ENGINE OPERATED SPRAYER
HEGDE AGROTECH, SHAMBHAVI SMP-330

Government of India
Ministry of Agriculture and Farmers Welfare
Department of Agriculture, Cooperation and Farmers Welfare
Northern Region Farm Machinery Training and Testing Institute

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

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Tele./FAX: 01662-276984
3. TEST FOR DISCHARGE RATE OF PUMP

[vide Clause 8.3 of IS-11313: 2007]

1. Date of test: 08.01.2018
2. Atmospheric conditions:
   a) Temperature: 20° C
   b) Relative humidity: 47%
   c) Pressure: 99.2 kPa
3. Data recorded

<table>
<thead>
<tr>
<th>Specified speed of pump (rpm)</th>
<th>pressure (kg/cm²)</th>
<th>Test No.</th>
<th>Delivery from the discharge line (ml/min)</th>
<th>Overflow (ml/min)</th>
<th>Average discharge from the discharge line (ml/min)</th>
<th>Discharge rate of pump (ml/min)</th>
<th>Power requirement (kW)</th>
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Minimum discharge rate = 42095.0 ml/min at 17 kg/cm²
Maximum discharge rate = 42242.5 ml/min at 14 kg/cm²
Discharge at rated pressure = 42242.5 ml/min at 14 kg/cm²

4. TEST FOR VOLUMETRIC EFFICIENCY OF PUMP

(Vide clause 8.4 of IS 11313:2007)

Rated pressure, kg/cm²: 14
Rated speed of pump, rpm: 850
Theoretical volume, ml: 42.66
Actual volume at rated rpm & rated pressure, ml: 41.94
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 per IS:3652-1995: Does not conform in toto

(Reaffirmed 2011)

iii) Hose and hose connection as per IS:1013-1994: 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 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.

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

16.3 The engaged length of the thread of outlet port does not meet the requirement of Indian Standard. It MUST be looked into.

16.4 Manufacturing year of pump & country of origin are not provided. This MUST be provided for guidance of user.

16.5 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.

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

16.7 The discharge rate for fine cone spray pattern of spray gun at the pressure of 600 ± 60 kPa does not conform to the requirement of Indian Standard. It MUST be improved.

16.8 The discharge rate for fine cone spray & jet spray pattern at a pressure of 300 kPa does not conform to the requirement of Indian Standard. It MUST be improved.

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 instructions regarding handling poisonous agro-chemical before, during and after spraying operation should be provided on sprayer.

17. TECHNICAL LITERATURE

No literature is supplied with the sprayer. The operator manual should be provided with sprayer as per IS : 8132-1999 with the inclusion of safety instructions regarding handling of poisonous chemicals, safety precaution before, during and after spraying.

TESTING AUTHORITY

<table>
<thead>
<tr>
<th>R. K. NEMA</th>
<th>SENIOR AGRICULTURAL ENGINEER</th>
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<tr>
<th>P. K. PANDEY</th>
<th>DIRECTOR</th>
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18. APPLICANT'S COMMENTS

(i) We have looked in to suggestions with regard to sprayer and we will correct/resolve in next production.

(ii) The user manual with the suggested information will be provided to the customers along with the sprayer.