



उत्पाद मैनुअल
Crop Protection Equipment Hand Operated Knapsack Sprayer, Piston Type
IS 3906:1995 के अनुसार

PRODUCT MANUAL
FOR Crop Protection Equipment Hand Operated Knapsack Sprayer, Piston Type
ACCORDING TO IS 3906:1995

विभिन्न उत्पादों के लिए भारतीय मानक ब्यूरो (अनुरूपता मूल्यांकन) विनियम, 2018 की योजना- I के तहत प्रमाणन के संचालन में अभ्यास और पारदर्शिता के संचालन में पारदर्शिता सुनिश्चित करने के लिए इस उत्पाद मैनुअल का उपयोग सभी क्षेत्रीय / शाखा कार्यालयों और लाइसेंसधारियों द्वारा संदर्भ सामग्री के रूप में किया जाएगा। दस्तावेज़ का उपयोग बीआईएस प्रमाणन लाइसेंस/प्रमाणपत्र प्राप्त करने के इच्छुक संभावित आवेदकों द्वारा भी किया जा सकता है।

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.	IS/उत्पाद IS/Product	:	IS 3906:1995
	शीर्षक Title	:	Crop Protection Equipment Hand Operated Knapsack Sprayer, Piston Type
	संशोधनों की संख्या No. of amendments	:	2
2.	नमूना दिशानिर्देश Sampling Guidelines		
a)	कच्चा माल Raw material	:	The material of construction of various components of the sprayer shall be as per Cl. 4 of IS 3906:1995.
b)	समूहीकरण दिशानिर्देश Grouping Guidelines	:	NA – Samples of sprayer of each tank capacity shall be tested
c)	नमूने का आकार Sample Size	:	1 No.
3.	परीक्षण उपकरणों की सूची List of Test Equipment	:	Please refer Annex-A

4.	निरीक्षण और परीक्षण की स्कीम Scheme of Inspection and Testing	:	Please refer Annex-B
5.	एक दिन में संभावित परीक्षण Possible tests in a day		
	a. Dimensions & Visual Check as per clause 6.1.1, 6.2, 6.3, 6.4,6.4.2, 6.8, 6.9.1, 6.10, 6.12, 6.12.1, 6.13, 6.14, 6.15.7 and 9.1 b. Mass 6.16 c. Tank capacity CI 6.1 and 6.1.2 d. Filling hole CI 6.4.1 e. Piston position limits CI 6.7.2 f. Discharge rate CI 5.1 g. Volumetric efficiency CI 5.2		
6.	लाइसेंस का दायरा /Scope of the Licence:		
	“Licence is granted to use Standard Mark as per IS 3906:1995 with the following scope:		
	Name of the product	Crop Protection Equipment Hand Operated Knapsack Sprayer, Piston Type	
	Varieties/Type/Grades etc.	Tank Capacity 10 Lit / 13 Lit / 16 lit	

BUREAU OF INDIAN STANDARDS
MANAK BHAVAN,9, BAHADUR SHAH ZAFAR MARG,
NEW DELHI-110002

ANNEX – A

LIST OF TEST EQUIPMENTS

Major test equipment required to test as per the Indian Standard

Sl. No.	Tests Used In With Clause Reference	Test Equipment/Chemical
1.	Mass of sprayer (Cl 3.10 & also Cl 6.16)	Electronic weighing balance
2.	6.1.1,6.2,6.3,6.4,6.4.2,6.8, 6.9.1,6.10,6.12,6.12.1, 6.13,6.14,6.15.	Vernier calliper
3.	6.1,6.1.2	Measuring jar
4.	6.3,6.4,6.12	Measuring scale
5.	5.1,5.2	Stop watch
6.	6.3.1,6	Strap drop tester
7.	6.17	Performance endurance test equipment with counter & pressure gauge
8.	6.12	Cut off device & lance test equipment with counter & pressure gauge
9.	6.6.1	Leakage & deformation test equipment for pressure chamber
10.	6.7	Leakage & deformation test equipment for pump cylinder
11.	6.14	Nozzle performance testing equipment with volume and angle

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

ANNEX B

SCHEME OF INSPECTION AND TESTING

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

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

2. **TEST RECORD-** 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 each sprayer provided always that the material so marked conforms to each requirement of the specification.

