



Underwriters Laboratories Inc.®

A not-for-profit organization dedicated to public safety
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February 7, 1996

Revision pages for

Standard for

Electric Commercial Clothes-Drying Equipment

UL 1240, Third Edition

Attached to this transmittal notice is a revision of the Third edition of UL 1240.

A CHANGE ON A PAGE DATED FEBRUARY 7, 1996 IS INDICATED BY A SMALL PRINT NOTE FOLLOWING THE AFFECTED ITEM, PRECEDED AND FOLLOWED BY AN ASTERISK.

THESE NEW AND REVISED REQUIREMENTS ARE NOW IN EFFECT.

The new and revised requirements are substantially in accordance with UL's bulletin on Subjects 1206 (1240) dated June 30, 1995. The bulletin is now obsolete and may be discarded.

Revised and/or additional pages may be issued from time to time.

With the inclusion of the accompanying material, the standard consists of pages dated as shown in the following checklist:

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UL 1240

Standard for

Electric Commercial Clothes-Drying Equipment

Prior to the first edition, the requirements for the products covered by this Standard were included in the Standard for Electric Home-Laundry Equipment, UL 560.

First Edition – February, 1974

Second Edition – August, 1979

The first edition was titled Standard for Electric Coin-Operated Commercial Clothes-Drying Equipment.

Third Edition

April 13, 1994

An effective date included as a note immediately following certain requirements is one established by Underwriters Laboratories Inc.

Revisions of this standard will be made by issuing revised or additional pages bearing their date of issue. A UL Standard is current only if it incorporates the most recently adopted revisions, all of which are itemized on the transmittal notice that accompanies the latest published set of revision pages.

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FOREWORD

A. This Standard contains basic requirements for products covered by Underwriters Laboratories Inc. (UL) under its Follow-Up Service for this category within the limitations given below and in the Scope section of this Standard. These requirements are based upon sound engineering principles, research, records of tests and field experience, and an appreciation of the problems of manufacture, installation, and use derived from consultation with and information obtained from manufacturers, users, inspection authorities, and others having specialized experience. They are subject to revision as further experience and investigation may show is necessary or desirable.

B. The observance of the requirements of this Standard by a manufacturer is one of the conditions of the continued coverage of the manufacturer's product.

C. A product which complies with the text of this Standard will not necessarily be judged to comply with the Standard if, when examined and tested, it is found to have other features which impair the level of safety contemplated by these requirements.

D. A product employing materials or having forms of construction differing from those detailed in the requirements of this Standard may be examined and tested according to the intent of the requirements and, if found to be substantially equivalent, may be judged to comply with the Standard.

E. UL, in performing its functions in accordance with its objectives, does not assume or undertake to discharge any responsibility of the manufacturer or any other party. The opinions and findings of UL represent its professional judgment given with due consideration to the necessary limitations of practical operation and state of the art at the time the Standard is processed. UL shall not be responsible to anyone for the use of or reliance upon this Standard by anyone. UL shall not incur any obligation or liability for damages, including consequential damages, arising out of, or in connection with the use, interpretation of, or reliance upon this Standard.

F. Many tests required by the Standards of UL are inherently hazardous and adequate safeguards for personnel and property shall be employed in conducting such tests.

INTRODUCTION

1 Scope

1.1 These requirements cover electric commercial, industrial, and institutional clothes-drying equipment intended for use in accordance with the National Electrical Code, NFPA 70. Equipment covered by this Standard is not intended for use by the general public, but only by trained or supervised personnel.

1.1 revised February 7, 1996

1.2 These requirements do not cover coin-operated clothes-drying equipment, flatirons, ironing machines, water heaters, water softeners, dry-cleaning machines, garment-finishing machines, clothes washers, or other equipment covered by requirements separate from this standard.

1.3 Appliances and field-attached accessories including those that utilize some other source of energy – such as gas or steam – in addition to electric energy are investigated under these requirements and under such additional requirements as are applicable to the appliance under consideration.

1.3 revised February 7, 1996

1.4 A product that contains features, characteristics, components, materials, or systems new or different from those covered by the requirements in this standard, and that involves a risk of fire, electric shock, or injury to persons shall be evaluated using the appropriate additional component and end-product requirements as determined necessary to maintain the level of safety as originally anticipated by the intent of this standard. A product whose features, characteristics, components, materials, or systems conflict with specific requirements or provisions of this standard cannot be judged to comply with this standard. Where considered appropriate, revision of requirements may be proposed and adopted in conformance with the methods employed for development, revision, and implementation of this standard.

2 References

Section 2 revised February 7, 1996

2.1 Any undated reference to a code or standard appearing in the requirements of this standard shall be interpreted as referring to the latest edition of that code or standard.

2.2 In the following text, a requirement that applies only to a specific class of equipment is so identified by a specific reference in that requirement to the class or classes of appliances involved. Absence of such specific reference or use of the term appliance indicates that the requirement applies to all classes of appliances unless the context indicates otherwise.

3.1 relocated as 2.2 February 7, 1996

2.3 In the following text, a specific requirement pertaining to a particular appliance takes precedence over a corresponding requirement specified as being applicable to all appliances.

3.2 relocated as 2.3 February 7, 1996

3 Glossary

Section 3, Glossary revised February 7, 1996

3.1 APPLIANCE, AUTOMATIC – An appliance is considered to be automatically controlled under one or more of the following conditions:

- a) If repeated starting of the appliance, beyond one complete predetermined cycle of operation, to the point where some form of limit switch opens the circuit is independent of any manual control.
- b) If, during any single predetermined cycle of operation, the motor is caused to stop and restart one or more times.
- c) If, upon energizing the appliance, the initial starting of the motor may be intentionally delayed beyond normal, conventional starting.
- d) If, during any single predetermined cycle of operation, automatic changing of the mechanical load may reduce the motor speed sufficiently to reestablish starting-winding connections to the supply circuit.

3.5 revised and relocated as 3.1 February 7, 1996

3.2 APPLIANCE, RECESSED – An appliance intended to:

- a) Be supported by the floor, and
- b) Sit immediately adjacent to a wall in the rear or to sit immediately adjacent to a wall, a cabinet, or another appliance on each side.

If the construction permits, a counter top may cover the appliance and adjacent cabinets and appliances. A recessed appliance is not intended for permanent attachment to the building structure or to adjacent cabinets or appliances.

