

MSS SP-95-2014

Swage(d) Nipples and Bull Plugs

Standard Practice
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Non-toleranced dimensions in this Standard Practice are nominal unless otherwise specified.

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FOREWORD

This document establishes a Standard Practice for Swaged (also known as Swage) Nipples and Bull Plugs, produced for a number of years by various manufacturers to varying dimensions, although basically similar in principle. Users should note that Swaged Nipples, and Bull Plugs furnished from existing stocks may have slightly different dimensions than shown herein.

The values stated in either inch units or metric units are to be regarded separately as standard. The values stated in each system are not exact equivalents; therefore, each system must be used independently of the other. Combining values from the two systems may result in non-conformance with the standard. Within the text, the (SI) metric units are shown in parenthesis or within applicable tables; however, Bull Plug and Swaged Nipple sizes, within this Standard Practice, are identified by the “nominal pipe size” (NPS) only.

Tables 1 through 3 show fittings with dimensional requirements and tolerances in U.S. Customary (i.e., inch) units. Tables A1 through A3 show the dimensional fitting requirements and tolerances in (SI) metric (i.e., millimeter) units.

NOTE: The drawings included within this Standard Practice are for the purpose of illustration only and not intended to exclude or limit any other design meeting this Standard Practice.

In Memory of:
Alfred “Fred” S. Gilly
1929 – 2013

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SWAGE(D) NIPPLES AND BULL PLUGS

1. SCOPE

1.1 This Standard Practice covers dimensions, finish, tolerances, marking, and material for carbon steel and alloy steel Swaged⁽¹⁾ Nipples (male end reducing fittings), NPS 1/4 through NPS 12 and Bull Plugs (hollow or solid male closures) NPS 1/8 through NPS 12. These fittings are made with ends that are threaded, beveled, square cut, grooved, or any combination of these. Both concentric and eccentric Swaged Nipples are included.

1.2 **Partial Compliance Fittings** Fittings with special dimensions and fittings made from non-standard materials may be designed and manufactured by agreement between the manufacturer and the purchaser, provided they are marked in accordance with the requirements for partial compliance fittings of Section 4.1e.

2. PRESSURE RATINGS

2.1 The allowable working pressure for fittings designed in accordance with this Standard Practice shall be calculated as for straight seamless pipe of equal end preparation, in accordance with the applicable sections of ASME B31.1, Power Piping, or ASME B31.3, Process Piping. The pipe wall thickness and type material shall be that for which the fittings have been ordered. Fittings shall be identified by pipe wall thickness and material grade in lieu of pressure rating.

2.2 The design of fittings may be established by mathematical analyses contained in nationally recognized pressure vessel or piping codes, or at the manufacturer's option, by proof testing in accordance with Section 9. Records of design or successful proof tests shall be available at the manufacturer's facility for inspection by the purchaser. Bull Plugs shall meet the additional requirement that the minimum thickness of the head shall

be at least 1.5 times the thickness of the corresponding pipe schedule. For Bull Plugs that are drilled and tapped, the minimum thickness of the head shall be increased to accommodate the minimum L2 thread length as specified in ASME B1.20.1

3. SIZE

3.1 Within this Standard Practice, Bull Plug size is identified by the "nominal pipe size" (NPS) only. Swaged Nipples are also indicated by NPS only and are further identified with the large end size listed first, followed by the small end size (see Section 4.1d).

4. MARKING

4.1 Each fitting shall be marked with prescribed information by raised lettering, electro-etching, vibro-etching, laser etching or other permanent method which will not result in harmful contamination or sharp discontinuities as follows:

- a) Manufacturer's name or trademark
- b) **Material Identification**
 - Fittings shall be marked with the material grade in accordance with the applicable ASTM Fittings Specifications A234/A234M, A403/A403M, A420/A420M, A815/A815M, or A858/A858M (e.g., WPB, WP304, WPL6).
 - The material lot or heat number traceable to the material shall be part of the material identification.
- c) Schedule number or nominal wall thickness designation of Swaged Nipple or Bull Plug.
- d) **Size**
 - Nominal pipe size (NPS) of Bull Plug
 - Nominal pipe size (NPS) – Large end x small end of Swaged Nipples

Example: 2 x 1

NOTE: (1) Both "Swage" and "Swaged" are used within Industry terminology. Only "Swaged" is used in the body of this Standard Practice.