

## STANDARD INFORMATION

**Standard:** UL 60335-2-34 / CSA C22.2 No. 60335-2-34

**Standard ID:**

Household and Similar Electrical Appliances - Safety - Part 2-34: Particular Requirements for Motor-Compressors [UL 60335-2-34:2025 Ed.7]

Household and similar electrical appliances - Safety - Part 2-34: Particular requirements for motor-compressors [CSA C22.2#60335-2-34:2025 Ed.3]

**Previous Standard ID:**

Household and Similar Electrical Appliances - Safety - Part 2-34: Particular Requirements for Motor-Compressors [UL 60335-2-34:2017 Ed.6]

Household and similar electrical appliances - Safety - Part 2-34: Particular requirements for motor-compressors [CSA C22.2#60335-2-34:2017 Ed.2]

## EFFECTIVE DATE OF NEW/REVISED REQUIREMENTS

**Effective Date:** **March 31, 2028**

## IMPACT, OVERVIEW, AND ACTION REQUIRED

**Impact Statement:** Per our accreditation, Intertek is required to review reports against the standard revisions to confirm compliance. Once compliance is confirmed, the standard reference in the report is updated to show continued compliance to the technical requirements of the standard. Reports not updated to this version by the effective date above will be withdrawn.

This SUN supersedes all previous SUNs for UL 60335-2-34 / CSA C22.2#60335-2-34. All products certified to these standards are required to be certified to the 7<sup>th</sup>/3<sup>rd</sup> editions prior to the effective date.

**Overview of Changes:**

- Application categories and tests have been extended
- Use of a motorette for winding wire compatibility tests introduced
- Height of the triangle, symbol ISO 7010 W021 has been introduced
- Pressure endurance test introduced
- Compatibility test for insulation inside the housing
- Clearances inside the housing for motor-compressors suitable for use at altitudes exceeding 2 000 m
- Breaking strength of tie cord after temperature heating cycle has been updated

Specific details of new/ revised requirements are found in table below

Note: If the listing references a Canadian standard, per the Canadian Electrical Code (CSA C22.2#0) Section titled Language of markings, Caution and Warning Markings shall be in English and French.

***Current Listings Not Active? – Please immediately identify any current Listing Reports or products that are no longer active and should be removed from our records. We will do this at no charge as long as Intertek is notified in writing prior to the review of your reports.***



## STANDARD INFORMATION

CLAUSE	VERDICT	COMMENT
		<i>Additions to existing requirements are <u>underlined</u> and deletions are shown <del>lined-out</del> below.</i>
7	Info	<b>Marking and instructions</b> <i><b>New clause added;</b></i>
7.14		The height of the triangle in the symbol ISO 7010 W021 (2011-05) shall be at least 15 mm. <i><b>New clause added;</b></i>
7.14DV.2		Adhesive labels shall additionally meet the requirements for marking and labelling in Annex DVA. Adhesive labels shall be suitable for the conditions of use. <i><b>New section added;</b></i>
11		<b>Heating</b> This clause of Part 1 is replaced by Annex AA. For motor compressors classified as tested without Annex AA, compliance with this clause shall be tested as a complete system in the final application in accordance with the appropriate appliance standard.
15	Info	<b>Moisture resistance</b> <i><b>New clause added;</b></i>
15.3		The requirement shall be applied to MOTOR-COMPRESSORS not provided with glass-insulated terminals but intended for connection to external control devices, protectors or other components.
18	Info	<b>Endurance</b> <i><b>New clause added;</b></i>
18.101		If requested by the manufacturer, the fatigue test specified in Annex EE shall be carried out.



