Positive Displacement Pumps—Controlled Volume for Petroleum, Chemical, and Gas Industry Services

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Foreword

This standard is based on the accumulated knowledge and experience of manufacturers and users of reciprocating, controlled volume pumps. The objective of this standard is to provide a purchase specification to facilitate the procurement and manufacturer of controlled volume pumps for use in petroleum, chemical, and gas industry services.

The primary purpose of this standard is to establish minimum requirements.

Energy conservation is of concern and has become increasingly important in all aspects of equipment design, application, and operation. Thus innovative energy conserving approaches should be aggressively pursued by the manufacturer and the user during these steps. Alternative approaches that may result in improving energy utilization should be thoroughly investigated and brought forth. This is especially true of new equipment proposals, since the evaluation or purchase options will be based increasingly on total life costs as opposed to acquisition cost alone. Equipment manufacturers, in particular, are encouraged to suggest alternatives to those specified when such approaches achieve improved energy effectiveness and reduced total life costs without sacrificing safety or reliability.

This standard requires the Purchaser to specify certain details and features. Although it is recognized that the Purchaser may desire to modify, delete, or amplify sections of this standard, it is strongly recommended that such modifications, deletions, and amplifications be made by supplementing this standard, rather than by rewriting or incorporating sections thereof into another standard.

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1 Scope

This standard covers the minimum requirements for reciprocating, controlled volume pumps and pump units for use in the petroleum, petrochemical, and gas industry services. These pumps are either hydraulic diaphragm or packed plunger design. Rotary positive displacement pumps are not included. Diaphragm pumps that use direct mechanical actuation are also excluded.

NOTE See API 674 for positive displacement reciprocating pumps and API 676 for positive displacement rotary pumps.

This standard requires the Purchaser to specify certain details and features. A bullet (•) at the beginning of a paragraph indicates that either a decision by, or further information from, the Purchaser is required. Further information should be shown on the data sheets (see example in Annex A) or stated in the quotation request and purchase order.

Alternate Designs and Conflicting Requirements are now located in Section 6.

NOTE A bullet (●) at the beginning of a paragraph indicates that either a decision is required or further information is to be provided by the purchaser. This information should be indicated on the data sheets (see Appendix A); otherwise, it should be stated in the quotation request or in the order.

2 Normative References

The following referenced documents are indispensable for the application of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies. The hierarchy of documents shall be specified.

NOTE Typical documents are user, industry, and API specifications, data sheets, meeting notes and supplemental agreements.

API Specification 5L, *Specification for Line Pipe*

API Recommended Practice 520, *Sizing, Selection and Installation of Pressure-Relieving Devices in Refineries*, Part I—*Sizing and Selection*

API Recommended Practice 520, *Sizing, Selection and Installation of Pressure-Relieving Devices in Refineries*, Part II—*Installation*

API Standard 526:2002, *Flanged Steel Pressure Relief Valves*

API Standard 541:2002, *Form-wound Squirrel Cage Induction Motors — 250 Horsepower and Larger*

API Standard 546:1997, *Brushless Synchronous Machines — 500 kVA and Larger*

API Standard 614 *Lubrication, Shaft-sealing, and Control-oil Systems and Auxiliaries for Petroleum, Chemical, and Gas Industry Services*

API Standard 671, *Special Purpose Couplings for Refinery Services*

API Recommended Practice 500, *Classification of Locations for Electrical Installations in Petroleum Refineries*

API Recommended Practice 686, *Machinery Installation and Installation Design*

AGMA 6013-A06: 2006 [1], *Standard for Industrial Enclosed Gear Drives*

AGMA 6022-C93: 1994 (R 2008), *Design Manual for Cylindrical Wormgearing*

[1] American Gear Manufacturers Association, 500 Montgomery Street, Suite 350, Alexandria, Virginia 22314, www.agma.org.