व्यावसायिक परीक्षण रिपोर्ट
**COMMERCIAL TEST REPORT**

संख्या/ **No.: COMP-135/2372/2019**
माह/**Month : November, 2019**

**THIS TEST REPORT VALID UP TO : 30th NOVEMBER, 2026**

# **DASMESH SUPER SMS,** FITTED ON DASMESH-9100 SELF- PROPELLED COMBINE HARVESTER


सत्यमेव जयते

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

## 4. ROTOR BALANCNING TEST

| | | | |
|---|---|---|---|
| | Date of test | : | 21.11.2019 |
| | Make and model of Rotor balancing machine | : | PROTEQ and H - 1 K |
| | Mass of the job ( kg) | : | 80.2 |
| | Service speed of the job rpm | : | 1810 |
| | ISO balancing grade | : | G 16 |
| | Balancing speed rpm | : | 1810 |

| S.No. | **Particulars** | As permissible | As observed | Remark |
|---|---|---|---|---|
| | Unbalance weight (Left side plane) (g) | 41.04 | 3.55 | Balanced |
| | Unbalance weight (Right side plane) (g) | 41.04 | 7.93 | Balanced |

| | | |
|---|---|---|
| | Unbalance angle (**Left side plane**) (degree) | 347.23 |
| | Unbalance angle (**Right side plane**) (degree) | 194.07 |

## 5. FIELD PERFORMANCE TEST

**5.1** The SMS fitted on Dasmesh-9100 combine harvester was operation in the paddy field for 5.81 hrs, to assess (a) performance of SMS and, (b) performance of combine harvester with SMS.

The crop parameters recorded during the test were as under:-

**Crop Parameters**

| Sl. No. | **Parameters** | | **Observations** |
|---|---|---|---|
| 1. | Average plant height, cm | : | 96 to 105 |
| 2. | Average number of tillers/$m^2$ | : | 197 to 258 |
| 3. | Average length of ear head, cm | : | 22 to 30 |
| 4. | Average straw/grain ratio | : | 2.4 |
| 5. | Average moisture, % | | |
| | - Grain | : | 14.2 to 14.7 |
| | - Straw | : | 68.0 to 68.9 |

The results of field performance test of paddy crop harvesting are summarised in Table and presented in detail in **Appendix – II to V.**

**Table : SUMMARY OF LOSSES & EFFICIENCIES OBSERVED DURING FIELD PERFORMANCE TEST.**

| Crop variety | Collectable losses (%) | Non-collectable losses (%) | Total processing losses (%) | Threshing efficiency (%) | Cleaning efficiency (%) | Grain breakage in main grain tank (%) | Forward speed (kmph) | Area covered (ha/h) | Fuel consumption | | Grain out put (kg/h) | Crop through-put (t/h) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | (l/h) | (l/ha) | | |
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 |
| PADDY | | | | | | | | | | | | |
| PR-1509 | 1.7 | 0.7 | 2.1 | 99.1 | 97.4 | 0.86 | 1.66 | 0.481 | 9.61 | 20.0 | 1974.72 | 6.66 |

**SUMMARY OF FIELD PERFORMANCE OF SMS**

| | |
|---|---|
| Uniformity of straw spread, CV, (percent) | **20.3** |
| Weighted mean size of chopped straw, cm | 10.4 |

## 6. DEFECTS, ADJUSTMENTS, BREAKDOWNS AND REPAIRS

No noticeable defect observed

## 7. SUMMARY OF OBSERVATIONS

### 7.1 Field test

| 7.1.1 | Performance of SMS with Dasmesh 9100 Combine Harvester | |
|---|---|---|
| 1 | Uniformity of straw spread, CV, (percent) | 20.3 |
| 2 | Weighted mean size of chopped strew, cm | 10.4 |

### 7.1.2 Performance of Dasmesh 9100 combine harvester with Dasmesh Super SMS

| S. No | Parameters | Observations |
|---|---|---|
| 1. | Speed of operation (kmph) | 1.66 |
| 2. | Area covered (ha/h) | 0.481 |
| 3. | Fuel consumption:<br>- (l/h)<br>- (l/ha) | <br>9.61<br>20.0 |
| 4. | Crop throughput (tonne/h) | 6.66 |
| 5. | Grain breakage in main grain outlet (%) | 0.86 |
| 6. | Header losses (%) | 0.33 |
| 7. | Total non-collectable losses (%) | 0.7 |
| 8. | Total collectable losses (%) (un threshed + broken from main outlet) | 1.7 |
| 9. | Total processing losses (%) | 2.1 |
| 10. | Threshing efficiency (%) | 99.1 |
| 11. | Cleaning efficiency (%) | 97.4 |

