

**THIS TEST REPORT VALID UP TO : 31<sup>st</sup> DECEMBER, 2025**



**DASMESH-1072, ROTAVATOR  
(TRACTOR MOUNTED)**



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

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**6.2 Chemical composition**

The chemical composition of blades is tabulated as under:-

Constituents	As per IS: 6690-1981		Composition as observed (% of weight)	Remarks
	Carbon Steel	Silicon Manganese steel		
Carbon ( C )	0.70 -0.85	0.50-0.60	0.3183	<b>Does not conform</b>
Silicon (Si)	0.10 -0.40	1.50-2.00	0.2896	Conforms
Manganese (Mn)	0.50 -1.0	0.50-1.00	1.0612	<b>Does not conform</b>
Sulphur (S)	0.05(max)	0.05(max)	0.0000	Conforms
Phosphorous (P)	0.05(max)	0.05(max)	0.0289	Conforms

**7. FIELD PERFORMANCE TEST**

The field tests of the implement comprising of wet land and dry land operation were conducted for 15.12 and 26.35 hours respectively to assess the performance of the implement. The performance of implement is reported in **Annexure-I & II** for wet land and dry land operations respectively.

Observations of field performance test are summarized in the ensuing table:

**Summary of Field Performance Test**

Sl. No.	Parameters/operations	Wet land operation (Puddling)	Dry land operation
I	II	III	IV
1.	Tractor used	John Deere -5310	
2.	Gear used	L-1	L-1
3.	Type of soil (Refer IS:7926-1975)	Sandy loam	
4.	Average soil moisture (%)	-	0.3 to 8.5
5.	Average depth of standing water (cm)	12.86 to 13.50	-
6.	Bulk density of soil (g/cc)	-	0.8 to 0.9
7.	Average speed of operation (kmph)	2.18 to 2.19	2.10 to 2.27
8.	Avg. travel reduction /Avg. wheel slip (%)	-0.09 to -0.29	1.01 to 12.81
9.	Average depth of puddle/ Average depth of cut (cm)	14.7 to 14.9	7.1 to 8.0
10.	Avg. working width (cm)	-	292 to 312
11.	Area covered (ha/h)	-	0.452 to 0.696
12.	Time required for one ha (h)	-	1.43 to 2.21
13.	Field efficiency (%)	-	74.1 to 89.7
14.	Puddling index (%)	75 to 76	-
15.	Fuel consumption	l/h	5.58 to 6.50
		l/ha	-
16.	Average PTO power utilized (kW)	-	16.43

**7.1 Wet land operation****7.1.1 Quality of work**

- i) The depth of puddle was recorded as 14.7 to 14.9 cm.

ii) The puddling index was recorded as 75 to 76 %.

## 7.2 Dry land operation

### 7.2.1 Rate of work

- i) The rate of work was recorded as 0.452 to 0.696 ha/h, and the speed of operation varies from 2.10 to 2.27 kmph.
- ii) The time required to cover one hectare was recorded as 1.43 to 2.21 h.

### 7.2.2 Quality of work

- i) The depth of operation was recorded as 7.1 to 8.0 cm.
- ii) Average working width was observed as 292 to 312 cm.
- iii) Field efficiency was observed as 74.10 to 89.7 %.

## 7.3 Labour requirement

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

## 7.4 Wear analysis (on mass basis)

Wear of hatchet blades (on mass basis) was measured and recorded in ensuing table:

### Percentage wear of rotavator blades on mass basis:

Sl. No.	Initial mass of blade (g)	Mass of blade after 41.63 hr. of operation (g)	Difference of weight (g)	Percentage of wear (%) after 41.63 hr.	Percentage of wear on hour basis (%)
1.	1041	1009	32	3.07	0.07
2.	1064	1027	37	3.47	0.08
3.	1061	1021	40	3.77	0.09
4.	1049	1018	31	2.95	0.07
5.	1040	1005	35	3.36	0.08
6.	1029	994	35	3.40	0.08
7.	1076	1040	36	3.34	0.08
8.	1046	995	51	4.87	0.11
9.	1041	997	46	4.41	0.11
10.	1027	995	32	3.11	0.07
11.	1050	1010	40	3.80	0.09
12.	1050	1030	20	1.90	0.04

**8. EFFECTIVENESS OF SEALINGS**

After completion of wet land operation for 15.12 hours respectively, the implement was dismantled for checking the effectiveness of sealing provided against ingress of dust, and water/mud in various sub-assemblies/components. The observations are given in ensuing table:-

Sl. No.	Location	Whether ingress of mud and/or water was observed (Yes/No)
1.	Primary reduction gear box	No
2.	Secondary reduction gear box	No
3.	Rotor assembly (hub)	No

**9. EASE OF OPERATION & ADJUSTMENTS**

No noticeable difficulty was observed during the operation and adjustment of rotavator.

**10. DEFECTS, BREAKDOWN AND REPAIRS**

No any noticeable defect or breakdowns were observed during the field test.

**11. COMMENTS AND RECOMMENDATIONS**

- 11.1** The labeling plate MUST be provided on machine with following information:-
- Make
  - Model
  - Year of manufacturer
  - Working width
  - Recommended tractor power (KW)
  - Manufacturer's address
- 11.2** The specifications of implement hitch, does not conform in toto to the 4468 (Part-1)-1997. Hence, it is recommended that implement should be provided with the hitch conforming to relevant Indian Standards.
- 11.3** Dimensions of PIC of implement do not conform in toto to IS: 4931-1995 and therefore, it should be looked in to for corrective action.
- 11.4** Hardness of the blade does not conform to IS: 6690:1981. This needs to be looked into for corrective action at production level.
- 11.5** Ingress of water was observed in rotor assembly hub. The sealing of hub should be improved.
- 11.6** The chemical composition blade does not conform to as per IS: 6690-1981. This needs to be looked into for corrective action at production level.

11.7 The recommended grade of lubrication for primary and secondary gear box should be specified on rotavator.

11.8 The material of the blade is not specified. It **MUST** be specified.

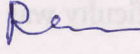
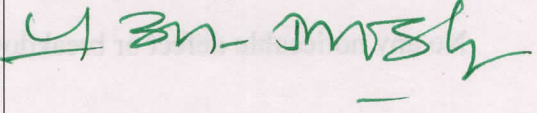
11.9 **Technical literature:-**

Operator manual cum parts catalogue was provided with machine during test.

It is recommended to provide service manual of machine.

The operator manual should be updated as per IS 8132-1999.

**TESTING AUTHORITY**

R. K. NEMA SENIOR AGRICULTURAL ENGINEER	
P. K. PANDEY DIRECTOR	

Draft test report compiled by V.S. Shinde, Senior Technical Assistant.

**12. APPLICANT'S COMMENTS**

Para No	Our reference	Applicant's comments
12.1	11.1 to 11.7	We will follow the recommendations at our production level in future.