



AMTEC
Agricultural Machinery Testing and Evaluation Center
1977

ACR 020:2023 CHECKLIST AND REMINDERS FOR THE AMTEC TEST CONDITIONS AND REQUIREMENTS FOR RICE MILL

■ Application for AMTEC Test

The test applicant shall submit AMTEC-OP-F01 (Agricultural Machinery Test Application Form) together with the following requirements:

- AMTEC-OP-F16 (Waiver for Machine Specifications)
- AMTEC-OP-F18 (Data Privacy Consent Form)

■ Technical Specifications of the Machine

The test applicant shall submit any document/s indicating the specifications and other relevant information of the machine upon application for testing.

- Operator's manual with complete specifications as indicated in Annex B of PNS/PAES 304:2020
- Brochure
- Machine specifications sheet (shall be filled out upon request and receipt of copy from AMTEC in case the manual or brochure is not available)

■ Preparation and Operation of the Machine

During field performance test, the rice mill shall be ready for operation. The officially designated representative and/or operator of the test applicant shall operate, demonstrate, adjust, repair, and decide on matters related to the operation of the machine. The operator shall be skilled in operating the machine.

■ Running-in of the Machine

A test run shall be conducted prior to the official test to check its condition and make necessary adjustments to the machine. During field performance test, no other adjustments shall be permitted while the official test is on-going.

■ Test Material

Test materials to be used:

- Shall be a single variety paddy
- Shall be dried to a uniform moisture content of $14\% \pm 1\%$
- Shall have a minimum purity of 95%
- For single-pass rice mill, the amount of test material to be supplied shall be sufficient for one and a half hour of continuous milling operation
- For multi-stage rice mill, the amount of test material to be supplied shall be sufficient for three hours of continuous milling operation.

■ Other Test Necessities

The following shall also be adequately supplied during the conduct of testing:

- Fuel sufficient for the entire duration of test trials (for engine-driven machines);
- Engine oil (for engine-driven machines);
- Uninterrupted power supply (for electric motor-driven machine); and
- Extra weighing scales

■ Machine Operation

- The rice mill shall be operated at the test applicant's recommended setting of its components
- The same setting recommended shall be maintained during the test run
- The recommended feeding rate shall be maintained during the test run with a duration of at least 30 minutes
- After the test run, the rice mill and the area shall be cleaned and prepared for the next test trial

■ Standard Tools

Basic tools shall be provided for the rice mill. These tools shall be suitable to the necessary adjustment operations during maintenance and operation.



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■ Performance and/or Fabrication Test Requirements

AMTEC shall conduct various tests and verification on different performance parameters of the machine including the following requirements as per PNS/PAES 304:2020:

■ Fabrication Requirements

Criteria	Requirement as per PNS/PAES 303:2020
General components	<input type="checkbox"/> Steel bars, metal sheet or plate, or any appropriate materials should be used for the manufacture of the different components of rice mill. Parts that are in direct contact with the milled rice should be made of non-corrosive materials.
Frame and stand	<input type="checkbox"/> Shall be able to support the whole rice mill assembly during operation. Means to minimize vibration shall be provided
Bolts and nuts, screws, bearings, bushing and seals	<input type="checkbox"/> Shall conform to the requirements of applicable Philippine Agricultural Engineering Standards (PAES) for engineering materials or other applicable international standards.
Rice mill that uses rubber rolls as its hulling unit	<input type="checkbox"/> Shall conform to the requirements of PNS/PAES 214: 2004.
Non-sealed type bearings	<input type="checkbox"/> There shall be provisions for lubrication

■ Performance Requirements

Criteria	Requirement as per PNS/PAES 303:2020	
Input capacity, kg/h	As specified by the manufacturer	
Rubber roll input capacity, kg/h (Based on PAES 214:2004)	Size (mm × mm × mm)	Input capacity (kg/h)
	64 × 152 × 60/73	350-400
	102 × 165/222	450-700
	152 × 222 × 174	850-1000
	203 × 220/254	1100-1400
	254 × 254	1700-2200
Noise level, db(A), maximum	92	

The performance criteria for rice mill for milled rice and brown rice shall be as specified in Table 1 and 2, respectively.

