



Designation: A 733 – 03

# Standard Specification for Welded and Seamless Carbon Steel and Austenitic Stainless Steel Pipe Nipples<sup>1</sup>

This standard is issued under the fixed designation A 733; the number immediately following the designation indicates the year of original adoption or, in the case of revision, the year of last revision. A number in parentheses indicates the year of last reapproval. A superscript epsilon ( $\epsilon$ ) indicates an editorial change since the last revision or reapproval.

*This standard has been approved for use by agencies of the Department of Defense.*

## 1. Scope\*

1.1 This specification covers the requirements for welded and seamless carbon steel pipe nipples, black and zinc-coated (hot-dip galvanized), and welded and seamless austenitic stainless steel pipe nipples in standard steel pipe sizes from 1/8 to 12 in. inclusive, in standard or special lengths.

1.1.1 *Welded Carbon Steel*—Pipe nipples ordered under these requirements are intended for general uses, as described by Specification A 53.

1.1.2 *Seamless Carbon Steel*—Pipe nipples ordered under these requirements are intended for general and special uses, as described by the applicable Specifications A 53 and A 106 (see 4.1.1).

1.1.3 *Austenitic Stainless Steel*—Pipe nipples ordered under these requirements are intended for high-temperature and general corrosion service, as described by Specification A 312 (see 4.1.2).

1.1.4 The text for this specification contains notes and/or footnotes that provide explanatory material. Such notes and footnotes, excluding those in tables, do not contain any mandatory language.

## 2. Referenced Documents

### 2.1 ASTM Standards:

A 53 Specification for Pipe, Steel, Black and Hot-Dipped, Zinc-Coated, Welded and Seamless<sup>2</sup>

A 106 Specification for Seamless Carbon Steel Pipe for High-Temperature Service<sup>2</sup>

A 312 Specification for Seamless and Welded Austenitic Stainless Steel Pipes<sup>2</sup>

### 2.2 American National Standards Institute Standards:<sup>3</sup>

B1.20.1 Pipe Threads, General Purpose

B36.10 Standard for Welded and Seamless Wrought Steel Pipe

B36.19 Standard for Stainless Steel Pipe

## 3. Ordering Information

3.1 Information items to be considered, if appropriate, for inclusion in purchase orders are as follows:

3.1.1 Quantity (pieces),

3.1.2 Name of material (carbon steel or austenitic stainless steel pipe nipples) (see 4.1.1 and 4.1.2),

3.1.3 Method of pipe manufacture (continuous-welded, electric-resistance welded, or seamless). (see 4.1.1, Note 1),

3.1.4 Type and grade (if stainless steel),

3.1.5 Finish (carbon steel, black or galvanized),

3.1.6 Size (nominal and weight class or schedule number as shown in Table 1, or outside diameter and nominal wall),

3.1.7 Length (standard or special, see 4.3),

3.1.8 Specification number,

3.1.9 Certification of compliance, if required, and

3.1.10 Special requirements or exceptions to this specification.

3.2 In addition, when material is purchased for agencies of the U.S. Government, it shall conform to the Supplementary Requirements as defined herein when specified in the contract or purchase order.

## 4. Requirements

4.1 *Material and Weight*—Pipe nipples covered by this specification shall be made from new, hydrostatic-tested or NDE-tested pipe conforming to the requirements specified in 4.1.1 and 4.1.2.

4.1.1 *Carbon Steel*—Carbon steel pipe nipples shall be in accordance with the following:

Method of Pipe Manufacture	Specification
Welded (Note 1)	A 53
Seamless (Note 2)	A 53
	A 106

NOTE 1—Unless otherwise specified, continuous-welded nipples are furnished in sizes NPS 4 and under for standard and extra strong pipe, and NPS 2½ and under for Schedule 160 and double extra strong pipe. Welded nipples in sizes larger than that indicated for continuous-welded are electric resistance welded.

<sup>1</sup> This specification is under the jurisdiction of ASTM Committee A01 on Steel, Stainless Steel and Related Alloys and is the direct responsibility of Subcommittee A01.09 on Carbon Steel Tubular Products.

Current edition approved April 10, 2003. Published May 2003. Originally approved in 1976. Last previous edition approved in 2001 as A 733-01.

<sup>2</sup> *Annual Book of ASTM Standards*, Vol 01.01.

<sup>3</sup> Available from American National Standards Institute, 11 West 42nd St., 13th Floor, New York, NY 10036.

\*A Summary of Changes section appears at the end of this standard.

**TABLE 1 Pipe Nipple Sizes According to Weight of Nominal Pipe Sizes<sup>AB</sup>**

Weight	NPS Designator						
	1/8	1/4	3/8	1/2 to 6	8	10	12
Standard (Schedule 40)	X	X	X	X	X	X	<sup>C</sup>
Extra strong (Schedule 80)	X	X	X	X	X	<sup>D</sup>	<sup>C</sup>
Schedule 160	...	...	...	X	X	X	X
Double extra strong	...	...	...	X	X	X	X

<sup>A</sup> A comprehensive listing of standardized pipe dimensions is contained in ANSI B36.10 and B36.19.