3.4 revised and relocated as 3.2 February 7, 1996

3.3 APPLIANCE, SEMI-AUTOMATIC – An appliance employing two or more motors is considered to be semiautomatically controlled if:

- a) One or more motors are controlled in accordance with any of the conditions specified in 3.1, and
- b) At least one motor is not controlled in accordance with any of the conditions specified in 3.1.

3.6 revised and relocated as 3.3 February 7, 1996

3.4 APPLIANCE, WALL-INSERT – An appliance intended to be mounted permanently in a wall or other vertical surface of a building or cabinet.

3.3 revised and relocated as 3.4 February 7, 1996

3.5 ENCLOSURE – The part of the product that:

- a) Reduces the accessibility of all or any parts of the product that may otherwise result in a risk of electric shock or injury to persons; or
- b) Retards propagation of flame initiated by electrical disturbances that may occur within the product.

3.5 revised February 7, 1996

3.6 PART, DECORATIVE – A part used for ornamental purposes only and not as an enclosure or as insulation of electrically live parts.

3.6 revised February 7, 1996

3.7 PART, FUNCTIONAL – A part that is necessary for the proper functioning of the product, and that is used in such a way that deterioration or breakage of the part would result in a risk of fire, electric shock, or injury to persons.

3.7 added February 7, 1996

4 Components

4.1 Except as indicated in 4.2, a component of a product covered by this standard shall comply with the requirements for that component. See Appendix A for a list of standards covering components generally used in the appliances covered by this standard.

4.2 A component need not comply with a specific requirement that:

- a) Involves a feature or characteristic not needed in the application of the component in the product covered by this standard, or
- b) Is superseded by a requirement in this standard.

4.3 A component shall be used in accordance with its recognized rating established for the intended conditions of use.

4.4 Specific components are recognized as being incomplete in construction features or restricted in performance capabilities. Such components are intended for use only under limited conditions, such as certain temperatures not exceeding specified limits, and shall be used only under those specific conditions for which they have been recognized.

5 Units of Measurement

5.1 If a value for measurement is followed by a value in other units in parentheses, the second value may be only approximate. The first stated value is the requirement.

6 Field-Attached Accessories

6.1 The requirements in 6.2 – 6.8 apply to accessories intended for installation on or connection to an appliance for the purpose of modifying or supplementing the functions of the appliance or accessory.

6.2 An appliance that has provision for the use of an accessory to be attached in the field shall be constructed so that the use of the accessory will not introduce a risk of fire, electric shock, or injury to persons.

6.3 The installation of an accessory by the user shall be restricted to an arrangement that can be accomplished by means of receptacles and plug-in connectors of other than the general-use or specific-purpose type.

6.4 The installation of an accessory by a qualified electrician or serviceman is acceptable if connections are made to existing terminals by use of wire connectors.

6.5 Accessories intended to be field wired shall be provided with a means for connection to the power supply circuit of the appliance as specified in 11.1.1.

6.6 Any installation that requires field rearrangement of components or wiring, cutting or splicing of wiring, or soldering of connections is not acceptable.

6.7 As part of the investigation, an accessory shall be tested and trial-installed to determine that installation is feasible, that the instructions are detailed and correct, and that the use of the accessory will not introduce a risk of fire, electric shock, or injury to persons.

6.8 An appliance that has provision for the field connection of an accessory and a field-attached accessory shall be marked as specified in 47.1 and 47.31 – 47.33, as applicable.

CONSTRUCTION

7 Frame and Enclosure

7.1 An appliance shall be formed and assembled so that it will have the strength and rigidity necessary to resist the abuses to which it may be subjected, without increasing the risk of fire, electric shock, or injury to persons due to total or partial collapse with resulting reduction of spacings, loosening or displacement of parts, or other serious defects.

7.2 An appliance shall be provided with an enclosure of material found by investigation to be acceptable for the application that shall house all parts that may present a risk of fire, electric shock, or injury to persons under any condition of use.

7.3 Among the factors that shall be taken into consideration when judging the acceptability of an enclosure material are its:

- a) Mechanical strength,
- b) Resistance to impact,
- c) Moisture – absorptive properties,
- d) Combustibility, and
- e) Resistance to distortion at temperatures to which the material may be subjected under conditions of normal or abnormal use.

7.3 revised February 7, 1996

7.3.1 An enclosure constructed of polymeric material shall comply with the requirements in Polymeric Materials, Section 39A.

7.3.1 added February 7, 1996

7.4 For an unreinforced, flat surface, cast metal shall not be less than 1/8 inch (3.2 mm) thick, malleable iron shall not be less than 3/32 inch (2.4 mm) thick, die-cast metal shall not be less than 5/64 inch (2.0 mm) thick.

Exception: Metal of lesser thickness but not less than 3/32 inch, 1/16 inch (1.6 mm), and 3/64 inch (1.2 mm), respectively, may be acceptable provided the surface under consideration is:

- a) Curved, ribbed, or otherwise reinforced to provide mechanical strength equivalent to that required; or*
- b) Of a size or shape that provides mechanical strength equivalent to that required.*

7.5 An enclosure of sheet metal shall be judged with respect to size, shape, thickness of metal, and acceptability for the application considering the intended use of the complete appliance.

7.6 For an enclosure of sheet metal, sheet steel shall have a minimum thickness of 0.026 inch (0.66 mm), aluminum shall have a minimum thickness of 0.036 inch (0.91 mm), and copper or brass shall have a minimum thickness of 0.033 inch (0.84 mm).

Exception: This requirement does not apply to an area that is relatively small or a surface that is curved or otherwise reinforced.

7.7 At a point where the power-supply conductors enter the enclosure, sheet metal shall not be less than 0.032 inch (0.81 mm) thick if uncoated steel, not less than 0.034 inch (0.86 mm) if galvanized steel, not less than 0.044 inch (1.12 mm) if aluminum, and not less than 0.043 inch (1.09 mm) if copper or brass.

7.8 In an appliance as mentioned in the Exception to 7.14, provision shall be made to reduce the likelihood of molten metal, burning insulation, or the like falling upon combustible materials, including the surface on which the appliance is supported.

