Swage(d) Nipples and Bull Plugs

Standard Practice
Developed and Approved by the
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The U.S. customary units and SI (metric) units in this Standard Practice are regarded separately as the standard; each should be used independently of the other. Combining or converting values between the two systems may result in non-conformance with this Standard Practice.

> **This Standard Practice has been substantially revised from the previous 2014 edition. It is suggested that if the user is interested in knowing what changes have been made, that direct page by page comparison should be made of this document and that of the previous edition.**

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 the standard. The values stated in each system are not exact equivalents and 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.

Table 1 through Table 3 shows fittings with dimensional requirements and tolerances in U.S. customary (i.e., inch) units. Table 1M through Table 3M show the dimensional fitting requirements and tolerances in SI (metric) (i.e., millimeter) units.

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

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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 [(a)] Nipples (male-end reducing fittings), NPS 1/8 through NPS 12 (DN 6 through DN 300) and Bull Plugs (hollow or solid male closures), NPS 1/8 through NPS 12 (DN 6 through DN 300). 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 4.1(e).

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 its nominal pipe size (NPS). Swaged Nipples are also indicated by NPS and are further identified with the large end size listed first, followed by the small end size (see Section 4.1d). NPS is related to the reference nominal diameter, DN, used in international standards. The relationship is as shown in the chart below:

NPS	DN	NPS	DN	NPS	DN
1/8	6	1¼	6	4	100
1/4	8	1½	8	5	125
3/8	10	2	10	6	150
1/2	15	2½	15	8	200
3/4	20	3	20	10	250
1	25	3½	25	12	300

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