<sup>B</sup> Continuous-welded pipe is not made in sizes larger than NPS 4 (standard and extra strong) and larger than NPS 2 1/2 (Schedule 160 and double extra strong).

<sup>C</sup> NPS 12 standard and extra strong weight pipe do not have designated schedule numbers.

<sup>D</sup> NPS 10 extra strong pipe is Schedule 60, not Schedule 80.

4.1.2 *Austenitic Stainless Steel*—Austenitic stainless steel pipe nipples shall be in accordance with Specification A 312.

4.2 *Threads*—Pipe nipples shall be threaded on both ends with NPT taper pipe threads conforming to the requirements of ANSI B 1.20.1, except for “close” nipples where L 4 and V are shorter, due to fewer imperfect threads. It is standard manufacturing practice on all other nipple lengths to vary L 4 plus or minus two threads. All other dimensions, tolerances, and gaging practices remain the same as ANSI B 1.20.1, plus 5.3 of this specification.

4.2.1 Threads shall be right-hand on both ends, except when otherwise specified.

4.3 *Lengths*:

4.3.1 The standard lengths and sizes of nipples generally available are shown in Table 2. The availability of such nipples according to pipe size and weight is shown in Table 1.

4.3.2 Special lengths and sizes of nipples may be specified when required. Standard and special lengths shall conform to the tolerance requirements of 4.3.3.

4.3.3 Nipples with lengths up through 12 in. (304.8 mm) long shall have a length tolerance of ± 1/16 in. (1.6 mm). Nipples over 12 in. long shall have a tolerance of ± 1/8 in. (3.2 mm).

4.4 *End Finish*—The ends of the pipe nipples shall be chamfered on the outside at an angle of 35 ± 10° to the central axis. (It is the standard practice that the 1/8-in. (3.2-mm) nominal pipe size nipples are not chamfered.) Ends shall be cut reasonably square to the central axis. All burrs on the inside shall be removed.

4.5 *Galvanized Nipples*—Galvanized nipples ordered under this specification shall be made from pipe coated on the inside and outside by the hot-dip process. Threads and nipple ends are not galvanized.

## 5. Sampling and Inspection

5.1 *Sampling*—Samples of nipples sufficient to determine their conformance with the requirements of this specification shall be taken at random for each lot of nipples of the same pipe size, length, and material.

**TABLE 2 Pipe Nipples by Length and Nominal Pipe Size**

Type of Nipple	NPS Designator																		
	1/8	1/4	3/8	1/2	3/4	1	1 1/4	1 1/2	2	2 1/2	3	3 1/2	4	5	6	8	10	12	
	Pipe Nipple Lengths, in. <sup>AB</sup>																		
Close (cl)	3/4	7/8	1	1 1/8	1 3/8	1 1/2	1 5/8	1 3/4	2	2 1/2	2 5/8	2 3/4	2 7/8	3	3 1/8	3 1/2	3 3/8	4 1/2	
	1 1/2	1 1/2	1 1/2	1 1/2	1 1/2	2	2	2	2 1/2	2 1/2	2 1/2	2 1/2	2 1/2	2 1/2	2 1/2	2 1/2	2 1/2	2 1/2	2 1/2
	2	2 1/2	2 1/2	2 1/2	2 1/2	2 1/2	2 1/2	2 1/2	2 1/2	2 1/2	2 1/2	2 1/2	2 1/2	2 1/2	2 1/2	2 1/2	2 1/2	2 1/2	2 1/2
	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3
	3 1/2	3 1/2	3 1/2	3 1/2	3 1/2	3 1/2	3 1/2	3 1/2	3 1/2	3 1/2	3 1/2	3 1/2	3 1/2	3 1/2	3 1/2	3 1/2	3 1/2	3 1/2	3 1/2
	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4
	4 1/2	4 1/2	4 1/2	4 1/2	4 1/2	4 1/2	4 1/2	4 1/2	4 1/2	4 1/2	4 1/2	4 1/2	4 1/2	4 1/2	4 1/2	4 1/2	4 1/2	4 1/2	4 1/2
	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5
	5 1/2	5 1/2	5 1/2	5 1/2	5 1/2	5 1/2	5 1/2	5 1/2	5 1/2	5 1/2	5 1/2	5 1/2	5 1/2	5 1/2	5 1/2	5 1/2	5 1/2	5 1/2	5 1/2
	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6
	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7
	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8
	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9
	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10
	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11
	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12
	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13
	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14
	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15
	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16
	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17
	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18
	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19
	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20
	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21
	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22
	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23
	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24
Right and left	...	...	4	4	4	4	4	4	4	4	4	...	...	...	...	...	...	...	...

<sup>A</sup> Nipples shorter than close are not recommended for pressure application.

<sup>B</sup> 1 in. = 25.4 mm.