

Specification for Rotary Drill Stem Elements

API SPECIFICATION 7
FORTIETH EDITION, NOVEMBER 2001

EFFECTIVE DATE: MARCH 2002



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Upstream Segment

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Specification for Rotary Drill Stem Elements

1 Scope

1.1 COVERAGE

This specification covers requirements on drill-stem members (except drill pipe), including threaded connections, gauging practice, and master gauges therefor. A typical drill-stem assembly is shown in Figure 1. Also included, as appendices, are recommended practices on care and use of regional master, reference master, and working gauges.

1.2 MATERIAL REQUIREMENTS

Where material requirements are not otherwise specified, material for equipment supplied to this specification may vary depending on the application but shall comply with the manufacturer's written specifications. Manufacturer specifications shall define:

- a. Chemical composition limits.
- b. Heat treatment conditions.
- c. Mechanical property limits:
 1. Tensile strength.
 2. Yield strength.
 3. Elongation.
 4. Hardness.

2 References

API

- | | |
|---------|---|
| RP 5A3 | <i>Thread Compounds for Casing, Tubing, and Line Pipe</i> |
| RP 7A1 | <i>Testing of Thread Compound for Rotary Shouldered Connections</i> |
| RP 7G | <i>Drill Stem Design and Operating Limits</i> |
| Spec 5D | <i>Drill Pipe</i> |
| Spec 7 | <i>Rotary Drill Stem Elements, 32nd Edition</i> |
| Spec 8A | <i>Drilling and Production Hoisting Equipment</i> |
| Spec 8C | <i>Drilling and Production Hoisting Equipment (PSL 1 and PSL 2)</i> |

ASME¹

Boiler and Pressure Vessel Code, Section IX, "Welding and Brazing Qualifications"

ASNT²

RP SNT-TC-1A Recommended Practice No. SNT-TC-1A

ASTM³

- | | |
|-------|--|
| A262 | <i>Practice E</i> |
| A370 | <i>Test Methods and Definitions for Mechanical Testing of Steel Products</i> |
| A434 | <i>Steel Bars, Alloy, Hot-Wrought or Cold-Finished, Quenched and Tempered</i> |
| E8 | <i>Tension Testing of Metallic Materials</i> |
| E10 | <i>Test Method for Brinell Hardness of Metallic Materials</i> |
| E23 | <i>Notched Bar Impact Testing of Metallic Materials</i> |
| E114 | <i>Ultrasonic Pulse-Echo Straight-Beam Examination by the Contact Method</i> |
| E214 | <i>Immersed Ultrasonic Examination by the Reflection Method Using Pulsed Longitudinal Waves</i> |
| E709 | <i>Standard Guide for Magnetic Particle Evaluation</i> |
| E1001 | <i>Detection and Evaluation of Discontinuities by the Immersed Pulse-Echo Ultrasonic Method Using Longitudinal Waves</i> |

NACE⁴

- | | |
|----------|--|
| MR-01-75 | <i>Sulfide Stress Cracking Resistant Metallic Material for Oil Field Equipment</i> |
|----------|--|

3 Definitions

For the purposes of this specification, the following definitions apply:

3.1 bevel diameter: The outer diameter of the contact face of the rotary shouldered connection.

3.2 bit sub: A sub, usually with 2 box connections, that is used to connect the bit to the drill stem.

3.3 box connection: A threaded connection on Oil Country Tubular Goods (OCTG) that has internal (female) threads.

3.4 calibration system: A documented system of gauge calibration and control.

3.5 cold working: Plastic deformation of metal at a temperature low enough to insure or cause permanent strain.

3.6 decarburization: The loss of carbon from the surface of a ferrous alloy as a result of heating in a medium that reacts with the carbon at the surface.

¹American Society of Mechanical Engineers, 345 East 47th Street, New York, New York 10017.

²American Society for Nondestructive Testing, Inc., 1711 Arlingate Lane, Columbus, Ohio 43228.

³American Society for Testing and Materials, 100 Barr Harbor Drive, West Conshohocken, Pennsylvania 19428.

⁴NACE International, P.O. Box 218340, Houston, Texas 77218-8340.