

व्यावसायिक परीक्षण रिपोर्ट
COMMERCIAL TEST REPORT

संख्या/ No.: PS-376/2266/2019

माह/Month : January, 2019

THIS TEST REPORT VALID UP TO : 31st JANUARY, 2024



**ASPEE V-2007
HAND 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]

Website: <http://nrfmtti.gov.in/>

E-mail: fmti-nr@nic.in

Tele./FAX: 01662-276984

-Operating knob	Brass, Engineering plastic	NA	--
- Operating trigger	Steel, Engineering plastic	Steel	Conforms
-Spring	Stainless steel	Stainless Steel	Conforms
-Gasket	Synthetic rubber, fibre, leather, PVC	PVC	Conforms
-Gland packing	Asbestos rope	NA	--
-Gland seal	PVC	PVC	Conforms
-Split pin/Pivot pin	Steel	Steel	Conforms

Clause No.	Specified requirement	Observations	Remarks
Cl. 4.4 IS 3906:1995	The material used for different components shall be declared by the manufacturer in the manual.	Declared	Conforms

3. RUNNING – IN

Though the applicant has not recommended running-in, with the consent of the applicant the running-in of the sprayer was conducted for one hour in order to overcome variation in initial performance. Lubrication and the adjustment of the components was done as per applicants recommendation.

4. TEST FOR DISCHARGE RATE (Vide Clause 6.1.3 of IS 10134-1994)

- Date of test : 25.12.2018
- Atmospheric conditions :
 - Temperature : 17 °C
 - Relative humidity : 42 %
- Pressure : 101.5 kPa
- Data recorded

No. of hand strokes per minute	Pressure (kPa)	Test No.	Delivery from the discharge line (ml/min)	Overflow (ml/min)	Average delivery from the discharge line (ml/min)	Discharge rate of pump (ml/min)
16	300	1	400	Nil	402.5	402.5
16	300	2	400	Nil		
16	300	3	410	Nil		
16	300	4	400	Nil		

Average discharge rate : 632.5 ml/min at 300 kPa pressure



5. TEST FOR VOLUMETRIC EFFICIENCY
(Vide Clause 6.2 of IS 10134-1994)

	Date of test	:	08.01.2019
Sl. No.	Details		Observation
1.	Discharge of water in 10 successive stroke	:	230 ml
2.	No of cycle in one minute	:	10
3.	Actual volume of water in one cycle	:	23 ml
4.	Inner diameter of pump cylinder	:	45 mm
5.	Stroke length at normal working pressure	:	36.4 mm
6.	Piston displacement	:	57.89 cc
7.	Theoretical volume of water in one cycle	:	57.89 ml
8.	Volumetric efficiency, %	:	40 %

Remarks - The volumetric efficiency of pump does not conform to the requirement of IS 10134-1994.

6. TEST FOR SPRAY LANCE
(Vide Annex. D of IS: 3652-1995)

Date of test : 25.12.2018
Type : Gooseneck (Type B₂)

6.1 STRENGTH OF SPRAY LANCE

Sr. No	Details	Condition
1	Test Condition	Outlet closed
2	Hydraulic pressure applied	1 MPa
3	Duration of pressure retained	5 minutes
4	Result	Noleak, crack, or burst of lance was observed during test

6.2 MARKING ON SPRAY LANCE

Manufacturer's name or recognized trade mark : Aspee TSL/SS/PC
Nominal length, mm : 60 to 90 cm

7. TEST FOR CUT-OFF DEVICE
(Vide Annex C Clause 6.8.3 of IS:3652 : 1995)

Date : 25.12.2018
Type : Trigger type (Type - A)

