व्यावसायिक परीक्षण रिपोर्ट

COMMERCIAL TEST REPORT

संख्या/ No.: PS-363/2213/2018

माह/Month : September, 2018

THIS TEST REPORT VALID UP TO: 30th SEPTEMBER, 2023

SOUTHERN AGRO ENGINE PVT. LTD. VIJAY PANKH VIJAY VILLIERS,HAND OPERATED KNAPSACK SPRAYER

सत्यमेव जयते

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

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[ISO 9001:2015 CERTIFIED]

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	-Valve	Brass, synthetic rubber, plastic	Plastic	Conforms
	-Strainer	Brass, Aluminium alloy, stainless steel, plastic	**Not provided**	--
	-Operating knob	Brass, Engineering plastic, plastic	NA	--
	- Operating trigger	Stainless steel, Engineering plastic	Steel	**Does not conform**
	-Spring	Stainless steel, phosphor bronze	Stainless Steel	Conforms
	-Gasket	Synthetic rubber, fibre, leather, PVC	PVC	Conforms
	-Gland packing	Asbestos rope	NA	--

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)

1. Date of test : 03.07.2018
2. Atmospheric conditions :
   a) Temperature : 31 °C
   b) Relative humidity : 71 %
   c) Pressure : 97.5 KPa
3. 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	140	Nil	147.5	147.5
16	300	2	160	Nil		
16	300	3	150	Nil		
16	300	4	140	Nil		

Average discharge rate : 147.5 ml/min at 300 kPa pressure

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

	Date of test	:	10.07.2018
Sl. No.	Details		Observation
1.	Discharge of water in one minute, ml	:	147.5
2.	No of cycle in one minute	:	16
3.	Actual volume of water in one cycle	:	9.22
4.	Inner diameter of pump cylinder, mm	:	43.42
5.	Stroke length at 300 kPa pressure, mm	:	24.46
6.	Piston displacement	:	36.23 cc
7.	Theoretical volume of water in one cycle	:	36.23 ml
8.	Volumetric efficiency, %	:	25 %

Remarks: The volumetric efficiency 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 : 20.06.2018
Type : Gooseneck (Type B1)

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	No leak, crack, or burst of lance was observed during test

6.2 MARKING ON SPRAY LANCE

Manufacturer's name or recognized trade mark : **Not provided**
Batch or code number : **Not marked**
Nominal length, mm : **Not provided**

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

Date : 21.06.2018
Type : Trigger type (Type – A)

7.1 MAXIMUM TRIGGER ACTUATION TORQUE

Required torque	:	Observed torque
Less than 35 Kgf-cm	:	21.40 kgf-cm

7.2 STRENGTH TEST FOR CUT-OFF DEVICE

Sr. No	Details	Condition
1	Condition of outlet	Closed
2	Hydraulic pressure	750 kPa
3	Duration of pressure retained	5 Minute
4	Observation	No leakage, crack or burst of cut off device was observed during test

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	:	Conforms

16. COMMENTS & RECOMMENDATIONS

16.1 The sprayer serial number is not marked. It should be marked.

16.2 The volumetric efficiency of pump does not meet the requirement of Indian Standard. It **MUST** be looked into.

16.3 The manufacturer's name or recognized, batch or code number and nominal length on spray lance is not marked. It **MUST** be looked into.

16.4 The manufacturer's name or recognized trade mark, batch or code number and type of cut-off device not marked on spray lance. It **MUST** be looked into.

16.5 The Strainer is not provided in the nozzle. It may be provided.

16.6 The nozzle designation is not marked on nozzle. It **MUST** be marked.

16.7 The batch or code number of nozzle is not marked. It **MUST** be marked.

16.8 The discharge rate of fine cone spray & 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.

16.9 The spray angle for fine cone 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.

16.10 A filling hole diameter of sprayer does not conform to the requirement of IS : 3906-1995. It **MUST** be looked into.

16.11 Strap cushion is not provided. It should be provided.

16.12 The percentage variation of nozzle at fine cone pattern during endurance test exceeds the prescribe limit. It **MUST** be looked into.

16.13 The strainer is not provided in the cut off device. It may be provided.

16.14 No spare parts was provided with the sprayer. It should be provided.

16.15 The back rest cushion is not provided. It should be provided.

16.16 During the strap drop test the buckle/bracket of strap assembly found failed to hold the strap in its position. It should be improved

16.17 A suitable labelling plate (not sticker) needs to be provided with, inter alia, following information:-

i. Manufacturer's name
ii. Make
iii. Model
iv. Month & year of manufacture
v. Rated pressure
vi. Discharge rate
vii. Country of origin

16.18 Safety provision/safety wear

i) Safety wear for operator's safety during operation was not provided. It **MUST** be provided.

ii) Safety instructions regarding handling poisonous agrochemicals before, during and after spraying operation should be provided on sprayer

17. TECHNICAL LITERATURE

No literature was supplied with the sprayer. It is recommended to provide operator's manual service manual & parts catalogue for guidance of user.

The operator manual should contain safety instructions regarding handling poisonous agro chemicals before, during and after spraying operation.

TESTING AUTHORITY

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

18. APPLICANT'S COMMENTS

No comments received from applicant.