

**TEST REPORT VALID UP TO: 31 MAY, 2030**



ಭಾರತ ಸರ್ಕಾರ

GOVERNMENT OF INDIA

ಕೃಷಿ ಹಾಗೂ ರೈತರ ಕಲ್ಯಾಣ ಸಚಿವಾಲಯ  
MINISTRY OF AGRICULTURE AND FARMERS WELFARE

(ಕೃಷಿ ಸಹಕಾರ ಹಾಗೂ ರೈತರ ಕಲ್ಯಾಣ ಇಲಾಖೆ)  
(DEPT. OF AGRICULTURE, COOPERATION AND FARMERS WELFARE)

ಕೃಷಿ ಯಂತ್ರೋಪಕರಣಗಳ ಪರೀಕ್ಷಣಾ ಕೇಂದ್ರ

FARM MACHINERY TESTING CENTRE,

ಕೃಷಿ ಯಂತ್ರೋಪಕರಣ ಮತ್ತು ಶಕ್ತಿ ಇಂಜಿನಿಯರಿಂಗ್ ವಿಭಾಗ

DEPARTMENT OF FARM MACHINERY AND POWER ENGINEERING

ಕೃಷಿ ಇಂಜಿನಿಯರಿಂಗ್ ಮಹಾವಿದ್ಯಾಲಯ, ಕೃಷಿ ವಿಶ್ವವಿದ್ಯಾಲಯ,

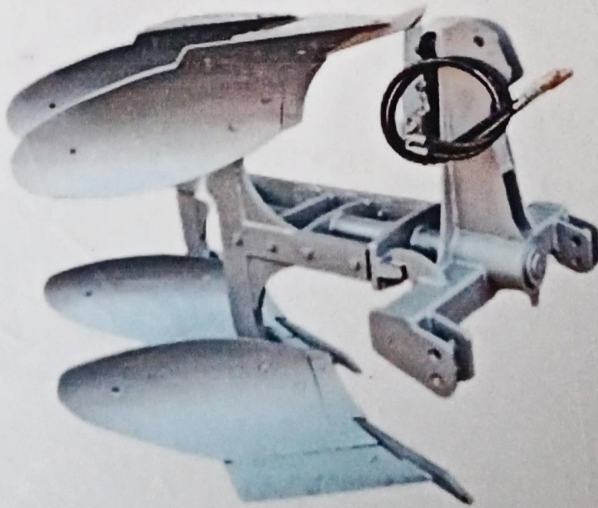
ಬೆಂಗಳೂರು-560065 (ಕರ್ನಾಟಕ)

COLLEGE OF AGRICULTURE ENGINEERING, UNIVERSITY OF AGRICULTURAL SCIENCES,  
BENGALURU - 560065 (KARNATAKA)

E-mail: [fmtc.gkvk@uasbangalore.edu.in](mailto:fmtc.gkvk@uasbangalore.edu.in), [fmtc.gkvk@gmail.com](mailto:fmtc.gkvk@gmail.com)

Telephone & Fax: 080-23330153/406

IMP/No. TT- 331	SANDEEP AGRO WORKS SARJA™ SA 2 P.H.14 TWO BOTTOM HYDRAULIC REVERSIBLE MB PLOUGH (TRACTOR MOUNTED)	COMMERCIAL
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SANDEEP AGRO WORKS SARJA™ SA 2 P.H.14 TWO BOTTOM HYDRAULIC  
REVERSIBLE MB PLOUGH (TRACTOR MOUNTED)

IMP/No. TT- 331	SANDEEP AGRO WORKS SARJA™ SA 2 P.H.14 TWO BOTTOM HYDRAULIC REVERSIBLE MB PLOUGH (TRACTOR MOUNTED)	Commercial
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Manufacturer: Sandeep Agro Works  
Near Buldhana Urban Ware House,  
Akola Road, Akot Dist – Akola  
Maharashtra State - 444 101

Applicant: Sandeep Agro Works  
Near Buldhana Urban Ware House,  
Akola Road, Akot Dist – Akola  
Maharashtra State - 444 101

**Commercial Test Report of**  
**SANDEEP AGRO WORKS SARJA™ SA 2 P.H.14 TWO BOTTOM HYDRAULIC**  
**REVERSIBLE MB PLOUGH (TRACTOR MOUNTED)**  
Make/Model: SARJA™ SA 2 P.H.14  
No .DR/ TT No-331 Dated 16/01/2023

