



**AMTEC**  
**Agricultural Machinery Testing and Evaluation Center**  
**1977**

**ACR 017:2023 CHECKLIST AND REMINDERS FOR THE AMTEC TEST CONDITIONS AND REQUIREMENTS FOR HEATED-AIR MECHANICAL GRAIN DRYER**

**■ 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 202:2015
- 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**

The heated-air mechanical grain dryer shall be ready for performance testing. The officially designated 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 a heated-air mechanical grain dryer.

**■ 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. No other adjustments shall be permitted while the official test is on-going.

**■ Test Material**

The test applicant shall prepare grains (corn or palay) which are sufficient to fill the dryer up to its full capacity. The test material shall:

- Be homogenous (same variety and time of harvest); and
- Have an initial moisture content of at least 22%<sub>wb</sub>.
- For a continuous drying operation, the minimum amount of test material to be used shall be twice the rated capacity.

**■ Other Test Necessities**

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

- Fuel tank filled to its full capacity, if applicable;
- Fuel sufficient for the entire duration of the test for the burner, prime mover, and generator set, if applicable;
- Fuel that conforms to the specification supplied by the manufacturer;
- Stable electric power supply, if applicable;
- Weighing scale with at least 100 kg capacity; and
- Tools for machine repair and adjustments.

**■ Machine Setting**

The heated air mechanical grain dryer shall be tested at the manufacturer's recommended setting for the following:

- Drying air temperature: \_\_\_\_\_
- Final moisture content: \_\_\_\_\_
- Airflow rate: \_\_\_\_\_
- Drying time: \_\_\_\_\_



# AMTEC

## Agricultural Machinery Testing and Evaluation Center 1977

### ■ Requirements

AMTEC shall conduct various tests and verification on different performance parameters of the machine including the following requirements as per PNS/PAES 201:2015:

### ■ Performance Requirements

Criteria	Requirement as per PNS/PAES 201:2015	
	Rice	Corn
Moisture gradient, %, maximum		
Batch type	4.0	4.0
Recirculating type	2.0	2.0
Drying rate, %/h	0.8 (Batch type) 1.0 (Continuous flow)	2.0 (Shelled corn) 0.4 (Ear corn)
Product quality*		
Cracked grain, % increase, maximum	3.0 (Batch type) 2.0 (Continuous flow)	10.0
Head rice, % decrease, maximum	5.0	NA
Hulled/damaged grain, % increase, maximum	2.0	NA
Brokens/Split kernels, % increase, maximum	NA	7.0
Drying Loss/Spillage, %, maximum	1.0	1.0
Drying efficiency, %, minimum	75	75
Heating system efficiency, %, minimum		
Petroleum based fuel		
Direct-fired	90	90
Indirect-fired	75	75
Biomass fuel		
Direct-fired	65	65
Indirect-fired	50	50
Blower flow rate, cmm/kg (cfm/ton)	0.05 (1750)	0.05 (1750)
Static pressure, mmH <sub>2</sub> O (in H <sub>2</sub> O)	25 (1)	25 (1)
Noise level, dB(A), maximum	92	

\* Allowable difference between the laboratory analysis and machine's performance

### ■ Other Requirements

Criteria	Requirement as per PNS/PAES 201:2015
Grain holding capacity	<input type="checkbox"/> Full capacity as per manufacturer's specification must be attained
Dried grain condition	<input type="checkbox"/> No additional discoloration <input type="checkbox"/> No traces of unburned fuel or ashes on grain surface <input type="checkbox"/> No fermented or musty smell
Instrument provision	<input type="checkbox"/> Thermometer <input type="checkbox"/> Pressure gauge

### ■ Safety, Workmanship and Finish

Safety	<input type="checkbox"/> Shall have adequate provision for fire control <input type="checkbox"/> Shall have adequate protection from or for all moving parts <input type="checkbox"/> Shall be provided with features for access to parts during repair, maintenance, and operation <input type="checkbox"/> Provision shall be made for dust control. Its dust emission shall be within the acceptable limits set by the Department of Environment and Natural Resources <input type="checkbox"/> Warning notices shall be in accordance with PNS/PAES 101:2000 – Agricultural Machinery – Technical Means for Ensuring Safety – General
--------	---



# AMTEC

## Agricultural Machinery Testing and Evaluation Center 1977

### Workmanship and Finish

- Shall be free from defects that may be detrimental to its use
- Shall be free from sharp edges and surfaces that may hurt the operator
- All metals parts should be machine bend, pressed, and cut to avoid rough surfaces
- All rough surfaces should be machine finished and smoothed
- Uniformity of parts and components for same brand and model must be maintained.
- Provision shall be made so that it can withstand extreme weather conditions to which it can be exposed.

### ■ Suspension and Termination of Test

If the test materials do 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)

On the other hand, if during the test run, the machine stops due to breakdown or malfunction that affects the machine's performance, the test shall be suspended. The decision to suspend or to continue the test is at the discretion of the test engineer and concurred by the company representative.

### ■ 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 heated -air mechanical grain dryer is Php 18,500.
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, 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

### ■ Other Reminders

1. All manufacturers, fabricators, assemblers, and importers (MFAI) 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 MFAI 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