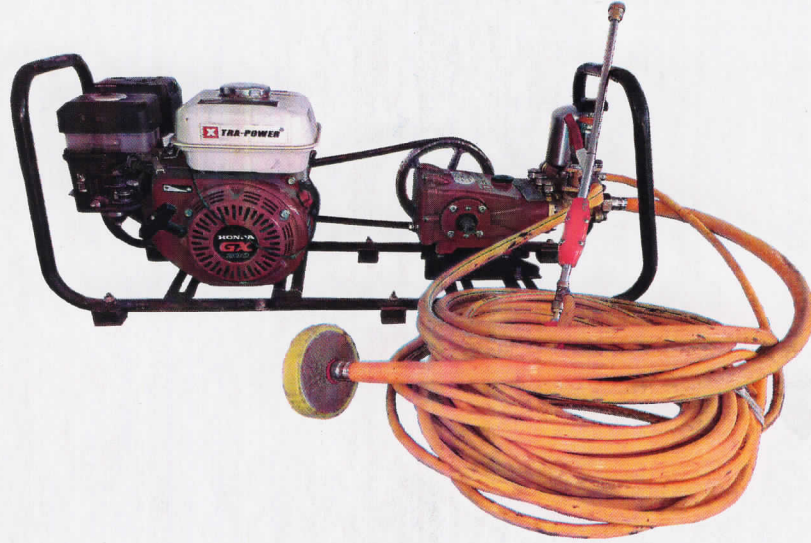


THIS TEST REPORT VALID UP TO : 30th JUNE, 2026



**XTRA POWER, XPS-25 H.T.P
ENGINE OPERATED PORTABLE 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

Tele./FAX: 01662-276984

viii)	Pump rollers	Nylon filled with lead	N.A.	--
ix)	Pressure regulators	Brass, stainless steel	Stainless steel	Conforms
x)	Suction strainer	Brass, stainless steel, plastics	Stainless steel	Conforms
xi)	Strainer body	Brass, plastics	Plastic	Conforms
xii)	Gasket	Rubber, PVC, fiber	PVC	Conforms
xiii)	Spray nozzles	Brass, stainless steel	Brass	Conforms
xiv)	Spray boom	Mild steel, Galvanized, iron Braided rubber	N.A.	--
xv)	Hose	Synthetic rubber, P.V.C	PVC	Conforms
xvi)	Tank	Galvanized iron, Brass, Fiber glass reinforced plastics, plastics	N.A.	-
xvii)	Pipe for agitator	Galvanized iron, Brass, PVC	PVC	Conforms
xviii)	Piston (bucket) screw	Brass, stainless steel	NA	--
xix)	Crank case	Aluminum alloy	Aluminum alloy	Conforms
xx)	Roller pump body	Nickel resistant cast iron	Not applicable	--
xxi)	Roller pump and plate	Nickel resistant cast iron	Not applicable	--
xxii)	Roller pump rotor	Nickel resistant cast iron	Not applicable	--
xxiii)	Piston pump crank shaft	Carbon steel	Carbon steel	Conforms
xxiv)	Pump inlet port end fitting	Brass	Cast iron	Does not conform
xxv)	Piston rod guide	Brass, Aluminum alloy, Gunmetal, Nylon	Not applicable	--
xxvi)	Connecting rod	Carbon steel	Aluminum alloy	Does not conform
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.		Not declared	Does not conform

3. TEST FOR DISCHARGE RATE OF PUMP

[vide Clause 8.3 of IS- 11313: 2007]

1. Date of test : 27.04.2019

2. Atmospheric conditions :

a) Temperature : 39° C

b) Relative humidity : 21 %



c) Pressure : 98.8 kPa

3. Data recorded

Speed of Engine (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)
3635	10	1	22600	24150.0	22400	46550.0	0.76
		2	22400				
		3	22450				
		4	22150				
3615	15	1	24280	21430.0	24050	45480.0	1.12
		2	24300				
		3	24000				
		4	23620				
3595	20	1	26700	17907.5	26600	44507.5	1.45
		2	26500				
		3	26550				
		4	26650				
3575	25	1	28000	15592.5	27992.5	43585.0	1.78
		2	28200				
		3	28120				
		4	27650				