Report No: CTR-260

Month: MAY

Year: 2023

**VALID UP TO: 31 MAY, 2030**



सत्यमेव जयते



**TESTED BY**  
**FARM MACHINERY TESTING CENTRE,**  
**COLLEGE OF AGRICULTURAL ENGINEERING, GKVK,**  
**UAS, BANGALORE-560065 (KARNATAKA)**  
AN IDENTIFIED TESTING CENTRE OF  
GOVERNMENT OF INDIA,  
MINISTRY OF AGRICULTURE AND FARMERS WELFARE  
(DEPT. OF AGRICULTURE, COOPERATION AND FARMERS WELFARE)

E-mail: [fmtc.gkvk@uasbangalore.edu.in](mailto:fmtc.gkvk@uasbangalore.edu.in)

Telephone & Fax: 080-23330153/406

IMP/No. TT- 331	SANDEEP AGRO WORKS SARJA <sup>TM</sup> SA 2 P.H.14 TWO BOTTOM HYDRAULIC REVERSIBLE MB PLOUGH (TRACTOR MOUNTED)	Commercial
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**COMMERCIAL TEST REPORT OF SANDEEP AGRO WORKS SARJA <sup>TM</sup>  
SA 2 P.H.14 TWO BOTTOM HYDRAULIC REVERSIBLE MB PLOUGH  
(TRACTOR MOUNTED)**

*UAS B Ref: No .DR/ TT No-331 Dated 16/01/2023*

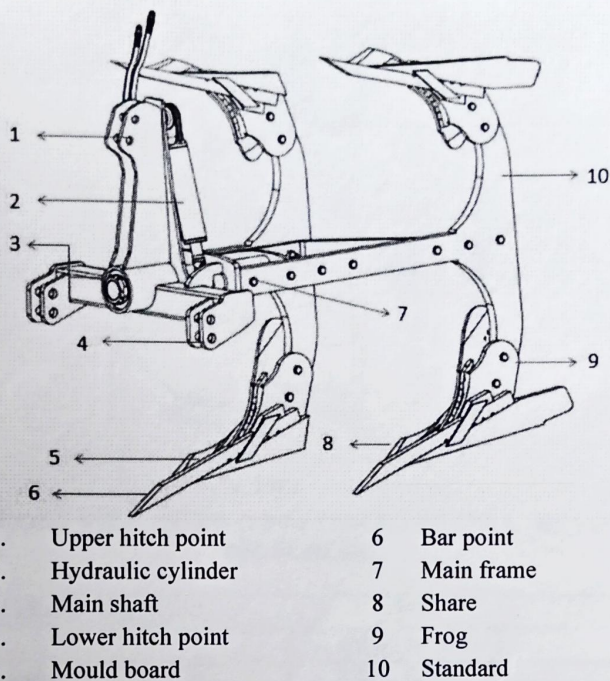
- Name of implement** : TWO BOTTOM HYDRAULIC REVERSIBLE MB PLOUGH
- Make/Model** : SARJA <sup>TM</sup> / SA 2 P.H.14
- Type** : Tractor mounted
- Name of Manufacturer** : Sandeep Agro Works  
Near Buldhana Urban Ware House,  
Akola Road, Akot Dist – Akola  
Maharashtra State - 444 101
- Test conducted by** : **Dr. Jayashree G.C (FPM)**  
Testing Engineer & Assistant Professor  
Department of Farm Machinery and Power Engineering  
College of Agricultural Engineering,  
UAS, GKVK, Bangalore-560065
- Assisted by** : **Mr. Naveen B.V**  
Senior Research Fellow  
College of Agricultural Engineering  
UAS, GKVK, Bangalore-560065
- Er. Gopal krishna. T S,**  
Senior Technical Assistant  
College of Agricultural Engineering  
UAS, GKVK, Bangalore-560065

**TESTED AT**  
**Farm Machinery Testing Centre**  
**College of Agricultural Engineering**  
**UAS, GKVK, Bangalore-560065**

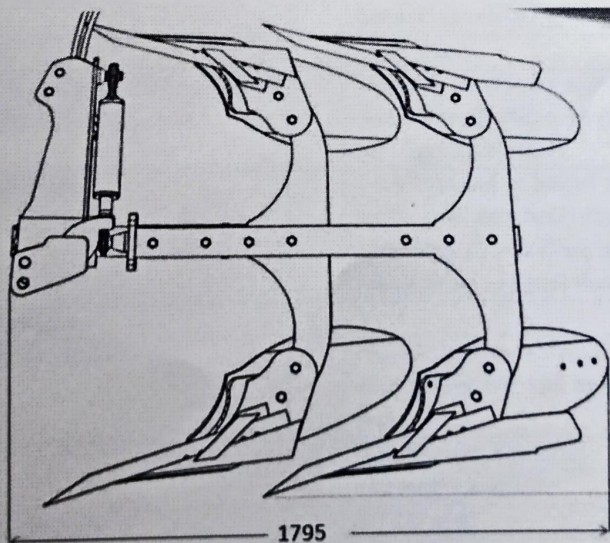
IMP/No. TT- 331	SANDEEP AGRO WORKS SARJA™ SA 2 P.H.14 TWO BOTTOM HYDRAULIC REVERSIBLE MB PLOUGH (TRACTOR MOUNTED)	Commercial
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#### 4. SPECIFICATIONS

