

PHILIPPINE NATIONAL STANDARD

PNS/PAES 260:2015
(PAES published 2015)
ICS 65.060.50

Agricultural machinery – Paddy seed cleaner – Specifications



BUREAU OF PRODUCT STANDARDS*

Member to the International Organization for Standardization (ISO)
Standards and Conformance Portal: www.bps.dti.gov.ph

***BUREAU OF PHILIPPINE STANDARDS**

National Foreword

The Philippine Agricultural Engineering Standards PAES 260:2015, Agricultural machinery – Paddy seed cleaner – Specifications was approved for adoption as Philippine National Standard by the Bureau of Philippine Standards upon the recommendation of the Agricultural Machinery Testing and Evaluation Center (AMTEC) and the Philippine Council for Agriculture, Aquatic and Natural Resources Research and Development of the Department of Science and Technology (PCAARRD-DOST).

PHILIPPINE AGRICULTURAL ENGINEERING STANDARDS PNS/PAES 260:2015
Agricultural Machinery – Paddy Seed Cleaner– Specifications

Foreword

The formulation of this national standard was initiated by the Agricultural Machinery Testing and Evaluation Center (AMTEC) under the project entitled “Development of Standards for Rice Production and Postproduction Machinery” which was funded by the Philippine Council for Agriculture, Aquatic and Natural Resources Research and Development (PCAARRD) of the Department of Science and Technology (DOST).

This standard has been technically prepared in accordance with PAES 010-2 – Rules for the Structure and Drafting of International Standards.

The word “shall” is used to indicate mandatory requirements to conform to the standard.

The word “should” is used to indicate that among several possibilities one is recommended as particularly suitable without mentioning or excluding others.

In preparation of this standard, the following documents/publications were considered:

Agricultural engineering in development by de Lucia, M. and Assennato, D. 1994. *In Post-harvest operations and management of food grains* by FAO. Retrieved from the world wide web; August 13, 2014 (<http://www.fao.org/docrep/T0522E/T0522E00.htm>)

CIGR Handbook of Agricultural Engineering Volume III. Plant Production Engineering. 1999. United States of America

IS 5718:2000 Indian Standard – Agricultural Produce Processing Equipment – Seed Cleaners – Test Code

Primer on Philippine Grains Standardization Program of the National Food Authority. 2002 Edition.

Rice Postproduction Technology A Technical Reference Guide. 2003. Philippine Rice Postproduction Consortium. Japan Grain Inspection Association. National Food Authority. Quezon City.

Rice Postharvest Technology. 1995. The Food Agency Ministry of Agriculture, Forestry and Fisheries. Tokyo, Japan.

Van Ruiten, Harry. 1973. The Precleaning of Paddy in *Postharvest Rice Technology*. University of the Philippines, Los Baños, Laguna. p. 47-61

PHILIPPINE AGRICULTURAL ENGINEERING STANDARDS PNS/PAES 260:2015
Agricultural Machinery – Paddy Seed Cleaner – Specifications

1 Scope

This standard specifies the requirements for paddy seed cleaner.

2 References

The following normative documents contain provisions, which through reference in this text constitute provisions of this National Standard:

- PNS/PAES 101:2000** Agricultural Machinery – Technical Means for Ensuring Safety – General
- PNS/PAES 102:2000** Agricultural Machinery – Operator’s Manual – Content and Presentation
- PNS/PAES 103:2000** Agricultural Machinery – Method of Sampling
- PNS/PAES 138:2004** Agricultural Machinery – Guidelines on After Sales Service
- PNS/PAES 240:2010** Agricultural machinery – Fans and Blowers –Specifications
- PNS/PAES 261:2015** Agricultural Machinery – Paddy Seed Cleaner –Methods of Test
- PNS/PAES 311:2001** Engineering Materials – Bolts and Nuts for Agricultural Machines – Specifications and Applications
- PNS/PAES 313:2001** Engineering Materials – Screws for Agricultural Machines – Specifications and Applications

