



# Standards Update Notice (SUN)

Issued: February 2, 2017

## Standard Information

**Standard Number:** UL 778

**Standard Name:** Motor-Operated Water Pumps

**Standard Edition and Issue Date:** 6<sup>th</sup> Edition Issued July 7, 2016 and revision November 14, 2016

**Date of Previous Revision of Standard:** 5<sup>th</sup> Edition Revised September 2, 2015

## Effective Date of New/Revised Requirements

**Effective Date:** **January 17, 2018**

## 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requests in writing that current requirements be used along with their understanding that their listings will be withdrawn on Effective Date noted above, unless the product is found to comply with new/revised requirements.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:

- Additional Options for the Evaluation of Electronic Circuits and Controls.
- Updated Requirements for Switches.
- Add Requirements for Button or Coin Cell Batteries of Lithium Technologies.

*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 Required:

**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**Current Listings Not Active?** – *Please immediately identify any current Listing Reports or products that are no longer active and should be removed from our records.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.*



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## Description of New/Revised Technical Requirements

Clause	Verdict	Comment																											
--	--	<b>New/Revised requirements from update dated July 7, 2016</b>																											
6		<i>New section added;</i> <b>Safety Critical Functions</b>																											
6.1		Any function involved in the control, protection, and monitoring of safety-related attributes of a pump whereby a loss/malfunction of its functionality would represent an unacceptable risk of fire, electric shock, or casualty hazards would be considered a Safety Critical Function.																											
6.2		Electronic circuits that manage a Safety Critical Function (SCF) shall be:  a) Reliable as defined as being able to maintain the SCF in the event of single defined component faults and  b) Not susceptible to electromagnetic environmental stresses encountered in the anticipated environments of the appliance.																											
6.3		Electronic circuits managing Safety Critical Functions shall comply with:  a) UL 60335-1 Based Requirements for the Evaluation of Electronic Circuits, Supplement SB or  b) The Standard for Automatic Electrical Controls for Household and Similar Use, Part 1: General Requirements, UL 60730-1 and it's Part 2's as specified in this standard. The function shall be considered Class B. When utilizing UL 60730-1, surge protective devices are defeated for the EMC immunity testing unless they are provided with spark gaps (gas tube surge suppressors) or  c) The requirements for the component as noted elsewhere in this standard.																											
6.4		Functions specified in Safety critical functions, Table 6.1 represent the common safety critical circuit functions of pumps. It is not intended to represent all possible safety critical functions.																											
Table 6.1		<p><b>Safety critical functions</b></p> <table border="1"> <thead> <tr> <th>Function (see 6.1)</th> <th>Hazard</th> <th>Location of parameters and tests</th> </tr> </thead> <tbody> <tr> <td>Motor running overload protection</td> <td>Risk of fire or electric shock</td> <td>25.2</td> </tr> <tr> <td>Motor locked rotor protection</td> <td>Risk of fire or electric shock</td> <td>25.2</td> </tr> <tr> <td>Motor short circuit protection</td> <td>Risk of fire or electric shock</td> <td>25.2</td> </tr> <tr> <td>Dry operation</td> <td>Risk of fire or electric shock</td> <td>53.1</td> </tr> <tr> <td>Burnout test</td> <td>Risk of fire or electric shock</td> <td>53.2</td> </tr> <tr> <td>Transformation overload</td> <td>Risk of fire or electric shock</td> <td>53.5</td> </tr> <tr> <td>Switch Mode Power Supply Overload</td> <td>Risk of fire or electric shock</td> <td>53.6</td> </tr> <tr> <td>Loss of phase</td> <td>Risk of fire</td> <td>25.2</td> </tr> </tbody> </table>	Function (see 6.1)	Hazard	Location of parameters and tests	Motor running overload protection	Risk of fire or electric shock	25.2	Motor locked rotor protection	Risk of fire or electric shock	25.2	Motor short circuit protection	Risk of fire or electric shock	25.2	Dry operation	Risk of fire or electric shock	53.1	Burnout test	Risk of fire or electric shock	53.2	Transformation overload	Risk of fire or electric shock	53.5	Switch Mode Power Supply Overload	Risk of fire or electric shock	53.6	Loss of phase	Risk of fire	25.2
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Clause	Verdict	Comment
28	Info	<b>Switches and Controls</b>
28.3		<p><i>New clause added;</i></p> <p>Switches that comply with the Standard for Switches for Appliances – Part 1: General Requirements, CAN/CSA-C22.2 No. 61058-1 or the Standard for Switches for Appliances – Part 1: General Requirements, UL 61058-1 shall be rated as specified in 28.3 – 28.5.</p>
28.4		<p><i>New clause added;</i></p> <p>Power switches shall be rated as follows:</p> <ul style="list-style-type: none"> <li>a) For a voltage not less than the rated voltage of the appliance;</li> <li>b) For a current not less than the rated current of the appliance;</li> <li>c) For Continuous Duty;</li> <li>d) With respect to load: <ul style="list-style-type: none"> <li>1) Switches for motor-operated appliances: for resistance and motor load in accordance with Clause 7.1.2.2 of the Standard for Switches for Appliances – Part 1: General Requirements, CAN/CSA-C22.2 No. 61058-1 or the Standard for Switches for Appliances – Part 1: General Requirements, UL 61058-1, or the Outline of Investigation for Particular Requirements for Switches for Tools, UL 6059, if the switch would encounter this load in normal use or</li> <li>2) Switches may be regarded as switches for a declared specific load in accordance with Clause 7.1.2.5 of the Standard for Switches for Appliances – Part 1: General Requirements, CAN/CSA-C22.2 No. 61058-1 or the Standard for Switches for Appliances – Part 1: General Requirements, UL 61058-1, or the Outline of Investigation for Particular Requirements for Switches for Tools, UL 6059 and may be classified based upon the load conditions encountered in the appliance under normal load.</li> </ul> </li> <li>e) For ac if the appliance is rated for ac;</li> <li>f) For dc if the appliance is rated for dc.</li> </ul>
28.5		<p><i>New clause added;</i></p> <p>Ratings and load classifications for switches other than power switches shall be based on the conditions encountered in the appliance under normal load.</p>