<b>4.1 GENERAL</b>		
Name and address of applicant	:	Sandeep Agro Works Near Buldhana Urban Ware House, Akola Road, Akot Dist – Akola Maharashtra State - 444 101
Applicant	:	Sandeep Agro Works Near Buldhana Urban Ware House, Akola Road, Akot Dist – Akola Maharashtra State - 444 101
Name of machine	:	Two Bottom Hydraulic Reversible Mould Board Plough
Type of implement	:	Tractor Mounted
Make	:	SARJA™
Model	:	SA 2 P.H.14
Serial number (apa)	:	BC - 0205
Year of manufacture (apa)	:	2022-23
No. of plough bottoms (s)	:	4 (Two on each side)
Size of plough, mm	:	1800 × 1200 × 1241 mm
Recommended source of power, hp (apa)	:	35 HP to Above
<b>4.2 Prime mover</b>		
Tractor	:	MAHINDRA 475 DI
Chassis No./ Engine No.	:	REOSS1554
Max. PTO power, kW (HP)	:	31.31 (42)
<b>4.3 CONSTRUCTIONAL DETAILS (Refer Fig. 1a, 1b &amp; 1c):</b>		
<b>4.3.1 Frame</b>		
Construction details	:	A rectangular box fabricated by welding two MS Flat of size 510 × 122 × 24 & 218 × 1140 × 24.15 mm. A straight beam fabricated with MS flat of size 970 × 117 × 24 mm. Another bend made out of MS flat 984×113×24.07 mm. are bolted and welded to the rectangular box for fitting rear and front standard respectively. Both beams are bolted and welded along with rear standard at the rear end of frame. Hitch pyramid & reverse mechanism of plough also fitted on the frame.
<b>Dimensions, mm</b>		
Length	:	995 mm
Width	:	290 mm
Number, size of holes on frame for fixing standard, mm	:	04 Holes, 15.96 Ø & 163



**Fig. 1a ISOMETRIC VIEW OF TWO BOTTOM HYDRAULIC REVERSIBLE MB PLOUGH**



**Fig. 1b SIDE VIEW OF TWO BOTTOM HYDRAULIC REVERSIBLE MB PLOUGH**

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		welded to each other in butt joint to form a share & bolted to frog.
	Dimensions, mm	: 450 mm × 130 mm × 8 mm
	No & size of holes on share, mm	: 02 holes, square holes 38 × 10
	Method of fixing share to the bottom	: Share is bolted to the frog with two sunk headed bolts & nut each of size 38 × 10 Ø
<b>4.3.3.4</b>	<b>Bar point (Fig. 3 c)</b>	
	Type	: Type 6
	Material (apa)	: Carbon Steel
	Dimensions, mm	: Front – 889 × 32.91 × 25 Rear – 850 × 32.21 × 25
	Methods of fixing	: It is inserted on a bracket and locked in the groove provided on the share bar by bolts of size 52 × φ 12 mm.

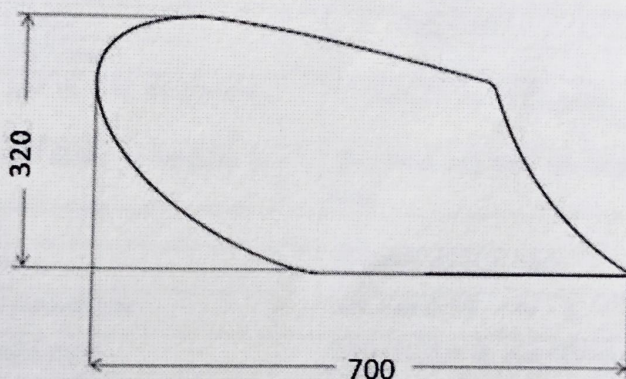


Fig. 3a MOULD BOARD

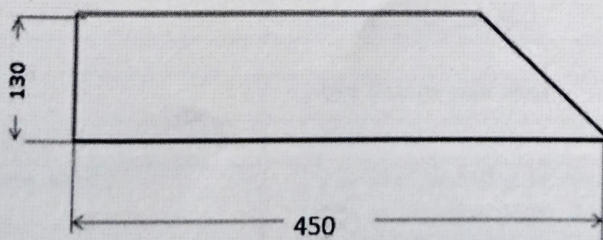
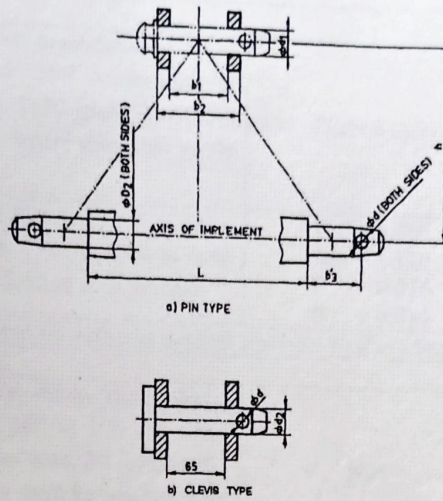