7.9 The requirement in 7.8 will necessitate the use of a barrier of noncombustible material:

- a) Under a motor unless:
 - 1) The structural parts of the motor or the appliance provide the equivalent of such a barrier;
 - 2) The protection provided with the motor is such that no burning insulation or molten material falls to the surface that supports the appliance when the motor is energized under each of the following fault conditions:
 - i) Open main winding,
 - ii) Open starting winding,
 - iii) Starting switch short-circuited, and

11.4.3 A wire-binding screw intended for the connection of an equipment-grounding conductor shall have a green-colored head that is hexagonal, slotted, or both. A pressure wire connector intended solely for the connection of such a conductor shall be plainly identified, such as by being marked "G," "GR," "GND," "Ground," "Grounding," or the like; or by a marking on a wiring diagram provided on the appliance. The wire-binding screw or pressure wire connector shall be located so that it is unlikely to be removed during normal servicing of the appliance.

11.4.4 The surface of an insulated lead intended solely for the connection of an equipment-grounding conductor shall be green with or without one or more yellow stripes, and no other leads shall be so identified.

11.5 Cord-connected appliances

11.5.1 Cords and plugs

11.5.1.1 The flexible cord shall have an ampacity not less than the current rating of the appliance.

11.5.1.2 An attachment plug shall have an ampacity not less than the rated current of the appliance, and shall have a voltage rating not less than the rated voltage of the appliance.

11.5.1.3 Flexible cord provided with an appliance shall be Type SJ, SJO, SJT, SJTO, S, SO, ST, STO, SRD, SRDT, HSJ, HSJO, HS, or HSO.

11.5.1.4 For an appliance rated 120/240 volts, 3-wire or one rated 120 volts, 2-wire and more than 15 amperes, the flexible cord shall not be less than 3 feet (0.91 m) and not more than 6 feet (1.83 m) long measured from the face of the attachment plug to the point of entrance into the appliance.

11.5.1.5 For an appliance rated 120 volts, two-wire and 15 amperes or less, the flexible cord shall not be less than 6 feet (1.83 m) long measured as described in 11.5.1.4.

11.5.1.6 The flexible cord shall be prevented from being pushed into the appliance through the cord-entry hole if such displacement may subject the cord to mechanical damage or to exposure to a temperature higher than that for which the cord is rated; or may reduce spacings, such as to a metal strain-relief clamp, below the minimum acceptable values.

11.5.2 Strain relief

11.5.2.1 A flexible cord shall be provided with strain relief so that stress on the cord will not be transmitted to terminals, splices, or internal wiring. The strain-relief means shall comply with the requirements in Strain Relief, Section 41.

11.5.2.2 If a knot in a flexible cord serves as strain relief, a surface against which the knot may bear or with which it may come in contact shall be free from projections, sharp edges, burrs, fins, and the like, that may cause abrasion of the insulation of the cord.

11.5.3 Cord bushings

11.5.3.1 The edges of the entry hole for the power-supply cord, including the cord-entry hole in a bushing, shall be smooth and free from burrs, fins, or sharp edges.

11.5.3.2 If an insulating bushing is provided where the power-supply cord enters the enclosures, and if the bushing is of material other than ceramic, phenolic or cold-molded composition, fiber, or other material that has been investigated and found to be acceptable for the application, the hole in the metal in which the bushing is mounted shall be smooth and free from burrs, fins, or sharp edges.

12 Internal Wiring

12.1 For the purpose of these requirements, the internal wiring of an appliance is considered to be all the interconnecting wiring beyond the point where the power-supply cord of a cord-connected appliance enters the enclosure, or beyond the wiring terminals or leads for power-supply connection of a permanently connected appliance, even though some of such wiring may not be completely enclosed and even though some of it may be in the form of flexible cord.

12.2 The internal wiring and connections between parts of an appliance shall be protected or enclosed. A length of flexible cord may be employed for an external – unenclosed – connection between such parts if flexibility is necessary.

12.3 The protection of insulated wiring required by 12.2 is considered to exist if, when judged as though it were enameled wire, the wiring would be acceptable according to 8.2. Internal wiring not so protected may be accepted if it is secured within the enclosure so that it is unlikely to be subjected to stress or mechanical damage.

12.4 Unless it is to be judged as an uninsulated live part, insulated internal wiring of an appliance, including a grounding conductor, shall consist of wire that is acceptable for the application, when considered with respect to:

- a) The temperature voltage to which the wiring may be subjected;
- b) Exposure to oil, grease, or other substances that may have a deleterious effect on the insulation;
- c) Exposure to moisture; and
- d) Other conditions of service to which it may be subjected.

12.5 **12.5 deleted February 7, 1996**

Table 12.1
Characteristics of internal wiring

Table 12.1 deleted February 7, 1996

12.6 If the wiring inside an appliance is located so that it may be in proximity to combustible material or may be subjected to mechanical damage, it shall be in armored cable, rigid metal conduit, electrical metallic tubing, or otherwise protected.

12.7 Wiring shall be protected from sharp edges – including screw threads – burrs, fins, moving parts, and other agencies that may cause abrasion of the insulation on conductors.

12.8 A hole through which insulated wire pass in a sheet-metal wall within the overall enclosure of an appliance shall be provided with a smooth, rounded bushing of one of the materials mentioned in 11.5.3.2; or shall have smooth surfaces, free of burrs, fins, sharp edges, and the like, upon which the wires may bear, to reduce the risk of abrasion of the insulation.

12.9 Insulated wires may be bunched and passed through a single opening in a metal wall within the enclosure of the appliance.

12.10 All splices and connections shall be mechanically secure and shall provide reliable electrical contact.

12.11 A soldered connection shall be made mechanically secure before being soldered if breaking or loosening of the connection may result in a risk of fire, electric shock, or injury to persons.

12.12 A wire-binding screw or nut shall be provided with a lock washer under the head of the screw or under the nut to prevent it from becoming loosened due to vibration, if such loosening may result in a risk of fire, electric shock, or injury to persons.

12.13 An open-end spade lug may not be used unless additional means are provided to hold the lug in place should the wire-binding screw or nut become loosened.

12.14 A splice shall be provided with insulation equivalent to that of the wires involved if the spacing between the splice and other metal parts will not be permanently maintained.

12.15 If the voltage involved is less than 250 volts, insulation consisting of two layers of friction tape, of two layers of thermoplastic tape, or of one layer of friction tape on top of one layer of rubber tape, may be used on a splice. In determining if splice insulation consisting of coated fabric, thermoplastic, or other type of tubing is acceptable, consideration is to be given to such factors as its dielectric properties, heat-resistant and moisture-resistant characteristics, and the like. Thermoplastic tape wrapped over a sharp edge is not acceptable.

