



GUIDE
FOR
THE INVESTIGATION
OF
PUMPS FOR FIRE PROTECTION SERVICE

UNDERWRITERS' LABORATORIES OF CANADA

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OF
PUMPS FOR FIRE PROTECTION SERVICE

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FOREWORD

These requirements are based upon sound engineering principles, research, records of tests and field experience, and an appreciation of the problems of manufacture, installation, and use derived from consultation with and information obtained from manufacturers, users, inspection authorities, and others having specialized experience.

These requirements are subject to revision as further experience and investigation may show is necessary or desirable.

A product which complies with these requirements will not necessarily be acceptable, if, when examined and tested, it is found to have features not covered by these requirements which may impair the result contemplated by these requirements.

A product employing materials or having forms of construction differing from those detailed in these requirements may be examined and tested according to the intent of the requirements, and if found to be substantially equivalent, may be given recognition.

1. SCOPE

1.1 These requirements apply to horizontal split case, end suction, vertical inline and turbine type centrifugal pumps for use in water supply systems for fire-protection service.

1.2 Requirements for the installation and use of these pumps are contained in the National Fire Protection Association Standard for the Installation of Centrifugal Fire Pumps, NFPA No. 20.

2. GLOSSARY

2.1 CORROSION-RESISTANT - Unless otherwise specified, this term indicates a material having resistance to corrosion equal to or exceeding that of a brass or bronze alloy.

2.2 END SUCTION PUMP - A centrifugal pump characterized by having its suction nozzle on the opposite side of the casing from the stuffing box and having the face of the suction nozzle perpendicular to the longitudinal axis of the shaft.

2.3 FIRE PUMP - A pump for horizontal or vertical mounting, having rated capacities in accordance with the requirements of NFPA No. 20, and rated at net pressures of 40 pounds per square inch or higher, intended for installation where suction conditions can change from positive to negative, or remain a constant negative not exceeding minus 15 feet of water.

2.4 HORIZONTAL SPLIT CASE PUMP - A centrifugal pump characterized by a housing which is split parallel to the shaft.

2.5 NET PRESSURE OR TOTAL HEAD IN FEET OF WATER - For a split-case or end suction pump, this is the algebraic difference, in pounds per square inch, between pressures as measured at the discharge flange and at the suction flange, corrected to the pump centre line and corrected for changes in velocity head at the points of gauge attachment. For a vertical-turbine pump, the net pressure is the reading in pounds per square inch of a pressure gauge attached just beyond the discharge elbow, corrected for the velocity head at this point, the vertical distance from the water level to the centre of the gauge, and the friction losses encountered in the piping between the uppermost impeller bowl and the point of attachment of the gauge.

2.6 PUMP LOAD - The brake horsepower required to drive a pump at rated speed and at the capacity requiring maximum power.

2.7 SHUTOFF (CHURN) PRESSURE - The net head developed by a pump at rated speed with no water being delivered (discharge valve closed).

2.8 SPECIAL FIRE SERVICE PUMP - A pump having capacities in accordance with the requirements of NFPA No. 20, and designed to produce various rated pressures with the limiting characteristics that under no condition shall the power required exceed the limitations of a 30 horsepower motor.