

व्यावसायिक परीक्षण रिपोर्ट  
COMMERCIAL TEST REPORT

संख्या/ No.: COMP-158/2397/2019

माह/Month: December, 2019

**THIS TEST REPORT VALID UP TO : 31<sup>th</sup> DECEMBER, 2026**



**B.R. DHANJU SUPER SMS, FITTED ON VISHAL-435 BRISK  
SELF-PROPELLED COMBINE HARVESTER**



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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**4. ROTOR BALANCING TEST**

Date of test	:	12.12.2019
Make and model of Rotor balancing machine	:	PROTEQ and H - 1 K
Mass of the job ( kg)	:	77.52
Service speed of the job rpm	:	1944
ISO balancing grade	:	G 16
Balancing speed rpm	:	1944

S.No.	Particulars	As permissible	As observed	Remark
	Unbalance weight (Left side plane) (g)	36.94	5.16	Balanced
	Unbalance weight (Rightside plane) (g)	36.94	4.22	Balanced

Unbalance angle (Left side plane) (degree)	131.3
Unbalance angle (Right side plane) (degree)	158.38

**5. FIELD PERFORMANCE TEST**

- 5.1** The SMS fitted on Vishal-435 BRISK combine harvester was operation in the paddy field for 5.96 hrs, to assess (a) performance of SMS and, (b) performance of combine harvester with SMS.

The crop parameters recorded during the test were as under:-

**Crop Parameters**

Sl. No.	Parameters		Observations
1.	Average plant height, cm	:	104 to 110
2.	Average number of tillers/m <sup>2</sup>	:	242 to 271
3.	Average length of ear head, cm	:	29 to 35
4.	Average straw/grain ratio	:	2.1
5.	Average moisture, %		
	- Grain	:	14.5
	- Straw	:	66.8

The results of field performance test of Paddy crop harvesting are summarised in Table and presented in detail in Appendix – II to V.



**Table : SUMMARY OF LOSSES & EFFICIENCIES OBSERVED DURING FIELD PERFORMANCE TEST.**

Crop variety	Collectable losses (%)	Non-collectable losses (%)	Total processing losses (%)	Threshing efficiency (%)	Cleaning efficiency (%)	Grain breakage in main grain tank (%)	Forward speed (kmph)	Area covered (ha/h)	Fuel consumption		Grain output (kg/h)	Crop throughput (t/h)
									(l/h)	(l/ha)		
1	2	3	4	5	6	7	8	9	10	11	12	13
<b>PADDY</b>												
PB 1401	2.2	0.3	2.3	98.9	97.2	1.01	1.44	0.377	10.17	26.99	3255.55	10.19

**SUMMARY OF FIELD PERFORMANCE OF SMS**

Uniformity of straw spread, CV, (percent)	18.5
Weighted mean size of chopped straw, cm	9.8

**6. DEFECTS, ADJUSTMENTS, BREAKDOWNS AND REPAIRS**

No noticeable defect observed

**7. SUMMARY OF OBSERVATIONS****7.1 Field test**

<b>7.1.1</b>	<b>Performance of SMS with Vishal-435 BRISK Combine Harvester</b>	
1	Uniformity of straw spread, CV, (percent)	18.5
2	Weighted mean size of chopped strew, cm	9.8

**7.1.2 Performance of Vishal-435 BRISK combine harvester with BR Dhanju Super SMS**

S. No	Parameters	Observations
1.	Speed of operation (kmph)	1.44
2.	Area covered (ha/h)	0.377
3.	Fuel consumption:	
	- (l/h)	10.17
	- (l/ha)	26.99
4.	Crop throughput (tonne/h)	10.19
5.	Grain breakage in main grain outlet (%)	1.01
6.	Header losses (%)	0.17
7.	Total non-collectable losses (%)	0.3



8.	Total collectable losses (%) (un threshed + broken from main outlet)	2.2
9.	Total processing losses (%)	2.3
10.	Threshing efficiency (%)	98.9
11.	Cleaning efficiency (%)	97.2

**8. SELECTED PERFORMANCE AND OTHER CHARACTERISTICS AS PER  
IS: 15806 : 2018**

S. No	Characteristics	Category (Evaluative/ Non evaluative)	Requirement Declaration	Tolerance	Observed	Remarks
1	2	3	4	5	6	7
8.1	Uniformity of straw spread, CV, (percent)	Evaluative	20 Max.	--	18.5	Conforms
8.2	Weighted mean size of chopped strew, cm	Evaluative	20 Max.	--	9.8	Conforms
8.3	Processing losses in rice (%)	Evaluative	Average 4%	Nil	2.3	Conforms
8.4	Threshing efficiency (%)	Evaluative	≥ 98 %	Nil	98.9	Conforms
8.5	Cleaning efficiency	Evaluative	≥ 96 %	Nil	97.2	Conforms
8.6	Grain Breakage in main grain tank	Evaluative	≤ 2.5 %	Nil	1.01	Conforms
8.7	Non-collectable losses	Evaluative	≤ 2.5 %	Nil	0.3	Conforms

i)	Material of blades for straw management System (SMS)	Non evaluative	The flail and fixed blades shall be manufactured from steel having the following chemical composition or such other composition as shall be agreed to between the supplier and the purchaser.  a) Carbon 0.70 to 1.0 percent.	--	Flail blade C-0.4774 Mn-0.2343 Cr-0.0108 Ni-0.6230  Fixed blade C-0.4701 Mn-0.2874 Cr-0.0556 Ni -0.6388	As the code itself accommodate the variation in chemical composition, there is little scope for declaration of conformity or otherwise
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vi) Break down (critical, major & minor)					
Sr. No.	Category of breakdowns	Category (Evaluative/ Non evaluative)	Requirements as per IS 15806:2018	As observed	Whether meets the requirements (Yes/No)
1.	Critical	Evaluative	No critical breakdown	None	Yes
2.	Major	Evaluative	Not more than two and neither of them should be repetitive in nature	None	Yes
3.	Minor	Evaluative	Not more than five and frequency of each should not be more than two	None	Yes
4.	Total breakdown	Evaluative	In no case total no of (major + minor) breakdowns exceed five	None	Yes

