COMMERCIAL TEST REPORT

No. : PS-203/1865/2016
Month: June, 2016

COMMERCIAL TEST REPORT

ELECTRIC MOTOR OPERATED SPRAYER
KISAN KRAFT, KK-22 A3

GOVERNMENT OF INDIA
MINISTRY OF AGRICULTURE & FARMERS WELFARE
DEPARTMENT OF AGRICULTURE, COOPERATION & FARMERS WELFARE

NORTHERN REGION FARM MACHINERY TRAINING AND TESTING INSTITUTE
TRACTOR NAGAR, SIRSA ROAD, HISAR-125001 (HARYANA)

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**Cl.5.14.2**  
The metallic nut if provided shall have the internal thread size, minimum of designation G1/4B (IS:2643-2005 Part I). The clamp shall consist of ferrule or clip. Other thread sizes if used shall be of standard pipe threads (IS:2643-2005).  
Metallic nut of internal thread size \( \frac{5}{16} \) is provided.  

**Cl.5.14.3**  
The hose and hose connection shall with stand the test prescribed in 7.2 of IS:10134-1994 (Reaffirmed 2009). A minimum hydrostatic pressure of 1.5 MPa, using water as a liquid, shall be developed in the Hose assembly and the pressure shall be retained for a period of 5 minutes.  
There was no leakage, crack and breakage in hose & hose connection during testing.  

**Cl.5.15 Nozzle**  
Unless otherwise specified by the purchaser, the nozzle shall conform to the requirement of Annexure F of IS:3652-1995.  
Fixed straight solid cone nozzle.  

**Cl.5.16**  
The engine and electric motor shall conform to the requirements as given in IS:7347-1974 (Reaffirmed 2006) and IS:325-1996 (Reaffirmed 2007) respectively.  
Single phase electric motor, 0.225 kW used but not BIS marked.  

**Cl.5.16.1**  
The exhaust outlet of the engine shall be so positioned that the smoke does not directly affect the operator or crop. A guard shall be provided on or near the exhaust pipe for the protection of the operator.  
Not applicable  

**Cl.5.17**  
The fuel and chemical discharge controls shall be in easy access of the operator.  
Not applicable as chemical tank not provided.  

**Cl.5.18**  
Air pressure chamber shall with stand the test prescribed in 8.7 without any deformation or damage.  
No damage found in air pressure chamber during test.  

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**CL.6 IS 11313:2007 PERFORMANCE REQUIREMENTS**  

| **Cl.6.1 Discharge rate/Suction capacity** | When tested in accordance with the method given in 8.3, the pump shall be capable of discharging/sucking a minimum of 8000 ml. water per minute at its rated speed and rated pressure. | The pump is capable to discharge 18018 ml/min without gun at 1012 rpm of motor speed and 12.0 kg/cm\(^2\) pressure. | Conforms  
| **Cl.6.1.1** | The discharge rate/suction capacity shall be declared by the manufacturer. | Declared as on ID plate of pump 13 to 22 l/min. | Conforms  
| **Cl.6.2 Volumetric Efficiency**  
Cl6.2.1 | When determined in accordance with 8.4.1, the volumetric efficiency of the piston/plunger type pump shall minimum 80 percent. | The volumetric efficiency is 97.53 % & with in specified limit. | Conforms  

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<tr>
<th>Cl.6.2.2</th>
<th>The volumetric efficiency requirement for roller vane type pump shall be minimum 80 %.</th>
<th>Not applicable</th>
<th></th>
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<tr>
<td>Cl.6.3 Power requirement</td>
<td>When tested in accordance with the method given in 8.5, pump shaft power requirement shall not be more than that of the value declared by the manufacturer.</td>
<td>Max pump shaft power requirement is 1.96 kW against the declared value of 2.25 kW by the manufacturer. (See Annexure II for more details).</td>
<td>Conforms</td>
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<tr>
<td>Cl.6.4 Maximum achievable pressure</td>
<td>When tested in accordance with the method given in 8.7, maximum achievable pressure shall not be less than that of the value declared by the manufacturer.</td>
<td>Maximum achievable pressure is observed as 34.5 kg/cm² with gun against the declaration of 10 to 40 kg/cm²</td>
<td>Conforms</td>
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<tr>
<td>Cl.6.5 Endurance test</td>
<td>Sprayer shall withstand the test endurance test specified in 8.8 and the variation in Discharge rate between first and last observation shall not be more than ± 5 Percent.</td>
<td>Endurance test of 50 hrs. completed without any breakdown &amp; the variation in pressure. Percentage variation in discharge is 0.71 % with in specified limit (see annexure IV for more details).</td>
<td>Conforms</td>
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</table>

