

**THIS TEST REPORT VALID UP TO : 31<sup>st</sup> December, 2025**



**KISANKRAFT, KK-BBS-185  
BATTERY OPERATED KNAPSACK SPRAYER**



भारत सरकार

Government of India

कृषि एवं किसान कल्याण मंत्रालय

Ministry of Agriculture and Farmers Welfare

कृषि, सहकारिता एवं किसान कल्याण विभाग

Department of Agriculture, Cooperation and Farmers Welfare

उत्तरी क्षेत्र कृषि मशीनरी प्रशिक्षण एवं परीक्षण संस्थान

Northern Region Farm Machinery Training and Testing Institute

ट्रैक्टर नगर, सिरसा रोड, हिसार, (हरियाणा) - 125 001

Tractor Nagar, Sirsa Road, HISAR (Haryana)-125 001

[ISO 9001:2015 CERTIFIED]

Website: <http://nrfmtti.gov.in/>

E-mail: [fmti-nr@nic.in](mailto:fmti-nr@nic.in)

Tele./FAX: 01662-276984

	-Gland seal	PVC	PVC	Conforms
	-Gland packing	Asbestos rope	Not applicable	--
xxxiii)	<b>Material of construction of various components as per IS: 3906-1995</b>			
	Strap	Woven web cotton/synthetic yarn	Synthetic yarn	Conforms
	Skirt/Stand	Steel, plastic	Plastic	Conforms
	Strap buckle	Steel, Engg. Plastic	Engg. Plastic	Conforms
	Cushion	Foam, rubber, foam plastic	Rubber	Conforms
xxxiv)	The material used for different components shall be declared by the manufacturer, all the components mentioned in the table-I may not be present in a particular sprayer.		Declared by the manufacturer	Conforms

### 3. TEST FOR DISCHARGE RATE OF PUMP (Vide Clause 8.3 of IS – 11313: 2007)

1. Date of test : 15.12.2020  
 2. Atmospheric conditions :  
 a) Temperature : 16.7 °C  
 b) Relative humidity : 58.9 %  
 c) Pressure : 99.3 kPa

#### 3. Data recorded

Speed of Pump (rpm)	Pressure (kg/cm <sup>2</sup> )	Test No.	Delivery from the discharge line (ml/min)	Overflow (ml/min)	Average discharge from the discharge line (ml/min)	Discharge rate of pump (ml/min)
3527	1	1	2050	NIL	2065.0	2065.0
		2	2080			
		3	2060			
		4	2070			
3408	2	1	1940	NIL	1942.5	1942.5
		2	1960			
		3	1930			
		4	1940			
3371	3	1	1800	NIL	1805.0	1805.0
		2	1810			
		3	1790			
		4	1820			
3313	4	1	1400	NIL	1410.0	1410.0
		2	1420			
		3	1390			
		4	1430			

Minimum discharge rate = 1410.0 ml/min at 4 kg/cm<sup>2</sup>  
 Maximum discharge rate = 2065.0 ml/min at 1 kg/cm<sup>2</sup>  
 Discharge at rated pressure = 1805.0 ml/min at 3 kg/cm<sup>2</sup>



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

Date of Test	:	15.12.2020
Rated pressure, kg/cm <sup>2</sup>	:	3
Avg. discharge of water at rated pressure, ml/min	:	1805
Avg. discharge of water at no-load, ml/min	:	2352
Avg. pump speed at no-load, rev/min	:	3701
Avg. pump speed at rated pressure, rev/min	:	3371
Volumetric efficiency of pump, %	:	84.1

**5. POWER REQUIREMENT**  
( Vide Clause 8.5 of IS – 11313 : 2007)

Date of test	:	16.12.2020
Power requirement of DC motor fitted on sprayer was observed as following:-		
1. Motor operating voltage	:	12 V
2. Avg. current drawn by motor at no load	:	0.96 A
3. Avg. current drawn by motor at load	:	1.75 A
4. Avg. motor operating voltage	:	12.42 V
5. Avg. observed motor power requirement	:	21.78 watt
6. Avg. motor speed at no load	:	3701 rpm
7. Avg. motor speed at load	:	3371 rpm
8. Avg. time required for fully discharge of battery	:	6.5 to 7 h
9. Avg. No load rpm of motor after 6 hours of operation	:	2505 rpm

**6. PRESSURE ADJUSTMENT TEST**

1.	Date of test	:	15.12.2020
2.	Atmospheric conditions:-		
a.	Temperature	:	16.7 °C
b.	Relative humidity	:	58.9 %
c.	Pressure	:	99.3 kPa
3.	Data recorded		



S. No.	Working pressure (kg/cm <sup>2</sup> )	Fluctuation range (kg/cm <sup>2</sup> )	Pressure drop (kg/cm <sup>2</sup> )	Ratio
1.	1	NIL	NIL	--
2.	2	NIL	NIL	--
3.	3	NIL	NIL	--
4.	4	NIL	NIL	--

4. Resistance of pressure: Yes



**7. TEST FOR SPRAY LANCE**  
(Vide Annex D of IS – 3652: 1995)

Date of test : 08.12.2020  
Type : Straight (Type-A)

