)	(3)		
Test Details				Test requirement R: required (or)S: Sub-contracting permitted	Levels of control		
Cl. No	Requirement	Test Methods			No. of samples	Frequency	Remarks
		Clause	Reference				
4.1	Fabric (for lined boots)	10	IS 1969 : 1985	S	5	Each consignment of one type	No testing is required if material is ISI marked or accompanied with manufacturer's test certificate indicating conformity to the requirement
4.2.1	Eyelets (for Ankle boots)	Table 1	IS 5041 : 1978	S	5	Each consignment of one type	-do-
4.2.2 & 4.2.3	Laces (For ankle boots)	Annex B	IS 4778:1982 IS 12254:1993	S	5	Each consignment of one type	-do-
4.3	Steel toe cap	4.3	Type 2 IS 5852:1992	S	5 pair	Each consignment of one type	-do-
5.1	Shape & design	Visual	IS:12254:1993	R	5	Each Control unit	-
5.2	Soling Pattern	Visual	IS:12254:1993	R	5	Each Control unit	-
5.3	Thickness	5.3.1	IS:12254:1993	R	5	Each Control unit	Only materials, conforming to the relevant Indian Standards, shall be utilized in the manufacture of PVC Boots.
5.3	Thickness of components	5.3.2 and Table 1	IS:12254:1993 & IS 12240 (Part 1): 1988	R	5	Each Control unit	
5.4	Hardness	5.4 &	IS:12254:1993 & IS	R	5	Each Control unit	

		Table 2	12240 (Part 2): 1988				
5.5	Relative Density		IS 12240 (Part 3): 1988	R	1	Each Control unit	
5.6	Volatility		IS 12240 (Part 4): 1988	R	1	Each Control unit	
5.7	Lead content		IS 12240 (Part 5): 1988	R	1	Every 7th control unit	
5.8	Tensile requirements		IS 12240 (Part 6): 1988	R	1	Each Control unit	
5.9	Resistance to cut growth		IS 12240 (Part 7): 1988	R	1	Once in a month	
5.1	Resistance to flexing of upper		IS 12240 (Part 8): 1988	R	1	Once in a month	
5.11	Leg height	Table 4 & 5.11	IS:12254:1993	R	1	Each Control unit	
5.12	Leakage Resistance	5.12.1	IS:12254:1993	R	1	Every 7th control unit	
5.13	Cold Flex Temperature (optional)	5.13	IS:12254:1993	S	1	Every six months or as agreed between purchaser and manufacturer	If required by purchaser
5.14	Finish	5.14	IS:12254:1993	R	Every pair		
5.15	Performance	Annex D	IS:12254:1993	R	1 pair	Each Control Unit	

Note-1: Whether test equipment is required or sub-contracting is permitted in column 2 shall be decided by the Bureau and shall be mandatory. Sub-contracting is permitted to a laboratory recognized by the Bureau or Government laboratories empaneled by the Bureau.

Note-2: Levels of control given in column 3 are only recommendatory in nature. The manufacturer may define the control unit/batch/lot and submit his own levels of control in column 3 with proper justification for approval to BO head.

ANNEX C
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POSSIBLE TESTS IN A DAY

- a) Hardness,
- b) 100% Modulus,
- c) Elongation At Break,
- d) Relative Density,
- e) Volatility,
- f) Leg Height,
- g) Soling Pattern,
- h) Shape And Design,
- i) Finish,
- j) Round The Upper Top Circumference,
- k) Lowest Part Of Upper,
- l) Foxing Strip At Heel,
- m) Thickness Of Components,
- n) Steel Toe Cap Safety Factor.