Minimum discharge rate = 43585.0 ml/min at 25 kg/cm²Maximum discharge rate = 46550.0 ml/min at 10 kg/cm²Discharge at rated pressure = 44507.5 ml/min at 20 kg/cm²4. TEST FOR VOLUMETRIC EFFICIENCY OF PUMP
[vide clause 8.4 of IS: 11313-2007]Rated pressure, kg/cm² : 20

Pump speed corresponding to rated : 1085

pressure (rpm)

Theoretical cubic capacity of pump, ml : 42.41

Actual volume at rated pressure, ml : 41.02

Volumetric efficiency, % : 97

5. POWER REQUIREMENT

During the pump operation from minimum to maximum pressure range, the max. hydraulic power was observed as 1.78 kW against the declared net power output of

10.	Necessary tools & spares	Spanners, set of gasket, measuring jar should be provided	Not provided	Does not conform
11.	Marking/Labeling of sprayer	Must be riveted on the body of sprayer having name & address of manufacturer, month & Year of manufacture, Rated speed, Rated pressure, discharge rate, Power rating of engine, SFC of engine	Just a sticker provided on pump & engine with following information :- POWER SPRAYE Sprayer RPM 700-90 Suction (L/Min) 29-45 Pressure (mPa) 2-3 Irrigation RPM 1000-1400 Suction (L/Min) 40-52 Pressure (Kg/Cm ²) 15-20	Does not conform
12.	Literature	Operator manual, Service manual & parts catalogue should be provided, One day training.	Operator manual and parts catalogue of sprayer and operator manual of engine is provided	Does not conform in toto

16. 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

17. COMMENTS AND RECOMMENDATIONS

- 17.1 The serial number and manufacturing year of sprayer is not specified. It **MUST** be specified.
- 17.2 The pump model, serial number and manufacturing year of pump is not specified. It **MUST** be specified.
- 17.3 The discharge rate for fine cone spray pattern and jet spray pattern of gun at a pressure of 600 Kpa does not conform to the requirement of IS 3652-1995. It **MUST** be looked into.



- 17.4 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.
- 17.5 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.
- 17.6 The material used for different components are not declared. It **MUST** be provided.
- 17.7 The strainer in nozzle is not provided. It may be considered for providing.
- 17.8 The material of pump cylinder does not meet the requirement of Indian Standard. It **MUST** be looked into.
- 17.9 The material of pump inlet end fitting does not meet the requirement of Indian Standard. It **MUST** be looked into.
- 17.10 The material of connecting rod does not meet the requirement of Indian Standard. It **MUST** be looked into.
- 17.11 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.
- 17.12 The spray nozzle is not designated and marked by its identification mark. The identification mark as specified by relevant Indian Standard, **MUST** be provided.
- 17.13 The spray Angle for fine cone spray pattern of gun at a pressure of 600 kPa does not conform to the requirement of IS : 3652-1995. It **MUST** be looked into for further improvement.
- 17.14 The manufacture's name or recognized trade mark and batch or code number or gun is not provided. It **MUST** be provided.
- 17.15 The manufacture's name or recognized trade mark and batch or code number or nozzle is not provided. It **MUST** be provided.
- 17.16 The diameter of connecting rod of gun does not meet the requirement of Indian Standard. It **MUST** be looked into.
- 17.17 The thickness of the wall of the barrel of gun does not meet the requirement of Indian Standard. It **MUST** be looked into.
- 17.18 During the Endurance test of sprayer the breakage of main frame was observed. This **MUST** be looked into.
- 17.19 The necessary tools are not provided. It **MUST** be provided.
- 17.20 **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

17.21 Safety provision/safety wear

- i) Apron and gum boots MUST be added in safety wear.
- ii) Safety instructions regarding handling poisonous agro-chemical before, during and after spraying operation should be provided on sprayer.

18. TECHNICAL LITERATURE

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

- i) Operator's manual of engine.
- ii) Part's catalogue of pump

The following literature MUST be provided with the sprayer.

- i) Operator's manual containing all the information including safety instructions before, during and spraying operation.
- ii) Service manual of sprayer.

TESTING AUTHORITY

R. K. NEMA SENIOR AGRICULTURAL ENGINEER	<i>Re</i>
P. K. PANDEY DIRECTOR	<i>U Bn - Invsly</i>

19. APPLICANT'S COMMENTS

No comments received from applicant