CLAUSE	VERDICT	COMMENT
22	Info	<p><b>Construction</b></p> <p>Insulating materials used within the HOUSING shall be compatible with the refrigerant and oil used.</p> <p>For the types of refrigerant and types of oil for which the MOTOR-COMPRESSOR is intended to be used, compliance of winding wire insulation shall be checked by the tests detailed in Annex BB or MOTOR COMPRESSORS that do not use oil by test 16 in IEC 60851-4 for resistance to refrigerants.</p> <p><u>Where winding wire insulation has been tested for use with individual components in a refrigerant blend, it shall also be tested for use with the blend. If a tested blend comprises tested individual components, then other blends comprising the same components but in different quantities do not need to be retested.</u></p>
22.9		<p><u>For oils with the same chemical components, if the oil with the lowest viscosity is used for the tests, then the tests do not need to be repeated with oils having higher viscosities.</u></p> <p>For test 16 in IEC 60851-4, the percentage of extractable matter shall not exceed 0,5 %. The breakdown voltage shall be at least 75 % of the minimum specified value.</p> <p>For the types of refrigerant and types of oil for which the MOTOR-COMPRESSOR is intended to be used, compliance of tie cords and insulation materials other than winding wire insulation shall be checked by the tests detailed in Annex CC.</p> <p>For each of the above tests, separate samples of the tested component shall be used.</p>
22.9DV.1		<p><b><i>New clause added;</i></b></p> <p>Insulating materials used within the HOUSING shall be compatible with the refrigerant or the refrigerant and oil combination used.</p> <p><b><i>New clause added;</i></b></p> <p>For the types of refrigerant or refrigerant and oil combination for which the MOTOR COMPRESSOR is intended to be used, compliance of</p>
22.9DV.2		<p>a) winding wire insulation, insulating materials other than winding wire insulation, tie cords and other similar parts shall be checked by the tests detailed in Annexes BB and CC or in Annex 101.DVN;</p> <p>b) MOTORETTES, COILETTES, or actual MOTOR-COMPRESSOR motors shall be checked by the tests detailed in Annex 101.DVO; or</p> <p>c) MOTORETTES not tested to Annex 101.DVO shall be checked by the tests detailed in Annex BB.</p>



CLAUSE	VERDICT	COMMENT
		NOTE For MOTOR-COMPRESSORS that do not use oil, the test in Annex BB or Annex 101.DVO is conducted without oil or the winding wire insulation may be checked by test 16 in IEC 60851-4 for resistance to refrigerants.
		<b>New clause added;</b>
22.9DV.3		If materials have been tested for use with individual components in a refrigerant blend, they shall also be tested for use with the blend. If a tested blend comprises tested individual components, then other blends comprising the same components but in different quantities do not need to be retested.
		<b>New clause added;</b>
22.9DV.4		For oils with the same chemical components, if the oil with the lowest viscosity (i.e., thinnest) is used for the tests, then the tests do not need to be repeated with oils having higher viscosities (i.e., thickest).
		<b>New clause added;</b>
22.9DV.5		For test 16 in IEC 60851-4, the percentage of extractable matter shall not exceed 0,5 %. The breakdown voltage shall be at least 75 % of the minimum specified value.
		NOTE Samples tested are as outlined in Annexes BB, CC, 101.DVN, and 101.DVO, or in IEC 60851-4, test 16.
23	Info	<b>Internal wiring</b>
		<b>New clause added;</b>
23.8		This requirement does not apply to wiring inside the HOUSING.
24		<b>Components</b>
		<b>New clause added;</b>
24.101DV		In MOTOR-COMPRESSORS that employ flammable refrigerants, components that may arc or spark during NORMAL OPERATION of the end product shall comply with the requirements of UL 60079-15 or the requirements for level protection “dc” of UL 60079-1, as modified by Annex DD, for group IIA gases or the refrigerant used or shall comply with UL 121201. This requirement is not applicable to components within the HOUSING.



