

Pumping Units

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Pumping Units

1 Scope

This specification provides the requirements and guidelines for the design and rating of beam pumping units for use in the petroleum and natural gas industry. Included are all components between the carrier bar and the gear reducer input shaft. This includes the following:

- a) beam pump structures;
- b) pumping unit gear reducer.

Only loads imposed on the structure and/or gear reducer by the polished rod load are considered in this specification.

Also included are the requirements for the design and rating of enclosed gear reducers wherein the involute gear tooth designs include helical and herringbone gearing. The rating methods and influences identified in this specification are limited to single- and multiple-stage designs applied to beam pumping units in which the pitch-line velocity of any stage does not exceed 5000 ft/min and the speed of any shaft does not exceed 3600 rpm.

This standard does not cover chemical properties of materials, installation, and maintenance of the equipment, beam type counterbalance units, prime movers, and power transmission devices outside the gear reducer or control systems.

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.

API Specification 11B, *Specification for sucker Rods*

AGMA 908-B89 ¹, *Geometry Factors for Determining the Pitting Resistance and Bending Strength of Spur, Helical and Herringbone Gear Teeth*

AGMA 2001-D04, *Fundamental Rating Factors and Calculation Methods for Involute Spur and Helical Gear Teeth*

ANSI ²/AGMA 1012 G05, *Gear Nomenclature, Definitions of Terms with Symbols*

AWS ³ D1.1/E 1M, *Structural Welding Code—Steel*

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

² American National Standards Institute, 25 West 43rd Street, 4th floor, New York, New York 10036, www.ansi.org.

³ American Welding Society, 8669 NW 36th Street, #130, Miami, Florida 33166, www.awsnow.org.