STANDARDS UPDATE NOTICE (SUN)
ISSUED: December 18, 2021

STANDARD INFORMATION

Addendum 1: This Addendum adds changes that were made in the October 24, 2016 and April 22, 2019 revisions, and have the same effective date as the March 7, 2014 revision

Standard Number: UL 489 / CSA C22.2 No. 5 / ANCE NMX-J-266
Standard Name: Molded-Case Circuit Breakers, Molded-Case Switches and Circuit-Breaker Enclosures
Standard Edition and Issue Date: 13th / 4th / 5th Edition dated October 24, 2016
Date of Revision: March 7, 2014, October 24, 2016, and April 22, 2019
Date of Previous Revision of Standard: January 22, 2013

EFFECTIVE DATE OF NEW/REVISED REQUIREMENTS

Effective Date: **November 19, 2021**

IMPACT, OVERVIEW, AND ACTION REQUIRED

Impact Statement: A review of all Listing Reports is necessary to determine which products comply with new/revised 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requests in writing that current requirements be used along with their understanding that their listings will be withdrawn on Effective Date noted above, unless the product is found to comply with new/revised requirements.

Overview of Changes:

March 7, 2014:
- Revision to testing of 3-Pole Breakers for Use in Single Phase Circuits
- Addition of EMC Requirements in Supplements SF and SG

October 24, 2016:
- Revisions to Address DC Rated Circuit Breakers
- Circuit Breakers with Dependent Manual Operation
- Clarification to Insure Testing of the 15A Rated Circuit Breaker
- Addition of Requirements for Thermal Memory

April 22, 2019:
- Revision to the Requirements for Draw-out Circuit Breakers
- Revisions to the Calibration Requirements for Supplement SB

Specific details of new/revised 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:

Information – To assist our Engineer with review of your Listing Reports, please submit technical information in response to the new/revised paragraphs noted in the attached or explain why these new/revised 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 – Please immediately identify any current Listing Reports or products that are no longer active and should be removed from our records.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
		The following changes reflect the March 7, 2014 revision
9.1.1.22		A 3-pole circuit breaker that is intended for use only on a single phase multiwire circuit (one that includes the neutral or grounded conductor) shall include in its marked voltage rating the term, “Only for Use in 1-Phase Circuits or equivalent. The neutral pole shall be clearly identified. Location Category B.
18.1.13		Doors shall be capable of being opened 90 degrees or more from the closed position.
SD4.1		The classified circuit breaker manufacturer shall make available a handle tie for use with the classified circuit breaker in combination with each circuit breaker type intended for the specified panelboard. This includes the specified circuit breaker as well as classified circuit breakers of all other manufacturers marked for use with the specified panelboard. Multiple designs of handle ties may be required.
SD4.2		Handle ties shall comply with Section 6.1.5.3.
SD4.3		A handle tie available separately as a kit shall comply with 14.1.2 as applicable.
Supplement SF		**Additional Tests For Circuit Breakers With Electronic Overcurrent Protection**
Supplement SG		**Electromagnetic Compatibility (EMC) – Requirements And Test Methods For Circuit Breakers**
		The following changes reflect the October 24, 2016 revision
	Info	**MOLDED CASE CIRCUIT BREAKERS**
6	Info	**Construction**
6.1	Info	**All types**
6.1.4	Info	**Current-Carrying Parts**
6.1.4.2	Info	**Terminals**
6.1.4.2.18		***New clause added;*** A dc circuit breaker intended to have poles connected in series shall have all connecting hardware, bus, and the like, either attached at the factory or provided as a kit. The kit shall comply with the requirements of 6.1.4.2.5. If other than normally available building wire is required, it shall be provided as part of the kit.

CLAUSE	VERDICT	COMMENT
6.1.4.2.19		***New clause added;*** Jumpers requiring building wire to be bent with a radius less than the cold bend mandrel requirements of Annex B, Ref. No. 27, shall be provided with the circuit breaker or be made available as a kit.
6.20	Info	***New section added;*** **Circuit breakers with electronic trip units**
6.20.1		Circuit breakers with an electronic trip unit shall be provided with thermal memory and comply with the requirements in 7.1.2.6. The thermal memory may be defeated or turned off for manufacturing and validation purposes.
7	Info	**Tests**
7.1	Info	**Standard circuit breakers**
7.1.1	Info	**General**
7.1.1.5		***New clause added;*** The evaluation of a circuit breaker of a frame size of 225 A or less of a specific pole construction shall include the testing of sets of samples of the maximum and minimum ratings. Sets of samples of one or more intermediate ratings may be additionally required to be subjected to the complete test program or a partial test program depending on construction differences.
7.1.1.6		***New clause added;*** For circuit breaker ratings with ratings of 15 A and below, the full evaluation shall include the 15 A rating representing the minimum rating. Where the construction of the 15 A and the lower ratings are identical except for the bimetal, the evaluation of the lowest rating shall be limited to the Z sequence, and the high available fault current test if applicable. Where the constructions are not identical, the largest ampere rating of each construction break shall also be evaluated to the Z sequence and the high available fault current test.
7.1.1.10		***New clause added;*** A multipole dc circuit breaker intended to have poles wired in series shall be wired in accordance with the manufacturer's instructions. If specific hardware or parts are required, they shall either be available as a kit or be shipped with the circuit breaker and comply with 14.1.2.
7.1.1.11		***New clause added;*** Notwithstanding 7.1.1.25, for a dc circuit breaker that is required to be wired in series such that the same number of poles (contacts) are exposed to the current in both directions simultaneously, testing in both the forward and reverse direction is not required.