**Cl. 7 IS 11313:2007 OTHER REQUIREMENTS**

| Cl. 7.1 | Each sprayer shall be provided with parts catalogue and manual giving detailed information about sprayer, engine, its rated speed along with operational and maintenance instructions and safety precautions. | Manual and parts catalogue is provided by the manufacturer and found adequate in contents. | Conforms |
| Cl. 7.2 | Each sprayer shall be provided with a set of necessary tools, suction strainer having aperture size of 300 μm to 425 μm and a measuring jar for lubricating oil. | One set of Gaskets, tools kit is provided with sprayer. | Conforms |
| Cl. 7.3 | On the option of the purchaser, the following accessories shall be supplied |  |
| a) | A set of spray nozzles (conforming to Annexure E of IS:3652-1995 (Reaffirmed 2006) for different discharge rates, and | Not applicable |  |
| b) | Spray gun conforming to Annexure-I of IS:3652-1995 (Reaffirmed 2006). | Provided | Conforms |
| Cl. E 1 TYPES IS:3652:1995 | The spray guns shall be of the following two types: | N.A |  |
| a) | Trigger type | Screw type | Conforms |
| b) | Screw type |  |  |
**ELECTRIC MOTOR OPERATED SPRAYER**

**KISAN KRAFT, KK-22 A3, COMMERCIAL**

<table>
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<tr>
<th>Cl.8.6</th>
<th>IS 11313:2007</th>
<th>Agitation Performance</th>
<th>The agitation performance is checked.</th>
<th>Agitation performance found satisfactory.</th>
<th>Conforms</th>
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<tr>
<th>Cl.9</th>
<th>IS:11313-2007 (Reaffirmed 2012)</th>
<th>WORKMANSHIP AND FINISH</th>
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<tbody>
<tr>
<td>Cl.9.1</td>
<td>All the components of the sprayer shall be free from burrs, pits and other visual defects which may be detrimental for their use.</td>
<td>Finishing and workmanship is good.</td>
</tr>
<tr>
<td>Cl.9.2</td>
<td>The exposed metallic parts shall have a protective coating to prevent surface deterioration.</td>
<td>Exposed metallic parts have the protective.</td>
</tr>
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<tr>
<th>Cl.10.</th>
<th>IS:11313-2007 (Reaffirmed 2012)</th>
<th>MARKING AND PACKING</th>
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<tr>
<td>Cl.10.1</td>
<td>Marking</td>
<td>Each sprayer shall be marked with the following particulars :-</td>
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<tr>
<td>a)</td>
<td>Manufacturer’s name &amp; his registered trade mark</td>
<td>Marked as Kisan Kraft, KK-22 A3</td>
</tr>
<tr>
<td>b)</td>
<td>Sl. No. and batch or code No.</td>
<td>22 A3/1050</td>
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### 6. COMMENTS AND RECOMMENDATION

#### 6.1 Conformity to Indian Standard

Electric motor operated hydraulic power sprayer ‘Kisan Kraft, KK-22 A3’ conforms all the clauses of IS: 11313-2007 except requirement specified in the following clause. **These should be rectified and incorporated at manufacturing level.**

i) Cl. 5.16 IS:325-1996 (Reaffirmed 2007)-The electric motor provided is not BIS marked. The electric motor with BIS mark should be provided.

ii) Cl. E-5 IS:3652-1995 (Reaffirmed 2006)-The spray gun is not designated by its identification mark. It should be designated.

iii) The gun does not conform the requirement of IS: 3652-1995 Clause E-6 (a) & (b). Manufacturer name or recognized trade mark and batch No. or code No. should be on marked gun.

6.2 The details of manufacturer and country/origin is not provided on sprayer, its packing and literature should be provided.

#### 6.3 Safety provisions/safety wear

i) The accessories viz mask, hand gloves and safety goggles for operator’s safety are provided with sprayer.

ii) Safety signs and hazard pictorials are not provided on the machine. It must be provided on the machine for safety of user.

iii) Safety instructions regarding handling poisonous agrochemical and first aid must also be added in operator’s manual.