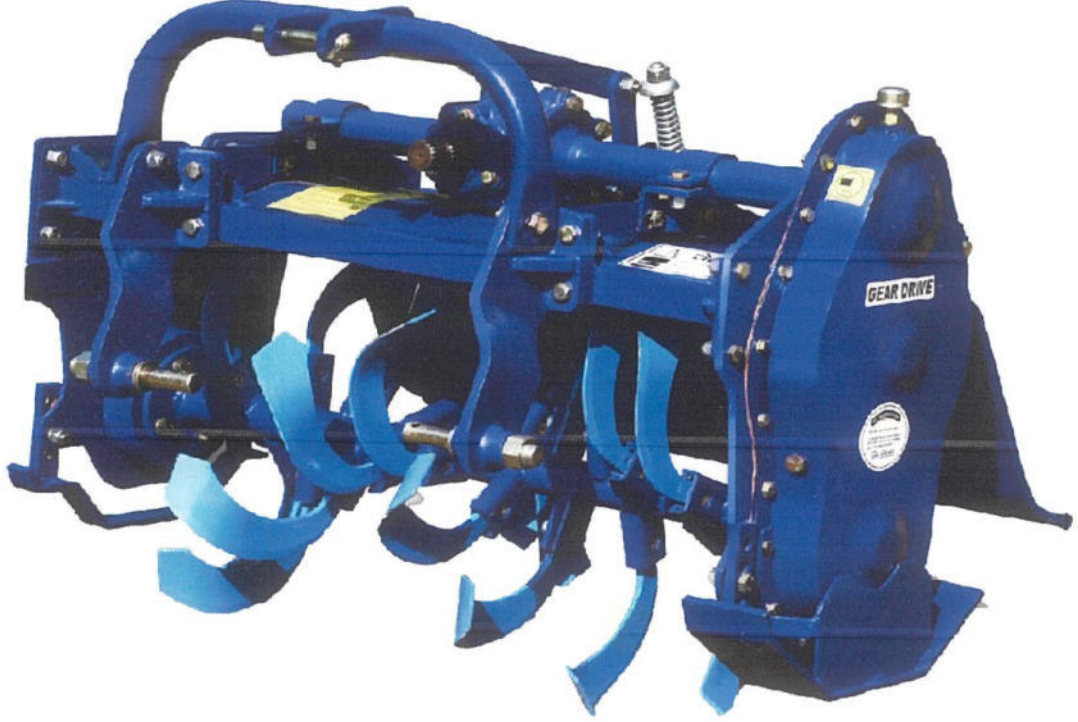


व्यावसायिक परीक्षण रिपोर्ट  
COMMERCIAL TEST REPORT

संख्या/ No.: ROTOWEEDER- 01/2986/2023  
माह/ Month: April, 2023

**THIS TEST REPORT VALID UP TO : 30<sup>th</sup> April, 2030**



**SWARAJ W85 ROTOWEEDER  
TRACTOR MOUNTED**



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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**4. HARDNESS & CHEMICAL COMPOSITION OF BLADE**

Hardness & chemical analysis of W85 rotoweeder, primary element of the blade were carried out as per IS: 6690 -1981. The details of same are given in Table 4&5.

**4.1 Table 4 : Hardness of blades**

The applicant has submitted a copy of test report No. 22/Mech./4838 dated: 23.11.2022 issued by Institute for Auto Parts & Hand Tools Technology (A unit of UNDP/UNIDO Assisted Punjab Government Project), A-9, Phase-V, Focal Point, Ludhiana-141010 (India) for the hardness of rotoweeder. Hence, the hardness of rotoweeder disc was not analyzed at this institute. However, for the sake of information of reader, the excerpts from the test results of hardness of rotoweeder is given from said report without correction.

	Requirement as per IS: 6690-1981 (HRC)	Hardness (HRC) as observed	Remarks
At edge portion	56±3	55 to 57	Conforms
At shank portion	37 to 45	48 to 49	Does not conform

**4.2 Table 5 : Chemical analysis of rotary blade**

The applicant has submitted a copy of test report No. 2022/Chem./7366 dated: 05.09.2022 issued by Institute for Auto Parts & Hand Tools Technology (A unit of UNDP/UNIDO Assisted Punjab Government Project), A-9, Phase-V, Focal Point, Ludhiana-141010 (India) for the chemical composition of rotoweeder. Hence, the chemical composition of rotoweeder was not analyzed at this institute. However, for the sake of information of reader, the excerpts from the test results of chemical composition of rotoweeder is given from said report without correction.

