JAPUJI KAT-BS-12
BATTERY 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

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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 : 29.09.2017
2. Atmospheric conditions :
   a) Temperature : 32 ºC
   b) Relative humidity : 62%
   c) Pressure : 97.8 kPa
3. Data recorded

<table>
<thead>
<tr>
<th>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>
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</thead>
<tbody>
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</tbody>
</table>

Minimum discharge rate = 1212.5 ml/min at 4 kg/cm²
Maximum discharge rate = 2717.5 ml/min at 1 kg/cm²
Discharge at rated pressure = 1697.5 ml/min at 3 kg/cm²

4. TEST FOR VOLUMETRIC EFFICIENCY
(Vide Clause 8.4 of IS – 11313 : 2007)

Rated pressure, kg/cm² : 3
Avg. discharge of water at rated pressure, l/min : 1.700
Avg. discharge of water at no-load, l/min : 2.970
Avg. pump speed at no-load, rev/min : 3740
Avg. pump speed at rated pressure, rev/min : 3446
Volumetric efficiency of pump, % : 62
The exposed mild steel parts shall have a protective coating to prevent surface deterioration. The steel used for hose ferrule/clip shall be plated with cadmium, zinc or nickel exposed brass parts may be given a suitable protective finish with clear transparent lacquer.

Each sprayer shall be marked with the following particulars

a) Manufacturer’s name or recognized trade mark
Japuji
Japuji Battery Operated Knapsack Sprayer
Model No: KAT-BS-12
Kisan Agro Tech
H.O Ward No-09, Sunam Road, Lehragaga Distt. Sangrur-148031 (Punjab)
Tel & Fax No 01676-273400, Mob No 9878994213, 98888-41488, 98555-26624
Email: info@kissanagrotech.in, visit as at WWW.Kissanagrotech.in

b) Batch or Serial No. Not marked

Does not conform in toto

c) Tank nominal capacity
Not marked
18 ltr.
Conforms

Each sprayer shall be packed as agreed to between the purchase and the supplier for safe handling in transit.

15. CONFORMITY TO INDIAN STANDARDS

i) IS: 11313:2007 Hydraulic power sprayers- specification
Does not conform in toto

ii) IS: 10134-1994-Method of test for manually operated sprayer
Does not conform in toto

iii) Spray nozzle and spray gun as per IS:3652-1995 (Reaffirmed 2011)
Does not conform in toto

iv) 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 serial number is not marked. It should be marked.

16.2 Battery charger make, model and country of origin is not marked. It should be marked.

16.3 The make and speed of motor is not specified. It should be specified.
16.4 Pump make, model, serial number and country of origin is not marked. It should be marked.

16.5 The strainer in nozzle is not provided. It should be provided.

16.6 The cut-off device and spray lance batch or code number is not marked. It should be marked.

16.7 The tank capacity of sprayer does not meet the requirement of Indian Standard. It **MUST** be looked into.

16.8 The volumetric efficiency of pump does not meet the requirement of Indian Standard. It **MUST** be improved.

16.9 Agitator is not provided. It may be provided.

16.10 Metallic threaded connection provided on sprayer does not meet the requirements of Indian Standard. It **MUST** be looked into.

16.11 The strap width and strap cushion thickness does not meet the requirement of Indian Standard. It **MUST** be looked into.

16.12 The spray angle of nozzle does not meet the requirement of Indian Standard. It **MUST** be looked into.

16.13 The current drawn by motor at no load and on load was observed as 0.94 and 2.06A respectively which does not conform to requirement of IS- 14459: 1997.

16.14 Time required to full charge the battery with AC charger is observed as 7.9 to 8.08 hours.

16.15 The spraying operation time after fully charging the battery was observed as 8.08 to 9 hours.

16.16 During the pump chamber hydraulic test the motor stopped beyond 5 kg/cm² pressure against the pressure requirement of 7.5 kg/cm² and the test could not be conducted. This **MUST** be looked into and improved.

16.17 The discharge rate of nozzle for jet spray pattern does not meet the requirement of Indian Standard. It **MUST** be looked into.

16.18 The nozzle designation does not meet the requirement of Indian Standard. It **MUST** be improved.

16.19 The nozzle batch or code number is not marked. It **MUST** be marked.

16.20 During the strap drop test the buckle/bracket of strap assembly found failed to hold the strap in its position. It should be improved.
16.21 The material of pump inlet port end lifting does not meet the requirement of Indian Standard. It should be looked into.

16.22 A suitable labeling plate (not sticker) needs to be provided with, inter alia, the 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
   ix. Country of origin

17. TECHNICAL LITERATURE

Operator, maintenance & parts manual of sprayer was provided during the test. However, the manual should be updated as per IS : 8132-1999, with the inclusion of safety instructions regarding handling of poisonous chemicals & first aid.

TESTING AUTHORITY

R. K. NEMA  
SENIOR AGRICULTURAL ENGINEER

P. K. PANDEY  
DIRECTOR

18. APPLICANT'S COMMENTS

No comments received from applicant.