REDBEE DP-20 K
ENGINE OPERATED 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]

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### PERFORMANCE REQUIREMENTS
**(CL6. IS 11313:2007)**

<table>
<thead>
<tr>
<th>Cl.6.1 Discharge rate/Suction capacity</th>
<th>When tested in accordance with the method given in 8.3, the pump shall be capable of discharging/sucking a minimum of 8000 ml. water per minute at its rated speed and rated pressure.</th>
<th>The pump is capable to discharge 15690 ml/min at 18 kg/cm² pressure.</th>
<th>Conforms</th>
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</thead>
<tbody>
<tr>
<td>Cl.6.1.1</td>
<td>The discharge rate/suction capacity shall be declared by the manufacturer.</td>
<td>18 l/min declared in the manual of submitted by the manufacturer.</td>
<td>Conforms</td>
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<tr>
<td>Cl.6.2 Volumetric Efficiency Cl6.2.1</td>
<td>When determined in accordance with 8.4.1, the volumetric efficiency of the piston/plunger type pump shall minimum 80 percent.</td>
<td>N.A. as diaphragm pump is provided.</td>
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<td>Cl.6.2.2</td>
<td>The volumetric efficiency requirement for roller vane type pump shall be minimum 80%.</td>
<td>Not applicable</td>
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<td>Cl.6.3 Power requirement</td>
<td>When tested in accordance with the method given in 8.5, pump shaft power requirement shall not be more than that of the value declared by the manufacturer.</td>
<td>Not applicable</td>
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<td>Cl.6.4 Maximum achievable pressure</td>
<td>When tested in accordance with the method given in 8.7, maximum achievable pressure shall not be less than that of the value declared by the manufacturer.</td>
<td>Maximum achievable pressure observed as 18 kg/cm² against the declaration of 20 kg/cm².</td>
<td>Does not conform</td>
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<td>Cl.6.5 Endurance test</td>
<td>Sprayer shall withstand the test endurance test specified in 8.8 and the variation in Discharge rate between first and last observation shall not be more than ± 5 Percent.</td>
<td>Endurance test of 50 hrs. Completed without any breakdown &amp; the variation in pressure. Percentage variation in discharge is 1.93% within specified limit (see Annexure IV for more details).</td>
<td>Conforms</td>
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### OTHER REQUIREMENTS
**(IS 11313:2007)**

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<tr>
<th>Cl. 7.1</th>
<th>Each sprayer shall be provided with parts catalogue and manual giving detailed information about sprayer, engine, its rated speed along with operational and maintenance instructions and safety precautions.</th>
<th>Manuals and parts catalogue is provided by the manufacturer and found adequate in contents.</th>
<th>Conforms</th>
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<tr>
<td>Cl. 7.2</td>
<td>Each sprayer shall be provided with a set of necessary tools, suction strainer having aperture size of 300 µm to 425 µm and a measuring jar for lubricating oil.</td>
<td>One set of Gaskets &amp; spanner with suction strainer of 350 µm aperture size is provided.</td>
<td>Conforms</td>
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ENGINE OPERATED SPRAYER
‘REDBEE DP-20 K’, COMMERCIAL

MARKING AND PACKING
(C10 IS:11313-2007)

<table>
<thead>
<tr>
<th>Cl.10.1 Marking</th>
<th>Each sprayer shall be marked with the following particulars:--</th>
<th>Conforms</th>
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</thead>
<tbody>
<tr>
<td>a)</td>
<td>Manufacturer’s name &amp; his registered trade mark</td>
<td>A sticker on engine is provided with following information:- Redbee Diaphragm power sprayer DP-20K imported and distributed by Redbee Machines No. 162 &amp; 162 (D), 2nd Cross, Belgaon Industrial Area, Metagalli, Mysore, Karnataka, Pin- 570016</td>
</tr>
<tr>
<td>b)</td>
<td>Sl. No. and batch or code No.</td>
<td>Not specified</td>
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5. **SUMMARY OF OBSERVATION**
5.1 The discharge rate was observed as 15690 ml/min at 18 kg/cm² pressure.
5.2 Volumetric efficiency was observed as 90.01% against the minimum requirement of 80%.
5.3 Power requirement: 1.23 kW rated power was observed against 1.25 kW declared by the manufacturer.
5.4 Pressure adjustment: No fluctuation of the pressure was observed during the test.
5.5 Maximum achievable pressure was observed as 18 kg/cm².
5.6 **Endurance test**
a) The test was conducted 50 hours. The discharge rate variation is observed as 1.93%, which is within the limit of ±5%.
b) No noticeable breakdown was observed during the test.

6. **COMMENTS AND RECOMMENDATION**
6.1 **Conformity to Indian Standard**
Engine operated sprayer Redbee DP-20 K conforms all the clauses of IS: 11313-2007 except requirement specified in the following clause. These should be rectified and incorporated at manufacturing level:-

i) Clause No. 4.1 and 4.3 IS: 11313-2007 Sr. No. ii) pressure chamber, Sr. No. xxiv) pump inlet port end fitting Sr. No. xxvi) connecting rod not as per Indian Standard.

ii) Cl. E. 2.2 IS: 3652-1995-The diameter of connecting rod of gun is not as per IS.

iii) Cl. E. 2.4 IS: 3652:1995 – The total length of the spray gun is not as per IS.

iv) Cl.E.5 IS: 3652:1995- The spray gun is not designated by its identification mark.

v) Cl.E.6 IS: 3652:1995- Marking on gun is not as per IS.

vi) Cl.10.1 (b) IS: 11313-2007 – Sr. No. and batch or code No. is not provided. It should provide.

vii) The prime mover (engine) country of origin is not specified by applicant. It should be provided on sprayer.

viii) The pump make, model, manufacturing year and serial number is not specified by applicant. It should be provided on sprayer.
6.2 The engine shall be marked with the following
i) Imported & distributor’s name or his trade mark
ii) Serial Number of the engine

6.3 Safety provision/safety wear
i) The accessories viz mask, hand gloves and safety goggles for operator’s safety has not been provided with sprayer for safety of users.
ii) Safety signs and hazard pictorials are not provided on the machine. It must be provided on the machine for safety of user.

7. TECHNICAL LITERATURE
The operation manual of sprayer and engine was provided during the test which found adequate whereas the literature should be undated as per IS: 8132:1999.

TESTING AUTHORITY

<table>
<thead>
<tr>
<th>G. R. AMBALKAR</th>
<th>AGRICULTURAL ENGINEER</th>
</tr>
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<tbody>
<tr>
<td>R. K. NEMA</td>
<td>SENIOR AGRICULTURAL ENGINEER</td>
</tr>
<tr>
<td>P. K. PANDEY</td>
<td>DIRECTOR</td>
</tr>
</tbody>
</table>

8. APPLICANT’S COMMENTS
No specific comments received from applicant.