

WW-N-351C
February 13, 1976
SUPERSEDING
Fed. Spec. WW-N-351B
March 20, 1967

FEDERAL SPECIFICATION

NIPPLES, PIPE, THREADED

This specification was approved by the Commissioner, Federal Supply Service, General Services Administration, for the use of all Federal agencies.

1. SCOPE AND CLASSIFICATION

1.1 Scope. This specification covers threaded pipe nipples made of brass, copper, or steel.

1.2 Classification. The pipe nipples shall be of the following weights and types, as specified (see 6.2).

Weight - Standard or extra-strong.

Type I - Close.

Type II - Short.

Type III - Long.

2. APPLICABLE DOCUMENTS

2.1 The following documents, of the issues in effect on date of invitation for bids or request for proposal, form a part of this specification to the extent specified herein:

Federal Standard:

Fed. Std. No. 123 - Marking for Shipment (Civil Agencies).

(Activities outside the Federal Government may obtain copies of Federal Specifications, Standards, and Handbooks as outlined under General Information in the Index of Federal Specifications and Standards and at the prices indicated in the Index. The Index, which includes cumulative monthly supplements as issued, is for sale on a subscription basis by the Superintendent of Documents, U.S. Government Printing Office, Washington, DC 20402.

(Single copies of this specification and other Federal Specifications required by activities outside the Federal Government for bidding purposes are available without charge from Business Service Centers at the General Services Administration Regional Offices in Boston, New York, Washington, DC, Atlanta, Chicago, Kansas City, MO, Fort Worth, Denver, San Francisco, Los Angeles, and Seattle, WA.

(Federal Government activities may obtain copies of Federal Specifications, Standards, and Handbooks and the Index of Federal Specifications and Standards from

established distribution points in their agencies.)

Military Specification:

MIL-V-3 - Valves, Fittings, and Flanges (Except for Systems Indicated Herein); Packaging of.

Military Standards:

MIL-STD-105 - Sampling Procedures and Tables for Inspection
by Attributes.
MIL-STD-109 - Quality Assurance Terms and Definitions.
MIL-STD-129 - Marking for Shipment and Storage.
MS51846 - Nipple, Pipe, Standard, Brass or Copper.
MS51872 - Nipple, Pipe, Extra-Strong, Brass or Copper.
MS51873 - Nipple, Pipe, Extra-Strong, Steel.
MS51953 - Nipple, Pipe, Standard, Steel.

(Copies of Military Specifications and Standards required by suppliers in connection with specific procurement functions should be obtained from the procuring activity or as directed by the contracting officer.)

2.2 Other publications. The following documents form a part of this specification to the extent specified herein. Unless otherwise indicated, the issue in effect on date of invitation for bids or request for proposal shall apply:

National Bureau of Standards (NBS) Handbook:

H28 - Screw-Thread Standards for Federal Services.

(Application for copies should be addressed the Superintendent of Documents, U.S. Government Printing Office, Washington, DC 20402.)

American National Standards Institute, Inc. (ANSI) Standard:

B2.1 - Pipe Threads (Except Dryseal).

(Application for copies should be addressed to the American National Standards Institute, Inc., 1430 Broadway, New York, NY 10018.)

American Society for Testing and Materials (ASTM):

A53 - Welded and Seamless Steel Pipe.
A106 - Seamless Carbon Steel Pipe for High-Temperature Service.
A120 - Black and Hot-Dipped Zinc-Coated (Galvanized) Welded and
Seamless Steel Pipe for Ordinary Uses.
B42 - Seamless Copper Pipe, Standard Sizes.
B43 - Seamless Red Brass Pipe, Standard Sizes.

(Application for copies should be addressed to the American Society for Testing and Materials, 1916 Race Street, Philadelphia, PA 19103.)

National Motor Freight Traffic Association, Inc., Agent:

National Motor Freight Classification.

(Application for copies should be addressed to the National Motor Freight Traffic Association, Inc., Tariff Order Section, 1616 P Street, N.W., Washington, DC 20036.)

Uniform Classification Committee, Agent:

Uniform Freight Classification.

(Application for copies should be addressed to the Uniform Classification Committee, Tariff Publishing Officer, Room 1106, 222 South Riverside Plaza, Chicago, IL 60606.)

