

UNDERWRITERS LABORATORIES INC. CERTIFICATION REQUIREMENT DECISION

This Certification Requirement Decision is prepared by UL LLC. It is normative for the applicable UL Product Certification Program(s); however, it is currently not part of the UL Standard(s) referenced below.

Product Category (CCN): REUZ, AWEG, IQRW

Standard Number: UL 778

Standard Title: Standard for Motor-Operated Water Pumps

Edition Date: July 7, 2016

Edition Number: 6

Section / Paragraph Reference: 41.1, 41.2, 55

Subject: Add DC Test Potential of Dielectric Voltage Withstand Test.

DECISION:

PERFORMANCE

41 Dielectric Voltage-Withstand Test

41.1 General

41.1.1 A pump shall withstand for 1 minute without electrical breakdown the application of a DC potential or an AC 60-hertz, essentially sinusoidal potential at a frequency within the range of 40 to 70 Hz:

- a) Between live parts and grounded dead metal and
- b) Between the terminals of a capacitor used for radio interference elimination or arc suppression.

The test potential shall be as follows shown in Table 41.1:

- 1) ~~One thousand volts for a nonsubmersible pump rated no more than 250 volts, and no more than 1/2 horsepower (373 watt output).~~
- 2) ~~One thousand volts plus twice the rated voltage for a nonsubmersible pump rated more than 250 volts, or more than 1/2 horsepower.~~
- 3) ~~One thousand volts plus twice the rated voltage for a submersible pump.~~

Table 41.1
Dielectric voltage withstand voltages

Machine voltage rating, V	Test potential V AC	Test potential V DC
<u>A nonsubmersible pump rated no more than 250 volts, and no more than 1/2 horsepower (373 watt output)</u>	<u>1000</u>	<u>1400</u>
<u>A nonsubmersible pump rated more than 250 volts, or more than 1/2 horsepower</u>	<u>1000 + 2V^a</u>	<u>1400 + 2.8V^a</u>
<u>A submersible pump</u>	<u>1000 + 2V^a</u>	<u>1400 + 2.8V^a</u>
^a <u>Maximum marked voltage.</u>		

41.2 Secondary circuits

41.2.1 Secondary circuits shall withstand for 60 seconds without electrical breakdown the application of a test potential in accordance with 41.2.2:

- a) Between primary and secondary circuits,
- b) Between secondary circuits and grounded metal with all frame-connected components in place, and
- c) Between secondary circuits supplied from separate transformer windings with common connections disconnected and frame connections in place.

The pump is to be at its maximum normal operating temperature during the test. A DC potential or an AC 60-hertz essentially sinusoidal voltage potential at a frequency within the range of 40 to 70 Hz is to be used for testing alternating-current circuits.

Table 41.2
Dielectric voltage withstand voltages for Secondary circuits

Machine voltage rating, V	Test potential V AC	Test potential V DC
<u>A secondary circuit operates at 51 - 250 volts</u>	<u>500</u>	<u>700</u>
<u>A nonsubmersible pump rated more than 250 volts, or more than 1/2 horsepower</u>	<u>1000</u>	<u>1400</u>
<u>A submersible pump</u>	<u>1000 + 2V^a</u>	<u>1400 + 2.8V^a</u>
^a <u>Maximum operating voltage.</u>		

MANUFACTURING AND PRODUCTION-LINE TESTS

55 Dielectric Voltage-Withstand Test

55.1 Each pump shall withstand without electrical breakdown, as a routine production-line test, the application of a DC potential or an AC potential at a frequency within the range of 40 - 70 hertz:

- a) Between the primary wiring, including connected components, and accessible dead-metal parts that are likely to become energized and
- b) Between primary wiring and accessible low-voltage metal parts, including terminals.