3 Definitions

For the purpose of this standard the following definitions shall apply:

3.1

aspirator

unit used to remove light foreign matter by drawing air through the seed mass

3.2

blower

device for moving air which utilizes a power-driven rotating impeller

3.3

clean seeds

good seeds and damaged seeds without foreign matter

3.4

cleaning loss

ratio of the sum of the weight of seeds blown and scattered, to the weight of the total unclean seeds input in the cleaner, expressed in percent

3.5

cleaning recovery

ratio of the weight of the clean seeds collected at the output chute, to the total weight of the seeds input in the cleaner multiplied by the initial purity, expressed in percent

3.6

damaged seeds

seeds that are damaged by mechanical means, heat, water, and/or insect

3.7

foreign matter

all matters other than paddy seeds such as sand, gravel, dirt, pebbles, stones, lumps of earth, clay, mud, chaff, straw and other grains like weed seeds and other crop seeds including unfilled grains

3.8

good seeds

clean seeds that are viable for germination

3.9

hopper

part of the cleaner where the seeds to be cleaned are loaded

3.10

input capacity

weight of seeds per unit loading time into the hopper, expressed in kilograms per hour

3.11

moisture content

amount of water in the seeds, expressed as percentage

3.12

oscillating screen

wire mesh or perforated sheet metal used to separate large and/or small particles

3.13

output chute

part of the cleaner where the clean seeds are collected

3.14

paddy

rough rice

“palay”

unhulled grain of *Oryza sativa*, which means, grain with the glumes enclosing the kernel

3.15

paddy seed cleaner

machine that is used to remove foreign matter from the seed mass

3.16

winnower

machine that mechanically separates foreign matter through the use of a blower

4 Classification

The classification of paddy seed cleaner shall be based on the following:

4.1 Mode of Installation

4.1.1 Stationary type

4.1.2 Mobile type

4.1.2.1 Trailer type

4.1.2.2 Cart type

4.2 Mode of Separation

4.2.1 Oscillation/Vibration

This is the process where the screens move back and forth through a given axis or shake to separate the large and small size foreign matters from the seed mass (Figure 1).

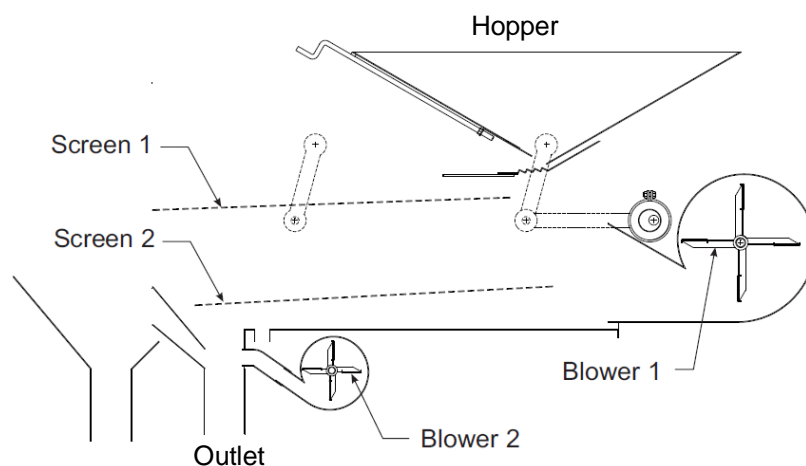


Figure 1 – Diagram of a simple paddy seed cleaner

4.2.2 Blowing

It is a process of removing light impurities by air blast through the seed mass. This is usually done by a fan or a blower (Figure 1).

4.2.3 Aspirating

It is a process of introducing air blast through suction to remove light foreign materials from the seed mass. This is usually done by an aspirator or a suction fan.

