

Positive Displacement Pumps—Rotary

API STANDARD 676
THIRD EDITION, NOVEMBER 2009

REAFFIRMED, MARCH 2015



AMERICAN PETROLEUM INSTITUTE

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Downstream Segment

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Contents

Page

1	Scope	1
2	Normative References	1
3	Terms and Definitions	5
4	General	12
4.1	Unit Responsibility	12
4.2	Governing Requirements and Units of Measurement	13
4.3	Pump Designations	13
5	Statutory	19
5.1	Statutory Requirements	19
5.2	Requirements	19
6	Basic Design	19
6.1	General	19
6.2	Selection and Rating of Pump Type	21
6.3	Pressure-containing and Pressure-retaining Parts	22
6.4	Casing Connections	23
6.5	Auxiliary Connections	23
6.6	Flanges	25
6.7	External Forces and Moments	26
6.8	Rotating Elements	27
6.9	Mechanical Shaft Seals	28
6.10	Bearings and Bearing Housings	30
6.11	Vibration Limits	31
6.12	Lubrication	31
6.13	Materials	32
6.14	Nameplates and Rotation Arrows	38
7	Accessories	38
7.1	Drivers	38
7.2	Couplings and Guards	40
7.3	Belt Drives	42
7.4	Baseplates	43
7.5	Pressure-limiting Valves (PLVs)	45
7.6	Controls and Instrumentation	45
7.7	Auxiliary Piping	45
7.8	Pulsation and Vibration Control Requirements for Multiphase Skids	46
7.9	Special Tools	47
8	Inspection, Testing and Preparation for Shipment	47
8.1	General	47
8.2	Inspection	48
8.3	Testing	50
8.4	Preparation for Shipment	53
9	Vendor's Data	55
9.1	General	55
9.2	Proposals	56
9.3	Contract Data	57

Annex A (informative) Rotary Pump Datasheets	60
Annex B (informative) Factors Affecting Twin Screw Pump Wear Rate and Volumetric Efficiency.	79
Annex C (informative) Inspector's Checklist	83
Annex D (informative) Rotary Pump Vendor Drawing and Data Requirements (VDDR)	85
Annex E (informative) Net Positive Suction Head (NPSH) vs Net Positive Inlet Pressure (NPIP)	96
Annex F (informative) Pulsation and Vibration Control Techniques	98
Annex G (informative) Typical Piping and Instrumentation Diagram for Multiphase Pump (MPP) Skids	101
Tables	
1 Pump Classification Type Identification	13
2 Nozzle Loadings	26
3 Welding Requirements	36
4 Material Inspection Standards	49
5 Test Tolerances	52
Figures	
1 Sliding Vane Pump (Vane in Rotor)	14
2 Single Lobe Pump	14
3 Three Lobe Pump	14
4 External Gear Pump	15
5 Internal Gear Pump	15
6 Progressing/Progressive Cavity Pump (PCP)	16
7 Twin Screw Pump (with Timed Gears)	16
8 Three-screw Pump (with Untimed Gears).	16
9 Rotary Pump Consolidated Range Chart (SI Units).	17
10 Rotary Pump Consolidated Range Chart (USC Units)	18
C.1 Inspector's Checklist.	83
G.1 Typical Piping and Instrumental Diagram for Multiphase Pump (MPP) Skids	102

Introduction

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

The primary purpose of this standard is to establish minimum requirements. This limitation in scope is one of charter as opposed to interest and concern.

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 of 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 sacrifice of 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.

API standards are published as an aid to procurement of standardized equipment and materials. These standards are not intended to inhibit purchasers or producers from purchasing or producing products made to other standards.

Positive Displacement Pumps—Rotary

1 Scope

This standard covers the minimum requirements for rotary positive displacement process pumps and pump units for use in the petroleum, petrochemical, and gas industry services. Controlled-volume pumps, hydraulically driven pumps and positive displacement reciprocating pumps are not included (see API 674 for positive displacement reciprocating pumps and API 675 for controlled-volume pumps).

For rotary positive displacement pumps in auxiliary services (e.g. lube oil systems), manufacturer's standard with demonstrated experience is acceptable.

Annex A contains datasheets which purchasers are encouraged to use (informative).

Annex B provides guidance for factors affecting twin screw efficiencies (informative).

Annex C contains an inspector's checklist (informative).

Annex D contains forms which may be used to indicate vendor drawing and data requirements (VDDRs) (informative).

Annex E gives guidance regarding net positive suction head (NPSH) vs net positive inlet pressure (NPIP) (informative).

Annex F gives guidance on pulsation and vibration control techniques (informative).

Annex G provides a typical piping and instrumentation diagram for multiphase pump (MPP) skids (informative).

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 datasheets (see example in Annex A) or stated in the quotation request and purchase order.

2 Normative References

2.1 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 5L:2007/ISO 3183 ¹, *Specification for Line Pipe*

API Recommended Practice 500, *Recommended Practice for Classification of Locations for Electrical Installations at Petroleum Facilities Classified as Class I, Division 1 and Division 2*

API 500A, *Classification of Locations for Electrical Installations in Petroleum Refineries* (superceded by API 500)

API Recommended Practice 520:2000, *Sizing, Selection, and Installation of Pressure-Relieving Devices in Refineries; Part I—Sizing and Selection*

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