CLAUSE	VERDICT	COMMENT
29	Info	<b>Clearances, creepage distances and solid insulation</b>
		Except as specified in 29.1.1 and 29.1.4, CLEARANCES less than those specified in Table 16 are not allowed for BASIC INSULATION and FUNCTIONAL INSULATION inside the HOUSING.
		For a RATED VOLTAGE > 300 V and ≤ 346 V, the rated impulse voltage is for
29.1		– overvoltage category I: 2 500 V; – overvoltage category II: 4 000 V; – overvoltage category III: 6 000 V.
		<u>For MOTOR-COMPRESSORS intended for use at altitudes exceeding 2 000 m, the relevant altitude correction factors in Table A.2 of IEC 60664–1:2007 are not applicable to CLEARANCES inside the housing.</u>
		<b><i>New clause added;</i></b>
29.1DV.1		Except as specified in Clause 29.1.1 and 29.1.4, CLEARANCES less than those specified in Table 16 are not allowed for BASIC INSULATION and FUNCTIONAL INSULATION inside the HOUSING.
		For a RATED VOLTAGE up to 600 V, use Table 15DV.
		<b><i>New clause added;</i></b>
29.1DV.2		MOTOR-COMPRESSORS are in overvoltage category II unless otherwise declared.
		For MOTOR-COMPRESSORS intended for use at altitudes exceeding 2 000 m, the relevant altitude correction factors in Table A.2 of IEC 60664-1 are not applicable to CLEARANCES inside the HOUSING.
		<b><i>New clause added;</i></b>
		For a RATED VOLTAGE > 346 V and ≤ 600 V, the minimum thickness for accessible parts of REINFORCED INSULATION consisting of a single layer is for
29.3.4DV		– overvoltage category I: 0.6 mm; – overvoltage category II: 1.2 mm; – overvoltage category III: 2.4 mm.
		For multi-phase appliances, the line to neutral or line to earth voltage shall be used for RATED VOLTAGE.
		<b><i>Annex AA has been completely re-written</i></b>
Annex AA		<b>Running overload tests for motor-compressors classified as tested with Annex AA</b>
		See standard for new requirements.



CLAUSE	VERDICT	COMMENT
		<b><i>Annex BB has been completely re-written.</i></b>
Annex BB		<b>Winding wire insulation compatibility tests</b>  See standard for details.
Annex CC	Info	<b>Tie cords and insulation compatibility tests</b>
		<b><i>New clause added;</i></b>
CC.1DV		a) For compliance to IEC 60335-2-34, the tie cord retention test with a 50% retention strength is required.  For compliance to UL 60335-2-34 and CSA C22.2 No. 60335-2-34, the tie cord retention test is not required.
		The set of six samples prepared for the refrigerant and oil exposure testing shall be placed in test vessel(s) and each test vessel shall be provided with a pressure relief device. Each test vessel shall then be sealed, evacuated to 100 µm of mercury or less and heated to not less than 150 °C for at least 1 h.
CC.8		<u>CAUTION Extreme care should be taken when conducting this test. There are elevated pressure levels within the test vessels which are also under elevated ambient conditions. In addition, mixing of some chemicals and/or lubricants followed by exposure to high temperatures could produce toxic fumes and/or materials.</u>
Annex DD	Info	<b>Non-sparking “n” electrical apparatus and test condition for “dc” devices</b>
10	Info	<b>Requirements for restricted-breathing enclosures</b>
		<b><i>New clause added;</i></b>
11DV		Components are considered as complying with this Annex if they comply with CSA C22.2 No. 60335-2-40 or UL 60335-2-40, 4th Edition, Clause 22.116DV.
		<b><i>New clause added;</i></b>
15.5.3.1		<b>General</b>  Group IIA: (55 ± 0,5) % hydrogen/air at atmospheric pressure; or Group IIA: (6,5 ± 0,5) % ethylene/air at atmospheric pressure.



CLAUSE	VERDICT	COMMENT
--------	---------	---------

*New annex added;*

**Fatigue test**

Annex EE

If subjected to the fatigue cycle test in Clause EE.4, a MOTOR-COMPRESSOR other than those specified in Clause EE.3 and EE.4 shall not rupture, burst, or leak. Two MOTOR-COMPRESSOR samples shall be completely filled with an incompressible, inert fluid to exclude all air, and connected to a hydraulic pump system. The pressure shall be raised gradually to the highest of 60 % of the test pressure required by Subclause 22.7 and maintained for 1 minute.

See standard for details.

---