Elements	Requirements as per IS: 6690-1981 (%)	As observed (%)	Remarks
Carbon	0.50 to 0.60	0.58	Conforms
Manganese	0.50 to 1.00	0.79	Conforms
Silicon	1.50 to 2.00	1.59	Conforms
Phosphorous	0.05 (Max.)	0.02	Conforms
Sulphur	0.05 (Max.)	0.00	Conforms

**5. RUNNING-IN**

The rotoweeder was run-in for 1.0 hour before field performance test as recommended by the applicant. All the fastners were checked & tightened thereafter.

**6. FIELD PERFORMANCE TEST**

The field performance test under dry land condition was conducted for 28.55 hrs. The field performance tests were conducted at the rated 2800 rpm. In all, 5 tests trials were conducted in sandy loam soil at the NRFMTTI farm, Hisar. The results of the field test for dry land operation is summarized in Table-6.

**Crop parameters**

- |                        |   |               |
|------------------------|---|---------------|
| i) Type of weed        | - | Seasonal weed |
| ii) Height of weed, cm | - | 10 to 20      |



Table 6: SUMMARY OF FIELD PERFORMANCE TEST

Sr. no.	Parameter		Range
i)	Prime mover	:	CODE (Ride on self propelled multipurpose toolbar)
ii)	Type of soil	:	Sandy loam
iii)	Soil moisture, %	:	15 to 17.2
iv)	Bulk density of soil, g/cc	:	1.28 to 1.45
v)	Speed of operation, kmph	:	2.10 to 2.21
vi)	Depth of cut, cm	:	8.5 to 11.0
vii)	Width of cut, m	:	0.70 to 0.72
viii)	Area covered, ha/h	:	0.117 to 0.136
ix)	Time required for one hectare	:	7.51 to 8.45
x)	Fuel consumption		
		l/h :	2.00 to 2.96
		l/ha :	15.63 to 24.73
xi)	Weeding efficiency, %	:	86.96 to 91.89
xii)	Field efficiency, %	:	78.84 to 88.31

**7. ADJUSTMENT, DEFECTS, BREAKDOWNS & REPAIR**

No noticeable breakdown occurred during test was observed.

**8. WEAR OF BLADES****8.1 Mass basis:**

The wear of the W85 rotoweeder blades was measured after 29.55 hrs. of field operation and the observations are as under:-

Sr. no.	Initial mass (g)	Mass after 29.55 hrs. (g)	Loss of mass (g)	Percent wear (%)	Percent wear per hour (%)
1	504.77	492.70	12.07	2.39	0.08
2	510.33	497.82	12.51	2.45	0.08
3	509.94	495.32	14.62	2.86	0.09
4	498.88	484.78	14.10	2.82	0.09
5	504.74	491.90	12.84	2.54	0.08
6	499.52	487.83	11.69	2.34	0.07
7	507.39	496.26	11.13	2.19	0.07
8	506.57	492.37	14.20	2.80	0.09
9	517.13	502.71	14.42	2.78	0.09

**9. CRITICAL TECHNICAL SPECIFICATIONS**

(Critical Technical Specifications not specified for Rotoweeder. Vide Ministry's communication No. 13-9/2019 M & T (I&P) dated 26.04.2019)



**10. COMMENTS & RECOMMENDATIONS**

- 10.1** The hardness of blades does not conform, to the requirements of IS: 6690-1981. This needs to be looked into for corrective action.
- 10.2** The Dimension of three point linkage of Implement does not conform, in toto, to the requirements of IS : 4468- (Part 2) 1997(Cat. I N) and therefore, it may be looked into for corrective action.



**10.3 TECHNICAL LITERATURE**

The following literatures are provided by the applicant during the test.

- Operator manual
- Parts catalogue
- Service manual

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

**TESTING AUTHORITY**

<b>Er. SANJAY KUMAR</b> <b>AGRICULTURAL ENGINEER</b>	
<b>Dr. MUKESH JAIN</b> <b>DIRECTOR</b>	 17.04.2023

**11. APPLICANT'S COMMENTS**

Para no.	Our reference	Applicant's Comments
11.1	10.1	Necessary corrections as recommended by the institute would be incorporated in the labeling plate.
11.2	10.2	Necessary corrections as recommended by the institute would be incorporated in the literature.