7.1 MAXIMUM TRIGGER ACTUATION TORQUE

Required torque	:	Less than 35 kgf-cm
Observed torque	:	32.5 kgf-cm

C-6.2	When tested in accordance with the method given in C 6.2.1 to 6.2.7, the maximum torque required for trigger actuation shall not be more than 3.5 N-m (35 Kgf-cm).	The maximum trigger actuation torque is 32.5 Kgf-cm	Conforms
C-6.3	The operating knob in Type B cut-off device shall be suitably shaped for convenient handling.	Not applicable	--
C-7 TESTS	The cut-off device shall withstand the strength test and leakage and reliability test as given in C-8 and C-9.		
C-8.4	During this test, the cut-off device shall not crack or burst.	No crack or burst of cut off device observed at the application of 750 kPa hydraulic pressure for 5 minutes.	Conforms
C-9 Leakage and reliability test as per IS 3652:1995 C-9.3.5	The cut-off device or spray gun shall be deemed to have passed this test, if it does not drip or leak through the valve.	No sign of leakage through the valve observed after 5000 cycles at 300±30 kPa and 500 cycles of 600 ±60 kPa pressure.	Does not conform
C-10 MARKING	Each cut-off device shall be marked with the following particulars:		
a)	Manufacturer's name or recognized trade-mark	ASPEE	Conforms
b)	Batch or code number	TCP/BN	Conforms

15. CONFORMITY TO INDIAN STANDARDS

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

16. COMMENTS & RECOMMENDATIONS

- 16.1 The sprayer year of manufacture in not specified. It should be specified.
- 16.2 The strainer is not provided in the nozzle. It may be provided.
- 16.3 The back rest cushion is not provided. It may be provided.



- 16.4 The pump volumetric efficiency does not meet the requirement of Indian Standard. It **MUST** be looked into.
- 16.5 The leakage was observed through the valve of cut off device during test of leakage and reliability test for cut off device. It **MUST** be looked into for necessary action.
- 16.6 The percentage variation of discharge rate of pump not within limit specified by the relevant code/Standard. It **MUST** be looked into.
- 16.7 The strap cushion is not provided. It may be provided.
- 16.8 During the strap drop test the buckle/bracket of strap assembly found failed to hold the strap in its position. It should be improved.
- 16.9 No necessary tools are provided this sprayer. It **MUST** be provided.
- 16.10 Discharge rate of fine cone spray pattern was observed not within limit specified by the relevant Indian Standard. It **MUST** be looked into.
- 16.11 The spray angle for fine cone spray pattern at the pressure of 300 ± 30 kPa was observed not within limit specified by the relevant Indian Standard. It **MUST** be looked into.
- 16.12 The discharge rate of pump does not meet the requirement of IS 10134-1994. It **MUST** be looked into.
- 16.13 The dimension of metallic threaded connection does not conform to the requirement of IS 10134-1994. It **MUST** be looked into.
- 16.14 A suitable labelling plate (not sticker) needs to be provided with, inter alia, following information:-
- Manufacturer's name
 - Make
 - Model
 - Month & year of manufacture
 - Rated pressure
 - Discharge rate
 - Country of origin
- 16.15 **Safety provision/Safety wear.**
- Safety instructions regarding handling poisonous agro chemical before, during and after spraying operations should be provided on sprayer.




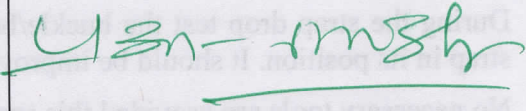
17. TECHNICAL LITERATURE

The following literature provided with sprayer for guidance to the user.

- i) Operator's manual with part's catalogue.

The operator instruction manual of sprayer needs to be updated as per IS : 8132 -1999

TESTING AUTHORITY

R. K. NEMA SENIOR AGRICULTURAL ENGINEER	
P. K. PANDEY DIRECTOR	

18. APPLICANT'S COMMENTS

Para No	Our reference	Applicant's comments
18.1	16.1	We will specify.
18.2	16.5,16.6,16.8	Noted; we will improve.
18.3	16.9,16.15	Noted; we will improve & will provide in regular production.

