Lock Mandrels and Landing Nipples

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Introduction

This specification has been developed by users/purchasers and suppliers/manufacturers of lock mandrels and landing nipples intended for use in the petroleum and natural gas industry worldwide. This specification is intended to give requirements and information to both parties in the selection, manufacture, testing, and use of lock mandrels and landing nipples. Furthermore, this specification addresses the minimum requirements with which the supplier/manufacturer is to comply to claim conformity to this specification.

This specification has been structured to allow for grades of increased requirements in design validation. These variations allow the user/purchaser to select the grade required for a specific application.

This edition has been revised to include one set of quality requirements. There are six design validation grades for lock mandrels (V3, V2, V1, V0, V1-H, and V0-H) and three design validation grades for landing nipples (V3, V2, and V2-H) that provide the user/purchaser the choice of requirements to meet specific preference or application. Design verification requirements were expanded. The complexity and severity of the validation testing increases as the grade number decreases.

Users of this specification should be aware that requirements above those outlined in this specification may be needed for individual applications. This specification is not intended to inhibit a supplier/manufacturer from offering, or the user/purchaser from accepting, alternative equipment or engineering solutions. This may be particularly applicable where there is innovative or developing technology. Where an alternative is offered, the supplier/manufacturer should identify any variations from this specification and provide details.

Lock Mandrels and Landing Nipples

1 Scope

This specification provides the requirements for lock mandrels and landing nipples within the production/injection conduit for the installation of flow control or other equipment used in the petroleum and natural gas industries. It includes the interface connections to the flow control device or other equipment, but does not cover flow control devices, the connections to the well conduit, alternate technologies, or other requirements covered by other existing API or ISO specifications.

2 Normative References

The following referenced documents are indispensable for the application of this document. The way in which these referenced documents are cited determines the extent (in whole or part) to which they apply. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

API Specification 5B, *Specification for Threading, Gauging, and Thread Inspection of Casing, Tubing, and Line Pipe Threads*

API Technical Report 5C3, *Calculating Performance Properties of Pipe Used as Casing or Tubing, Seventh Edition*

API Specification 6A, *Specification for Wellhead and Tree Equipment*

API Specification 14A, *Specification for Subsurface Safety Valves*

API Specification 20A, *Carbon Steel, Alloy Steel, Stainless Steel, and Nickel Base Alloy Castings for Use in the Petroleum and Natural Gas Industry*

API 579-1/*ASME FFS-1, Fitness-For-Service*

API Specification Q1, *Specification for Quality Management System Requirements for Manufacturing Organizations for the Petroleum and Natural Gas Industry*

ANSI/NACE MR0175[1] /*ISO 15156 (all parts), Petroleum and natural gas industries—Materials for use in H_2S-containing environments in oil and gas production*

ASME[2] Boiler and Pressure Vessel Code, Section V, *Non-destructive examination*

ASME Boiler and Pressure Vessel Code, Section VIII, Division 1, *Rules for construction of pressure vessels*

ASME Boiler and Pressure Vessel Code, Section VIII, Division 2, *Alternative Rules*

ASME Boiler and Pressure Vessel Code, Section IX, *Welding and Brazing Qualifications*

ASNT SNT-TC-1A,[3] *Personnel Qualification and Certification in Nondestructive Testing*

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[1] NACE International (formerly the National Association of Corrosion Engineers), 1440 South Creek Drive, Houston, Texas 77084-4906, www.nace.org.

[2] American Society of Mechanical Engineers, Two Park Avenue, New York, New York 10016-5990, www.asme.org.

[3] American Society for Nondestructive Testing, PO Box 28518, 1711 Arlingate Lane, Columbus, Ohio 43228-0518, USA.