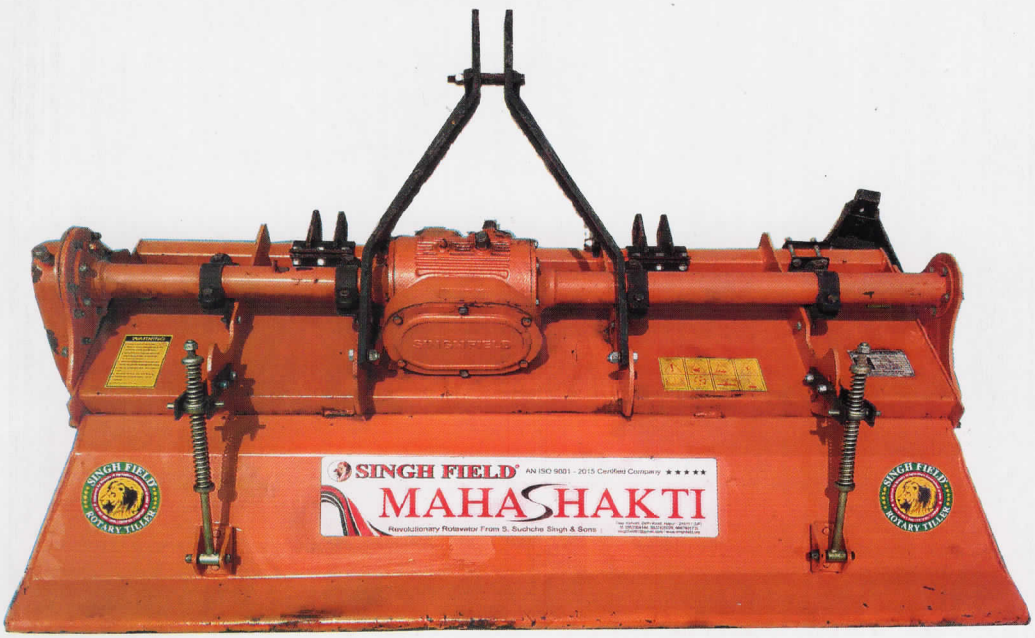
व्यावसायिक परीक्षण रिपोर्ट
COMMERCIAL TEST REPORT

संख्या/ No: ROTAVATOR-254/2433/2020
माह/Month : January,2020

THIS TEST REPORT VALID UP TO : 31st JANUARY, 2027



SINGH FIELD MAHA SHAKTI, SFRM-G-175 ROTAVATOR (TRACTOR MOUNTED)

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

4.11 Lubricants:

Sl. No.	Particulars	As recommended by the manufacturer	As used during test
1	Primary Gear box	SAE 140	Oil originally filled in the rotavator was not changed
2	Secondary Gear box	SAE 140	
3	Rotor Hub	**Not specified**	Servo M.P grease
4	Propeller Shaft	**Not specified**	Servo M.P grease

5. RUNNING – IN

Rotavator was run in for 0.75 hour before field performance test.

6. LABORATORY TEST

6.1 Hardness: - The surface hardness of blade was recorded as under: -

Description	As per IS: 6690:1981 (HRC)	Hardness as observed (HRC)	Remarks
Edge portion	53 to 59	47.2 to 52.1	**Does not conform**
On shank portion	37 to 45	47.2 to 52.1	**Does not conform**

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	0.1279	**Does not conform**
Silicon (Si)	0.10 -0.40	1.50-2.00	0.3795	**Does not conform**
Manganese (Mn)	0.50 -1.0	0.50-1.00	0.4270	**Does not conform**
Sulphur (S)	0.05(max)	0.05(max)	0.0739	**Does not conform**
Phosphorous (P)	0.05(max)	0.05(max)	0.0370	Conforms

7. FIELD PERFORMANCE TEST

The field tests of the rotavator comprising of wet land and dry land operation were conducted for 10.50 and 25.37 hours respectively to assess the performance of the rotavator. The performance of rotavator 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	New Holland 3630 TXS	
2.	Gear used	L-1	L-1
3.	Type of soil (Refer IS:7926-1975)	Sandy loam	
4.	Average soil moisture (%)	--	14.4 to 22.5
5.	Average depth of standing water (cm)	7.44 to 8.33	--
6.	Bulk density of soil (g/cc)	--	1.470 to 1.685
7.	Average speed of operation (kmph)	2.28 to 2.33	2.17 to 2.34
8.	Avg. travel reduction /Avg. wheel slip (%)	1.15 to 2.60	-0.83 to -0.33
9.	Average depth of puddle/ Average depth of cut (cm)	21.83 to 29.33	10.39 to 11.0
10.	Avg. working width (cm)	--	168 to 186
11.	Area covered (ha/h)	--	0.304 to 0.353
12.	Time required for one ha (h)	--	2.83 to 3.29
13.	Field efficiency (%)	--	77.8 to 85.3
14.	Puddling index (%)	80.0 to 84.5	--
15.	Fuel consumption		
	l/h	3.12 to 4.81	4.80 to 5.46
	l/ha	--	13.87 to 16.99
16.	Average PTO power utilized (kW)	--	14.96

7.1 Wet Land operation

7.1.1 The tractor was fitted with half cage wheel on rear pneumatic traction wheel for conducting the paddling operation. The brief specification of half cage wheel is given in Annexure-II

7.1.2 Quality of work

i) The depth of puddle was recorded as 21.83 to 29.33 cm.

ii) The puddling index was recorded as 80.0 to 84.5 %.

7.2 Dry land operation

7.2.1 Rate of work

i) The rate of work was recorded as 0.304 to 0.353 ha/h, and the speed of operation varies from 2.17 to 2.34 kmph.

ii) The time required to cover one hectare was recorded as 2.83 to 3.29 h.

7.2.2 Quality of work

i) The depth of operation was recorded as 10.39 to 11.00 cm.

ii) Average working width was observed as 168 to 186 cm.

iii) Field efficiency was observed as 77.8 to 85.3 %.

12. COMMENTS AND RECOMMENDATIONS

12.1 The marking/labeling of machine **does not meet the requirement of critical technical specification. It must be looked into.**

12.2 The sheet metal is not specified. **This is critical parameter and therefore, it must be specified.**

12.3 The specifications of rotavator hitch, does not conform in toto to the 4468 (Part-1)-1997. Hence, it is recommended that rotavator should be provided with the hitch conforming to relevant Indian Standards.

12.4 Dimensions of PIC of rotavator do not conform in toto to IS: 4931-1995 and therefore, it should be looked into for corrective action.

12.5 The chemical composition of blades does not conform to as per IS: 6690-1981. This needs to be looked into for corrective action at production level.

12.6 The grade of grease is not specified by the applicant. It **MUST** be specified.

12.7 **Technical literature :-**

The following literature supplied with rotavator during the test :-

i. Operator manual cum Service manual cum parts catalogue.

Operator manual of rotavator need to be updated as per IS: 8132-1999.

TESTING AUTHORITY

MAAN SINGH SENIOR TECHNICAL ASSISTANT	
P. K. PANDEY **DIRECTOR**	

Test report compiled by C.Veeranjaneyulu, Senior Technician.

13. APPLICANT'S COMMENTS

We will improve our mistakes in future production.