CLAUSE	VERDICT	COMMENT
7.1.1.12		***New clause added;*** Multipole dc circuit breakers marked for more than one wiring configuration shall be subjected to a sufficient number of tests to represent all configurations. Examples: a) For interrupting tests, a configuration with the least number of poles energized shall represent configurations with more poles energized. b) For temperature tests, a configuration with the most number of poles energized shall represent configurations with a fewer number of poles energized. c) Calibration tests shall be conducted on the configurations with both the most and least number of poles energized.
7.1.1.13		***New clause added;*** For the endurance, overload, and interrupting tests, a dc circuit breaker intended for use on a system having one conductor grounded shall be tested with the enclosure or mounting surface connected to the negative conductor through a fuse as described in 7.1.1.27.
7.1.1.28		***New clause added;*** During the overload and endurance tests, circuit breakers rated 150 A and less with dependent manual operation shall be operated with an operating speed, during actuation, of 0.1 m/sec ± 25 percent, this speed being measured at the extremity when and where the operating means of the test apparatus touches the actuating means of the circuit breaker under test. For rotary knobs, the angular velocity shall correspond substantially to the above conditions, referred to the speed of the operating means (at its extremities) of the circuit breaker under test.
7.1.2	Info	**Calibration Tests**
7.1.2.6		***New section added;*** **Thermal memory retention test**
7.1.2.6.1		A circuit breaker that has an electronic trip unit shall additionally be subjected to the following: a) Conduct the 200 percent calibration test, see 7.1.2.2. There shall be no auxiliary power on the trip unit. b) Re-close the circuit breaker within a time twice the time-delay setting and repeat the 200 percent calibration test. The tripping time shall be at least 30 percent less than the value previously recorded in a).
7.1.7	Info	**Interrupting Test**
Table 7.1.7.2		***Table 7.1.7.2 has been greatly modified. See standard for new table.***

CLAUSE	VERDICT	COMMENT
7.1.7.4		***New clause added;*** Except as permitted by 7.1.7.5, a dc circuit breaker with poles intended to be wired in series shall be subjected to the number and type of operations indicated in Table 7.1.7.2 when connected as shown in Figure 7.1.7.2 and shall interrupt the current indicated in Table 7.1.7.3. The tests shall be conducted in accordance with 7.1.7.3.
7.1.7.26		***New clause added;*** If a dc circuit breaker is intended to be wired in series but two of the poles are connected to the load and the breaker complies with a) through d) below, interrupting tests shall be conducted in accordance with 7.1.7.27: a) Is a multi-pole type; b) Is marked for 2 or more poles to be wired in series; c) Is marked for use in a grounded system; and d) Requires a direct connection to both the grounded and ungrounded circuit conductors.
7.1.7.27		***New clause added;*** The circuit breaker shall be wired to both the grounded and ungrounded circuit conductor of the test station with the fewest number of poles intended to be connected in series in accordance with the circuit breaker instructions. The normal load side terminal(s)/pole(s) intended to be connected to the grounded circuit conductor shall not be used, and instead the load side of the positive terminal(s)/pole(s) shall be connected directly to the grounded terminal of the test station.
9	Info	**Markings**
9.1	Info	**General**
9.1.4	Info	**Special Markings**
9.1.4.8		***New clause added;*** DC circuit breakers that are required to be wired in series shall be marked to indicate the proper configuration of connections of the terminals. If there are multiple configurations, a separate document shall be included with the circuit breaker, and the circuit breaker shall be permanently marked with wording that reads, “For the proper configuration of connections of the terminals, refer to Publication No. _____ provided with this circuit breaker.” The document shall include: a) The manufacturer’s name and type designation or equivalent; b) Publication number and date or equivalent; c) The current ratings, voltage rating, number of poles; and d) A schematic of each of the intended wiring configurations.

CLAUSE	VERDICT	COMMENT
		The following changes reflect the April 22, 2019 revision
	Info	**MOLDED CASE CIRCUIT BREAKERS**
6	Info	**Construction**
6.12	Info	**Draw-out circuit breakers**
6.12.5		***New clause added;*** Secondary disconnects and interlock switches shall be designed and rated for their applications and shall comply with the requirements of Annex B, Ref. No. 28.
Supplement SB	Info	**MOLDED-CASE CIRCUIT BREAKERS, MOLDED-CASE SWITCHES, AND CIRCUIT-BREAKER ENCLOSURES (NAVAL USE)**
SB3	Info	**Calibration Test**
SB3.2	Info	**100 percent calibration test**
SB3.2.1		***New clause added;*** A circuit breaker shall be capable of carrying 100 percent of its rated current without tripping until temperatures become constant. The test shall be conducted on a new representative device with the temperature of the ambient air at 50 ±3°C (122 ±5°F). See 7.1.2.4.
		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.