

प्रारंभिक व्यावसायिक परीक्षण रिपोर्ट

संख्या/No. CSIR/CMERI/FMTTC/2024/029

INITIAL COMMERCIAL TEST REPORT

माह/Month: June, 2024

THIS TEST REPORT VALID UP TO

:

31ST MAY, 2031



**BALWAAN BS-21
BATTERY CUM MANUAL OPERATED
KNAPSACK SPRAYER**



कृषि मशीनरी प्रशिक्षण और परीक्षण केंद्र
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CSIR/CMERI/FMTTC/2024/029	BALWAAN BS-21 BATTERY CUM MANUAL OPERATED KNAPSACK SPRAYER (INITIAL COMMERCIAL TEST)
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1. SPECIFICATIONS

1.1 General

Type	: 2 in 1 Knapsack Sprayer
Make	: BALWAAN KRISHI
Model	: BS21
Serial No.	: Not Specified
Name of manufacturer	: Modish Tractor Aurkisan Pvt. Ltd. 17-C Sharma Colony, Extension. 22, Godam Industrial Area, Jaipur – 302006, Rajasthan
Year of manufacture	: 2024
Capacity of sprayer, l	: 16
Working pressure, kg/cm ²	: 1 to 6

1.2 Motor (As per Sticker)

Type	: D C Motor
No. of Motor	: 01
Make	: BALWAAN KRISHI
Serial number	: Not specified
Motor operating voltage	: 12 V, DC
Motor power	: Not specified
Max. Current	: 2 A
Rated speed, rpm	: 2800

1.3 Battery (As per Sticker)

Type	: Sealed, Lead-Acid Battery
Make	: BALWAAN
Model	: FMD12-8.0 (12V 8.0AH/20HR)
Batch number	: 2023-12
Capacity & rating	: 12V, 8AH/ 20HR
Country of origin	: Not Specified
Location	: Below the chemical tank.

1.4 Battery Charger from AC Supply

Make	: BALWAAN KRISHI
Model	: Not Specified
Input voltage	: AC 220V 50/60 Hz
Output voltage	: DC 12 V
Output current	: 1.3 A
Country of origin	: Not specified

1.5 Pump

Type	: Diaphragm
Make	: BALWAAN KRISHI
Model	: Not specified
Sr. number	: Not specified
Method of drive	: Off/ On Switch
Working pressure, kg/cm ²	: 1 to 6
Rated pressure, kg/cm ²	: 3
Rated speed, rpm	: 2800

Report prepared by

Subrata Kr Mandal

Report verified by

Subrata Kr Mandal

11. ENDURANCE TEST OF SPRAYER
(Vide clause 8.8 of IS-11313:2007)

1. Date of test: 16.05.2024 to 24.05.2024
2. Total running time (h) - 50
3. Quantity of liquid collected during endurance: -
Avg. discharge (ml/min)
 - a) First Collection - 1960
 - b) Second Collection - 1950
 - c) Third Collection - 1940
 - d) Fourth collection - 1950
 - e) Fifth Collection - 1930
 - f) Sixth Collection - 1940
 - g) Seventh Collection - 1950
4. Percentage variation of discharge from first to last collection, 0.51 %

12. TEST FOR PUMP CHAMBER
(Vide Clause 7.1 of IS 10134-1994)

Date of test : 27.05.2024

Sr. No.	Details	Condition
1	Test Condition	Outlet end closed
2	Pressure applied -Hydraulic pressure -Pneumatic pressure	Motor stopped beyond 6.0 kg/cm ² pressure against the pressure requirement of 7.5 kg/cm ² . 4.5 kg/cm ²
3	Duration	1 minutes each
4	Result	No leakage, crack deformation or breakage observed in pump chamber during the test.

Remarks : Tendency of stalling of motor was observed beyond 6.0 kg/cm² hydraulic pressure and therefore sprayer does not confirm to the requirement laid down in clause 7.1 of IS: 10134:1994.

13. TEST FOR HOSE AND HOSE CONNECTION
(Vide Clause 5.14.3 of IS 11313:2007 & Clause 7.2 of IS 10134-1994)

Date of test : 27.05.2024

Sr. No.	Details	Condition
1	Test condition	Outlet end closed
2	Hydraulic pressure applied	1.5 MPa
3	Duration	1 minutes
4	Result	No leakage, crack or breakage observed in hose and hose connection during the test.

22. COMMENTS & RECOMMENDATIONS

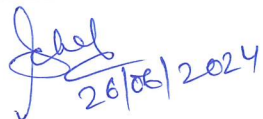
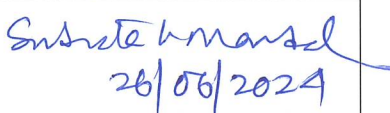
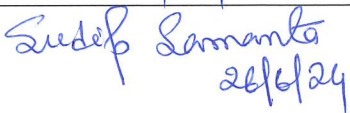
- 22.1 The serial number & power of motor is not specified. It should be specified.
- 22.2 The country of origin of battery is not specified. It should be specified.
- 22.3 The model & country of origin of battery charger is not specified. It should be specified.
- 22.4 The model, serial number & country of origin of pump is not specified. It should be specified.
- 22.5 The material used for pump inlet port end fitting does not meet the requirements of Indian standard. It must be looked into.
- 22.6 The material for nozzle disc, tip does not meet the requirements of Indian standard. It must be looked into.
- 22.7 The spray lance is not marked and designated. It must be marked and designated as per standard.
- 22.8 The nozzle is not marked and designated. It should be marked and designated as per standard.
- 22.9 The cut off device is not marked and designated. It should be marked and designated as Per standard.
- 22.10 During the pump chamber hydraulic test, the motor stopped beyond 6.0 kg/cm² pressure against the pressure requirement of 7.5 kg/cm². Thus the sprayer does not meet the requirement of Indian Standard.
- 22.11 The tank capacity does not meet the requirement of Indian standard. It must be looked into.
- 22.12 The size of the strap cushion does not meet the requirements of Indian standard. It must be looked into.
- 22.13 The material and length of spray lance does not meet the requirements of Indian standard. It must be looked into.
- 22.14 The average size of the strainer in cut off device does not meet the requirements of Indian standard. It must be looked into.

Report prepared by**Report verified by**

23. TECHNICAL LITERATURE

The operator, maintenance & parts manual of sprayer was provided during the test which found adequate, however, the manual should be updated as per IS: 8132:1999, with the inclusion of safety instructions regarding handling poisonous agrochemical and first aid.

TESTING AUTHORITY

Report Prepared by	Sr. Technical Officer, CSIR-CMERI Farm Machinery Testing Centre	 26/06/2024
Report Verified & Approved by	In-Charge, CSIR-CMERI Farm Machinery Testing Centre	 26/06/2024
Report Approved for release by	Head, Business Development Unit, CSIR-CMERI, Durgapur	 26/6/24

24. APPLICANT'S COMMENTS

Para No.	Our Reference	Applicant's Comments
24	22.1 – 22.14	It's ok corrective action will be taken

