प्रारंभिक व्यावसायिक परीक्षण रिपोर्ट
INITIAL COMMERCIAL TEST REPORT

संख्या/No. CSIR/CMERI/FMTTC/2023/018
माह/Month: August, 2023

THIS TEST REPORT VALID UP TO : 31st AUGUST, 2030

BIRSA AGRO MACHINERY
SHAKTIKIND ROTAVATOR
(MODEL – SKRT-6)

कृषि मशीनरी प्रशिक्षण और परीक्षण केंद्र
Farm Machinery Training and Testing Centre
सीएसआईआर- केन्द्रीय यांत्रिक अभियांत्रिकी अनुसंधान संस्थान
CSIR - Central Mechanical Engineering Research Institute
महात्मा गांधी एवेन्यू, दुर्गापुर
Mahatma Gandhi Avenue, Durgapur
पश्चिम बंगाल - **713209**
West Bengal - 713209
Website: https://cmeri.res.in

E-mail: fmttc.cmeri@gmail.com
Telephone: +91-343-2546749; 9434921623
Fax: +91-343-2546745

CSIR/CMERI/FMTTC/2023/018	BIRSA AGRO MACHINERY SHAKTIKIND ROTAVATOR, SKRT-6 (INITIAL COMMERCIAL TEST)

Name of Machine	:	Rotavator
Type	:	Tractor Mounted
Make	:	BIRSA AGRO MACHINERY
Model	:	SKRT-6
Name and address of Manufacturer	:	BIRSA AGRO MACHINERY AT P.O: Dumka road, Maheshpur, Dist: Pakur- 816106, JHARKHAND, INDIA
Name and address of Applicant	:	BIRSA AGRO MACHINERY AT P.O: Dumka road, Maheshpur, Dist: Pakur - 816106, JHARKHAND, INDIA
Test Conducted by	:	Farm Machinery Training and Testing Center, CSIR – Central Mechanical Engineering Research Institute, M.G. Avenue, Durgapur- 713209, West Bengal, Govt. of India.

THIS TEST REPORT VALID UP TO : 31ST AUGUST, 2030
[vide DAC&FW OM No. 13-24/2018- M&T (I&P) dated 19.09.2018]

Report No.: CSIR/CMERI/FMTTC/2023/018 **Month: August** **Year: 2023**

CSIR - Central Mechanical Engineering Research Institute,
Durgapur - 713209
(W.B.), INDIA

Fig. 2 Rotavator

4.3. Constructional details (Refer *Fig. 2*)

1. Three-point linkage
2. Primary reduction gear box
3. Main frame
4. Trailing board
5. Side support
6. Rotor shaft
7. Rotor Blade
8. Rotavator stand
9. Secondary drive gear box
10. Side disc

4.3.1. Main frame

Type	:	Fabricated from M. S square pipe and M.S plate
Size of circular section (mm)	:	1860 and 60.33 Ø (length x dia.)
Size of supporting flat (mm)	:	(506×40×10.39) 02. Nos. on each side
Type of mounting of box section	:	02 Nos. of flats are bolted at LHS & RHS.

4.3.2. Side Plates

Type	:	M. S. Sheet
Thickness of plate (mm)	:	8.33
Material	:	M. S. Sheet
Method of fixing	:	Fixed to the main frame with the help of 6 Nos. nut & bolt on LHS & RHS

4.3.3. Trailing board

Type	:	Hinged
Material	:	M. S. Sheet
Size of board (mm)	:	1980×475
Thickness of sheet (mm)	:	5.5
Locking system	:	The board held in six positions by locking on the fixed bracket with the help of two spring load rod
Method of mounting	:	Hinged with bush and rod
No. of bush	:	04
Size of bush MS bush, mm Length Dia (OD/ID)	: : :	 43.17 35.06/ 20.02
Material of bush	:	M. S
Size of Rod, (mm) Length Dia	: : :	 1800, 1 No 19
No. of hinges	:	04
Method of fixing	:	The trailing board is hinged at the rear of main frame with bush and rod

4.3.4. Rotor

4.3.4.1. Axle

Material	:	M. S
Type of rotor axle	:	Circular section with flanges
Size of shafts (mm)	:	1880 × 97 Ø (length × Dia)
No. of flanges	:	07
Type of flanges	:	Circular
Dia. of flanges (mm)	:	220
Thickness of flange (mm)	:	15.42
No. of blades on each flange	:	06
Method of mounting blades on flange	:	With 2 Nos. of nut & bolt
Distance between two flanges (mm)	:	240
Total No. of blades	:	42
Diameter of rotor with blade (mm)	:	450
Method of fixing	:	Through taper roller bearings

13. TECHNICAL LITERATURE

The Part's catalogue of rotavator is provided by the applicant but User's manual and service manual are not provided.
These manuals need to be provided as per IS: 8132-1999.

TESTING AUTHORITY

Report Prepared by	Technical Officer CSIR-CMERI Farm Machinery Testing Centre	
Report Verified by	Scientist, CSIR-CMERI Farm Machinery Testing Centre	
Report Approved by	In-Charge, CSIR-CMERI Farm Machinery Testing Centre	Submitted in Manual
Report Approved for release by	Head, Business Development Group, CSIR-CMERI, Durgapur	

14. APPLICANT'S COMMENTS

Para No.	Our Reference	Applicant's Comments
14	12.1 – 12.5	Noted, corrective actions will be taken against the given comments & Recommendations from 12.1 to 12.5

16. ANNEXURE – II

FIELD PERFORMANCE RESULTS (WETLAND)

Place of test		: Farm Field of CSIR- CMERI, Durgapur			
Tractor used		: SONALIKA DI-745 III POWER PLUS			
Sl. No.	Parameters	Test details			
		1	2	3	4
1	Date of test	10.8.23	11.8.23	14.8.23	17.8.23
3	Test duration (h)	2.38	3.18	3.48	2.42
4	Gear used	L-1			
5	Type of soil	Sandy Clay loam			
6	Engine speed				
	No Load	1830	1815	1817.5	1815
	On Load	1735	1727.5	1722.5	1745
7	Avg. depth of standing water (cm)	7.8	8.5	7.125	7.375
8	Previous treatment	Nil			
9	Forward speed (km/h)	2.4	2.5	2.4	2.5
10	Avg. travel reduction/Slip (%)	-3.4	-4.0	-4.6	-5.4
11	Avg. depth of puddle (cm)	13.525	12.575	13.05	13.525
12	Puddling index (%)	76.0	75.9	75.8	74.7
13	Field Capacity (ha/h)	0.35	0.38	0.32	0.31
14	Time required for one ha (h)	2.9	2.7	3.2	4.2
15	Fuel Consumption				
	l/h	6.0	6.0	6.5	5.7
	l/ha	17.1	16.0	20.4	25.5
16	PTO power (kW)	20.4	23.5	22.0	20.0