

Side-pocket Mandrels

ANSI/API SPECIFICATION 19G1
FIRST EDITION, MAY 2010

EFFECTIVE DATE: NOVEMBER 1, 2010

ERRATA, DECEMBER 2014

CONTAINS API MONOGRAM ANNEX AS PART OF U.S. NATIONAL
ADOPTION

**ISO 17078-1:2004 (Modified) Petroleum and natural gas
industries—Drilling and production equipment,
Part 1—Side-pocket mandrels**



AMERICAN PETROLEUM INSTITUTE



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Upstream Segment

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Suggested revisions are invited and should be submitted to the Standards Department, API, 1220 L Street, NW, Washington, DC 20005, standards@api.org.

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Foreword

ISO (the International Organization for Standardization) is a worldwide federation of national standards bodies (ISO member bodies). The work of preparing International Standards is normally carried out through ISO technical committees. Each member body interested in a subject for which a technical committee has been established has the right to be represented on that committee. International organizations, governmental and non-governmental, in liaison with ISO, also take part in the work. ISO collaborates closely with the International Electrotechnical Commission (IEC) on all matters of electrotechnical standardization.

International Standards are drafted in accordance with the rules given in the ISO/IEC Directives, Part 2.

The main task of technical committees is to prepare International Standards. Draft International Standards adopted by the technical committees are circulated to the member bodies for voting. Publication as an International Standard requires approval by at least 75 % of the member bodies casting a vote.

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. ISO shall not be held responsible for identifying any or all such patent rights.

ISO 17078-1 was prepared by Technical Committee ISO/TC 67, *Materials, equipment and offshore structures for petroleum, petrochemical and natural gas industries*, Subcommittee SC 4, *Drilling and production equipment*.

ISO 17078 consists of the following parts, under the general title *Petroleum and natural gas industries — Drilling and production equipment*:

- *Part 1: Side-pocket mandrels*
- *Part 2: Flow-control devices for side-pocket mandrels*
- *Part 3: Latches, seals, and interface data for side-pocket mandrels and flow control devices*

A part 4 dealing with practices for side-pocket mandrels and related equipment is under development.

Introduction

This part of ISO 17078 has been developed by users/purchasers and suppliers/manufacturers of side-pocket mandrel products intended for use in the worldwide petroleum and natural gas industry. This part of ISO 17078 is intended to provide requirements and information to all parties who are involved in the specification, selection, manufacture, testing and use of side-pocket mandrel products. Further, this part of ISO 17078 addresses supplier/manufacturer requirements that set the minimum parameters with which each supplier/manufacturer shall comply, in order to be able to claim conformity with this part of ISO 17078.

This has been structured to allow different quality control grades to support quality control, design-validation, design-verification, and product-functional testing. These variations allow the user/purchaser to select the grades that are required for a specific application. If the user/purchaser does not specify a specific grade for the following categories, the supplier/manufacturer will meet the requirements of grade 3.

Well environmental service classes. There are four environmental service classes for side-pocket mandrel products that provide the user/purchaser with a range of choices to select products to meet varying environmental conditions.

Design-validation grades. There are three design validation grades for side-pocket mandrel products that provide the user/purchaser with a range of technical and performance requirements. Users of this part of ISO 17078 should be aware that requirements in addition to those outlined herein might be needed for individual applications. This part of ISO 17078 is not intended to inhibit a supplier/manufacturer from offering, or the user/purchaser from accepting, alternative equipment or engineering solutions. Where an alternative is offered, the supplier/manufacturer should identify any variations from this part of ISO 17078 and provide details.

Product-functional testing grades. There are three product functional testing grades for side-pocket mandrel products that provide the user/purchaser with a range of choices for validating that individual products manufactured under this part of ISO 17078 meet the design specifications.

Quality-control grades. There are three quality-control grades that provide the user/purchaser with varying grades of quality control requirements to meet specific preferences or applications. Additional quality upgrades can be specified by the user/purchaser as supplemental requirements.

Annexes A, B, C and D of this part of ISO 17078 are normative requirements; Annexes E and F are informative.

NOTE This U.S. national adoption as API 19G1 incorporates ISO 17078-1:2004, Amendment 1.

Petroleum and natural gas industries — Drilling and production equipment —

Part 1: Side-pocket mandrels

1 Scope

This part of ISO 17078 provides requirements for side-pocket mandrels used in the petroleum and natural gas industry. This part of ISO 17078 includes specifying, selecting, designing, manufacturing, quality control, testing, and preparation for shipping of side-pocket mandrels.

This part of ISO 17078 does not address nor include requirements for end connections between the side-pocket mandrels and the well conduit. The installation and retrieval of side-pocket mandrels is outside the scope of this part of ISO 17078. Additionally, this part of ISO 17078 does not include specifications for centre-set mandrels, or mandrels that employ or support tubing-retrievable flow control devices.

This part of ISO 17078 does not include gas-lift or any other flow-control valves or devices, latches, and/or associated wire line equipment that can or cannot be covered in other ISO specifications.

The side-pocket mandrels to which this part of ISO 17078 refers are independent devices that can accept installation of flow-control or other devices down-hole.

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.

ISO 6506-1, *Metallic materials — Brinell hardness test — Part 1: Test method*

ISO 6508-1, *Metallic materials — Rockwell hardness test — Part 1: Test method (Scales A, B, C, D, E, F, G, H, K, N, T)*

ISO 6892, *Metallic materials — Tensile testing at ambient temperature*

ISO 9000:2000, *Quality management systems — Fundamentals and vocabulary*

ISO 9712, *Non-destructive testing — Qualification and certification of personnel*

ISO 11960:2001, *Petroleum and natural gas industries — Steel pipes for use as casing or tubing for wells*

ISO 15156-1, *Petroleum and natural gas industries — Materials for use in H₂S-containing environments in oil and gas production — Part 1: General principles for selection of cracking-resistant materials*

ISO 15156-2, *Petroleum and natural gas industries — Materials for use in H₂S-containing environments in oil and gas production — Part 2: Cracking-resistant carbon and low alloy steels, and the use of cast irons*