

व्यावसायिक परीक्षण रिपोर्ट
COMMERCIAL TEST REPORT

संख्या/ No.: PS-448/2565/2020
माह/Month: November, 2020

THIS TEST REPORT VALID UP TO : 30th November, 2025



**ASPEE, DTM001/14 AHBR-ASPEE TURRBO
BATTERY OPERATED KNAPSACK SPRAYER**



भारत सरकार

Government of India

कृषि एवं किसान कल्याण मंत्रालय

Ministry of Agriculture and Farmers Welfare

कृषि, सहकारिता एवं किसान कल्याण विभाग

Department of Agriculture, Cooperation and Farmers Welfare

उत्तरी क्षेत्र कृषि मशीनरी प्रशिक्षण एवं परीक्षण संस्थान

Northern Region Farm Machinery Training and Testing Institute

ट्रैक्टर नगर, सिरसा रोड, हिसार, (हरियाणा) - 125 001

Tractor Nagar, Sirsa Road, HISAR (Haryana)-125 001

[ISO 9001:2015 CERTIFIED]

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	-Gasket	Synthetic rubber, fiber, PVC	PVC	Conforms
	-Gland seal	PVC	PVC	Conforms
	-Gland packing	Asbestos rope	Not applicable	--
xxxiii)	Material of construction of various components as per IS: 3906-1995			
	Strap	Woven web cotton/synthetic yarn	Woven Web Cotton	Conforms
	Skirt/Stand	Steel, plastic	Plastic	Conforms
	Strap buckle	Steel, Engg. Plastic	Engg. Plastic	Conforms
	Cushion	Foam, rubber, foam plastic	Foam	Conforms
xxxiv)	The material used for different components shall be declared by the manufacturer, all the components mentioned in the table-I may not be present in a particular sprayer.		Declared by the applicant	Conforms

3. TEST FOR DISCHARGE RATE OF PUMP (Vide Clause 8.3 of IS – 11313: 2007)

1. Date of test : 26.10.2020

2. Atmospheric conditions :

a) Temperature : 20.4 °C

b) Relative humidity : 40.3 %

c) Pressure : 740.8 kPa

3. Data recorded

Speed of Pump (rpm)	Pressure (kg/cm ²)	Test No.	Delivery from the discharge line (ml/min)	Overflow (ml/min)	Average discharge from the discharge line (ml/min)	Discharge rate of pump (ml/min)
3556	1.0	1	4350	Nil	4362.5	4362.5
		2	4380			
		3	4370			
		4	4350			
3438	2.0	1	3960	Nil	3950.0	3950.0
		2	3950			
		3	3940			
		4	3950			
3325	3.0	1	3540	Nil	3540.0	3540.0
		2	3550			
		3	3540			
		4	3530			
3270	4.0	1	2960	Nil	2952.5	2952.5
		2	2950			
		3	2960			
		4	2940			

Minimum discharge rate = 2952.5 ml/min at 4 kg/cm²

Maximum discharge rate = 4362.5 ml/min at 1 kg/cm²

Discharge at rated pressure = 3950.0 ml/min at 2 kg/cm²

4. TEST FOR VOLUMETRIC EFFICIENCY (Vide Clause 8.4 of IS – 11313: 2007)

Rated pressure, kg/cm ²	:	2.0
Avg. discharge of water at rated pressure, ml/min	:	3950
Avg. discharge of water at no-load, ml/min	:	5207
Avg. pump speed at no-load, rev/min	:	3613
Avg. pump speed at rated pressure, rev/min	:	3438
Volumetric efficiency of pump, %	:	80

Remarks: The volumetric efficiency does not conform to the requirement of IS: 11313:2007.

5. POWER REQUIREMENT (Vide Clause 8.5 of IS – 11313 : 2007)

Power requirement of DC motor fitted on sprayer was observed as following:-

1. Motor operating voltage	:	12 V
2. Avg. current drawn by motor at no load	:	2.25 A
3. Avg. current drawn by motor at load	:	3.7 A
4. Avg. motor operating voltage	:	12.45 V
5. Avg. observed motor power requirement	:	46.08 watt
6. Avg. motor speed at no load	:	3613 rpm
7. Avg. motor speed at load	:	3438 rpm
8. Avg. time required for fully discharge of battery	:	10.5 to 11 h.
9. Avg. No load rpm of motor after 6 hours of operation	:	2270 rpm

6. PRESSURE ADJUSTMENT TEST

1.	Date of test	:	26.10.2020
2.	Atmospheric conditions:-		
	a. Temperature	:	24.8 °C
	b. Relative humidity	:	31.1 %
	c. Pressure	:	740.1 kPa
3.	Data recorded		

