

DIN EN 13288:2010-10 (E)

Food processing machinery - Bowl lifting and tilting machines - Safety and hygiene requirements (includes Amendment A1:2009)

| Contents | | Page |
|--------------------|---|-------------|
| Foreword | | 4 |
| Introduction | | 5 |
| 1 | Scope | 6 |
| 2 | Normative references | 6 |
| 3 | Terms, definitions and description | 8 |
| 3.1 | Terms and definitions | 8 |
| 3.2 | Description - Types of machines dealt with in this European Standard | 8 |
| 3.2.1 | General | 8 |
| 3.2.2 | Type A: Lifting and tilting bowl (see Figures 1a, 1b and 1c) | 8 |
| 3.2.3 | Type B: Lifting and tilting mixing machine (see Figures 2a and 2b) | 9 |
| 3.2.4 | Type C: Tilting bowl (see Figure 3) | 10 |
| 4 | List of significant hazards | 11 |
| 4.1 | General | 11 |
| 4.2 | Mechanical hazards | 11 |
| 4.3 | Electrical hazards | 12 |
| 4.4 | Hazard generated by neglecting hygienic design principles | 12 |
| 4.5 | Hazards generated by neglecting ergonomic principles | 13 |
| 4.6 | Pneumatic and hydraulic equipment | 13 |
| 5 | Safety and hygiene requirements and/or protective measures | 13 |
| 5.1 | General | 13 |
| 5.2 | Mechanical hazards | 13 |
| 5.2.1 | General | 13 |
| 5.2.2 | Zone 1 - Area below bowl or mixing machine | 13 |
| 5.2.3 | Zone 2 - Path of movement of bowl or mixing machine | 15 |
| 5.2.4 | Zone 3 - Transmission machinery and (where used) pulleys and chains or wire ropes | 15 |
| 5.2.5 | Zone 4 - Discharge zone | 16 |
| 5.2.6 | Mechanical strength and stability | 16 |
| 5.3 | Electrical hazards | 17 |
| 5.3.1 | Safety requirements related to electromagnetic phenomena | 17 |
| 5.3.2 | Protection against electric shock !!!!deleted text"""" | 17 |
| 5.3.3 | Power circuits !!!!deleted text"""" | 17 |
| 5.3.4 | !!!!Protection against earth faults in control circuits"""" | 17 |
| 5.3.5 | Emergency stop | 17 |
| 5.3.6 | Start function !!!!deleted text"""" | 18 |
| 5.3.7 | Unexpected start-up !!!!deleted text"""" | 18 |
| 5.3.8 | !!!!Motor enclosures"""" | 18 |
| 5.3.9 | Electrical requirements of controls | 18 |
| 5.4 | Hygiene requirements | 18 |
| 5.4.1 | Food area | 18 |
| 5.4.2 | Splash area | 18 |
| 5.4.3 | Non food area | 18 |
| 5.5 | Hazards generated by neglecting ergonomic principles | 20 |
| 5.6 | Pneumatic and hydraulic equipment | 20 |
| 6 | Verification of safety and hygiene requirements and/or protective measures | 20 |

| | | |
|--|--|-----------|
| 7 | Information for use | 21 |
| 7.1 | General | 21 |
| 7.2 | Signal and warning devices | 21 |
| 7.3 | Instruction handbook | 21 |
| 7.4 | Marking | 23 |
| Annex A (normative) Noise test code for lifting and tilting machines for bakery (Grade 2 of accuracy) | | 24 |
| A.1 | Terms and definitions | 24 |
| A.2 | Installation and mounting conditions | 24 |
| A.3 | Operating conditions | 24 |
| A.3.1 | Operating conditions for machines of types A and B | 24 |
| A.3.2 | Operating conditions for machines of type C | 24 |
| A.4 | Emission sound pressure level determination | 25 |
| A.5 | Measurement uncertainties | 25 |
| A.6 | Information to be recorded | 25 |
| A.7 | Information to be reported | 25 |
| A.8 | Declaration and verification of noise emission values | 26 |
| Annex B (normative) Principles of design to ensure the cleanability of lifting and tilting machines for bakery | | 27 |
| B.1 | Definitions | 27 |
| B.2 | Materials of construction | 27 |
| B.2.1 | !!!!Type of materials"""" | 27 |
| B.2.2 | Surface conditions | 27 |
| B.3 | Design | 29 |
| B.3.1 | Connections of internal surfaces | 29 |
| B.3.2 | Surface assemblies and overlaps | 32 |
| B.3.3 | Fasteners | 36 |
| B.3.4 | Feet, support and bases for cleaning the machines underneath | 38 |
| B.3.5 | Ventilation openings | 39 |
| B.3.6 | Hinges | 40 |
| B.3.7 | Control panel | 41 |
| Annex ZA (informative) Relationship between this European Standard and the Essential Requirements of EU Directive 98/37/EC, amended by 98/79/EC | | 43 |
| Annex ZB (informative) !!!!Relationship between this European Standard and the Essential Requirements of EU Directive 2006/42/EC"""" | | 44 |
| Bibliography | | 45 |