## 9. CRITICAL TECHNICAL SPECIFICATIONS

**(Vide Ministry's communication No 9-1/2019- M&T (I&P) dated 20.08.2019**

| Sl No. | Parameters | Specification | Observation | Remarks |
|---|---|---|---|---|
| **Rotor** | | | | |
| 1. | Rotor diameter, mm | 165-170 | 165 | Conforms |
| 2. | No. of lugs on rotor in row | 6 | 6 and 7 | Conforms |
| 3. | No. of rows in periphery | 4 | 4 | Conforms |
| 4. | Length of pivotal flail, mm | 170-180 | 180 | Conforms |
| 5. | Width of flail, mm | 50 ± 1 | 50 | Conforms |
| 6. | Thickness of flail, mm | 5.0 (Min.) | 5.4 | Conforms |
| 7. | No of flails in one set | 2 | 2 | Conforms |
| 8. | Spacing between flails of one set, mm | 35 (Max) | 34 | Conforms |
| 9. | Distance between adjacent flails units, mm | 200±10 | 203 | Conforms |
| 10. | No of rows/bars of serrated blades | 1 | 1 | Conforms |
| 11. | No of serrated blades in row | 20 (Min.) | 24 | Conforms |
| 12. | Spacing between serrated blades, mm | 50 (Max.) | 52 | **Does not conform** |
| 13. | Overlapping of pivotal blade on serrated blade, mm | 60 (Min.) (adjustable) | 85 | Conforms |
| **Spreader** | | | | |
| 14. | Total no of flaps | 6 + 2 ( side ) | 6+2 | Conforms |
| 15. | Length of flaps, cm | 38 (Min.) | 38.5 | Conforms |
| 16. | Distance between flaps ( left to right) | Adjustable | Adjustable | Conforms |
| 17. | Spreader angle with horizontal, degree | Adjustable preferably downwards | Adjustable | Conforms |
| 18. | Spreader angle with line of travel, degree | 15 (Min.) (adjustable) | 28° Max. | Conforms |
| 19. | Spreader sheet thickness, mm | 2.5-3.0 | 2.9 | Conforms |
| 20. | SMS sheet thickness, mm | 5.0 (Min.) for outer | 5.2 | Conforms |
| 21. | Rotor balancing | Should be dynamically balanced | Observe balanced | Conforms |
| 22. | Rotor rpm | Min. 1600 | 1810 | Conforms |
| 23. | Fitting of SMS on combine harvester | Rigidly fixed to the combine chassis | Rigidly fixed | Conforms |
| 24. | Fitting of power transmission system on combine harvester | Rigidly fixed to the combine chassis | Rigidly fixed | Conforms |

| | | | | |
|---|---|---|---|---|
| 25. | Marking/labelling of machine | Labelling plate should be riveted on the body of machine having Name and address of manufacturer, Country of origin Make Model Year of manufacturer, Serial number, Type Size required size of prime mover (kW), Weight of the machine (Kgs) | Provided | Conforms |
| 26. | Literature | Operator manual, Service manual and Parts catalogue should be provided | Provided but only name sake | Conforms |

## 10. COMMENTS AND RECOMMENDATIONS

**10.1** **Uniformity of straw spread, Coefficient of Variation, (percent)** of Straw management system (SMS) **does not meet the requirement** of Indian standard. IS 15806-2018. Since it is "Evaluative" parameter, **it must be looked into.**

**10.2** **Hardness**

**The hardness of flail & fixed (serrated) blades of** Straw management system (SMS) **does not meet the requirement** of Indian standard. IS 15806-2018. Since it is "Evaluative" parameter, **it must be looked into.**

**10.3** Spacing between fixed (serrated) blades **does not meet the requirement of critical technical specification. It must be looked into.**

**10.4** Applicant has recommended Dasmesh -9100 combine harvester for SMS field testing. This is vital information and therefore the same must be inscribed in labelling plate also for the guidance of users.

**10.5** In the labelling plate, the power requirement is given as 76 kW, whereas the power of the combine harvester recommended is 70.95 kW. **This is misleading and therefore Must be looked into for corrective action.**

**10.6** In the labelling plate manufacture has declared the weight of SMS as 284 kg, which is misleading. The actual weight was observed as 193 kg. It may be looked into.

**10.7** Material of bushes for flail blade is not specified. It should be specified.

**10.8** **Ease of operation and safety provision**

No noticeable difficulties observed during operation of combine harvester.

**10.9** **Literature supplied with the test sample**

1) There was one document entitle "Operator manual and Service manual" was supplied. However, it could be anything but the operator manual, as it lacks the relevant information on operation, adjustments and safety etc.
2) There was another document entitle "Super SMS parts catalogue". This too, does not qualify to be parts catalogue for the want of numbering/indexing the various parts/components of the SMS.
Therefore the Operator manual/ Service manual/ Parts catalogue need to be brought out as per IS 8132: 1999.

## TESTING AUTHORITY

| | |
|---|---|
| MAAN SINGH<br>SENIOR TECHNICAL ASSISTANT | |
| **P. K. PANDEY**<br>**DIRECTOR** | |

Test report compiled by C. Veeranjaneyulu, Sr. Technician

## 11. APPLICANT'S COMMENTS

| Para No. | Our reference | Applicant's comments |
|---|---|---|
| 11.1 | 10.1 | We will improve our new production and check again uniformity of straw spread, coefficient of variation to meet the IS 15806-2018 requirement |
| 11.2 | 10.2 | We will confirm again hardness of fixed and flail blades and make correction as per the requirement. |
| 11.3 | 10.3 | We will improve and make correction in spacing between serrated blade as per the requirements. |
| 11.4 | 10.6 | We will note and make improve it. |
| 11.5 | 10.7 | We will check the material of bushes for flail blade and confirm it as per the requirement. |
| 11.6 | 10.9 | We will update technical data/ operation/service part catalogue as per IS 8132-1999 requirement and supply it with the machine to the customer. |