Technical society and technical association specifications and standards are generally available for reference from libraries. They are also distributed among technical groups and using Federal agencies.

3. REQUIREMENTS

3.1 Standard commercial product. The pipe nipples shall, as a minimum, be in accordance with the requirements of this specification and shall be the manufacturer's standard commercial product with any added features needed to comply with the requirements. Standard commercial product is a product which has been or will be sold on the commercial market through advertisements or manufacturer's catalogs, or brochures, and represents the latest production model(s).

3.2 Materials. Threaded pipe nipples shall be made from new pipe, either pressure tested or eddy-current tested according to the requirements of the applicable ASTM standard (see 3.2.1, 3.2.2, 3.2.3 and 6.2).

3.2.1 Steel. (a) Unless otherwise specified (see 6.2), steel pipe nipples shall be made from pipe conforming to the requirements of ASTM Designation A120 with black or zinc-coated finish. (b) When specified (see 6.2), steel pipe nipples shall be made from pipe conforming to the requirements of ASTM Designation A53 with black or zinc-coated finish. (c) When specified (see 6.2), steel pipe nipples shall be made from pipe conforming to the requirements of ASTM Designation A106 furnished hot-finished or cold drawn.

3.2.2 Brass. Brass pipe nipples shall be made from standard or extra-strong brass pipe conforming to ASTM Designation B43.

3.2.3 Copper. Copper pipe nipples shall be made from standard or extra-strong copper conforming to ASTM Designation B42.

3.3 Threads. Pipe nipples shall be threaded on both ends with USA Standard Taper Pipe Threads conforming to ANSI B2.1 or NBS Handbook H28. Threads shall be right-hand on each end except when right and left-hand nipples are specified (see 6.2), there shall be a left-hand thread on one end. Threads shall be gage flush, plus or minus one turn on a working gage (see 4.7.1).

3.4 Ends. The ends of the nipples shall be chamfered on the outside at an angle of 25 deg. to 45 deg. to the central axis. Ends shall be cut square to the central axis. All burrs on the inside shall be removed.

3.5 Size, length, and finish. Nipples are generally type I close, type II short, type III long, and of finishes, sizes and lengths, shown in MS51846, MS51873, MS51953, and MS51872 (see Table I). Nipples shall be furnished in pipe sizes and lengths specified (see 6.2).

TABLE I. Recommended use of MS drawing, to weight, type, material and finish for nipples.

MS drawing	Weight	Type or part No.	Material	Finish
51846	Standard	See MS drawing	Brass B43 or Copper	None required
51872	Extra strong		Brass B43 or Copper B42	None required
51873	Extra strong		Steel A120 (Note [1])	Black or Zinc-coated (Note [1])
51953	Standard	See MS drawing	Steel A120 (Note [1])	Black or Zinc-coated (Note [1])

NOTE [1] (a) ASTM Designation A53 should be used only when tension, flattening, or bend tests are required.
 (b) ASTM Designation A106 should be used for high temperature applications and is furnished only in hot-finished or cold drawn condition.

3.5.1 Tolerances. A tolerance of +/- 1/16 inch is permitted in the length of nipples for lengths up to and including 12 inches. Nipples over 12 inches long shall have a tolerance of +/-1/8 inch.

3.6 Weights. Nipples shall be of standard or extra-strong weight as shown in applicable Military Standards, ASTM Standards, and Commercial Product Listings (see 3.2.1, 3.2.2, 3.2.3, and 3.5).

3.7 Identification markings. When specified (see 6.2), pipe nipples shall be lightly marked by paint stenciling or shall be accompanied by a conspicuous tag which contains the name/trademark of the manufacturer; and either the weight, type, size and specification number, or the MS part number.

3.8 Workmanship. The pipe nipples shall be clean, free from scale, smooth, round, straight, and of proper dimensions; also, the pipe nipples shall be free from injurious grooving, indentations, cracks, flaws, slivers, or other harmful defects which would interfere with use of the nipples in all application for which they are intended.

4. QUALITY ASSURANCE PROVISIONS

4.1 Responsibility for inspection. Unless otherwise specified in the contract, the contractor is responsible for the performance of all inspection requirements as specified herein. Except as otherwise specified in the contract, the contractor may

use his own or any facilities suitable for the performance of the inspection requirements specified herein, unless disapproved by the Government. The Government reserves the right to perform any of the inspections set forth in the specification where such inspections are deemed necessary to assure supplies and services conform to prescribed requirements.

