

व्यावसायिक परीक्षणरिपोर्ट
COMMERCIAL TEST REPORT



संख्या / No. : Machine No. 22/215
माह / Month: November, 2014



NBSU Mini Rice Mill

Extra - (3)



सत्यमेव जयते

भारत सरकार
GOVT OF INDIA
कृषि मन्त्रालय

MINISTRY OF AGRICULTURE
कृषि एवं सहकारिता विभाग

DEPARTMENT OF AGRICULTURE AND COOPERATION

उत्तर पूर्वी क्षेत्र कृषि यंत्र प्रशिक्षण एवं परीक्षण संस्थान

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1. SCOPE OF TEST

- 1.1 The scope of test was limited to check and assess the following:**
- 1.1.1 Checking of specifications and other data furnished by the applicant.
 - 1.1.2 Checking of material, visual observation and provision for adjustment.
 - 1.1.3 Rate and quality of work.
 - 1.1.4 Labour requirement and fuel consumption.
 - 1.1.5 Ease of operation and adjustment.
 - 1.1.6 Safety provision.
 - 1.1.7 Defects, Breakdowns & Repair
 - 1.1.8 Wear of critical component.
 - 1.1.9 Soundness and construction of different outlets.

2. METHOD OF SELECTION

The machine was directly submitted for test by the applicant at this Institute. Hence, the method of selection does not arise.

3. TEST CODE AND PROCEDURE

The following codes were referred for testing of Mini Rice Mill.

- i) IS: 12792-1989 : Agricultural produce Milling Machinery-Mini Rice (Reaffirmed 2010) Mill-Specification.
- ii) IS: 9049 – 1989 : Agricultural produce Milling Machinery-Paddy Dehusker, (Reaffirmed 1999) Rubber roll Type.
- iii) IS: 11787 – 1986 : Specification for Paddy Dehusker, Rubber roll Type (Reaffirmed 1999)

4. RUNNING IN AND PRELIMINARY ADJUSTMENT

The run-in was not recommended by the manufacturer, but for proper adjustment run-in of the machine was carried out for 0.5 hour prior to start of actual test in order to assess any requirement of adjustment and observe functioning. Further, all the fasteners were checked and tightened as per requirement.

5. SPECIFICATION

5.1.1 General

Name and address of the manufacturer : M/s New Bihar Sheller Udyog
Village-Shitalpur
P.O.-Jokiyari
P.S.-Raxaul
Dist.- East Champarn
Bihar-845305

Name & Address of Applicant : M/s New Bihar Sheller Udyog
 Village-Shitalpur
 P.O.-Jokiyari
 P.S.-Raxaul
 Dist.- East Champarn
 Bihar-845305

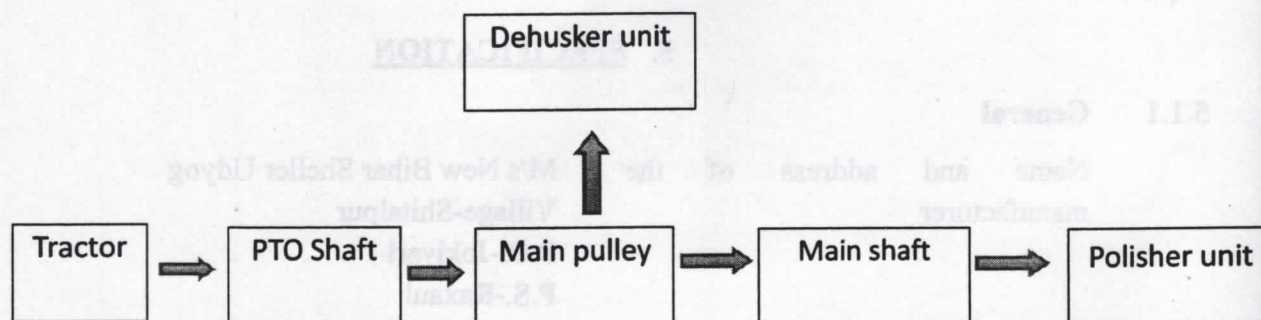
Type : Rubber Roll Type Mini Rice
 Make : NBSU
 Model : NB 05
 Year of manufacture : Not provided
 Frame Serial no. : 00115
 Country of origin : India
 Rated capacity declared by the manufacturer(kg/h) : 500
 Rated capacity as observed, (kg/h) : 564.7
 Max. capacity declared by the manufacturer(kg/h) : 600

Power used during the test : John Deere 5310 Tractor
 (Test Report No. T-496/972 released by CFMTTI, Budni, M. P.). Given in Annexure-IV.