12.16 The means of connecting stranded internal wiring to a wire-binding screw shall be such that loose strands of wire will be prevented from contacting other live parts not always of the same polarity as the wire and from contacting dead metal parts. This may be accomplished by use of pressure wire connectors, soldering lugs, crimped eyelets, soldering all strands of the wire together, or other equivalent means.

13 Live Parts

13.1 Current-carrying parts shall be of silver, copper, a copper alloy, or other material that has been investigated and found to be acceptable for the purpose.

13.2 Plated iron or steel may be used for a current-carrying part:

- a) The temperature of which during normal operation is more than 100°C (212°F);
- b) Within a motor or associated governor; or
- c) If acceptable in accordance with 4.2;

but unplated iron or steel may not be used. Stainless steel and other corrosion-resistant alloys may be used for a current-carrying part regardless of temperature.

13.3 Uninsulated live parts shall be secured to the base or mounting surface so that they will be prevented from turning or shifting in position if such motion may result in a reduction of spacings below the minimum acceptable values.

13.4 Friction between surfaces is not acceptable as the sole means to prevent the turning of live parts, but a properly applied lock washer may be used for this purpose.

14 Electrical Insulation

14.1 An insulating washer, bushing, and the like, and the base or support for the mounting of a live part shall be of a moisture-resistant material that will not be damaged by the temperatures to which it will be subjected under conditions of actual use – for example, porcelain, phenolic, cold-molded composition, or other material that has been investigated and found to be acceptable for the application.

14.2 Insulating material employed in an appliance is judged with respect to the application. Materials such as mica, some molded compounds, and certain refractory materials usually may be used as the sole support of live parts; and some other materials that are not acceptable for general use, such as asbestos and magnesium oxide, may be acceptable if used in conjunction with other acceptable insulating materials or if located and protected so that mechanical damage and the absorption of moisture are prevented. If an investigation is necessary to determine whether a material is acceptable, consideration is to be given to its mechanical strength, dielectric characteristics, insulation resistance, heat-resistant qualities, the degree to which it is enclosed or protected, and any other features that have a bearing on the risk of fire, electric shock, and injury to persons, in conjunction with the conditions of actual service.

14.3 A screw or other fastening used to mount or support a small, fragile, insulating part shall not be so tight as to crack or break such a part due to expansion and contraction. Generally, such a part should be slightly loose.

PROTECTION AGAINST RISK OF INJURY TO PERSONS

27 Automatic Restarting of Motor

27.1 If an automatically reset protective device is employed in an appliance, automatic restarting of the motor shall not result in a risk of injury to persons.

27.2 The requirements in 27.1 necessitates the use of an interlock in the appliance if moving parts or the like may cause injury to persons upon automatic restarting of the motor.

28 Stability

28.1 Freestanding appliances

28.1.1 An appliance other than a fixed or wall-insert appliance shall be tested as described in 28.1.2. The appliance shall not overturn.

Exception: An appliance that is intended to be fastened to the floor need not be subjected to the tests in this section.

28.1.2 The empty appliance is to be placed on a flat surface inclined at an angle of 10 degrees from the horizontal. The loading door of the appliance is to be in the position most likely to cause the appliance to tip over. Casters, wheels, and other supporting means are to be positioned so as to result in the least stability. If adjustable feet are provided, they are to be adjusted to the same height.

28.2 Appliance stands

28.2.1 Hardware

28.2.1.1 An appliance stand shall contain all of the hardware needed to assemble the stand and to install the appliance on it.

Exception: A readily available part, such as a nail, a screw, or a piece of lumber, need not be provided if the instructions accompanying the kit include a description of the part and specify how the part is to be used.

28.2.2 Overturning

28.2.2.1 When installed as intended, the appliance shall be reliably attached to the stand assembly and shall not overturn when tested as described in 28.2.2.2 and 28.2.2.3.

28.2.2.2 An appliance/stand assembly that has been assembled as specified in the instructions is to be placed on a flat surface inclined at an angle of 10 degrees from the horizontal. The loading door of the appliance is to be in the position most likely to cause the appliance to tip over. If the stand permits stacking of appliances, the test is to be conducted both with and without the bottom appliance installed and with the door of the bottom appliance in the position that results in the most severe test. The appliance stand assembly is to be rotated on the inclined surface so that all positions are evaluated. The assembly is to be blocked to prevent sliding, and the appliances are to be loaded as described in 31.3 and 31.4, or unloaded, whichever results in the more severe test.

28.2.2.3 An appliance/stand assembly is to be assembled in accordance with the instructions. A fastener provided for anchoring the stand to a wall is not to be used if a tool is required to attach the appliance or the stand to the fastener or the fastener to the wall. The assembly is to be subjected to the tests specified in (a) and (b). If the stand permits stacking of appliances, the tests are to be conducted both with and without the bottom appliance installed. The appliance or appliances are to be either loaded as described in 31.3, or unloaded, whichever results in the most severe test.

a) A 50-pound (22.6-kg) weight is to be suspended from the front of the upper appliance or from the front edge of the loading door. The weight and the loading door are to be positioned to produce the most severe loading condition. The weight is to remain suspended for 1 minute.

b) A hollow rubber ball 75 to 78 centimeters in circumference is to be filled with sand to a total weight of 20 pounds (9.1 kg). The weight is to fall from rest as a pendulum through the distance necessary to strike with an impact of 30 foot pounds-force (40.7 J). The ball is to strike the appliance-stand assembly 5 feet (1.5 m) above floor level or at the top of the upper appliance, whichever is less. All four sides of the appliance-stand assembly are to be subjected to the impact.

29 Sharp Edges, Projections, and Moving Parts

29.1 An enclosure, an opening, a frame, a guard, a knob, a handle, or the like shall not be sufficiently sharp to cause a risk of injury to persons in normal use and routine user-maintenance of the appliance.

29.2 A moving part, such as the rotor of a motor, a pulley, a belt, and a gear, shall be enclosed or guarded to reduce the risk of unintentional contact therewith by persons.

29A Parts Subject To Pressure

Section 29A added February 7, 1996

29A.1 Pressure vessels

29A.1 added February 7, 1996

29A.1.1 A pressure vessel having an inside diameter of more than 6 inches (152 mm) and subject to a pressure of more than 15 psig (102 kPa) shall be marked with the appropriate boiler and pressure vessel code symbol of the American Society of Mechanical Engineers (ASME) for a pressure not less than the greater of the following pressures:

- a) The pressure corresponding to the maximum setting of a pressure-reducing valve provided as part of the assembly.
- b) The marked maximum supply pressure from an external source.
- c) The maximum allowable pressure setting of a required pressure-relief device.
- d) The maximum pressure that can be developed by an air compressor that is part of the assembly, unless the pressure is limited by a pressure-relief device provided as part of the assembly.
- e) the working pressure marked on the part.

