

ལྷ་འབྲུག་གཞི་རྒྱུ་དགོས་ཚད། བོ་རིམ་ , པ།

BHUTAN STANDARD

Rice Mill – Basic Requirements (Part 1)



ICS 65.060.10

© Copyright 2018

BHUTAN STANDARDS BUREAU

The National Standards Body of Bhutan

THIMPHU 11001

ལྷ་འབྲུག་གཞི་རྒྱུན་དགོས་ཚད། བོ་རི་མ། པ།

BHUTAN STANDARD

Rice Mill – Basic Requirements (Part 1)

PDF disclaimer

This PDF file may contain embedded typefaces. In accordance with Adobe's Licensing policy, this file may be printed or viewed but shall not be edited unless the typefaces which are embedded are licensed to and installed on the computer performing editing. In downloading this file, parties accept therein the responsibility of not infringing Adobe's licensing policy. The Bhutan Standards Bureau accepts no liability in this area.

Adobe is a trademark of Adobe Systems Incorporated.

COPYRIGHT PROTECTED DOCUMENT

© BSB 2018

All rights reserved. Unless otherwise specified, no part of this publication may be reproduced or utilized in any form or by any means, electronic or mechanical, including photocopying and microfilm, without permission in writing from either BSB at the address below in the country of the requester.

Director General

Bhutan Standards Bureau

Thimphu-11001

Tel : 00975-2-325104/325401

Fax: 00975-2-323712/328298

Web: www.bsb.gov.bt

Published in xxxxxx 2018

Contents

FOREWORD.....	iv
1 Scope	1
2 Normative References	1
3 Definitions	1
3.1 Rice Mill.....	1
3.2 De-Husker	1
3.3 Polisher	1
3.4 Combined Types	1
3.5. Milled Rice	1
3.6 Food Grade Material.....	1
3.7. Milling recovery index.....	1
3.8 Head Rice recovery index	1
3.9 Rough Rice or Paddy	2
4 The general standard for Rice Mill shall cover;.....	2
4.1 Safety requirements	2
4.3 Requirement of Operational performance.....	2
4.4 Test Sample.....	2
Annex A (Normative).....	3
Bibliography	4

FOREWORD

This Bhutan Standards for Power Tillers–Test Code (Part 2) was adopted by Bhutan Standards Bureau after the draft finalization by the Mechanical Engineering Technical Committee and endorsed by BSB Board.

ལུ་འབྲུག་གཞི་རྒྱུ་དགོས་ཚད། ལོ་རིམ་ , བ།

BHUTAN STANDARD

Rice Mill – Basic Requirements (Part 1)

1 Scope

This standard specifies the general requirements for Rice Mill and shall apply to De husker, Polisher and Combined types. It excludes the test methods of Rice Mill.

2 Normative References

There are no normative reference for this document

3 Definitions

For the purposes of this standard, the following definitions apply.

3.1 Rice Mill

A machine or equipment used for converting rough rice to milled rice.

3.2 De-Husker

A machine which is used to removes the husk from the rough rice.

3.3 Polisher

A machine used for polishing kernels of rice to change their appearance, taste and texture.

3.4 Combined Types

A machine which can perform both the operations of de-husking and polishing

3.5. Milled Rice

The white grain or kernel comprising the endosperm and the seed left after removal of husk.

3.6 Food Grade Material

Any material when it comes in contact with food does not contaminate the food beyond the limit of prohibited substances given in annex A, table 1.

3.7. Milling recovery index

It is the ratio of milling recovery rate of tested machine and the laboratory test reference value.

3.8 Head Rice recovery index

It is the ratio of head rice recovery rate of tested machine and the laboratory test reference value.

42 **3.9 Rough Rice or Paddy**

43 It is un-hulled or un-husked rice (*Oryza sativa*)

44

45 **4 The general standard for Rice Mill shall cover;**

46 **4.1 Safety Requirements**

47 **4.2 Structure Requirements**

48 **4.3 Requirement of Operational Performance**

49 **4.4 Test Sample**

50 **4.1 Safety requirements**

51 **4.1.1** There shall be safety guard for moving parts which are prone to injury and guard shall be placed in
52 between the moving parts and operator at appropriate safe distance.

53

54 **4.1.2** The guard shall have enough strength and durability under the normal operational condition and the
55 guard which does not require to be removed, should be firmly fixed on the machine.

56

57 **4.1.3** Parts that come in contact with the rough rice should be made of food grade material.

58

59 **4.1.4** The machine shall be equipped with Instruction and operation manuals.