5 Performance and Other Requirements

5.1 The performance criteria for paddy seed cleaner shall be as specified in Table 1.

Table 1 – Performance Criteria for Paddy Seed Cleaner

CRITERIA	Performance Data
Cleaning Recovery, % minimum	99
Purity of Output, % minimum	98
Cleaning Loss, % maximum	1
Noise Level [dB (A)], maximum	92*

* Allowable noise level for six (6) hours of continuous exposure based on Occupational Safety Health Standards, Department of Labor and Employment, Philippines, 2013.

5.2 Input capacity shall meet the specifications of the manufacturer.

6 Manufacturing Requirements

6.1 Frames shall be made from angle bars and mild steel. Fans to be used shall conform to PNS/PAES 240:2010 – Agricultural Machinery – Fans and Blowers – Specifications.

6.2 Bolts and screws to be used shall conform to the requirements of PNS/PAES 311:2001 – Engineering Materials – Bolts and Nuts for Agricultural Machines – Specifications and Applications and PNS/PAES 313:2001 – Engineering Materials – Screws for Agricultural Machines – Specifications and Applications.

6.3 Sizes of the parts of the paddy seed cleaner shall be based on the specifications of the manufacturer.

7 Workmanship and Finish

7.1 Paddy seed cleaner shall be free from manufacturing defects that may be detrimental to its operation.

7.2 Any uncoated metallic surfaces shall be free from rust and shall be painted properly.

7.3 Paddy seed cleaner shall be free from sharp edges and surfaces that may injure the operator. The warning notice shall be in accordance with PNS/PAES 101:2000 – Agricultural Machinery – Technical Means for Ensuring Safety – General.

7.4 The screen should be replaceable to fit varying sizes of seeds.

7.5 Rotating parts should be dynamically balanced.

7.6 Mechanism for immediate disengagement of power transmission shall be provided.

8 Warranty for Construction and Services

8.1 The construction of the paddy seed cleaner shall be rigid and durable without major breakdown of the cleaning, separation and transmission mechanism within six (6) months.

8.2 Warranty shall be provided for parts and services within six (6) months after the installation and acceptance by the end user, except on easy to wear parts such as belts and screens. General requirements of the warranty shall be in accordance with PNS/PAES 138:2004 – Agricultural Machinery – Guidelines on After-Sales Service.

9 Maintenance and Operation

9.1 Each paddy seed cleaner unit shall be provided with a set of manufacturer's standard tools required for maintenance.

9.2 An instruction manual which conforms to PNS/PAES 102:2000 – Agricultural Machinery – Operator's Manual – Content and Presentation shall be provided.

9.3 There shall be provisions for lubrication of non-sealed type bearings and belt tightening.

9.4 Provisions for safety of the operator from all moving components of the paddy seed cleaner such as belt guard or cover shall be included.

9.5 The paddy seed cleaner shall be easy to clean and operate.

10 Sampling

The paddy seed cleaner shall be sampled for testing in accordance with PNS/PAES 103:2000 – Agricultural Machinery – Method of Sampling.

11 Testing

The sampled paddy seed cleaner shall be tested in accordance with PNS/PAES 261 – Agricultural Machinery – Paddy Seed Cleaner – Methods of Test

12 Marking and Labeling

Each unit of paddy seed cleaner shall be marked at prominent place with the following information:

- 12.1** Registered trademark of the manufacturer
- 12.2** Brand
- 12.3** Model
- 12.4** Serial number
- 12.5** Name and address of the manufacturer/importer/distributor
- 12.6** Country of manufacture/origin
- 12.7** Input capacity, kg/h
- 12.8** Power requirement, kW
- 12.9** Safety/Precautionary markings

your partner in product quality and safety



BUREAU OF PRODUCT STANDARDS*

3F Trade and Industry Building
361 Sen. Gil J. Puyat Avenue, Makati City 1200, Metro Manila, Philippines
T/ (632) 751.3125 / 751.3123 / 751.4735
F/ (632) 751.4706 / 751.4731
E-mail: bps@dti.gov.ph
www.dti.gov.ph

***BUREAU OF PHILIPPINE STANDARDS**