Exception No. 1: A pressure vessel not covered by the inspection procedure of the ASME code, because of its application, shall comply with 29A.2.1.

29A.1.1 added February 7, 1996

Exception No. 2: A section of a pressure system constructed of tubing is considered to comply with the requirements if the maximum pressure obtained during normal or abnormal operation is not greater than the values specified in Table 29A.1 for a given diameter and thickness. The tubing is to be continuous or lengths of tubing are to be connected by hard-soldered, brazed, or welded joints.

Exception No. 3: A pressure vessel bearing the ASME code inspection symbol is considered to comply with the requirements if the vessel is marked with a working pressure not less than that to which it is subjected during normal or abnormal operation.

29A.1.1 added February 7, 1996

Table 29A.1
Maximum pressure for tubing

Outside diameter, Inch (mm)	Minimum wall thickness, Inch (mm)	Maximum pressure to which tubing is subjected, psig (MPa)		
		Seamless copper	Butt-welded steel	Seamless steel
3/8 (9.5) or less	0.016 (0.41)	500 (3.45)	600 (4.14)	1000 (6.90)
1/2 (12.7)	0.016 (0.41)	400 (2.76)	480 (3.31)	800 (5.52)
5/8 (15.9)	0.016 (0.41)	320 (2.21)	384 (2.65)	640 (4.42)
5/8 (15.9)	0.021 (0.53)	420 (2.90)	504 (3.48)	840 (5.80)
3/4 (19.0)	0.021 (0.53)	360 (2.48)	432 (2.98)	720 (4.97)
3/4 (19.0)	0.025 (0.64)	420 (2.90)	504 (3.48)	840 (5.80)
1 (25.4)	0.021 (0.53)	260 (1.79)	312 (2.15)	520 (3.59)
1 (25.4)	0.025 (0.64)	320 (2.21)	384 (2.65)	640 (4.42)

Table 29A.1 added February 7, 1996

29A.2 Pressure relief devices

29A.2 added February 7, 1996

29A.2.1 A part subject to periodic fluctuations in internal pressure, such as due to an external heat source, shall be provided with a pressure-relief device, such as a pressure-relief valve, a rupture member, a fusible plug, a soldered joint, nonmetallic tubing, or other equivalent pressure-relief means. A gasket shall not be used as the pressure-relief device.

29A.2.1 added February 7, 1996

29A.2.2 A pressure vessel having an inside diameter greater than 3 inches (76 mm) and subject to air or steam pressure generated or stored within the appliance, shall be protected by a pressure-relief device.

29A.2.2 added February 7, 1996

29A.2.3 A shut-off valve shall not be located between the pressure-relief device and the protected part.

29A.2.3 added February 7, 1996

29A.2.4 A gasket shall not be used as the pressure-relief device required by 29A.3.3.

29A.2.4 added February 7, 1996

29A.2.5 The maximum pressure setting of the pressure-relief device shall be less than the working pressure marked on the vessel.

29A.2.5 added February 7, 1996

29A.2.6 A pressure-relief device shall:

- a) Be connected as close as possible to the pressure vessel or parts of the system that it is intended to protect;
- b) Be installed so that it is readily accessible for inspection and repair, and
- c) Have its discharge opening located and directed so that:
 - 1) The risk of burn injury to persons is reduced, and
 - 2) Operation of the device will not deposit moisture on uninsulated live parts, internal wiring, insulation or other parts that may be adversely affected by moisture.

29A.2.6 added February 7, 1996

29A.2.7 A pressure-relief device having an adjustable setting is to be investigated on the basis of its maximum setting unless the adjusting means is sealed at a lower setting.

29A.2.7 added February 7, 1996

30 Contact with Rotating Tumbler**30.1 An appliance shall be provided:**

- a) With a means to prevent opening of the clothes loading-and-unloading door during the operating cycle; or
- b) With an interlock that, when the clothes loading-and-unloading door is opened 3 inches (76 mm) or more during the operating cycle, will:
 - 1) Remove the driving force from the clothes basket, and
 - 2) De-energize the heat source within 10 seconds.

30.2 The interlock mentioned in 30.1(b) shall prevent rotation of the basket and energizing of the heat source:

- a) Until the door is closed to less than 3 inches (76 mm) of opening and
- b) Until a secondary-function control, manually operated from outside the appliance is actuated.

Exception: *The requirement for a secondary-function control does not apply to an appliance having an opening into the clothes drum with a dimension of less than 8 inches (203 mm) or a clothes drum with a volume less than 2 cubic feet (0.06 cubic meter).*

34.2 Ordinarily, insulation resistance is to be measured by means of a high-resistance voltmeter using a 250-volt, direct-current circuit.

35 Dielectric Voltage Withstand

35.1 An appliance shall withstand for 1 minute without breakdown the application of a 60-hertz essentially sinusoidal potential between live parts and dead metal parts or between live parts of opposite polarity for a test on a capacitor as mentioned in (c). The test potential shall be:

- a) One thousand volts for an appliance employing a motor rated 1/2 horsepower (373 W) or less and 250 volts or less. See 24.8.
- b) One thousand volts plus twice rated voltage for an appliance employing a motor rated more than 1/2 horsepower or more than 250 volts. See 24.8.
- c) One thousand volts, or 1000 volts plus twice rated voltage – depending upon the value of the test potential applied to the appliance as a whole – for a radio-frequency-interference-elimination or arc-suppression capacitor.

35.2 To determine whether an appliance complies with the requirements in 35.1, the appliance is to be tested by means of a 500-volt-ampere or larger-capacity transformer the output voltage of which is essentially sinusoidal and can be varied. The applied potential is to be increased from zero until the required test level is reached and is to be held at that level for 1 minute. The increase in the applied potential is to be at a uniform rate and as rapid as is consistent with its value being correctly indicated by a voltmeter. The appliance is to be at the maximum operating temperature reached in normal use.

36 Temperature

36.1 An appliance shall be tested as described in 36.4 – 36.11, and shall not:

- a) Reach a temperature, at any point, high enough to cause a risk of fire or to damage any material used in the appliance, or
- b) Exceed the temperature rises specified in Table 36.1.