60 **4.2 Structure requirements**

61 **4.2.1** The main components shall not be abnormal or broken.

62 **4.2.2** The operator should not have difficulty in operating and controlling the components.

63 **4.2.3** There should not be any defects that may affect the operator.

64 **4.2.4** The food grade materials for processing machine shall be as given in annex A, Table 2

65

66 **4.3 Requirement of Operational performance**

67 **4.3.1** Milling recovery index should not be lower than 0.9.

68 **4.3.2** Head rice recovery index should not be lower than 0.75.

69 **4.3.3** The noise level for rice mill should not exceed 100dBA for 2 hours of continuous operation.

70

71 **4.4 Test Sample**

72 The test sample shall be new machine and it shall be adjusted as per the manufacturer's specification.

73

74

75 **Annex A (Normative)**

76 (Clause 3.6 and 4.2.4)

77

78 Presence of any traces of prohibited substance should be within the limit prescribed in Table 1.

79

80 **Table 1** Prohibited substances in food contact parts.

81

Sl. No	Elements	Limit Value
1.	Lead (Pb)	< 0.1%
2.	Antimony (Sb)	< 5 %
3.	Cadmium (Cd)	< 0.01 – 0.04 %
4.	Mercury (Hg)	< 0.1 %
5.	Cyanide	0

82

83

84 **Table 2** Recommended food grade materials for different operating conditions:

85

Sl. No	Metal Type	Operating Condition				Food Contact Parts
		Wet			Dry	
		Acid (pH 0-6)	Neutral (pH 6-8)	Alkaline (pH 8-14)		
1.	Carbon Steel	Not Recommended	Recommended with Coating/Plating	Recommended with Coating/Plating	Recommended	Hopper, Shaft, Outer body
2.	Stainless Steel (SS)	SS 304, Recommended	SS304 Recommended	SS304 Recommended	SS200, Recommended	Shaft, Screen, Outlet
3.	Cast Iron	Not Recommended	Not Recommended	Not Recommended	Recommended with coating/Plating	Outer Body

86

87

88

89

90

91

92

93

94

95

96

97

98

99

100

101

102

103 **Bibliography**

- 104
- 105 1. ISO: 3971-1977 (E/F) Rice Milling – Symbols and Equivalent Terms
- 106 2. ISO Recommendation R712: 1968 Determinations of Moisture Content Routine Method,
- 107 International Organization for Standardization.
- 108 3. AMTEC Standard: 1989 Rice Mill – Methods of Test, Draft Standard: Agricultural Machinery
- 109 Testing and Evaluation Centre, University of the Philippines at Los Banos, Philippines.
- 110 4. ASAE Standard: ASAES352, 1977 Moisture measurement – Grain and Seeds, American Society of
- 111 Agricultural Engineers, St. Joseph, Michigan, USA
- 112 5. Agricultural Mechanization Institute: 1989 Diagrams of Large-Scale and Small-Scale Rice Milling
- 113 Systems in the Republic of Korea.
- 114 6. Regional Network for Agricultural Machinery (RNAM): 1995 Test Codes and Procedures for Farm
- 115 Machinery, Technical Series No. 12

116
117

118
119
120
121
122
123
124
125
126
127
128
129
130
131
132
133
134
135
136
137
138
139
140
141
142
143
144
145
146
147
148
149
150
151
152
153
154
155
156
157
158
159
160
161
162
163
164
165

Mechanical Engineering Technical Committee (TC-08)

Organization

Representatives

Chairman

Agriculture Machinery Centre,
Ministry of Agriculture and Forest

Mr. Chetem Wangchen

Members

Agriculture Machinery Centre,
Ministry of Agriculture and Forest

Mr. Kinga Norbu

Agriculture Machinery Centre,
Ministry of Agriculture and Forest

Mr. Sangay Lhendup

Construction Development Corporation Limited

Mr. Karma Loday

Farm Machinery Corporation Limited, Ministry of Finance

Mr. Karma Thinley

Department of Agriculture,
Ministry of Agriculture and Forest

Mr. Tirtha Bdr. Katwal

Road Safety and Transport Authority,
Ministry of Information and Communication

Mr. Phuntsho Wangdi

Technical Training Institute, Samthang,
Ministry of Labour and Human Resources

Mr. Sangay Wangchuk

Bhutan Standards Bureau

Mr. Sonam Phuntsho, Director General
(Ex- Officio member)

Member Secretary

Pelden Dendup
Standardization Division
Bhutan Standards Bureau