

## STANDARD INFORMATION

**Standard Number:** UL 60947-4-1

**Standard Name:** Low-Voltage Switchgear and Controlgear – Part 4-1: Contactors and Motor-Starters – Electromechanical Contactors and Motor-Starters

**Standard Edition and Issue Date:** 3<sup>rd</sup> Edition Dated April 4, 2014

**Date of Revision:** October 17, 2017

**Date of Previous Revision of Standard:** April 4, 2014

## EFFECTIVE DATE OF NEW/REVISED REQUIREMENTS

**Effective Date:** **November 16, 2018**

## IMPACT, OVERVIEW, AND ACTION REQUIRED

**Impact Statement:** A review of all Listing Reports is necessary to determine which products comply with new/revise requirements and which products will require re-evaluation. **NOTE:** Effective immediately, this revised standard will be exclusively used for evaluation of new products unless the Applicant requests in writing that current requirements be used along with their understanding that their listings will be withdrawn on Effective Date noted above, unless the product is found to comply with new/revise requirements.

### Overview of Changes:

- Harmonization of endurance test cycle rates for contactors, starters, manual motor controllers, manual motor controllers used as a disconnecting means and manual motor controllers used as tap conductor protection as a U.S. only national difference.
- Harmonization of endurance test cycle rates for manual motor controller and manual self-protected combination motor controller as a U.S. only difference.

Specific details of new/revise requirements are found in table below.

**If the applicable requirements noted in the table are not described in your report(s), these requirements will need to be confirmed as met and added to your report(s) such as markings, instructions, test results, etc. (as required).**

### Client Action Required:

**Information** – To assist our Engineer with review of your Listing Reports, please submit technical information in response to the new/revise paragraphs noted in the attached or explain why these new/revise requirements do not apply to your product (s).



**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 – Please immediately identify any current Listing Reports or products that are no longer active and should be removed from our records.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
		Additions to existing requirements are <u>underlined</u> and deletions are shown <del>lined out</del> below.
9	Info	<b>Tests</b>
9.3	Info	<b>Compliance with performance requirements</b>
9.3.3	Info	Performance under no load, normal load and overload conditions
9.3.3.6	Info	Operational performance capability
9.3.3.6DV.2		<b>The equipment shall close and open a test circuit having the applicable current and power factor. <del>The number of test cycles and the test cycle times shall be as specified in Table 8.2.4.2DV.1.1 or Table 8, as appropriate.</del> The closed circuit test voltage shall be 100 to 110 percent of the required test voltage specified in Table 28DV of Part 1. <u>In Canada, the number of test cycles and the test cycle times shall be as specified in Table 8.2.4.2DV.1.1 or Table 8, as appropriate. In the United States, the number of test cycles and the test cycle times shall be as specified in 8.2.4.2DV.</u></b>
5	Info	<b>Tests</b>
5.1	Info	<b>Compliance with performance requirements</b>
5.1.3	info	<b>Endurance test, manual motor controller used as motor disconnect</b>



**Endurance test cycles for manual motor controllers used as a disconnecting means**

Controller rating in amperes <sup>a</sup>	Number of cycles of operation per minute <sup>b</sup>	Number of cycles of operation		
		With current <sup>c</sup>	Without current	Total
100 or less	6	6 000	4 000	10 000
101 – 200	5	6 000	2 000	8 000
201 – 400	4	1 000	5 000	6 000
401 - 600	3	1 000	4 000	5 000

<sup>a</sup> The controller rating is the larger of the ampere rating marked on the product or the maximum ampere rating equivalent to the marked horsepower ratings on the product as determined from Annex G.

<sup>b</sup> The indicated number of cycles of operation per minute applies only to that part of the test performed with current.  
When no current is used, the manual motor controller shall be operated at any convenient speed.

<sup>c</sup> In Canada, the first 1 000 cycles tested with test current, power factor, and cycle rate as in Table 8.2.4.2DV.1.1 for AC motor starting; the remaining cycles “with current” tested at cycle rate indicated in this table, at 0,75 – 0,80 power factor, and at rated full load current. In the United States, the first 1 000 cycles tested with test current, power factor, and cycle rate as in 8.2.4.2DV for horsepower rated equipment; the remaining cycles “with current” tested at cycle rate indicated in this table, at 0,75 – 0,80 power factor, and at rated full load current.

Table  
DVC.5.1.3.1.1

5.1.4      Info      **Endurance test, Self-Protected Combination Motor Controller**



**Table DVC.5.1.4.1.1 – Endurance test for self-protected combination motor controllers**

Test current, amperes	Power factor	Number of cycles		Test cycle times, Seconds <sup>a,e</sup>	
		Conventional Test sequence No 4 and 5 Or 4A and 5A	Operational Test sequence 4B and 5B	On	Off
Twice Full-Load Current <sup>c</sup>	0,4 – 0,5	1 000	500	0,5	0,5
Full-Load Current <sup>c</sup>	0,75 – 0,80	5 000	2 500	1	9
No Load <sup>d</sup>	-	4 000	0	B	b
<p>Note: For an electrical control that operates load switching contacts, the tests as noted in Table 8.2.4.2DV.1.1 shall also be used.</p> <p><sup>a</sup> For test currents 200 amperes or more, the test on time shall be 1 second, and the maximum off time shall be 1 second for test currents of 200 – 499 amperes, and 120 seconds for test currents of 500 – 1 499 amperes.</p> <p><sup>b</sup> Any convenient rate but not to exceed 20 operations per minute.</p> <p><sup>c</sup> To be conducted on the load switching contacts by any convenient means of actuation.</p> <p><sup>d</sup> To be conducted on the manual disconnect actuator when the actuator is used to operate the load switching contacts. When other means are used to operate the load switching contacts, then the number of cycles on the manual actuator shall be 10 000 cycles.</p> <p><sup>e</sup> <u>In the United States, manual self-protected combination controllers test cycle times for twice full-load current shall be as specified in Clause 8.2.4.2DV.</u></p>					

Table  
DVC.5.1.4.1.1

**CUSTOMERS PLEASE NOTE:** This Table and column “Verdict” can be used in determining how your current or future production is or will be in compliance with new/revised requirements.