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SUBJECT 448C

OUTLINE OF INVESTIGATION

FOR

STATIONARY, ROTARY-TYPE, POSITIVE-DISPLACEMENT PUMPS FOR
FIRE-PROTECTION SERVICE

Issue Number: 1

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Summary of Topics

This is the First Issue of Subject 448C, the Outline of Investigation for Stationary, Rotary-Type, Positive-Displacement Pumps For Fire-Protection Service. These requirements cover stationary, rotary type, positive displacement pumps intended for supplying water or foam concentrate to fire protection systems.

The UL Foreword is no longer located within the UL Standard. For information concerning the use and application of the requirements contained in this Standard, the current version of the UL Foreword is located on ULStandardsInfoNet at: <http://ulstandardsinfo.net.ul.com/ulforeword.html>

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INTRODUCTION

1 Scope

1.1 These requirements cover stationary, rotary type, positive displacement pumps intended for supplying water or foam concentrate to fire protection systems.

1.2 The pumps covered by these requirements are intended to be mounted in the horizontal position and installed in accordance with the Standard for Installation of Stationary Pumps for Fire Protection, NFPA 20.

2 Components

2.1 Except as indicated in 2.2, a component of a product covered by this outline shall comply with the requirements for that component.

2.2 A component is not required to comply with a specific requirement that:

- a) Involves a feature or characteristic not required in the application of the component in the product covered by this outline, or
- b) Is superseded by a requirement in this outline.

2.3 A component shall be used in accordance with its rating established for the intended conditions of use.

2.4 Specific components are incomplete in construction features or restricted in performance capabilities. Such components are intended for use only under limited conditions, such as certain temperatures not exceeding specified limits, and shall be used only under those specific conditions.

3 Units of Measurement

3.1 Values stated without parentheses are the requirement. Values in parentheses are explanatory or approximate information.

4 Undated References

4.1 Any undated reference to a code or standard appearing in the requirements of this outline shall be interpreted as referring to the latest edition of that code or standard.

5 Glossary

5.1 For the purposes of this outline, the following definitions apply.

5.2 CORROSION-RESISTANT MATERIAL – A material having resistance to corrosion equivalent to or exceeding that of a brass or bronze alloy, or series 300 stainless steel.

5.3 FOAM CONCENTRATE – Reference to foam concentrate in this outline includes concentrated liquid film foaming agents and other additives intended to enhance the fire fighting effectiveness of the water.

5.4 PRESSURE, MAXIMUM WORKING – For performance tests specified in this outline, the sum of the maximum net pressure developed by the pump and the maximum positive suction pressure marked on the pump, under any condition of intended use including the relief valve discharging 100 percent of the pump capacity with the valve set at its highest pressure setting. For production tests, this value may be lower, based on the conditions imposed by the particular installation for which the pump is constructed. Therefore, the values of maximum net pressure and maximum positive suction pressure that are marked on the pump are those that indicate the acceptability of a pump (the limiting pressures) for an installation.

5.5 PRESSURE, NET (TOTAL HEAD) – The algebraic difference in psi (kPa) between pressures measured at the discharge flange and at the suction flange, corrected to the pump centerline and corrected for differences in velocity head at the points of gauge attachment.

5.6 PUMP LOAD – The brake horsepower (kW input) required to drive a pump at rated speed, and at the capacity and pressure (including the additional requirements associated with the operation of the relief valve) requiring maximum power for its intended use.

5.7 PUMP, ROTARY TYPE POSITIVE DISPLACEMENT – A pump characterized by the use of gears, screws, lobes, cams or similar elements to carry and displace liquid.

5.8 PUMP ROTOR – A gear or similar element used to carry and displace liquid.

5.9 RELIEF VALVE – A valve capable of automatically relieving 100 percent of pump capacity at a pressure not exceeding 125 percent of the valve set pressure.