3.2 Each sprayer shall be packed as agreed between purchaser and supplier for safe handling in transit and shall carry the following information:

- a) Manufacturer's Name or Trade Mark
- b) The batch or serial number
- c) Tank Nominal Capacity
- d) BIS licence number and "For BIS certification details please visit www.bis.gov.in"

3.3 Each sprayer shall be supplied with provided with a set of mask, hand gloves and safety goggles, manual and spare parts as specified in the Indian Standard.

5. **CONTROL UNIT** - Entire quantity of Hand Operated Knapsack Sprayers of same tank capacity and same component materials produced in a day shall constitute one control unit.

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

6.1 All the production which conforms to the Indian Standard and covered under the scope of this licence shall be marked with the Standard Mark.

7. **REJECTION** - 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.

TABLE1
LEVELS OF CONTROL

(1)				(2)	(3)		
Test Details				Test equipment requirement R: Required S: Sub-contracting permitted	Levels of Control		
Cl.	Requirement	Test Methods Clause Reference			No. of Sample	Frequency	Remarks
Material							
4	Material			S		Each Consignment	No testing required if accompanied by supplier's TC
Performance Requirements							
5.1	Discharge Rate	6.1.3	IS 10134	R		Each sprayer	
5.2	Volumetric efficiency	6.2	-do-	R		-do-	
6.3.1	Strap drop test	7.3	-do-	R		-do-	
6.5.1	Pressure chamber test	7.1	-do-	R		Each pressure chamber	

6.6.1	Pump cylinder test	7.1	-do-	R		Each pump cylinder	
6.7	Piston test	7.4	-do-	R		Each piston	
6.9	Operating lever, handle and piston rod test	7.6	-do-	R	One	Every 10 th sprayer in the control unit	
6.11	Gasket test	7.4	-do-	R	One	Each consignment of gaskets received	
6.12	Pneumatic test for delivery hose (for suction hose, if provided)	7.1.1	-do-	R	One	Each consignment of hoses received	
6.12.2	Hose and Hose connection test	7.2	-do-	R		Each Hose connection	
6.13	Test for cut off device or lance	Annex C & D	IS 3652	R		Each cutoff device or lance	
6.14	Performance test for nozzle	Annex F	-do-	R		Each nozzle	
6.16	Mass of sprayer	6.16	IS 3906	R	One	50 sprayers	
6.17	Endurance test						
	Acceptance test (48 h)	8.1	IS 10134	R	One	Every 20 th control unit	
	Routine test (5 minutes)	8.1	-do-	R		Each sprayer	
Constructional Requirements							
6.1	Tank capacity	6.1.2	IS 3906	R		Each tank	
6.1.1	Sheet thickness (brass tank)	6.1.1	--do--	R	One	Each consignment	

6.2	Skirt/stand	6.2	--do--	R		Each tank	
6.3	Straps	6.3	--do--	R	Two	Each consignment	In case of failure two more samples shall be tested and lot marked if both passed
6.4	Filling Hole	6.4,6.4.1 6.4.1.1	--do--	R		Every 10 th sprayer	
6.4.2	Strainer	6.4.2	--do--	R		Every 10 th piece	
6.5	Pressure chamber capacity	6.5	--do--	R		Every 10 th pressure chamber	
6.6	Pump cylinder inner diameter	6.6	--do--	R		Every 10 th pump cylinder	
6.7	Height of straight portion of Piston	6.7	--do--	R		Every 10 th piece	
6.7.1 6.7.2	Spreader	6.7.1 6.7.2	--do--	R		-do-	
6.8	Threaded connection	6.5	IS 3652	R		Each thread connection	
6.9.1	Grip of Handle	6.9.1	IS 3906	R		Each handle	
6.10	Discharge outlet	6.10	-do-	R		Every 10th piece	
6.12 and 6.12.1	Delivery hose and its connections	6.12 and 6.12.1	-do-	R		Every 10th piece	

6.13	Cut off device & Lance	6.13	-do-	R		---do---	
6.14	Nozzle	6.14	-do-	R		---do---	
6.15	Lifting arrangement	6.15	-do-	R		---do---	
7	Other requirements	7	-do-	R		All sprayers	
8	Workmanship & Finish	8.1,8.2	--do--	R		All components of sprayers	

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 empanelled 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 by BO Head.