5.1.2 Details of the Mini Rice Mill:

The Mini Rice Mill consists of two units viz. Shelling and Polishing unit which are mounted on a two wheeled trailer. The de-dusking mainly consists of feed hopper, rubber rollers, blower, main outlet, husk outlet etc. It gets power directly from PTO of tractor with the help of power take-off drive shaft and finally power is distributed to both the shelling and polishing units through V-belts. Polishing unit also consists of feed hopper, polisher roller, metallic sieving net, cleaned rice outlet and bran outlet etc. Feeding of paddy is to be done by manually in the feed hopper.

5.1.2.1 Power Flow diagramme of Mini Rice Mill:



	- Shelling efficiency (%)	96
	- Total percentage of broken at rice outlet (%)	32
	- Husk removal (%)	91.5
	- Total percent broken in sheller unit (%)	4
	- Loss of broken grains with husk (%)	9

1. The husk removal percentage ranged from 84.63% to 96.15% against the requirement of 85%.
2. The total loss of grains (broken with husk) varied from 4% to 9% against the limit of 5% (maximum).
3. The average shelling efficiency ranged from 85% to 96% against the requirement of 85%.
4. Finished product contain broken grain ranged from 19% to 32% against the limit of 20%.

8. RATE AND QUALITY OF WORK

8.1 Rate of work

The rate of work was recorded 314.9 kg/h to 1001.4 kg/h in feed rate of 80% and 120%, respectively. Shelling efficiency was recorded as 85% to 96%.

8.2 Quality of work

Head rice was recorded 80% to 91%. Broken rice grain was recorded as 3% to 4%.

9. LABOUR REQUIREMENT

Two semi skilled labourer are required to operate both dehusker and polisher simultaneously.

10. EASE OF OPERATION AND ADJUSTMENT

No noticeable difficulty was observed during the operation and adjustment of the machine.

11. DEFECTS , BREAKDOWN AND REPAIRE

No defects and breakdowns of the machine were observed during 26.8 hours of test.

12. COMMENTS AND RECOMMENDATIONS

- 12.1 The Mini Rice Mill is capable of shelling 90% (max.) with 3% broken, were observed during rated capacity of machine.
- 12.2 No presence of any marked vibration and undue sound were observed during operation.
- 12.3 Maximum wear of rubber roll and polisher net was observed as 0.85% and 0.40% respectively.
- 12.4 The dehusker unit is not provided the transmission guards. Which need to be provided to avoid accidents while feeding.
- 12.5 No any minor or major breakdowns were noticed during the test, except damage of blower belt during long run test, which calls for use of standard quality of blower belt.

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- 12.6 Dimensions of PIC yoke bore does not conform to IS 4931: 1995. It should be looked into for corrective action.
- 12.7 The operator's manual was supplied by the manufacturer is in Hindi language only. He is recommended to provide in vernacular language also. The operator's manual should be brought out as per IS 8132: 1999.

13. APPLICANT'S COMMENTS

Para No.	Our Reference	Applicant's Comments
13.1	12.1	We will recommend the user (customer) to operate the machine at this setting.
13.2	12.2	Yes, agreed.
13.3	12.3	Yes, agreed.
13.4	12.4	We will provide the transmission guards in future production.
13.5	12.5	We will provide the standard quality of blower belt in future production.
13.6	12.6	We will manufacture PIC yoke bore as per IS 4931:1995 in future production.
13.7	12.7	We will provide operator's manual in vernacular language also as per IS 8132:1999.

TESTING AUTHORITY

P. P. RAO SENIOR AGRICULTURAL ENGINEER	
M.K. VISHWAKARMA DIRECTOR	

Test conducted and data compiled by - Shri P.C. Dihingia
Senior Technical Assistant