Fig. 3b SHARE



**Fig. 4 DIMENSIONS CONCERNING IMPLEMENT HITCH ATTACHMENTS**

1 Dimensions are given in Table 1

2 The clevis type mounting only applies to categories 2, 3 and 4. The dimensions 65 mm shall be changed when accommodating the U frame coupler.

<b>4.4</b>	<b>Overall dimension, mm</b>		
	Length	:	1795 mm
	Width	:	1190
	Height	:	1280
<b>4.5</b>	<b>Total weight, kg</b>	:	400 kg
<b>4.6</b>	<b>Colour of the implement (apa)</b>	:	Silver Ash

**5. CONFORMITY TO INDIAN STANDARDS**

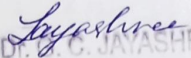
Specifications of share for tractor operated Mould Board Plough (IS: 10691-1983)

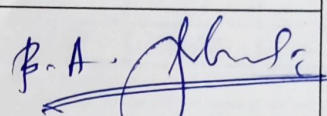
Clause No.	Requirement as per IS	Observation	Conformity to IS
<b>3</b>	<b>TYPES</b>		
3.1	On the basis of the dimensions, the share be of following 7 types a) Type 1 b) Type 2 c) Type 3 d) Type 4 e) Type 5 f) Type 6	As per the shape of share falls in <b>Type - 6</b> but dimensions not meeting the requirements	<b>Partially conforms</b>

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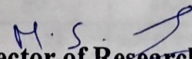
Date of mailing draft report to applicant	26-05-2023
Remarks received if any	-

No. DR/STA/TT-331(2022-23)/2023-24 dt. 13/6/2023  
TESTING AUTHORITY


<b>Dr. Jayashree G.C (FPM)</b> Testing Engineer & Assistant Professor Department of Farm Machinery and Power Engineering College of Agricultural Engineering, UAS, GKVK, Bangalore-560065	 <b>DR. G. JAYASHREE</b> Assistant Professor Dept. of Farm Machinery & Power Engineering College of Agril. Engineering UAS, GKVK, Bengaluru - 560 065
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<b>Co-ordinator</b> Farm Machinery Testing Centre, College of Agricultural Engineering, UAS, GKVK, Bangalore-560065	 <b>Dr. B.A. ANAND</b> Co-ordinator Farm Machinery Testing Center Dept. of Farm Machinery & Power Engineering CoAE, UAS, GKVK, Bengaluru - 560 065
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COUNTERSIGNED

  
**Director of Research**

University of Agricultural Sciences, GKVK, Bangalore

 **For Director of Research**  
 University Of Agricultural Sciences  
 G.K.V.K Bengaluru-560 065



**ANNEXURE - II  
SYMBOLS AND ABBREVIATIONS**

**SYMBOLS:**

## i. Symbols assigned to basic SI units

SL. NO.	PHYSICAL QUANTITY	NAME OF SI UNIT	SYMBOL
1	Length	Metre	m
		Millimetre	mm
2	Weight	Kilogram	kg
		Gram	g
		Tonne	t
3	Time	Second	s

## ii. Symbols assigned to some derived units

SL. NO.	PHYSICAL QUANTITY	NAME OF SI UNIT	SYMBOL
1	Area	Square centimetre	cm <sup>2</sup>
		Square metre	m <sup>2</sup>
		Hectare	ha
2	Speed/Velocity	Metre per second	m/s
		Kilometre per hour	kmph
3	Pressure	Newton per square millimetre	N/mm <sup>2</sup>
4	Time	Minute	min
		Hour	h
5	Volume	Cubic centimetre	cm <sup>3</sup>
		Milimetre	mm
		Litre	L

**ABBREVIATIONS:**

As per applicant	: apa	Clause	: Cl
Degree	: deg	Figure	: Fig.
Indian Standard	: IS	Kilowatt	: kW
Number	: No.	Not Available	: N.A.
Dia	: Diameter	Percent	: %
Not Recorded	: N.R.	Revolutions per minute	: rpm
Reference	: Ref.	Diameter	: $\phi$