व्यावसायिक परीक्षण रिपोर्ट
COMMERCIAL TEST REPORT

संख्या/ **No.: PS-362/2206/2018**
माह/**Month : August, 2018**

ENGINE OPERATED SPRAYER
SRI NARAYANA AGRO AGENCIES, VIJAY-30

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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3. TEST FOR DISCHARGE RATE OF PUMP
[vide Clause 8.3 of IS- 11313: 2007]

1. Date of test : 14.07.2018
2. Atmospheric conditions
   a) Temperature : 36° C
   b) Relative humidity : 58 %
   c) Pressure : 99.2 kPa
3. Data recorded

Specified 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)	Power requirement (kW)
859	15.0	1	28250	8325.0	28500.0	36825.0	0.90
		2	28700				
		3	28400				
		4	28650				
853	20.0	1	32600	2462.5	32962.5	35425.0	1.16
		2	33000				
		3	32850				
		4	33400				
832	25.0	1	34400	NIL	34400.0	34400.0	1.40
		2	34250				
		3	34650				
		4	34300				
802	30.0	1	32200	NIL	32400.0	32400.0	1.59
		2	32450				
		3	32300				
		4	32650				

Minimum discharge rate = 32400.0 ml/min at 30 kg/cm^2
Maximum discharge rate = 36825.0 ml/min at 15 kg/cm^2
Discharge at rated pressure = 35425.0 ml/min at 20 kg/cm^2

4. TEST FOR VOLUMETRIC EFFICIENCY OF PUMP
(Vide clause 8.4 of IS 11313:2007)

Rated pressure, kg/cm^2 : 20
Pump speed corresponding to rated pressure , rpm : 853
Theoretical volume, ml : 42.42
Actual volume at rated pressure, ml : 41.53
Volumetric efficiency, % : 98

15. CONFORMITY TO INDIAN STANDARDS

i)	IS:11313-2007 (Reaffirmed 2012)-Hydraulic power sprayer-specification	:	**Does not conform in toto**
ii)	Spray nozzle and spray gun as perIS:3652-1995 (Reaffirmed 2011)	:	**Does not conform in toto**
iii)	Hose and hose connection as per IS:10134-1994	:	Conforms
iv)	IS: 2643-2005-Pipe threads where pressure-tight joint are not made on the threads-dimensions, tolerance and designation	:	Conforms
v)	IS: 7347-1974 (Reaffirmed 2006)-Specification for performance of small size spark ignition engines for agricultural water pumps, sprayers, tillers, reapers and other similar applications	:	Conforms

16. COMMENTS AND RECOMMENDATIONS

16.1 The serial No. and manufacturing year of sprayer is not specified. It should be specified.

16.2 The discharge rate for fine 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.

16.3 The pressure gauge marking exceeds 2.5 times the declared value of pressure. Suitable pressure gauge **MUST** be provided to ensure the compliance of the relevant Indian Standard.

16.4 The material used for different components are not declared. It **MUST** be provided.

16.5 Manufacturing year of pump is not provided. This **MUST** be provided for guidance of user.

16.6 The spray gun provided with sprayer is not designated and marked by its identification mark. The identification mark as specified by relevant Indian Standard, **MUST** be provided.

16.7 The spray nozzle is not designated and marked by its identification mark. The identification mark as specified by relevant Indian Standard, **MUST** be provided.

16.8 The spray angle for fine cone spray pattern of spray gun at the pressure of 600 ± 60 kPa does not conform to the requirement of IS : 3652-1995. It **MUST** be looked for further improvement.

16.9 **Labeling plate :**

Not a labeling plate but only a sticker is provided on sprayer that too without mentioning all the information, thus it defeats the purpose. Hence to a suitable labeling 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 speed
vi. Rated pressure
vii. Discharge rate
viii. Power rating of engine
ix. SFC of engine

16.10 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 agro-chemical before, during and after spraying operation should be provided on sprayer.

17. TECHNICAL LITERATURE

The following literatures are provided with sprayer for guidance to the user.
i) Engine specification sheet
ii) Part catalogue for sprayer
The Operator's manual must be provided, with inclusion of safety instruction regarding handling poisonous agro chemical, before during and after spraying operation.

TESTING AUTHORITY

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

18. APPLICANT'S COMMENTS

In response to draft test report the applicant has commented as ' Report is O.K.'