

व्यावसायिक परीक्षण रिपोर्ट

COMMERCIAL TEST REPORT [FIRST BATCH]

संख्या/ No.: PS-509/2857/2022

माह/Month: May, 2022

THIS TEST REPORT VALID UP TO : 31st May, 2027



**SHAKTI, SBS-520e
BATTERY CUM HAND OPERATED KNAPSACK SPRAYER**



भारत सरकार

Government of India

कृषि एवं किसान कल्याण मंत्रालय

Ministry of Agriculture and Farmers Welfare

कृषि एवं किसान कल्याण विभाग

Department of Agriculture and Farmers Welfare

उत्तरी क्षेत्र कृषि मशीनरी प्रशिक्षण एवं परीक्षण संस्थान

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[ISO 9001:2015 CERTIFIED]

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25. CRITICAL TECHNICAL SPECIFICATIONS
(Applicable for hand operated knapsack sprayer)

[Vide Ministry's letter no. 13-9/2019- M&T (I&P) – part dated 26.04.2019 and F.No. 9-4/2019 M&T (I&P) dated 20.08.2019]

Sr. No.	Parameters	Specification	Observation	Remarks
1.	Tank Capacity, l	10, 13 or 16 with tolerance of ± 0.5 litre.	Tank capacity is 16 litres.	Conforms
2.	Straps, mm	Strap length 800 (Min) & width 38 (Min)	Two straps are provided having 1025 mm length and 33 mm width.	Partially conform
3.	Pump discharge, ml/mm	>500 at 300 kPa pressure	1310.0 ml/min	Conforms
4.	Tank filling hole dia, mm	90 (min)	Circular filling hole of 116 mm diameter is provided.	Conforms
5.	Tank material	Brass, Plastic or stainless steel	Plastic	Conforms
6.	Lid or cap material	Brass, Plastic, Stainless steel	Plastic	Conforms
7.	Strainer at filling hole & at cut-off device	Must be provided	Provided	Conforms
8.	Empty mass of sprayer, kg	8.0 (Max.)	5.540 kg	Conforms
9.	Delivery hose length, cm	110 (Preferably)	A deliver hose of 124.0 cm length is provided.	Conforms
10.	Cushion on strap, mm	Thickness 20 (Min) and width 40 (Min)	Cushion of width 57.8 mm and 6.5 mm thickness is provided	Partially conform
11.	Back rest cushion	Must be provided.	Provided	Conforms
12.	Spray lance marking	Manufacturer name or recognized trade mark, nominal length & batch or code number	Not marked	Does not conform
13.	Safety accessories	Mask, apron, hand gloves, gum boots and safety goggles must be provided.	Provided	Conforms
14.	Making of nozzle	Manufacture Name/Trade name, Batch or Code number, Nozzle designation must be provided. As per BIS	Not marked	Does not conform
15.	Spray lance construction	Should be seamless	Seamless lance is provided	Conforms

16.	Making/labelling of sprayer	The labelling plate should be provided on the body of sprayer having name & address of manufacturer, month & year of manufacture, rated pressure, discharge rate, country of origin.	Just a sticker not proper labelling plate is provided on the sprayer with following information Battery cum hand operated knapsack sprayer Make-Shakti Model-SBS-520e Sl. no.- BS-09/22 Mfg- January, 2022 2153/9, St. No. -6, Arjun Nagar, Gill Road, Ludhiana-141003 (Punjab)	Conforms
17.	Literature	Operator manual, service manual & parts catalogue should be provided.	Provided	Conforms

Note:- The implementation of critical technical specifications has been deferred till 30.09.2022 vide Ministry's O.M. No. 13-1/2021 M&T (I&P) dated 03.02.2022

26. CONFORMITY TO INDIAN STANDARDS

- i) IS:11313-2007 Hydraulic power sprayers- : **Partially conform**
specification
- ii) IS: 10134-1994-Method of test for manually : **Partially conform**
operated sprayer
- iii) Spray nozzle and spray gun as per IS:3652- : **Partially conform**
1995 (Reaffirmed 2011)

27. COMMENTS & RECOMMENDATIONS

- 27.1** The discharge rate of nozzle at a pressure of 300 kPa for jet spray pattern does not conform to the requirement of IS:3652-1995. It **MUST** be looked into.
- 27.2** The strainer in nozzle is not provided. It may be provided.
- 27.3** The strainer in cut-off device is not provided. It **MUST** be looked into.
- 27.4** Agitator is not provided. It may be provided.
- 27.5** The manufacturer's name or recognized trade mark, batch or code number and designation of nozzles is not provided. It **MUST** be looked into.
- 27.6** The manufacturer's name or recognized trade mark, nominal length and batch or code number of lance is not marked. It **MUST** be looked into.
- 27.7** The manufacturer's name or recognized trade mark, type of cut-off device and batch or code number is not marked. It **MUST** be looked into.
- 27.8** Necessary tools are not provided with sprayer. It **MUST** be provided.
- 27.9** During the hydraulic test of pump, the motor stopped beyond 4.9 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.

