

व्यावसायिक परीक्षण रिपोर्ट
COMMERCIAL TEST REPORT

संख्या/ No.: IMP- 1058/2918/2022
माह/Month: September, 2022

THIS TEST REPORT VALID UP TO : 30th September, 2029



**SONALIKA, SLFMD-1.15
FLAIL MOWER (TRACTOR OPERATED)**



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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6.2.2 The chemical composition of hammer blades is tabulated as under:-

The applicant has submitted a copy of test report No. TS/22-23/14008 dated: 31.08.2022 of flail mower blade chemical composition issued by Central Institute of Hand Tools, Jalandhar, Government of India Society, Ministry of Micro, Small & Medium Enterprises, G.T. Road, Bye-Pass, Jalandhar-144008 (Punjab). Hence, the chemical composition of flail mower blade was not analyzed at this institute. However, for the sake of information of reader, the excerpts from the test results of chemical composition flail mower blade test is given from said report without correction.

Constituents	As per IS:6690-2002		As per Ministry's communication no. 13-9/2019 M&T (I&P) dated 26.04.2019	Composition as observed (% of weight)	Remarks
	Carbon Steel	Silicon Manganese steel	Boron * 28 MnCrB5		
Carbon (C)	0.70 -0.85	0.50-0.60	0.24-0.30	0.298	Conforms
Silicon (Si)	0.10 -0.40	1.50-2.00	0.40 (Max.)	0.190	Conforms
Manganese (Mn)	0.50 -1.0	0.50-1.00	1.10-1.40	1.30	Conforms
Sulphur (S)	0.05 (Max.)	0.05 (Max.)	0.035 (Max.)	0.011	Conforms
Phosphorous (P)	0.05 (Max.)	0.05 (Max.)	0.025 (Max.)	0.014	Conforms
Chrome (Cr)	--	--	0.3-0.6	0.43	Conforms
Boron (B)	--	--	0.0008-0.005	0.002	Conforms

* Flail mower hammer blade conforms to Boron 28MnCrB5.

7. FIELD PERFORMANCE TEST

The field test of the implement was conducted for 14.14 hours with Y-blade and 12.9 hours with hammer blade (a total of 27.04 hours) to assess the performance of the implement. The performance of the implement is reported in Annexure I & II. Observation of field performance test are summarized in the ensuing table:-

Summary of Field Performance Test

Sr. No.	Parameters/operations	Flail mower with Y- blade	Flail mower with Hammer blade
I	II	III	IV
1.	Tractor used	Escorts limited Powertrac-439	
2.	Gear used	L-1	
3.	Type of soil	Sandy loam	
4.	Height of grass before operation (cm)	207.9 to 220.7	154.9 to 201.0
5.	Height of grass after operation (cm)	1.35 to 3.0	0.40 to 0.53
6.	Mass of grass in one m ² area before operation (gm)	7240 to 8705	9930 to 12240
7.	Plant population, No. of tillers/m ²	309 to 346	339 to 410
8.	Mass of grass before operation (kg/ha)	72400 to 87050	99300 to 122400
9.	Mass of grass chopped (kg/h)	17086 to 18716	23137 to 27785
10.	Average speed of operation (kmph)	2.35 to 2.40	2.35 to 2.42

11	Avg. working width (m)	1.16 to 1.18	1.16 to 1.17
12	Area covered (ha/h)	0.211 to 0.236	0.227 to 0.240
13	Time required for one ha (h)	4.24 to 4.74	4.17 to 4.40
14	Field efficiency (%)	75.35 to 84.28	81.65 to 85.35
15	Fuel consumption		
	l/h	2.83 to 3.23	3.07 to 3.22
	l/ha	13.38 to 13.65	13.00 to 13.81
16	Average PTO power utilized (kW)	15.22	14.74

7.1 Quality of work

7.1.1 Flail mower with Y-blade

- i) Height of grass after operation was observed as 1.35 to 3.0 cm.
- ii) Mass of grass chopped in one hour was observed as 17086 to 18716 kg/h.

7.1.2 Flail mower with hammer blade

- i) Height of grass after operation was observed as 0.40 to 0.53 cm.
- ii) Mass of grass chopped in one hour was observed as 23137 to 27785 kg/h.

7.2 Rate of work

7.2.1 Flail mower with Y-blade

- i) The rate of work was recorded as 0.211 to 0.236 ha/h, and the speed of operation varies from 2.35 to 2.40 kmph.
- ii) The time required to cover one hectare was recorded as 4.24 to 4.74 h.
- iii) Average PTO power utilized by the machine was observed as 15.22 kW.

7.2.2 Flail mower with Hammer blade

- i) The rate of work was recorded as 0.227 to 0.240 ha/h, and the speed of operation varies from 2.35 to 2.42 kmph.
- ii) The time required to cover one hectare was recorded as 4.17 to 4.40 h.
- iii) Average PTO power utilized by the machine was observed as 14.74 kW.

7.3 Labour requirement


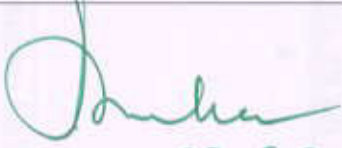
In all, two skilled operators are needed to ensure continuous operation of machine for day long period.



10. COMMENTS AND RECOMMENDATIONS

- 10.1** The specifications of implement hitch do not conform in toto to the IS: 4468 (Part-1)-1997. It should be looked into.
- 10.2** Dimensions of PIC of implement do not conform in toto to IS: 4931-1995 and therefore, it should be looked into for corrective action.
- 10.3** **Technical literature:-**
Only operator's manual is provided by applicant with machine during the testing. It is recommended to provide following literature.
1. Service manual.
The operator manual should be updated as per IS: 8132-1999.

TESTING AUTHORITY

Er. SANJAY KUMAR AGRICULTURAL ENGINEER	
Dr. MUKESH JAIN DIRECTOR	 23.09.2022

11. APPLICANT'S COMMENTS

We will take corrective action as per your comments