### 9. CRITICAL TECHNICAL SPECIFICATIONS

(Vide Ministry's communication F.No 9-1/2019 M&T (I&P) dated 20.08.2019)

SI No.	Parameters	Specification	Observation	Remarks
<b>Rotor</b>				
1.	Rotor diameter, mm	165-170	165	Conforms
2.	No. of lugs on rotor in row	6	6	Conforms
3.	No. of rows in periphery	4	4	Conforms
4.	Length of pivotal flail, mm	170-180	178.8	Conforms
5.	Width of flail, mm	50 ± 1	50.2	Conforms
6.	Thickness of flail, mm	5.0 (Min.)	5.0	Conforms
7.	Number of flails in one set	2	2	Conforms
8.	Spacing between flails of one set, mm	35 (Max)	37.6	<b>Does not conform</b>
9.	Distance between adjacent flails units, mm	200±10	204	Conforms
10.	Number of rows/bars of serrated blades	1	1	Conforms
11.	Number of serrated blades in row	20 (Min.)	24	Conforms
12.	Spacing between serrated blades, mm	50 (Max.)	48.9	Conforms
13.	Overlapping of pivotal blade on serrated blade, mm	60 (Min.) (adjustable)	98	Conforms
<b>Spreader</b>				
14.	Total no of flaps	6 + 2 ( side )	6+2	Conforms
15.	Length of flaps, cm	38 (Min.)	38.8	Conforms
16.	Distance between flaps ( left to right)	Adjustable	Adjustable	Conforms





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17.	Spreader angle with horizontal, degree	Adjustable preferably downwards	Adjustable	Conforms
18.	Spreader angle with line of travel, degree	15 (Min.) (adjustable)	23° (Max)	Conforms
19.	Spreader sheet thickness, mm	2.5-3.0	3.0	Conforms
20.	SMS sheet thickness, mm	5.0 (Min.) for outer	5.4	Conforms
21.	Rotor balancing	Should be dynamically balanced	Balanced	Conforms
22.	Rotor rpm	Min. 1600	1944	Conforms
23.	Fitting of SMS on combine harvester	Rigidly fixed to the combine chassis	Rigidly fixed	Conforms
24.	Fitting of power transmission system on combine harvester	Rigidly fixed to the combine chassis	Rigidly fixed	Conforms
25.	Marking/labelling of machine	Labelling plate should be riveted on the body of machine having Name and address of manufacturer, Country of origin Make Model Year of manufacturer, Serial number, Type Size required size of prime mover (kW), Weight of the machine (Kgs)	Type and Required size of prime mover (kW) are not specified	<b>Does not conform in toto</b>
26.	Literature	Operator manual, Service manual and Parts catalogue should be provided	Provided but only name sake	Conforms

<b>NORTHERN REGION FARM MACHINERY TRAINING &amp; TESTING INSTITUTE, HISAR</b> [THIS REPORT VALID UP TO: 31 <sup>st</sup> December 2026]	<b>18 of 25</b>
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**10. COMMENTS AND RECOMMENDATIONS****10.1 Field performance test**

No noticeable defect was observed during field test

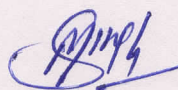
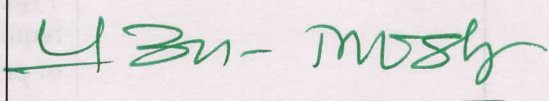
**10.2 Spacing between flails of one set does not meet the requirement of critical technical specification. It must be looked into.****10.3 Marking/Labelling of machine does not meet the requirement of critical technical specification. It must be looked into.****10.4** Applicant has recommended Vishal 435 BRISK combine harvester for SMS field testing. This is vital information and therefore the same must be inscribed in labelling plate also for the guidance of users.**10.5 Ease of operation and safety provision**

No noticeable difficulties observed during operation of SMS.

**10.6 Literature supplied with the machine**

- 1) There was one document entitle "Operator manual and Service manual" was supplied. However, it could be anything but the operator manual, as it lacks the relevant information on operation, adjustments and safety etc.
- 2) There was another document entitle "Super SMS parts catalogue". This too, does not qualify to be parts catalogue for the want of numbering/indexing the various parts/components of the SMS.  
Therefore the Operator manual/ Service manual/ Parts catalogue need to be brought out as per IS 8132: 1999.

**TESTING AUTHORITY**

MAAN SINGH SENIOR TECHNICAL ASSISTANT	
P. K. PANDEY DIRECTOR	

Test report compiled by C. Veeranjanyulu, Senior Technician

**11. APPLICANT'S COMMENTS**

No specific comments received from applicant