S. No.	Working pressure (kg/cm ²)	Fluctuation range (kg/cm ²)	Pressure drop (kg/cm ²)	Ratio
1.	1	Nil	Nil	--
2.	2	Nil	Nil	--
3.	3	Nil	Nil	--
4.	4	Nil	Nil	--

4. Resistance of pressure: Yes

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Cl.7.3.5	Each spray shall be provided with a set of mask, hand gloves and safety goggles.	Mask, goggles, gloves, apron and gum boots are provided.	Conforms
Cl.8 Workmanship & Finish	The components of the sprayer shall have a smooth finish and shall be free from pits burrs, sharp edges and other defects that may be detrimental for their use.	Satisfactory	Conforms
Cl. 8.2	The exposed mild steel parts shall have a protective coating to prevent surface deterioration. The steel used for hose ferrule/clip shall be plated with cadmium, zinc or nickel exposed brass parts may be given a suitable protective finish with clear transparent lacquer.	Metallic part is coated with enamel paint.	Conforms
Cl. 9 Marking & Packing	Each sprayer shall be marked with the following particulars		
	a)Manufacturers name or recognized trade mark	Aspee	Conforms
Cl. 9.1 Marking	b)Batch or serial no.	000010	Conforms
	c)Tank nominal capacity	20 lt.	Conforms
Cl.9.3 IS:3906-1995 Packing	Each sprayer shall be packed as agreed to between the purchase and the supplier for safe handling in transit.		

15. CRITICAL TECHNICAL SPECIFICATIONS

(Deferred till 31.12.2020 vide Ministry's O.M. No 13-13/2020 M & T (I & P) dated 24.04.2020)

16. CONFORMITY TO INDIAN STANDARDS

- i) IS: 11313:2007 Hydraulic power sprayers- : **Does not conform in toto** specification
- ii) IS: 10134-1994-Method of test for manually operated sprayer : **Does not conform in toto**
- iii) Spray nozzle and spray gun as per IS:3652-1995 (Reaffirmed 2011) : **Does not conform in toto**
- iv) IS: 2643-2005-Pipe threads where pressure-tight joint are not made on the threads-dimensions, tolerance and designation : **Does not conform in toto**

17. COMMENTS & RECOMMENDATIONS

- 17.1 The material of pump inlet port end fitting does not conform the requirement of relevant code/standard. It **MUST** be looked into.
- 17.2 The volumetric efficiency of pump does not meet the requirement of Indian Standard. It **MUST** be improved.
- 17.3 Agitator is not provided. It may be provided.
- 17.4 The strap cushion thickness does not meet the requirement of Indian Standard. It may be looked into.
- 17.5 The current drawn by motor at no load and on load was observed as 2.25 A and 3.70 A respectively which does not conform to requirement of IS- 14459: 1997.



- 17.6 Time required to full charge the battery with AC charger is observed as 12.5 to 13 hours.
- 17.7 The spraying operation time after fully charging the battery was observed as 10.5 to 11 hours.
- 17.8 The discharge rate of nozzle for fine cone spray pattern and Jet spray pattern does not meet the requirement of Indian Standard. It **MUST** be looked into.
- 17.9 The dimension of metallic threaded connection does not conform to the requirement of relevant /code Standard. It **MUST** be looked into.
- 17.10 During the strap drop test the buckle/bracket of strap assembly found failed to hold the strap in it's position. It should be improved.
- 17.11 No necessary tools are provided with sprayer. It **MUST** be provided.
- 17.12 Spray angle of nozzle at 300 kPa pressure does not conform to the requirement of IS: 3652-1995. It **MUST** be looked into.
- 17.13 The tank capacity of sprayer does not meet the requirement of Indian Standard. It **MUST** be looked into.
- 17.14 The average apertures size of removable strainer on filling hole in tank does not meet the requirement of Indian Standard. It **MUST** be looked into.

18. TECHNICAL LITERATURE

No technical literatures are provided with sprayer for guidance to the users. It is therefore recommended to provide **operator manual** as per IS: 8132-1999.

In addition service manual and part catalogue may also be provided for guidance of users.

TESTING AUTHORITY

MAAN SINGH SENIOR TECHNICAL ASSISTANT	
P. K. PANDEY DIRECTOR	

19. APPLICANT'S COMMENTS

Para No.	Our reference	Applicant's comments
19.1	17.1, 17.2, 17.4, 17.8, 17.10, 17.12, 17.14, & 18	Noted, we will do needful.
19.2	17.3	Noted, it is optional item
19.3	17.5, 17.6, 17.7, 17.9, 17.11, & 17.13	Noted

