

THIS TEST REPORT VALID UP TO : 31st DECEMBER, 2025



**MASCHIO GASPARDO VIRAT SP 145, 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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[ISO 9001:2015 CERTIFIED]

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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	0.2650	Does not conform
Silicon (Si)	0.10 -0.40	1.50-2.00	0.2807	Conforms
Manganese (Mn)	0.50 -1.0	0.50-1.00	1.0980	Does not conform
Sulphur (S)	0.05(max)	0.05(max)	0.0000	Conforms
Phosphorous (P)	0.05(max)	0.05(max)	0.0180	Conforms

7. FIELD PERFORMANCE TEST

The field tests of the implement comprising of wet land and dry land operation were conducted for 15.21 and 25.27 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	Mahindra Arjun 555DI	
2.	Gear used	L-1	L-2
3.	Type of soil (Refer IS:7926-1975)	Sandy loam	
4.	Average soil moisture (%)	-	13.2 to 14.6
5.	Average depth of standing water (cm)	10.0 to 11.7	-
6.	Bulk density of soil (g/cc)	-	1.32 to 1.52
7.	Average speed of operation (kmph)	2.70 to 2.84	4.33 to 4.51
8.	Avg. travel reduction /Avg. wheel slip (%)	-0.92 to -2.72	-1.22 to 2.67
9.	Average depth of puddle/ Average depth of cut (cm)	16.5 to 18.8	6.4 to 8.2
10.	Avg. working width (cm)	-	124 to 129
11.	Area covered (ha/h)	-	0.418 to 0.502
12.	Time required for one ha (h)	-	1.99 to 2.39
13.	Field efficiency (%)	-	77.8 to 86.3
14.	Puddling index (%)	71 to 75	-
15.	Fuel consumption		
	l/h	2.47 to 3.37	5.15 to 6.00
	l/ha	-	10.55 to 13.20
16.	Average PTO power utilized (kW)	-	13.57

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

- i) The depth of puddle was recorded as 16.5 to 18.8 cm.
- ii) The puddling index was recorded as 71 to 75 %.

7.2 Dry land operation**7.2.1 Rate of work**

- i) The rate of work was recorded as 0.418 to 0.502 ha/h, and the speed of operation varies from 4.33 to 4.51 kmph.
- ii) The time required to cover one hectare was recorded as 1.99 to 2.39 h.

7.2.2 Quality of work

- i). The depth of operation was recorded as 6.4 to 8.2 cm.
- ii) Average working width was observed as 124 to 129 cm.
- iii) Field efficiency was observed as 77.8 to 86.3 %.

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 40.48 hr. of operation (g)	Difference of weight (g)	Percentage of wear (%) after 40.48 hr.	Percentage of wear on hour basis (%)
1.	1033.3	1002.9	30.4	2.94	0.07
2.	1029.9	1007.2	22.7	2.20	0.05
3.	1034.2	1011.4	22.8	2.20	0.05
4.	1044.8	1026.5	18.3	1.75	0.04
5.	1046.8	1026.7	20.1	1.92	0.05
6.	1011.2	989.7	21.5	2.13	0.05
7.	1055.4	1031.7	23.7	2.25	0.06



8. EFFECTIVENESS OF SEALINGS

After completion of wet land operation for 15.21 hours , 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 breakdown was observed during 40.48 hours of field operation.

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)
 - Manufacturers 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** 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.




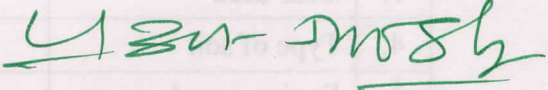
11.6 Technical literature:-

The following literature was supplied with rotavator during test

- i) Use & maintenance manual
- ii) Spare parts catalogue

The use & maintenance manual should be updated as per IS 8132-1999

TESTING AUTHORITY

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

12. APPLICANT'S COMMENTS

Para No	Our reference	Applicant's comments
12.1	4.4 Dimension 'M'	We will make changes in design and implement in mass production.
12.2	4.5.1 Dimension 'a, c & x'	We will make changes in design and implement in mass production.
12.3	4.5.3 Dimension D Φ & W	We will consider this in mass production.