Table 36.1
Maximum acceptable temperature rises

Materials and components		Degrees	
		C	F
1.	Varnished-cloth insulation	60	108
2.	Fuses		
a.	Class G, J, L, T, and CC		
	Tube	100	180
	Ferrule or Blade	85	153
b.	Others ^f	65	117
3.	Fiber employed as electrical insulation	65	117
4.	Wood or other combustible material, including the inside surfaces of the test enclosure and the surface supporting the appliance	65	117
5.	Class 105 insulation systems on coil windings of an a-c motor having a frame diameter of more than 7 inches (178 mm), of a d-c motor, and of a universal motor ^{a,b} :		
a.	In an open motor:		
	Thermocouple method	65	117
	Resistance method	75	135
b.	In a totally enclosed motor:		
	Thermocouple method	70	126
	Resistance method	80	144
6.	Phenolic composition employed as electrical insulation or as a part the deterioration of which could result in a risk of fire or electric shock ^c	125	225
7.	Insulated wire and cord ^c	35	63
8.	At any point within a terminal box or wiring compartment of a permanently connected appliance	35	63
9.	Capacitor:		
	Electrolytic ^d	40	72
	Other types ^e	65	117
10.	Class 105 insulation systems on coil windings of an a-c motor having a frame diameter of 7 inches or less not including a universal motor ^{a,b} :		
a.	In an open motor – thermocouple or resistance method	75	135
b.	In a totally enclosed motor – thermocouple or resistance method	80	144
11.	Class 130 insulation system, other than as specified in 12 and 13 ^a :		
	Thermocouple method	85	153

(Continued)

Table 36.1 (Cont'd)
Maximum acceptable temperature rises

Materials and components		Degrees	
		C	F
12. Class 130 insulation systems on coil windings of an a-c motor having a frame diameter of more than 7 inches, of a d-c motor, and of a universal motor ^{a,b}			
a. In an open motor:			
Thermocouple method	85	153	
Resistance method	95	171	
b. In a totally enclosed motor:			
Thermocouple method	90	162	
Resistance method	100	180	
13. Class 130 insulation systems on coil windings of an a-c motor having a frame diameter of 7 inches or less, not including a universal motor ^{a,b}			
a. In an open motor or on vibrator coils:			
Thermocouple or resistance method	95	171	
b. In a totally enclosed motor:			
Thermocouple or resistance method	100	180	
14. Class 155 insulation systems on coil windings of an a-c motor having a frame diameter of 7 inches or less, not including a universal motor ^b			
In an open motor:			
Thermocouple or resistance method	120	216	
^a At a point on the surface of a coil where the temperature is affected by an external source of heat, the temperature rise, as determined by means of a thermocouple may be more than the maximum acceptable temperature rise specified in this table provided the temperature rise as determined by the resistance method is not more than that specified. The temperature rise as determined by means of a thermocouple may be more than the specified value by:			
Item		Additional temperature rise	
Subitem a, item 5		15°C	(27°F)
Subitem a, item 10		5°C	(9°F)
Subitem a, item 12		20°C	(36°F)
Subitem a, item 13		10°C	(18°F)
^b This is the diameter measured in the plane of the lamination of the circle circumscribing the stator frame, excluding lugs, fins, boxes, and the like, used solely for motor mounting, cooling, assembly, or connection.			
^c Phenolic composition and other insulation that has been investigated and found acceptable for use at higher temperatures may be used at those temperatures.			
^d For an electrolytic capacitor that is physically integral with or attached to a motor, the maximum acceptable temperature rise on insulating material integral with the capacity enclosure may be not more than 65°C (117°F).			
^e A capacitor that operates at a temperature rise or more than 65°C (117°F) may be judged on the basis of its marked temperature limit.			
^f These limitations do not apply to classes of fuses that have been investigated and found to be acceptable for use at higher temperatures.			

Table 36.1 revised February 7, 1996

36.2 A motor-protective device shall not operate during the temperature test described in 36.4 – 36.11.

36.3 A thermal- or overcurrent-protective device shall not open the circuit during the temperature test described in 36.4 – 36.11.

36.4 An appliance that has a single frequency rating, is to be tested at that frequency. An appliance rated 50 – 60 hertz is to be tested on 60-hertz alternating current.

36.5 All values for temperature rises in Table 36.1 are based on an assumed ambient temperature of 25°C (77°F); however, tests may be conducted at any ambient temperature within the range of 10 – 40°C (50 – 104°F).

36.6 A temperature is considered to be constant when three successive readings taken at intervals of 10 percent of the previously elapsed duration of the test, but not less than 5 minutes, indicate no change.

36.7 Ordinarily, coil or winding temperatures are to be measured by thermocouples unless the coil is inaccessible for mounting these devices – for example, a coil immersed in sealing compound – or unless the coil wrap includes thermal insulation, such as asbestos, or more than two layers – 1/32 inch (0.8 mm) maximum – of cotton, paper, rayon, or the like. For a thermocouple-measured temperature of a coil of an alternating-current motor other than a universal motor (10 and 13 in Table 36.1) having a frame diameter (see note c of Table 36.1) of 7 inches (178 mm) or less, the thermocouple is to be mounted on the integrally applied insulation of the conductor.

36.8 Thermocouples are to consist of wires not larger than No. 24 AWG (0.21 mm²). However, it should be noted that when thermocouples are used in the determination of temperatures in connection with the heating of electrical devices, it is common practice to employ thermocouples consisting of No. 30 AWG (0.05 mm²) iron and constantan wires and a potentiometer-type indicating instrument, and such equipment is to be used whenever referee temperature measurements by thermocouples are necessary.

38.6 An automatically reset temperature-limiting thermostat is to be operated for 100,000 cycles of making and breaking the load that it normally controls, with the appliance connected to a supply circuit having a voltage equal to the maximum rated voltage of the appliance. The test for a manually reset thermostat is to consist of 1000 cycles of operation under the normal-load conditions just described, plus 5,000 cycles of no-load operation.

39 Switches

39.1 A switch or other device that controls a motor and that has not been investigated for the purpose for which it is used shall be tested as described in 39.2. As a result of the test, there shall be no electrical or mechanical malfunction or breakdown of the switch or other device, nor welding or undue pitting or burning of the contacts. The fuse in the grounding connection shall not open.