Table 1 – Performance Criteria of Rice Mill for Milled Rice

Criteria	Performance Data		
	Rubber Roll		Impeller Type
	Single Pass	Multi-stage	
Hulling efficiency, % minimum	75	79	68
Milling recovery index, minimum	0.90	0.95	0.95
Percent head rice index, minimum	0.85	0.90	0.81
Milling degree	Well milled	Well milled	Well milled
No. of paddy per kilogram milled rice, maximum	15	15	15

Table 2 – Performance Criteria of Rice Mill for Brown Rice

Criteria	Performance Data
Hulling efficiency, % minimum	75
No. of paddy per kilogram, maximum	20



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■ Safety, Workmanship and Finish

- There shall be provision for ear protection.
- Rice mill and other components/appurtenances shall be free from any manufacturing defects that may be detrimental to its operation.
- The construction of rice mill and other components/appurtenances shall be rigid and durable without noticeable cracks and weak joints.
- The rotating components of rice mill shall be statically and dynamically balanced.
- Any uncoated metallic surfaces of the rice mill and other components/appurtenances shall be free from rust and shall be painted properly.
- The external part of the rice mill and other components/appurtenances shall be free from sharp edges and rough surfaces that may injure the operator. The warning notice shall be in accordance with PAES 101:2000.
- Mechanism for immediate disengagement of power transmission shall be provided.
- There shall be provisions for belt cover or guard, belt tightening, and adjustments.
- There shall be provision for the safety of the operators in the feeding port.
- There shall be provision for dust collection system.

■ Suspension and Termination of Test

If the test material does not conform with the recommended quantity and characteristics, AMTEC shall not proceed with the test. Should the test applicant request the conduct of the test despite the non-conformity to the test requirements identified by AMTEC, the applicant shall sign the AMTEC Waiver for Nonconformity to Test Requirements.

- AMTEC-OP-F24 (Waiver for Nonconformity to Test Requirements)

If the machine stops due to breakdown or malfunction during the test run affecting the machine's performance, the test may be suspended. If the machine cannot continue the operation, the test shall be consequently terminated.

■ Other Assistance During Test

1. For field and laboratory tests outside the AMTEC premises, the applicant shall shoulder the transportation expenses (i.e. fuel, toll fees, vehicle rental, plane fare, sea fare, etc.) of the AMTEC Staff assigned for the testing activity.
2. The applicant is requested to assist the AMTEC Staff in looking and/or making arrangements for hotel accommodation and food near the test site.
3. The applicant shall provide drinking water to the AMTEC Staff during the testing activity.
4. The applicant shall provide any form of shed or sunshade (e.g. tent, umbrella, etc.) for the test equipment, samples (if applicable) and AMTEC Staff during the testing activity in the field.
5. The applicant is requested to assist the AMTEC Staff in finding any means to access a safe and convenient restroom near the test site during the testing activity.

■ Testing Fee

1. The testing fee for rice mill is PhP 13,000.
2. To proceed through AMTEC test, the test applicant shall settle at least 50 % of the testing fee which is non-refundable but transferrable.
3. In cases of additional testing during the field, the test applicant shall immediately pass the required documents and settle at least 50% of the testing fee within 5 working days after the testing proper.
 - Additional testing, number of machines: _____
4. Payment/s shall be directed to the following:
 - Through UPLB Cashier's Office (8AM to 12PM): AMTEC Trust Fund Code No. 8271632-40A2040101000
 - Through Landbank (8:30AM to 3PM): UPLB Trust Fund Account No. 1892100507 or UPLB FI Account No. 1892-1003-29



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■ Other Reminders

1. All manufacturers, fabricators, assemblers, distributors, dealers, importers, and exporters (MFADDIE) shall secure a Certificate of Conformity (CC) from the Bureau of Agricultural and Fisheries Engineering (BAFE) which guarantees that their agricultural and fisheries machinery conforms with PNS/BAFS PABES or other relevant standards identified by BAFE. More information about the application for CC can be found at <http://bafe.da.gov.ph/index.php/certificate-of-conformity-of-manufacturers-fabricators-assemblers-distributors-dealers-importers-and-exporters/>.
2. All MFADDIE shall employ an Agricultural and Biosystems Engineer (ABE), as mandated by RA 10915 (ABE Law), who shall facilitate all activities and concerns pertinent to AMTEC testing and BAFE requirements. Do you currently have an ABE in your roster of employees? Yes No