**7.1 STRENGTH OF SPRAY LANCE**

Sr. No	Details	Condition
1	Test Condition	Outlet closed
2	Hydraulic pressure applied	1 MPa
3	Duration of pressure retained	5 minutes
4	Result	No leak, crack, or burst of lance was observed during test

**7.2 MARKING ON SPRAY LANCE**

Manufacturer's name or recognized trade mark : **Not Marked**  
Nominal length : **Not Marked**  
Batch or code number : **Not Marked**

**8. TEST FOR CUT-OFF DEVICE**  
(Vide Annex C Clause 6.8.3 of IS – 3652: 1995)

Date : 08.12.2020  
Type : Trigger type (Type – A)

**8.1 MAXIMUM TRIGGER ACTIVATION TORQUE**

Required torque	:	Observed torque
Less than 35 kgf-cm	:	28.9 kgf-cm

**8.2 STRENGTH TEST FOR CUT-OFF DEVICE**

Sr. No	Details	Condition
1	Condition of outlet	Closed
2	Hydraulic pressure	750 kPa
3	Duration of pressure retained	5 Minute
4	Observation	No leak, crack or burst of cutoff device was observed during test.

**8.3****LEAKAGE AND RELIABILITY TEST FOR CUT-OFF DEVICE**

Sr. No.	Details	Condition
1	Test Condition	Mounted on test setup
2	Hydraulic pressure retained	300 kPa
3	Operating cycles	5000 cycles at pressure 300 kPa and repeated for 500 cycles at a pressure of 600 kPa @ 15 cycles per minutes
4	Observation	No drip or leak of cut off device through valve was observed during the test



17. COMMENTS & RECOMMENDATIONS	
17.1	The battery charger model and country of origin is not specified. It should be specified
17.2	The motor serial number and speed is not specified. It should be specified.
17.3	The country of origin and serial number of pump is not specified. It should be specified.
17.4	The manufacturer's name or recognized trade mark, type of cut off device and batch or code number of cut off device is not marked. It <b>MUST</b> be looked into.
17.5	The strainer in nozzle is not provided. It may be considering for providing.
17.6	The country of origin of battery is not specified. It <b>MUST</b> be looked into.
17.7	Agitator is not provided. It may be provided.
17.8	The strap cushion thickness does not meet the requirement of Indian Standard. It may be looked into.
17.9	Time required to full charge the battery with AC charger is observed as 6.5 to 7 hours.
17.10	The spraying operation time after fully charging the battery was observed as 4.5 to 6 hours.
17.11	The manufacture's name or recognized trade mark, nominal length and batch or code number of lance is not marked. It <b>MUST</b> be looked into.
17.12	The discharge rate of nozzle for fine cone spray pattern does not meet the requirement of Indian Standard. It <b>MUST</b> be looked into.
17.13	The manufacturer's name or recognized trade mark, batch or code number and designation of nozzle is not marked. It <b>MUST</b> be looked into.
17.14	During the strap drop test the buckle/bracket of strap assembly found failed to hold the strap in it's position. It should be improved.
17.15	The average size of strainer of cut off device does not meet the requirement of Indian Standard. It <b>MUST</b> looked into.
17.16	The strainer area of cut off device does not meet the requirement of Indian Standard. It <b>MUST</b> be looked into.
17.17	The strap width does not meet the requirement of Indian Standard. It <b>MUST</b> be looked into.
17.18	The chemical tank of sprayer does not meet the requirement of Indian Standard. It <b>MUST</b> be looked into.
17.19	A suitable labeling plate (Not sticker) needs to be provided with "interalia" 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
17.20	<b>Safety provision/Safety wear</b> Apron, Gum boots, Ear protector, Hand glove and Mask etc. <b>MUST BE</b> provided with the machine for the safety of users.





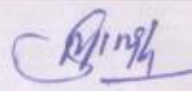
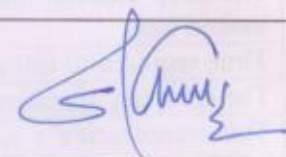
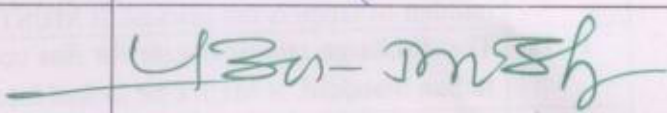
**18. TECHNICAL LITERATURE**

The following literature are provided with sprayer for guidance to the user.

- i. Operation manual cum service manual
- ii. Parts catalogue

However, the manual of sprayer should be updated as per IS:8132-1999.

**TESTING AUTHORITY**

MAAN SINGH SENIOR TECHNICAL ASSISTANT	
SANJAY KUMAR AGRICULTURAL ENGINEER	
P. K. PANDEY DIRECTOR	

**19. APPLICANT'S COMMENTS**

Para No.	Our reference	Applicant's Comments
19.1	17.1, 17.2, 17.3, 17.5, 17.6, 17.7, 17.11, 17.13, 17.14, 17.20, & 17.21	We will take corrective action against the same.
19.2	17.4, 17.8, 17.12 & 17.19	We will take corrective action to meet the requirement of Indian Standard.

