ROCKER SPRAYER SHAMBHAVI
HEGDE AGROTECH, SGR-25

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

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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 6.1.2 of IS 10134-1994)

1. Date of test : 30.01.2018
2. Atmospheric conditions :
   a) Temperature : 21\(^{\circ}\) C
   b) Relative humidity : 41%
   c) Pressure : 98.8 kPa
3. Data recorded

<table>
<thead>
<tr>
<th>No. of hand strokes per minute</th>
<th>Pressure (kPa)</th>
<th>Test No.</th>
<th>Delivery from the discharge line (ml/min)</th>
<th>Overflow (ml/min)</th>
<th>Average delivery from the discharge line (ml/min)</th>
<th>Discharge rate of pump (ml/min)</th>
</tr>
</thead>
<tbody>
<tr>
<td>16</td>
<td>600</td>
<td>1.</td>
<td>730</td>
<td>NIL</td>
<td>722.5</td>
<td>722.5</td>
</tr>
<tr>
<td>16</td>
<td>600</td>
<td>2.</td>
<td>700</td>
<td>NIL</td>
<td></td>
<td></td>
</tr>
<tr>
<td>16</td>
<td>600</td>
<td>3.</td>
<td>720</td>
<td>NIL</td>
<td></td>
<td></td>
</tr>
<tr>
<td>16</td>
<td>600</td>
<td>4.</td>
<td>740</td>
<td>NIL</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Average discharge rate : 722.5 ml/min at 600 kPa pressure.

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

<table>
<thead>
<tr>
<th>Sl. No.</th>
<th>Details</th>
<th>:</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Discharge of water in one minute</td>
<td>7225</td>
</tr>
<tr>
<td>2.</td>
<td>No of cycle in one minute</td>
<td>16</td>
</tr>
<tr>
<td>3.</td>
<td>Actual volume of water in one cycle</td>
<td>45.16 ml</td>
</tr>
<tr>
<td>4.</td>
<td>Inner diameter of pump cylinder</td>
<td>47 mm</td>
</tr>
<tr>
<td>5.</td>
<td>Stroke length at 600 kPa pressure</td>
<td>30.88 mm</td>
</tr>
<tr>
<td>6.</td>
<td>Piston displacement</td>
<td>53.60 ml</td>
</tr>
<tr>
<td>7.</td>
<td>Theoretical volume of water in one cycle</td>
<td>53.60 c.c.</td>
</tr>
<tr>
<td>8.</td>
<td>Volumetric efficiency, %</td>
<td>84</td>
</tr>
</tbody>
</table>
When tested in accordance with the method given in C 6.2.1 to 6.2.7, the maximum torque required for trigger actuation shall not be more than 3.5 N-m (35 Kgf-cm).

The maximum trigger actuation torque is 24.86 Kgf-cm.

The operating knob in Type B cut-off device shall be suitably shaped for convenient handling.

Not applicable

The cut-off device shall withstand the strength test and leakage and reliability test as given in C-8 and C-9.

No crack or burst of cut off device observed at the application of 750 kPa hydraulic pressure for 5 minutes.

No sign of leakage through the valve observed after 5000 cycles at 300±30 kPa and 500 cycles of 600 ±60 kPa pressure.

Each cut-off device shall be marked with the following particulars:

a) Manufacturer’s name or recognized trade-mark, Not marked Does not conform

b) Batch or code number, and Not marked Does not conform

c) Type of cut-off device. Not marked Does not conform

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 : Does not conform in toto
16. COMMENTS & RECOMMENDATIONS

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

16.2 The agitator is not provided. It should be provided.

16.3 Pump serial no. is not specified. It should be specified.

16.4 Material of handle, operating lever, handle extension, handle pivot and frame does not meet the requirement of Indian Standard. It MUST be looked into.

16.5 Buffer is not provided. It MUST be provided.

16.6 Strainer is not provided in the cut-off device. It should be provided.

16.7 The spray lance is not marked. It should be marked.

16.8 The cut-off device is not marked. It should be marked.

16.9 The nozzle is not marked. It should be marked.

16.10 The discharge capacity of pump does not meet the requirement of IS: 10134: 1994. It MUST be looked into.

16.11 The metallic threaded connection provided on sprayer does not meet the requirement of Indian Standard. It MUST be looked into.

16.12 The sprayer does not conform to the relevant Standard in toto. It MUST be looked into.

16.13 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

16.14 Safety provision/Safety wear
   i) The safety instructions before, during and after spraying operation MUST be provided on sprayer.