Special-purpose Gears for Petroleum, Chemical, and Gas Industry Services

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Introduction

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

ANNEX A—Special-purpose Gear Unit Datasheets (informative).

ANNEX B—Bearing Temperature Limits (informative).

ANNEX C—Material Specifications for Special-purpose Gear Units (informative).

ANNEX D—Contract Documents and Engineering Design Data (informative).

ANNEX E—Vendor Drawing and Data Requirements (normative).

ANNEX F—Procedure for the Verification of Residual Unbalance (normative).

ANNEX G—Gear Tooth Quality Inspection (informative).

ANNEX H—Inspector's Checklist (informative).

ANNEX I—Special Considerations in Very High Speed Gears (informative).

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

In this standard, U.S. customary (USC) units are included in brackets for information.

Special-purpose Gears for Petroleum, Chemical, and Gas Industry Services

1 Scope

This standard covers the minimum requirements for special-purpose, enclosed, precision involute gear single- and double-helical one- and two-stage speed increasers and reducers of parallel-shaft design for use in petroleum, chemical, and gas industry services. This standard is intended for gear units that are in continuous service without installed spare equipment. Gear sets furnished to this standard are considered matched sets.

NOTE The purchase of a spare set of gear rotors or a complete gear unit does not mean that the gear unit in continuous service has an installed spare.

This standard includes related lubricating systems, controls, instrumentation, and other auxiliary equipment. This standard is not intended to apply to gear units in general-purpose service, which are covered by API 613; to gears integral with other equipment, such as integrally geared compressors and expanders covered by API 617 or API 672; or to gears other than involute helical.

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. Standards referenced in the document are undated but refer to the specific editions referenced in this section.

ANSI [1]/API Standard 614, *Lubrication, Shaft-sealing and Oil control Systems and Auxiliaries*

API Standard 670, *Machinery Protection Systems*

API Standard 671, *Special-purpose Couplings for Petroleum, Chemical, and Gas Industry Services*

API Recommended Practice 684, *Paragraphs Rotordynamic Tutorial: Lateral Critical Speeds, Unbalance Response, Stability, Train Torsionals and Rotor Balancing*

API Recommended Practice 686, *Machinery Installation and Installation Design,* Second Edition, 2009

AGMA 927 [2], *Load Distribution Factors—Analytical Methods for Cylindrical Gears*

ANSI/AGMA/ISO 1328-1 [3], *Cylindrical gears—ISO system of flank tolerance classification—Part 1: Definitions and allowable values of deviations relevant to flanks of gear teeth*

ANSI/AGMA 2001-D04, *Fundamental Rating Factors and Calculation Methods for Involute Spur and Helical Gear Teeth (U.S. Units)*

ANSI/AGMA 2101-D04, *Fundamental Rating Factors and Calculation Methods for Involute Spur and Helical Gear Teeth (Metric)*

ANSI/AGMA 6001, *Design and Selection of Components for Enclosed Gear Drives*

ANSI/AGMA 6011-J14, *Specification for High Speed Helical Gear Units*

ANSI/AGMA 6025, *Sound for Enclosed Helical, Herringbone and Spiral Bevel Gear Drives*

[1] American National Standards Institute, 25 West 43rd Street, 4th Floor, New York, NY 10036, www.ansi.org.

[2] American Gear Manufacturers Association, 1001 N. Fairfax Street, Suite 500, Alexandria, VA 22314-1587, www.agma.org.

[3] International Organization for Standardization, Chemin de Blandonnet 8, CP 401, 1214 Vernier, Geneva, Switzerland, www.iso.org.