

व्यावसायिक परीक्षण रिपोर्ट
COMMERCIAL TEST REPORT

संख्या/ No.: PS-438/2533/2020
माह/Month : September, 2020

THIS TEST REPORT VALID UP TO : 30th SEPTEMBER, 2027



**ASPEE JONATHAN, PPS 35/4S
ENGINE OPERATED PORTABLE 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

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[ISO 9001:2015 CERTIFIED]

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4. TEST FOR DISCHARGE RATE OF PUMP

[vide Clause 8.3 of IS- 11313: 2007]

1. Date of test : 21.09.2020
2. Atmospheric conditions :
 - a) Temperature : 35.6 °C
 - b) Relative humidity : 40.1 %
 - c) Pressure : 98.5 kPa
3. Data recorded

Speed of engine (rpm)	Working pressure (kg/cm ²)	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)	Hydraulic Power (kW)
6720	4	1	7640	NIL	7642.5	7642.5	0.05
		2	7600				
		3	7680				
		4	7650				
6603	8	1	7350	NIL	7357.5	7357.5	0.09
		2	7300				
		3	7380				
		4	7400				
6195	13	1	6870	NIL	6810.0	6810.0	0.14
		2	6750				
		3	6780				
		4	6840				
5983	18	1	6300	NIL	6290.0	6290.0	0.18
		2	6320				
		3	6250				
		4	6290				

Minimum discharge rate = 6290.0 ml/min at 18 kg/cm²
 Maximum discharge rate = 7642.5 ml/min at 4 kg/cm²
 Discharge at rated pressure = 7357.5 ml/min at 8 kg/cm²

5. TEST FOR VOLUMETRIC EFFICIENCY OF PUMP

[vide clause 8.4 of IS: 11313-2007]

Date : 25.09.2020
 Rated pressure, kg/cm² : 8
 Engine speed corresponding to rated pressure (rpm) : 6720
 Theoretical cubic capacity of pump, ml : 7866.72
 Actual volume at rated pressure, ml : 7350.00
 Volumetric efficiency, % : 93.4

6. POWER REQUIREMENT

During the pump operation from minimum to maximum pressure range, the max. hydraulic power was observed as 0.18 kW against the declared net power output of engine as 0.85 kW.



7. ENGINE PERFORMANCE TEST

In pursuance of Ministry's order No. 7-23/2011-M&T (I&P) dated 20.04.2011 the engine performance test has not been conducted and the specifications/performance as specified by the applicant/ declared in the manual have been endorsed.

S.No.	Parameter		Declaration
i	Engine Type	:	Single cylinder, 4 stroke, air cooled, Petrol engine.
ii	Bore,(mm)	:	39
iii	Stroke (mm)	:	30
iv	Displacement,(cc)	:	35.8
v	Net power out put	:	0.85 kW @ 6500 rpm
vi	Max Torque	:	1.4 Nm @ 4000 rpm
Vii	Compression ratio	:	8.2:1

8. PRESSURE ADJUSTMENT TEST
(Vide clause 8.7.1 of IS: 11313-2007)

1. Date of test : 19.09.2020
2. Atmospheric conditions :
 - a. Temperature ; 35.6 °C
 - b. Relative humidity : 40.1 %
 - c. Pressure : 98.5 kPa
3. Data recorded

S. No.	Working pressure(kg/cm ²)	Fluctuation range (kg/cm ²)	Pressure drop (kg/cm ²)	Ratio
1.	4	NIL	NIL	--
2.	8	NIL	NIL	--
3.	13	NIL	NIL	--
4.	18	NIL	NIL	--

4. Resistance of pressure: Yes

9. TEST FOR HYDRAULIC SPRAY GUN

[vide Clause 7.3(b) of IS- 11313: 2007 & Annex E of IS- 3652; 1995]

Date of test : 21.09.2020
Type of gun : Screw type

9.1 TEST FOR DISCHARGE RATE OF SPRAY GUN

The discharge rate for fine cone spray & jet spray pattern as 2600 ml/min & 3920 ml/min at the pressure of 600 kPa was declared by the applicant. The discharge rate corresponding to 600 kPa pressure was observed as under

- For fine cone spray pattern : 3230.0 ml/min
- For jet spray pattern : 3540.0 ml/min

Remarks: The observed discharge rate for fine cone spray pattern was not within limit specified by the relevant Code/Standards.

9.2 TEST FOR SPRAY ANGLE OF SPRAY GUN

The spray angle for fine cone spray pattern at a pressure of 600 kPa was declared as 72 degree by the applicant. The spray angle corresponding to 600 kPa pressure was observed as 73.2 degree.

18. COMMENTS AND RECOMMENDATIONS

- 18.1** The engaged threaded length of outlet port does not meet the requirement of relevant Indian Standard. It **MUST** be looked into.
- 18.2** The necessary tools are not provided. It **MUST** be provided.
- 18.3** The strainer in nozzle is not provided. It may be considered for providing.
- 18.4** The discharge rate for fine cone spray pattern of gun at a pressure of 600 kPa does not conform to the requirement of IS:3652-1995. It **MUST** be looked into.
- 18.5** The discharge rate for fine cone spray pattern and Jet spray pattern of nozzle at a pressure of 300 kPa does not conform to the requirement of IS: 3652-1995. It **MUST** be looked into.
- 18.6** The pressure gauge with full scale reading of 100 bar is provided, thus it does not conform to requirement of IS: 11313-2007. It **MUST** be looked into.
- 18.7** At rated pressure of 8 Kg/cm², the pump discharge was observed as 7357.5 ml/min. against the minimum requirement of 8000.0 ml/min. This **MUST** be examined.
- 18.8** Country of origin of pump is not specified. It should be specified.
- 18.9** The thickness of the wall of barrel of the gun does not meet the requirements of Indian Standard. It **MUST** be looked into.
- 18.10** The diameter of connecting rod of the gun does not meet the requirement of Indian Standard. It **MUST** be looked into.


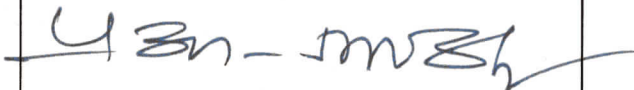
19. TECHNICAL LITERATURE

The following literatures are provided with sprayer for guidance to the user.

- i) Instruction manual.

However, the manual of sprayer should be updated as per IS: 8132-1999.

TESTING AUTHORITY

MAAN SINGH SENIOR TECHNICAL ASSISTANT	
P. K. PANDEY DIRECTOR	

20. APPLICANT'S COMMENTS

Para No.	Our reference	Applicant's Comments
20.1	18.1	Noted, we will do needful in regular production
20.2	18.2	We are providing the necessary tools with each equipment
20.3	18.3, 18.6, 18.9 & 18.10	Noted
20.4	18.4, 18.5 & 18.7	Noted, we will improve in regular production
20.5	18.8	Noted, country of origin of equipment is specified on labeling plate.