39.2 In a test to determine whether a switch or other control device complies with the requirement in 39.1, the appliance is to be connected to a grounded supply circuit of rated frequency and the voltage specified in 31.2. The rotor of the motor is to be locked. During the test, exposed dead metal parts of the appliance are to be connected to ground through a 3-ampere plug fuse, and the connection is to be such that any single-pole, current-rupturing device is in an ungrounded conductor of the supply circuit. If the appliance is intended for use on direct current, exposed dead metal parts of the appliance are to be connected so as to be positive with respect to a single-pole, current-rupturing device. The switch or other device is to be operated for 50 cycles at a rate of not more than 10 cycles per minute; however, with the concurrence of those concerned, a faster rate of operation may be employed.

39.3 A switch or other device that controls a solenoid, a relay coil, or the like and that has not been investigated for the purpose for which it is used shall be tested as described in 39.4. As a result of the test, there shall be no electrical or mechanical malfunction or breakdown of the switch or other device nor welding or undue pitting or burning of the contacts. The fuse in the grounding connection shall not open.

39.4 In a test to determine whether a switch or other control device complies with the requirement in 39.3, the appliance is to be connected to a supply circuit of rated frequency and 110 percent of maximum rated voltage. The load on the device under test is to be the same as that which it is intended to control in normal service. The device is to be operated for 50 cycles at a rate of not more than 10 cycles per minute; however, with the concurrence of those concerned, a faster rate of operation may be employed.

39A Polymeric Materials

Section 39A added February 7, 1996

39A.1 General

39A.1 added February 7, 1996

39A.1.1 The requirements in 39A.1 – 39A.11 apply to polymeric materials, including thermoset materials, used as enclosures, functional parts, decorative parts, and liquid containers.

39A.1.1 added February 7, 1996

39A.1.2 A test may be eliminated or modified if specimen testing, as part of another test program, indicates that the polymeric material is acceptable for the property being investigated.

39A.1.2 added February 7, 1996

39A.1.3 A summary of the tests applicable to polymeric materials are identified in Table 39A.1. The tests applicable to the particular polymeric part being evaluated are specified in Table 39A.2.

39A.1.3 added February 7, 1996

Table 39A.1
Polymeric materials test summary

Test No.	Test
1	Mold stress-relief distortion (7 h), 39A.2.
2	Horizontal burning; 94HB, 39A.3.
3	Flammability, 39A.4.
4	Resistance to impact, 39A.5.
5	Crushing resistance, 39A.6.
6	Hot-wire ignition, 39A.7.
7	Thermal aging, 39A.8.
8	Volume resistivity, 39A.9.
9	Enclosure flammability - large mass consideration, 39A.10.
10	High current arc resistance to ignition, 39A.11.

Table 39A.1 added February 7, 1996

Table 39A.2
Tests on a polymeric part

Group ^a	Description	Applicable test number ^b
1	A decorative part	2, 9 ^{c,d}
2	A functional polymeric part subjected to a temperature of not more than 65°C (149°F) and not subjected to impact	1, 2, 9 ^{c,d}
3	A functional polymeric part subjected to a temperature of not more than 65°C (149°F) and subjected to impact	1, 2, 4, 9 ^{c,d}
4	A functional polymeric part subjected to a temperature of more than 65°C (149°F) and not subjected to impact	1, 2, 7 ^g , 9 ^{c,d}
5	A functional polymeric part subjected to a temperature of more than 65°C (149°F) and subjected to impact	1, 2, 4, 7 ^g , 9 ^{c,d}
6	A part serving as an enclosure or supplementary enclosure and subjected to a temperature of not more than 65°C (149°F)	1, 3 ^f , 4, 5 ^c , 6, 9 ^{c,d}
7	A part serving as an enclosure or supplementary enclosure and subjected to a temperature of more than 65°C (149°F)	1, 3 ^f , 4, 5 ^c , 6, 7 ^g , 9 ^{c,d}
8	A part spaced less than 12.7 mm (1/2 inch) through air or over surface from an uninsulated current-carrying part	8, 10 ^f
9	A part located in the air stream	2 ^h

^a If a polymeric part falls into more than one test group, separate samples shall be subjected to the tests required for each group.

^b These requirements do not fully cover a plated plastic part if loss of bond strength between the plastic substrate and the metal coating can result in a reduction of electrical spacings, reduction in mechanical strength, or reduction in resistance to flammability. A plated plastic part shall be the subject of a separate investigation.

^c These tests do not apply to an appliance readily movable from one place to another.

^d This test shall be conducted only on an external part having a dimension greater than 1.83 m (6 ft) or a projected surface area greater than 0.93 m² (10 square feet).

^e An enclosure provided with a liner of vulcanized fibre, metal foil, or other material intended to reduce the flammability of the enclosure shall be tested with the liner in place and the flame shall be applied to the liner.

^f Additional consideration shall be given to an appliance protected by an overcurrent device rated more than 30 A.

^g Materials used within its temperature index based on historical data or a long term thermal aging program need not be subjected to Test No. 7.

^h This test does not apply to a dryer drum seal or door gasket.

Table 39A.2 added February 7, 1996

39A.2 Mold stress-relief distortion

39A.2 added February 7, 1996

39A.2.1 A polymeric part is to be tested as specified in the Mold Stress-Relief Distortion Test in the Standard for Polymeric Materials – Use in Electrical Equipment Evaluations, UL 746C. As a result of this test:

- a) Spacings shall not be reduced to less than those specified in Tables 24.1 – 24.3;
- b) Current-carrying parts or internal wiring shall not be exposed as determined in accordance with 8.1 – 8.8;
- c) There shall be no damage that would increase the risk of fire, electric shock, or injury to persons; and
- d) A part exposed to liquid shall not crack or leak.

Exception: This test may be waived if the part is required to be subjected to the Thermal-Aging Test, 39A.8.

39A.2.1 added February 7, 1996

39A.3 Horizontal burning; 94HB

39A.3 added February 7, 1996

39A.3.1 A polymeric part shall comply with the Horizontal Burning Test; 94HB in the Standard for Tests for Flammability of Plastic Materials for Parts in Devices and Appliances, UL 94. The test specimens may be flat stock of the thickness of the end-use part or cut from the part.

39A.3.1 added February 7, 1996

39A.4 Flammability

39A.4 added February 7, 1996

39A.4.1 Specimens of a polymeric part are to be subjected to the tests specified in the Standard for Tests for Flammability of Plastic Materials for Parts in Devices and Appliances, UL 94, and shall have a flammability rating of 94-5VA or 94-5VB.

