

व्यावसायिक परीक्षण रिपोर्ट
COMMERCIAL TEST REPORT

संख्या/ No.: PS-385/2293/2019
माह/Month : March, 2019

THIS TEST REPORT VALID UP TO : 31st MARCH, 2026



**KISANKRAFT, KK-PSP-30
ENGINE OPERATED HTP 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

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[ISO 9001:2015 CERTIFIED]

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xxvi)	Connecting rod	Carbon steel	Carbon steel	Conforms
xxvii)	Gudgeon pin	Carbon steel	Carbon steel	Conforms
xxviii)	Big end bearing	Steel coated with tin base white metal	Steel coated with tin base white metal	Conforms
xxix)	Small end bush	Gunmetal	Gunmetal	Conforms
xxx)	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	Conforms

3. TEST FOR DISCHARGE RATE OF PUMP [vide Clause 8.3 of IS- 11313: 2007]

1. Date of test : 13.02.2019

2. Atmospheric conditions :

a) Temperature : 23° C

b) Relative humidity : 58 %

c) Pressure : 99.1 kPa

3. Data recorded

Speed of pump (rpm)	Working pressure (kg/cm ²)	Test No.	Delivery from the discharge line (ml/min)	Overflow (ml/min)	Average delivery from the discharge line (ml/min)	Discharge rate of pump (ml/min)	Hydraulic Power (kW)
924	10	1	15100	24012.5	14857.5	38870	0.6
		2	15000				
		3	14550				
		4	14780				
909	20	1	19450	18770	19362.5	38182.5	1.3
		2	19300				
		3	19450				
		4	19250				
883	30	1	24200	11582.5	24300	35882.5	1.8
		2	24300				
		3	24330				
		4	24370				
834	40	1	27210	7477.5	27325	34802.5	2.3
		2	27650				
		3	27000				
		4	27440				

Minimum discharge rate = 34802.5 ml/min at 40 kg/cm²
 Maximum discharge rate = 38870 ml/min at 10 kg/cm²
 Discharge at rated pressure = 35882.5 ml/min at 30 kg/cm²

4. TEST FOR VOLUMETRIC EFFICIENCY OF PUMP

[vide clause 8.4 of IS: 11313-2007]

Rated pressure, kg/cm ²	:	30
Pump speed corresponding to rated pressure (rpm)	:	883
Theoretical cubic capacity of pump, ml	:	41.78
Actual volume at rated pressure, ml	:	40.64
Volumetric efficiency, %	:	97 %

5. POWER REQUIREMENT

During the pump operation from minimum to maximum pressure range, the max. hydraulic power was observed as 2.3 kW against the declared net power output of engine as 3.0 kW.

6. ENGINE PERFORMANCE TEST

The applicant has submitted an attachment of license No. CM/L-6200039493 vide endorsement No. 5 dated 10.01.2017 in respect of Kisankraft KK-PE 4-203 engine as per IS:7347-1974 issued by BIS, hence no further test was felt necessary to be conducted for engine.

S.No.	Parameter		Declaration
i	Engine Type	:	Over head valve, 4 stroke ,Air cooled, Horizontal shaft, single cylinder
ii	Bore,(mm)	:	68
iii	Stroke (mm)	:	45
iv	Displacement,(cc)	:	196
v	Net power out put	:	3.0 kW@ 3600 rpm
vi	Max Torque	:	11 Nm @ 2500 rpm
vii	Compression ratio	:	8.5:1

7. PRESSURE ADJUSTMENT TEST

(Vide clause 8.7.1 of IS: 11313-2007)

- Date of test : 13.02.2019
- Atmospheric conditions :
 - Temperature : 23 °C
 - Relative humidity : 58 %
 - Pressure : 99.1 kPa
- Data recorded

S. No.	Working pressure(kg/cm ²)	Fluctuation range (kg/cm ²)	Pressure drop (kg/cm ²)	Ratio
1.	10	NIL	NIL	--
2.	20	NIL	NIL	--
3.	30	NIL	NIL	--
4.	40	NIL	NIL	--

- Resistance of pressure: Yes

Cl.10. MARKING AND PACKING (Cl.10 IS:11313-2007)			
Cl.10.1 Marking	Each sprayer shall be marked with the following particulars :-		
a)	Manufacturer's name & his registered trade mark, Sl. No. and batch or code No.	ON PUMP : KISANKRAFT Kisan Kraft™ High Quality HTP SPRAYER Krushaka Mantram – Krushi Yantram (Cost Iron Head) ISO 9001:2008 Certified Sprayer Irrigation RPM 800-1200 1200 Suction Volume (l/min) 30-40 40 Pressure (kg/Cm ²) 10-40 40 Power kW (HP) 3-5 kW (3-6.5 HP) 5KW (6.5 HP) Imported & Distributed in India by- Kisankraft Machine Tools Private Limited Bangalore -560024 (Karnataka) INDIA.	Does not conform- in spirit and also in toto