PS-509/2857/2022	SHAKTI, SBS-520e, BATTERY CUM HAND OPERATED KNAPSACK SPRAYER COMMERCIAL (FIRST BATCH)
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- 27.10** The strap cushion thickness does not meet the requirement of Indian Standard. It may be looked into.
- 27.11** The dimension of straps do not meet the requirement of Indian Standard. It **MUST** be looked into.
- 27.12** During the strap drop test, the buckle/bracket of strap assembly failed to hold the strap in it's position. It should be improved as per relevant standard.
- 27.13** A suitable labeling plate (not sticker) needs to be provided with "Interlia" following information.
- (i) Manufacturer's name
 - (ii) Make
 - (iii) Model
 - (iv) Month & year of manufacturer
 - (v) Rated speed
 - (vi) Rated pressure
 - (vii) Discharge rate
 - (viii) Power rating
 - (ix) Country of origin
- 27.14 Safety provision/Safety wear**
The safety instructions regarding handling poisonous agrochemical before, during and after spraying operation should be provided on sprayer.

28. TECHNICAL LITERATURE

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

- i. Operator Manual
- ii. Service manual
- iii. Parts catalogue

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



29. COMPARISON WITH SPECIFICATION OF PREVIOUS SAMPLE (Test report No. PS-274/1998/2017, April, 2017) of NRFMT&TI, Hisar and PRESENT SAMPLE

Sr. No.	Parameter		Previous Sample (Test report No. PS-274/1998/2017, April, 2017)	Present Sample
1	2	:	3	4
29.1	Specifications			
29.1.1	General			
	Type	:	Battery cum hand operated knapsack sprayer	Battery cum hand operated knapsack sprayer
	Make	:	Shakti	Shakti
	Model	:	SBS- 520e	SBS- 520e
	Serial No.	:	Not specified	BS-09/22
	Name of manufacturer(apa)	:	Shakti Agro Industries, 2153/1, St. No-6, Arjun Nagar, Gill Road, Radha Swami Road, Ludhiana-141003 (Punjab)	
	Capacity of sprayer, l	:	16	16

PS-509/2857/2022	SHAKTI, SBS-520e, BATTERY CUM HAND OPERATED KNAPSACK SPRAYER COMMERCIAL (FIRST BATCH)
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29.1.6	Chemical Tank		
	Material	:	HDPE Plastic
	Capacity (l)	:	16 16
	Overall size, mm (HxWxL)	:	475×358×182 350×185×390
	Location	:	Above battery, motor and pump mounting Above battery, motor and pump mounting
29.1.7	Agitating Device	:	Not provided Not provided
29.1.8	Nozzle		
	Type (apa)	:	Adjustable, double action type Adjustable, double action type
	Nozzle designation	:	Not Marked Not Marked
	Number of nozzle	:	One One
29.1.9	Mounting Arrangement		Battery, motor and pump is mounted beneath the chemical tank Battery, motor and pump is mounted beneath the chemical tank
29.1.10	Safety wear (for operator's safety during operation)		Only mask is provided with the sprayer Mask, goggle and hand gloves are provided.
29.1.11	Overall Dimensions, mm		
	Height	:	600 600
	Width	:	425 185
	Length	:	195 430
29.1.12	Total mass, kg Mass with full chemical tank, (kg)	:	6.480 22.200 5.540 21.540
29.1.13	Technical literature	:	Operator cum service manual, specification sheet and detail of material construction of machine was provided Operator manual, service manual and parts catalogue are provided..

TESTING AUTHORITY

Er. SANJAY KUMAR AGRICULTURAL ENGINEER	
Dr. MUKESH JAIN DIRECTOR	 30.05.2022

The draft test report compiled by Abhishek chourey, MTS (Technical)

30. APPLICANT'S COMMENTS

We will follow all points under comment and recommendations of test report in our production and testing process.