Specification for Subsurface Sucker Rod Pumps and Fittings

API SPECIFICATION 11AX
TENTH EDITION, MARCH 1996

EFFECTIVE DATE: OCTOBER 31, 1996

American
Petroleum
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FOREWORD

This recommended practice is under the jurisdiction of the API Subcommittee on Standardization of Field Operating Equipment.

This recommended practice shall become effective on the date printed on the cover but may be used voluntarily from the date of distribution.

Note: Conversions of English units to International System (SI) metric units are provided throughout the text of this specification in parentheses, e.g., 6 in. *(152.4 mm).* SI equivalents have also been included in all tables. English units are in all cases preferential and shall be the standard in this specification. Products are to be marked in the units in which ordered unless there is an agreement to the contrary between the purchaser and the manufacturer. The factors used for conversion of English units to SI units were taken from API Publication 2564, and are listed below:

1 inch (in.) = 25.4 millimeters (mm) exactly
1 foot (ft) = 0.3048 meters (m) exactly

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Specification for Subsurface Sucker Rod Pumps and Fittings

1 Scope

This specification covers rod pumps and tubing pumps in commonly used bore sizes. Sufficient dimensional requirements are provided to assure interchangeability and standardization of all component parts; however, details of design are not specified. Standard materials are specified.

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2 References

2.1 This specification includes by reference, either in total or in part, the most recent editions of the following API, industry, and government standards, unless a specific edition is listed:

API

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

RP 11AR *Recommended Practice for Care and Handling Sucker Rod Pumps*

ASME[1]

B1.1 *Unified Inch Screw Threads (UN and UNR Thread Form)* (1989 Edition)

ASNT[2]

SNT-TC-1A *Personnel Qualifications and Certification in Nondestructive Testing* (1988 Edition)

ASTM[3]

A 370 *Standard Test Methods and Definitions for Mechanical Testing of Steel Products* (1992 Edition)

E 18 *Standard Methods of Tests for Rockwell Hardness and Rockwell Superficial Hardness of Metallic Materials* (1992 Edition)

E 165 *Standard Practice for Liquid Penetrant Inspection Method* (1991 Edition)

E 384 *Standard Test Method for Microhardness of Materials* (1989 Edition)

Military Standard

105E *Single Sampling Plan for Normal Inspection*

NACE[4]

MR-01-76 *Standard Recommended Practice Sulfide Stress Cracking Resistant Metallic Materials for Oilfield Equipment* (1992 Edition)

3 Pump Designation

3.1 The basic types of pumps and letter designation covered by this specification are shown in Table 1.

3.2 Complete pump designations, as shown in Figure 1, include:

a. Nominal tubing size.
b. Basic bore diameter.
c. Type of pump, including type of barrel and location and type of seating assembly.
d. Barrel length.
e. Plunger length.
f. Total length of extensions when used.

Example: A 1¼ in. (31.8 mm) bore rod type pump with a 10 ft (3.048 m) heavy wall barrel and 2 ft (0.610 m) of extensions, a 4 ft (1.219 m) plunger, and a bottom cup type seating assembly for operation in 2⅜ in. (60.3 mm) tubing, would be designated as follows:

20-125 RHBC 10-4-2

Note: Metallic materials for subsurface sucker rod pumps for hydrogen sulfide environments are listed in NACE MR-01-76.

3.3 In addition to the pump designation described in 3.2, the purchaser must provide the following additional information:

a. Barrel material.
b. Plunger material.
c. Plunger clearance (fit).
d. Valve material.
e. Length of each extension.

[1]American Society of Mechanical Engineers, 1950 Stemmons Freeway, Dallas, Texas 75207-3109.
[2]American Society for Nondestructive Testing, 1711 Arlingate Lane, Columbus, Ohio 43228-0518.
[3]ASTM, 100 Barr Harbor Drive, West Conshohocken, Pennsylvania 19428.
[4]National Association of Corrosion Engineers, P. O. Box 218340, Houston, Texas 77218-8340.