15. CONFORMITY TO INDIAN STANDARDS

- i) IS:11313-2007 (Reaffirmed 2012)-Hydraulic : **Does not conform in toto**
power sprayer-specification
- ii) Spray nozzle and spray gun as per IS:3652-1995 : **Does not conform in toto**
(Reaffirmed 2011)
- iii) Hose and hose connection as per IS:10134-1994 : **Conforms**
- iv) IS: 2643-2005-Pipe threads where pressure-tight : **Conforms**
joint are not made on the threads-dimensions,
tolerance and designation
- v) IS: 7347-1974 (Reaffirmed 2006)-Specification : **Conforms**
for performance of small size spark ignition
engines for agricultural water pumps, sprayers,
tillers, reapers and other similar applications

16. COMMENTS AND RECOMMENDATIONS

- 16.1 The manufacturing year of sprayer and serial number is not specified. It should be specified.
- 16.2 The manufacturing year of pump, serial number and country of origin is not specified. It should be specified.
- 16.3 The material of pump cylinder, spreader and pump inlet port end fitting does not meet the requirement of Indian Standard. It **MUST** be looked into.

- 16.4 The discharge rate for fine spray pattern and jet spray pattern of nozzle at a pressure of 300 kPa does not conform to the requirement of IS : 3652-1995. It **MUST** be looked into.
- 16.5 The spray angle for fine cone spray pattern of spray nozzle at the pressure of 300±30 kPa does not conform to the requirement of IS: 3652-1995. It **MUST** be looked for further improvement.
- 16.6 The pressure gauge marking exceeds 2.5 times the declared value of pressure. Suitable pressure gauge **MUST** be provided to ensure the compliance of the relevant Indian Standard.
- 16.7 The spray gun provided with sprayer is not designated and marked by its identification mark. The identification mark as specified by relevant Indian Standard, **MUST** be provided.
- 16.8 The spray nozzle is not designated and marked by its identification mark. The identification mark as specified by relevant Indian Standard, **MUST** be provided.
- 16.9 The discharge rate for fine cone spray pattern and jet spray pattern of gun at a pressure of 600 kPa±60 does not conform to the requirement of IS:3652-1995. It **MUST** be looked into.
- 16.10 The spray angle for fine cone spray pattern of gun at the pressure of 600±60 kPa does not conform to the requirement of IS: 3652-1995. It **MUST** be looked for further improvement.
- 16.11 The diameter of connecting rod of gun does not meet the requirement of Indian Standard. It **MUST** be looked into.
- 16.12 The thickness of the wall of the barrel of gun does not meet the requirement of Indian Standard. It **MUST** be looked into.
- 16.13 During the Endurance test of sprayer the breakage of drive belt was observed. The drive belt was replaced with new one. This **MUST** be looked into.
- 16.14 Necessary tool are not provided with the sprayer. It **MUST** be provided.
- 16.15 The engaged threaded length of outlet part does not meet the requirement of relevant Indian Standard. It **MUST** be looked into.
- 16.16 Suction strainer aperture size does not meet the requirement of Indian Standard. It **MUST** be looked into.
- 16.17 **Labeling plate :**
 Not a labeling plate but only a sticker is provided on sprayer that too without mentioning all the information, thus it defeats the purpose. Hence to a suitable labeling plate (not sticker) needs to be provided with, inter alia, 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 of engine
 - ix. SFC of engine

16.18 Safety provision/safety wear

- i) The safety wear was not provided with the sprayer. It **MUST** be provided.
- ii) Safety instructions regarding handling poisonous agro-chemical before, during and after spraying operation should be provided on sprayer.

17. TECHNICAL LITERATURE

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

- i) Operator's manual cum part's catalogue of sprayer & engine.

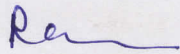
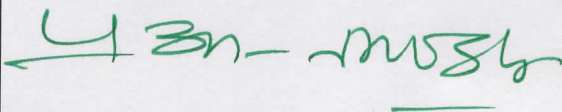
The following literatures **MUST** be provided with the sprayer.

- i) Service manual of sprayer and engine.

The operator's manual should be updated as per IS : 8132-1999.

The operator manual should include safety instruction regarding handling poisonous agro chemical, before during and after spraying operation.

TESTING AUTHORITY

R. K. NEMA SENIOR AGRICULTURAL ENGINEER	
P. K. PANDEY DIRECTOR	

18. APPLICANT'S COMMENTS

Para No	Our reference	Applicant's comments
18.1	16.1 to 16.10 & 16.15,16.16,16.18	We will take corrective action.
18.2	16.11,16.12	We will take corrective action to meet the requirement of Indian Standard.

