

THIS TEST REPORT VALID UP TO : 30th November, 2030



**YONGKONG, YK-26
ENGINE OPERATED HTP 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

Northern Region Farm Machinery Training and Testing Institute

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[ISO 9001:2015 CERTIFIED]

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5. TEST FOR DISCHARGE RATE OF PUMP

[vide Clause 8.3 of IS- 11313-2007]

1. Date of test : 20.09.2023

2. Atmospheric conditions

a) Temperature : 38.3 °C

b) Relative humidity : 43.3 %

c) Pressure : 98.1 kPa

3. Data recorded

| Avg. speed of pump (rpm) | Working pressure (kg/cm ²) | Test No. | Delivery from the discharge line (ml/min) | Overflow (ml/min) | Average overflow (ml/min) | Average delivery from the discharge line (ml/min) | Discharge rate of pump (ml/min) | Hydraulic Power (kW) |
|-----------------------------|---|----------|--|----------------------|------------------------------|--|------------------------------------|-------------------------|
| 781 | 5.0 | 1 | 14050 | 250 | 150 | 14042.5 | 14192.5 | 0.12 |
| | | 2 | 14000 | 150 | | | | |
| | | 3 | 14120 | 100 | | | | |
| | | 4 | 14000 | 100 | | | | |
| 771 | 15.0 | 1 | 14100 | NIL | NIL | 13950.0 | 13950.0 | 0.34 |
| | | 2 | 13950 | NIL | | | | |
| | | 3 | 13850 | NIL | | | | |
| | | 4 | 13900 | NIL | | | | |
| 752 | 25.0 | 1 | 13300 | NIL | NIL | 13357.5 | 13357.5 | 0.55 |
| | | 2 | 13400 | NIL | | | | |
| | | 3 | 13380 | NIL | | | | |
| | | 4 | 13350 | NIL | | | | |
| 736 | 35.0 | 1 | 12950 | NIL | NIL | 12987.5 | 12987.5 | 0.74 |
| | | 2 | 13000 | NIL | | | | |
| | | 3 | 13000 | NIL | | | | |
| | | 4 | 13000 | NIL | | | | |
| 725 | 40.0 | 1 | 12900 | NIL | NIL | 12895.0 | 12895.0 | 0.84 |
| | | 2 | 12880 | NIL | | | | |
| | | 3 | 12900 | NIL | | | | |
| | | 4 | 12900 | NIL | | | | |

Minimum discharge rate = 12895.0 ml/min at 40 kg/cm²Maximum discharge rate = 14042.5 ml/min at 5 kg/cm²Discharge at rated pressure = 12987.5 ml/min at 35 kg/cm²

6. TEST FOR VOLUMETRIC EFFICIENCY OF PUMP
[vide clause 8.4 of IS: 11313-2007]

| | | |
|---|---|------------|
| Date of test | : | 20.09.2023 |
| Rated pressure, kg/cm ² | : | 35 |
| Rated RPM of pump | : | 800 |
| Theoretical volume, ml | : | 17.10 |
| Actual volume at rated rpm & rated pressure, ml | : | 16.23 |
| Volumetric efficiency, % | : | 94.91 |

7. POWER REQUIREMENT

During the pump operation from minimum to maximum pressure range, the max. hydraulic power was observed as 0.84 kW against the declared net power output of engine as 2.2 kW.



20. CRITICAL TECHNICAL SPECIFICATIONS

[Vide Ministry Letter No. 13-9/2019-M & T (I&P)-Part dated 26.04.2019 and F. No. 9-1/2019 M&T (I&P) dated 20.8.2019]

| Sr. No. | Parameters | Specification | Observed | Remarks |
|---------|-----------------------------------|--|--|--------------------------|
| 1. | Tank Capacity | -- | Not applicable for portable sprayer | -- |
| 2. | Discharge, ml/min | 8000 (min) at rated speed and rated pressure | The discharge rate at rated pressure is 12987.5 ml/min. | Conforms |
| 3. | Pressure regulator | Must be provided | Provided | Conforms |
| 4. | Horizontal thrown up jet spray, m | 6 (min) | 8.2 meter | Conforms |
| 5. | Mass of spray gun, kg | 1.6 (max.) | 0.460 kg | Conforms |
| 6. | Spray gun marking | Manufacturer name or recognized trademark & batch or code number as per BIS code | Not marked | Does not conform |
| 7. | Marking of nozzle | Manufacturer name or recognized trademark & batch or code number as per BIS code | Not marked | Does not conform |
| 8. | Pressure gauge | Must be provided | Liquid filled pressure gauge is provided | Conforms |
| 9. | Safety accessories | Mask, hand gloves and safety goggles, apron, gum boots must be provided | Provided | Partially conform |
| 10. | Necessary tools & spares | Spanners, set of gasket, measuring jar should be provided | Provided | Partially conform |
| 11. | Making/labelling of sprayer | Must be riveted on the body of sprayer having name & address of manufacture, month & year of manufacture, rated speed, rated pressure, discharge rate, power rating of engine, SFC of engine | Just a sticker and not proper labeling plate is provided on the sprayer with following information rated speed, rated pressure, discharge rate | Partially conform |
| 12. | Literature | Operator manual, service manual & parts catalogue should be provided. | Provided | Conforms |



21. COMMENTS AND RECOMMENDATIONS

- 21.1** The year of manufacture of pump is not specified. It **MUST** be specified.
- 21.2** The spray gun is not designated and marked by identification mark. There should be identification mark as specified by Indian Standard. It **MUST** be looked into.
- 21.3** The spray nozzle is not designated by its identification mark as specified by Indian Standard. It **MUST** be Looked into.
- 21.4** The strainer in nozzle is not provided. It **MUST** be looked into.
- 21.5** The pressure gauge with full scale reading of 100 bar is provided. Thus, it does not conform the requirement of IS:11313-2007. It **MUST** be looked into.
- 21.6** The engaged length of outlet port of pump does not meet the requirement of relevant code/standard. It **MUST** be looked into.
- 21.7** The necessary tools are not provided. It **MUST** be provided.
- 21.8** The diameter of connecting rod of the gun does not meet the requirement of Indian Standard. It **MUST** be looked into.
- 21.9** The safety wear is not provided. It **MUST** be provided.
- 21.10** 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 pressure
 - (vi) Rated speed
 - (vii) Discharge rate
 - (viii) Power rating of engine
 - (ix) SFC of engine
- 21.11 Safety provision/safety wear**
- i) Safety instructions regarding handling poisonous agro- chemical before, during and after spraying operation should be provided on sprayer.





22. TECHNICAL LITERATURE

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

- i) Product manual of sprayer
- ii) Owner's manual of engine

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

TESTING AUTHORITY

| | |
|---|--|
| Er. SANJAY KUMAR AGRICULTURAL ENGINEER |  |
| Dr. MUKESH JAIN DIRECTOR |  28.11.2023 |

The test report is compiled by Sh. C. Veeranjanyulu, Sr. Tech.

23. APPLICANT'S COMMENTS

No specific comments received from the applicant.

