Centrifugal Pumps for Petroleum, Petrochemical, and Natural Gas Industries

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Introduction

It is necessary that users of this standard be aware that further or differing requirements can be needed for individual applications. This standard is not intended to inhibit a vendor from offering, or the purchaser from accepting, alternative equipment or engineering solutions for the individual application. This can be particularly appropriate where there is innovative or developing technology. Where an alternative is offered, it is necessary that the vendor identify any variations from this standard and provide details.

A bullet [●] at the beginning of a subsection or paragraph indicates that either a decision is required or further information is to be provided by the purchaser.

This standard shows U.S. customary (USC) units with other units in parentheses for information.

Centrifugal Pumps for Petroleum, Petrochemical, and Natural Gas Industries

1 Scope

This standard specifies requirements for new centrifugal pumps, including pumps running in reverse as hydraulic power recovery turbines (HPRTs), for use in petroleum, petrochemical, and gas industry process services.

This standard is applicable to overhung pumps, between-bearings pumps, and vertically suspended pumps (see Table 1). Section 9 provides requirements applicable to specific types of pumps. All other sections of this standard are applicable to all pump types. Illustrations are provided of the various specific pump types and the designations assigned to each specific type.

Relevant industry operating experience suggests pumps produced to this standard are suitable for pumping liquids at conditions exceeding any one of the following:

— discharge pressure (gauge): 275 psi; 19.0 bar (1900 kPa);

— suction pressure (gauge): 75 psi; 5.0 bar (500 kPa);

— pumping temperature: 300 °F (150 °C);

— rotational speed: 3600 r/min;

— rated total head: 400 ft (120 m);

— impeller diameter, overhung pumps 13 in. (330 mm).

NOTE 1 For sealless pumps, reference can be made to API 685.

NOTE 2 For pump repairs, reference can be made to API 697.

2 Normative References

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any addenda) applies.

API Standard 20S, *Additively Manufactured Metallic Components for Use in the Petroleum and Natural Gas Industries*

API Standard 5L, *Line Pipe*

API Standard 541, *Form-wound Squirrel Cage Induction Motors—375 kW (500 Horsepower) and Larger*

API Standard 547, *General Purpose Form-wound Squirrel Cage Induction Motors—185 kW (250 hp) through 2240 kW (3000 hp)*

API Standard 611, *General-purpose Steam Turbines for Petroleum, Chemical, and Gas Industry Services*

API Standard 612, *Special Purpose Steam Turbines*

API Standard 613, *Special Purpose Gears*

API Standard 614, *Lubrication, Shaft-sealing and Oil-control Systems and Auxiliaries, 6th Edition*