COMMERCIAL TEST REPORT

No.: PS-269/1954/2016
Month: October, 2016

AGRIMATE AM-708 PRO
ENGINE OPERATED KNAPSACK SPRAYER

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
[ISO 9001:2008 COMPLIANT INSTITUTION]

Website: http://nrfmtti.gov.in/
E-mail: fmti-nr@nic.in
Tele./FAX: 01662-276984
3. TEST FOR DISCHARGE RATE OF PUMP
[vide Clause 8.3 of IS- 11313: 2007]

1. Date of test : 22.08.2016
2. Atmospheric conditions :
   a) Temperature : 32°C
   b) Relative humidity : 43%
   c) Pressure : 729.9 mm of Hg
3. Data recorded

<table>
<thead>
<tr>
<th>Specified speed of engine (rpm)</th>
<th>Working 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>
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</thead>
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<td>3350</td>
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</tbody>
</table>

Minimum discharge rate = 6183 ml/min at 10 kg/cm²
Maximum discharge rate = 3413 ml/min at 2.5 kg/cm²

REMARK: Beyond the pressure of 10 kg/cm² the pump discharge & overflow observed nil, and therefore, test could not be conducted up to the working pressure of 20 to 25 kg/cm² as declared by applicant. It, therefore, does not conform to this requirement of relevant Code.

4 TEST FOR VOLUMETRIC EFFICIENCY OF PUMP
As applicant has not specified the rated speed of pump, hence volumetric efficiency could not be ascertained as per the requirement of relevant code.
However, volumetric efficiency, so to speak, was found to be 92.5% & 58.4% at 2.5 kg/cm² and at 10 kg/cm² pressure respectively. Hence the volumetric efficiency was not found as much as required by the code throughout the range of observed pressure.
15. COMMENTS AND RECOMMENDATIONS

15.1 The sprayer year of manufacture is not specified. It should be specified.

15.2 The pressure gauge is not provided on sprayer. It should be provided. Suitable pressure gauge may be provided to ensure the compliance of the relevant Indian Standard.

15.3 The diameter of connecting rod is less than the value specified in the relevant Indian Standard. It may be looked into.

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

15.5 The sprayer serial number, batch or code number is not marked on sprayer. This MUST be provided for guidance of user.

15.6 Relevant Indian Standard must be followed with regard to marking on spray gun.

15.7 As applicant has not specified the rated pressure and rated speed of pump, hence volumetric efficiency could not be ascertained. As per the requirement of relevant code, in order to facilitate the testing in the true letter and spirit, this needs to be declared.

15.8 As the applicant has not specified the specific speed for sprayer operation, the power requirement cannot be ascertained. In order to facilitate the testing in the true letter and spirit, this needs to be declared.

15.9 The prime mover (engine) make, rated speed, bore/stroke, cubic capacity, compression ratio, net torque, ignition timing, grade of lubricating oil, are not declared by applicant. This MUST be provided for guidance of user.

15.10 Pump make, model, year of manufacture, serial number, rated speed, rated pressure are not declared by applicant. This MUST be provided for guidance of user.

15.11 As the discharge rate for fine cone spray & jet spray pattern of spray gun at the pressure of 600 ± 60kPa was not declared by the applicant, the conformity of spray angle of spray gun to Cl E 3.1 of Annexure E of IS 3652-1995 could not be ascertained. In order to facilitate the testing in the true letter and spirit, this needs to be declared.

15.12 As the spray angle for fine cone spray pattern at a pressure of 600 ± 60kPa was not declared by the applicant, the conformity of discharge to Cl. E 3.2 of Annexure E of IS 3652-1995 could not be ascertained. In order to facilitate the testing in the true letter and spirit, this needs to be declared.

15.13 As the discharge rate for fine cone spray & jet spray pattern at a pressure of 300 kPa was not declared by the applicant, the conformity of discharge of nozzle to Cl F 3.1 of Annexure F of IS 3652-1995 could not be ascertained. In order to facilitate the testing in the true letter and spirit, this needs to be declared.
15.14 As the spray angle for fine cone spray pattern at a pressure of 300 kPa was not declared by the applicant, the conformity of spray angle of nozzle to Cl F 3.2 of Annexure F of IS:3652-1995 could not be ascertained. In order to facilitate the testing in the true letter and spirit, this needs to be declared.

15.15 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
- x. Country of origin

15.16 Safety provision/safety wear
- i) The accessories viz. mask, hand gloves and safety goggles for operator’s safety has not been provided with sprayer. It MUST be provided for safety of operator.
- ii) Safety instructions regarding handling poisonous agro-chemical and first aid may also be added in operator’s manual.

16. TECHNICAL LITERATURE
Though an operation manual was provided, the same was, however, found inadequate; as all necessary information required was not there. It needs to be updated as per IS:8132-1999.

TESTING AUTHORITY

R. K. NEMA
SENIOR AGRICULTURAL ENGINEER

P. K. PANDEY
DIRECTOR

17. APPLICANT’S COMMENTS

<table>
<thead>
<tr>
<th>Para No.</th>
<th>Our Reference</th>
<th>Applicant’s Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>17.1</td>
<td>1.8</td>
<td>Pump details are: Make-Agrimate, Model-AM-708</td>
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<tr>
<td>17.2</td>
<td>--</td>
<td>We have communicated comments to our manufacturer &amp; they will incorporate the same wherever it is necessary in the production level.</td>
</tr>
</tbody>
</table>