Exception: Materials not classified 94-5VA or 94-5VB may be tested in accordance with the 5-inch (127-mm) flame test in the Standard for Polymeric Materials – Use in Electrical Equipment Evaluations, UL 746C using parts molded from the polymeric material.

39A.4.1 added February 7, 1996

39A.5 Resistance to impact

39A.5 added February 7, 1996

39A.5.1 A polymeric part is to be subjected to the impact test specified in 39A.5.2. As a result of the impacts:

- a) Spacings shall not be reduced to less than those specified in Tables 24.1 – 24.3;
- b) Current-carrying parts or internal wiring shall not be exposed as determined in accordance with 8.1 – 8.8; and

- c) There shall be no damage that would increase the risk of fire, electric shock, or injury to persons.

39A.5.1 added February 7, 1996

39A.5.2 Samples of the polymeric part shall be subjected to the Resistance to Impact Test described in the Standard for Polymeric Materials – Use in Electrical Equipment Evaluations, UL 746C. Each sample is to be subjected to three impacts per surface at different points. The points chosen on the second and third samples are to be different from those chosen on the first sample.

Three samples are to be tested from each group as follows:

- a) Group A is to be tested in as-received condition.
- b) For Group B, the tests are to be performed on samples that have been subjected to Mold Stress-Relief Distortion, 39A.2, and cooled to room temperature prior to the impact test.
- c) For Group C, the tests are to be performed on samples that have been conditioned to the low temperature conditioning specified in UL 746C for indoor equipment. The samples are to be subjected to the impact while still cold.

Exception: If the size of the surface is such that the results of a second or third impact would be affected by previous impacts, only one impact is to be performed.

39A.5.2 added February 7, 1996

39A.6 Crushing resistance

39A.6 added February 7, 1996

39A.6.1 Three complete as received samples of the polymeric enclosure shall comply with the Crushing Resistance Test described in the Standard for Polymeric Materials – Use in Electrical Equipment Evaluations, UL 746C.

39A.6.1 added February 7, 1996

39A.7 Hot-wire ignition

39A.7 added February 7, 1996

39A.7.1 A polymeric material shall have a performance level category (PLC) of 3 or less in accordance with the Standard for Polymeric Materials – Short Term Property Evaluations, UL 746A.

Exception: A polymeric material that complies with the Abnormal Overload Tests in the Standard for Polymeric Materials – Use in Electrical Equipment Evaluations, UL 746C is acceptable.

39A.7.1 added February 7, 1996

39A.7.2 Bar specimens shall be subjected to the hot-wire-ignition test specified in the Standard for Polymeric Materials – Short Term Property Evaluations, UL 746A.

39A.7.2 added February 7, 1996

39A.8 Thermal aging

39A.8 added February 7, 1996

39A.8.1 A polymeric part is to be tested as described in 39A.8.2. As a result of the test:

- a) Spacings shall not be reduced to less than those specified in Tables 24.1 – 24.3;
- b) Current-carrying parts or internal wiring shall not be exposed as determined in accordance with 8.1 – 8.8;
- c) A condition shall not be produced that would increase the risk of fire, electric shock, or injury to persons; and
- d) A part exposed to liquids shall not crack or leak.

39A.8.1 added February 7, 1996

39A.8.2 Three complete samples of the polymeric part are to be placed in an oven for 1000 h at the temperature specified in Table 39A.3. The parts are to be removed from the oven, cooled to room temperature, and examined for compliance with 39A.8.1.

39A.8.2 added February 7, 1996

Table 39A.3
Temperatures for oven conditioning

Maximum operating temperature of polymeric enclosure part, °C (°F)		Oven temperature, °C (°F)
More than	Not more than	
65 (149)	75 (167)	85 (185)
75 (167)	85 (185)	95 (203)
85 (185)	95 (203)	105 (221)
95 (203)	—	a

^a A polymeric part subjected to a temperature higher than 95°C (203°F) shall have a temperature index, based on historical data or a long-term thermal-aging program, that indicates its acceptability for use at the temperature involved. This part is to be the subject of a separate investigation.

Table 39A.3 added February 7, 1996

39A.9 Volume resistivity

39A.9 added February 7, 1996

39A.9.1 The resistance per unit volume (volume resistivity) of a polymeric material shall comply with the Standard for Polymeric Materials – Use in Electrical Equipment Evaluations, UL 746C. The volume resistivity is to be determined in accordance with the Standard for Polymeric Materials – Short Term Property Evaluations, UL 746A.

39A.9.1 added February 7, 1996

39A.10 Enclosure flammability - large mass consideration

39A.10 added February 7, 1996

39A.10.1 The flame-spread rating of a large mass polymeric enclosure part shall not exceed 200 when tested as described in the Standard for Test for Surface Burning Characteristics of Building Materials, UL 723 or the Standard for Tests for Flammability of Plastic Materials for Parts in Devices and Appliances, UL 94.

39A.10.1 added February 7, 1996

39A.11 High current arc resistance to ignition (HAI)

39A.11 added February 7, 1996

39A.11.1 A polymeric material shall have a performance level category (PLC) of 2 or less in accordance with the Standard for Polymeric Materials – Use in Electrical Equipment Evaluations, UL 746C.

Exception: A polymeric material that complies with the End-Product Arc Resistance Test as specified in the requirements for High Current Arc Resistance to Ignition (HAI), UL 746C, are considered to comply with this requirement.

39A.11.1 added February 7, 1996

40 Overload Protection

40.1 An appliance having motor-overload protection in accordance with the requirement in 17.9(a) or 17.10(a) shall be tested as described in 40.3 and under the conditions specified in Table 40.1. A motor shall not exceed any of the temperatures specified in Table 40.1.

Table 40.1
Temperature limits for protected motors

Condition of operation	Motors with Class A Insulation systems	Motors with Class B Insulation systems
Maximum constant running load on motor for which protector does not open the circuit	140°C (284°F)	165°C (329°F)
Locked rotor, during first hour	200°C (392°F)	225°C (437°F)
Locked rotor, after first hour:		
Peak	175°C (347°F)	200°C (392°F)
Average	150°C (302°F)	175°C (347°F)

40.2 The average temperature mentioned in Table 40.1 is to be determined by taking the arithmetic mean of:

- The arithmetic mean of the maximum temperatures, and
- The arithmetic mean of the minimum temperatures.