DIN EN 13871:2011-02 (E)

Food processing machinery - Cubes cutting machinery - Safety and hygiene requirements (includes Amendment A1:2010)

Contents

Page

Foreword 4

Introduction 5

1 Scope 6

2 Normative references 10

3 Terms and definitions 12

4 List of significant hazards 14
4.1 General 14
4.2 Mechanical hazards 14
4.3 Electrical hazards 18
4.4 Hydraulic and pneumatic hazards 18
4.5 Hazard from loss of stability 18
4.6 Noise hazard 18
4.7 Hazards generated by neglecting ergonomic principles 18
4.8 Hazards caused by non-compliance with hygiene principles 18

5 Safety and hygiene requirements and/or protective measures 19
5.1 General 19
5.2 !Introduction" 19
5.3 Electrical hazards 33
5.4 Hydraulic and pneumatic hazards 35
5.5 Hazard from loss of stability 36
5.6 Noise reduction 36
5.7 Ergonomic requirements 36
5.8 Hygiene and cleaning 37

6 Verification of safety and hygiene requirements and/or protective measures 41

7 Information for use 42
7.1 Instruction handbook 42
7.2 Training of operators 44
7.3 Marking 44

Annex A (normative) Noise test code for cubes cutting machines (grade 2) 46

Annex B (normative) Design principles to ensure the cleanability of cubes cutting machines 48

Annex C (normative) Common hazards for food processing machines and reduction requirements applicable to cubes cutting machines 54

Annex ZA (informative) !Relationship between this European Standard and the Essential Requirements of EU Directive 2006/42/EC" 56

Bibliography 57

Figures Figure 1 -- Cubes cutting machine type with forward feed plunger, lattice, sickle blade, feed intake hopper and loading device 7

Figure 2 -- Cubes cutting machine type with forward feed plunger, lattice and sickle blade and loading by handTM 8

Figure 3 -- Cubes cutting machine type with various blades, conveying unit and feed conveyor 8

Figure 4 -- Details of feed intake chamber 9

Figure 5 -- Cubes cutting machine type with multi-segment blade and feed conveyor 9

Figure 6 -- Cubes cutting machine type with multi-segment blade and centrifugal force feeding 10

Figure 7 -- Danger zones on cubes cutting machine with forward feed plunger, lattice, sickle blade, feed intake hopper and loading device 15

Figure 8 -- Danger zones on cubes cutting machine with feed intake chamber/magazine and loading by hand 16

Figure 9 -- Danger zones on cubes cutting machine with conveying unit and feed conveyor 16

Figure 10 -- Danger zones on cubes cutting machine with multi-segment blade and feed conveyor . 17

Figure 11 -- Danger zones on cubes cutting machine with multi-segment blade and loading by means of centrifugal force 17

Figure 12 -- Safety dimensions on cubes cutting machine: Guard 20

Figure 13 -- Safety measures on cutting chamber door in conjunction with container 22

Figure 14 -- Safety measures on cutting chamber door without container 22

Figure 15 -- Safety measure on cutting chamber door in conjunction with transport trolley, safety dimensions 23

Figure 16 -- Safety dimensions on cubes cutting machine with a loading device 28

Figure 17 -- Safety dimensions on feed, discharge opening on cubes cutting machine with a mast-type loading device for feed heights over 2 500 mm 29

Figure 18 -- Cubes cutting machine with feed conveyor 30

Figure 19 -- ON / OFF switch with hood 35

Figure 20 -- Hygiene areas on cubes cutting machine 37

Figure 21 -- Hygiene areas on cubes cutting machine 38

Figure 22 -- Hygiene areas on cubes cutting machine 39

Figure B.1 -- Smooth surfaces - food area 48

Figure B.2 -- Angles and radii in food area 49

Figure B.3 -- Angle in food area 50

Figure B.4 -- Adjoining surfaces in food area 50

Figure B.5 -- Admissible joining elements - head profiles 52

Figure B.6 -- Dimensional examples 53