

DIN EN 13732:2013-10 (E)

Food processing machinery - Bulk milk coolers on farms - Requirements for performance, safety and hygiene

Contents		Page
Foreword		4
Introduction		5
1 Scope		6
2 Normative references		7
3 Terms and definitions		8
4 List of significant hazards		12
5 Safety requirements and/or protective measures -- Performance		13
5.1 General		13
5.2 Mechanical hazards		13
5.3 Electrical hazards		14
5.4 Thermal hazards and hazards generated by materials and substances used		14
5.5 Hygiene		14
5.6 Ergonomics		19
5.7 Provisions for maintenance		20
5.8 Other general requirements for tanks		20
5.9 Additional requirements for special tanks - Ice bank tanks		22
6 Verification and tests		23
7 Information for use		26
7.1 General		26
7.2 Warning signs		26
7.3 Instruction handbook for the user		27
7.4 Instructions check list		28
7.5 Installation and maintenance instructions		29
7.6 Dismantling instructions		30
7.7 Minimum marking		30
Annex A (normative) Noise test code (Grade 2 of accuracy)		32
A.1 General		32
A.2 Emission sound pressure level determination		32
A.3 Mounting conditions		32
A.4 Operating conditions		33
A.5 Measurement uncertainties		33
A.6 Information to be recorded		33
A.7 Information to be reported		34
A.8 Declaration and verification of the noise emission values		34
Annex B (normative) Electrical requirements for bulk milk coolers according to EN 60204-1:2006 ...		36
B.1 Safety requirements related to electromagnetic phenomena		36
B.2 Protection against electric shock		36
B.3 Ambient air temperature		36
B.4 Supply disconnecting device		36

B.5	Power circuits	36
B.6	Overload protection of motors	36
B.7	Control circuit supply	37
B.8	Emergency stop devices	37
B.9	Degrees of protection	37
B.10	Markings of control equipment	37
Annex C (normative) Electrical requirements for bulk milk coolers according to EN 60335-1:2002 ...		38
C.1	General	38
C.2	Normal operation	38
C.3	General conditions for the tests	38
C.4	Classification	38
C.5	Input and current	38
C.6	Heating	39
C.7	Leakage current and electric strength at operating temperature	39
C.8	Moisture resistance	40
C.9	Abnormal operation	40
C.10	Stability and mechanical hazards	42
C.11	Mechanical strength	42
C.12	Supply connection and external flexible cords	42
C.13	Provision for earthing	43
C.14	Creepage distances, clearances and solid insulation	43
C.15	Resistance to heat and fire	43
Annex D (normative) Test for cooling, thermal insulation, mixing tests		44
D.1	General	44
D.2	Performance tests	45
Annex E (normative) Test for cleanability and cleaning performance		57
E.1	Introduction	57
E.2	Definitions and steps for the test	57
E.3	Installation of the tank to be tested	58
E.4	Preparation of soiling milk (solution A)	58
E.5	Soiling of the tank	59
E.6	Automatic cleaning of the tank	59
E.7	Tank rest phase	60
E.8	Visual assessment of internal tank surfaces and equipment	60
E.9	Taking method for bacteriological examinations	60
E.10	Visual assessment of internal tank surfaces and equipment	62
E.11	Bacteriological examination	62
E.12	Chemical examination	63
E.13	Interpretation of results	64
Annex F (normative) Sampling methods for milk mixing tests		65
Annex G (normative) Equipment and installation for the tests for cleanability and cleaning performance required in Annex E		66
G.1	Equipment and installation for the examination dealing with the tank outlet	66
G.2	Equipment and installation for the examination dealing with the internal tank surfaces and equipment	67
Annex ZA (informative) Relationship between this European Standard and the Essential Requirements of EU Directive 2006/42/CE		71
Bibliography		72