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28.6		<p><i>New clause added;</i></p> <p>Switches shall also be rated with respect to endurance as follows:</p> <ul style="list-style-type: none"> <li>a) Power switches: 6000 cycles;</li> <li>b) Power switches provided with series electronics shall be subject to an additional 1000 cycles of operation with the electronics bypassed;</li> <li>c) Switches other than power switches, such as speed selector switches, that may be switched under electrical load: 1000 cycles;</li> <li>d) The following non-power switches are not required to be rated for endurance:               <ul style="list-style-type: none"> <li>1) Switches not intended for operation without electrical load, and which can be operated only with the aid of a tool or are interlocked so that they cannot be operated under electrical load or</li> <li>2) Switches for 20 mA load as classified in Clause 7.1.2.6 of the Standard for Switches for Appliances – Part 1: General Requirements, CAN/CSA-C22.2 No. 61058-1 or the Standard for Switches for Appliances – Part 1: General Requirements, UL 61058-1.</li> </ul> </li> </ul>
SUPPLEMENT SB	Info	<p><i>New section added;</i></p> <p><b>UL 60335-1 BASED REQUIREMENTS FOR THE EVALUATION OF ELECTRONIC CIRCUITS</b></p> <p>These requirements provide alternate requirements for the investigation of electronic controls and other circuits used in appliances covered by this Standard (see standard for section details).</p>
SUPPLEMENT SC		<p><i>New section added;</i></p> <p><b>SECONDARY CIRCUITS EVALUATED TO NEC CLASS 2 DERIVED REQUIREMENTS</b></p> <p>This new section includes new construction requirements and performance tests requirements for secondary circuits evaluated to NEC Class 2 derived requirements (see standard for section details).</p>



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Clause	Verdict	Comment
--	--	<b>New/Revised requirements from update dated November 14, 2016</b>
35A		<i>New section added;</i> <b>Button or Coin Cell Batteries of Lithium Technologies</b>
35A.1		<p>The battery compartment of an appliance or any accessory, such as a wireless control, incorporating one or more coin cell batteries of lithium technologies shall comply with the Standard for Products Incorporating Button or Coin Cell Batteries of Lithium Technologies, UL 4200A, if the appliance or any accessory:</p> <ul style="list-style-type: none"><li>a) Is intended for use with one or more single cell batteries having a diameter of 32 mm (1.25 in) maximum with a diameter greater than its height; and</li><li>b) The appliance is intended for household use.</li></ul> <p>Exception: UL 4200A is not applicable to appliances and accessories intended for use where the battery is not intended to be replaced and is not referenced in instructions and markings.</p>
		<b>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.</b>