

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