4.1.1 Inspection of material and components. In accordance with 4.1, the supplier is responsible for insuring the materials and components used were manufactured, examined, and tested to the extent specified, in accordance with requirements of referenced subsidiary specifications and standards.

4.2 Quality conformance inspection. Quality conformance inspection shall be performed on the sample pipe nipple selected in accordance with 4.5. This inspection shall include the examination of 4.6 and the tests of 4.7.

4.3 Terms and definitions. Terms and definitions for the examinations and tests described herein shall be in accordance with definitions of MIL-STD-109.

4.4 Inspection lot. All units of the same weight, type, size, material finish and composition offered to the Government at one time shall be considered a lot for purposes of inspection. The sample unit shall be one complete fabricated pipe nipple.

4.5 Sampling.

4.5.1 Sampling for examination. A random sample of pipe nipples shall be selected from each lot offered to the Government in accordance with MIL-STD-105 at inspection level II. In terms of defects per 100 units, the Acceptable Quality Level (AQL) shall be 1.5 for major defects and 4.0 for minor defects.

4.5.2 Sampling for test. A random sample of pipe nipples shall be selected from each lot offered to the Government in accordance with MIL-STD-105 at inspection level S-4. In terms of defects per 100 units, the AQL shall be 4.0.

4.6 Examination. Each sample nipple selected in accordance with 4.5.1 shall be examined to verify compliance with this specification. Examination shall be conducted as specified in Table II.

TABLE II. Classification of defects

Categories	Defects
Critical:	None defined.
Major:	
101	Material not as specified.
102	Type not as specified.
103	Finished not as specified.
104	Dimensions not as specified.
105	Threads burred, damaged, out of round or not as specified.
106	Cracks or fractures.
107	Ends not cut square to central axis or not chamfered as specified.

Minor:

- | | |
|-----|--|
| 201 | Blister in galvanized or zinc coating (as applicable), or area not coated. |
| 202 | Not uniformly coated. |
| 203 | Illegible or incomplete markings or markings missing. |

4.7 Tests. Each sample nipple selected in accordance with 4.5.2 shall be tested to insure compliance with 3.2, 3.2.1, 3.2.2, and 3.2.3; and any unit failing to pass the specified tests shall be rejected. A certificate of compliance from an independent laboratory, approved by the contracting officer, will be accepted as evidence that the units have passed the required tests. The pipe used in the fabrication of pipe nipples shall be tested in accordance with ASTM documents specified in section 3 of this specification.

4.7.1 Gaging techniques for male threads. An NPT working ring gage in accordance with the American National Standard for Pipe Threads (except Dryseal) (ANSI B2.1), shall be turned hand tight on the nipple threads. The gage shall be tapped or rapped against a solid surface and the gage again turned hand tight into the thread. Hand tight means turning the gage until moderate resistance is encountered - no excessive force shall be used. After the second tightening operation, the end of the thread should be flush to the gage face, plus or minus one turn.

4.8 Inspection of preparation for delivery. The preservation-packaging, packing, and marking of pipe nipples shall be inspected to determine conformance with the applicable requirements of section 5 of this specification.

5. PACKAGING

5.1 Preservation-packaging. Preservation-packing shall be level A or C as specified (see 6.2).

5.1.1 Level A. The pipe nipples shall be preserved and packaged in accordance with the applicable level A requirements of MIL-V-3.

5.1.2 Level C. The pipe nipples shall be preserved and packaged in accordance with the supplier's standard practice.

5.2 Packing. Packing shall be level A, B, or C as specified (see 6.2).

5.2.1 Level A. The pipe nipples shall be packed in accordance with the applicable level A requirements of MIL-V-3.

5.2.2 Level B. The pipe nipples shall be packed in accordance with the applicable level B requirements of MIL-V-3.

5.2.3 Level C. The pipe nipples shall be packed in a manner which will insure arrival at destination in satisfactory condition and be acceptable to the carrier at lowest rates. Containers and packing shall comply with Uniform Freight Classification

rules or National Motor Freight Classification rules.

5.3 Marking.

5.3.1 Civil agencies. In addition to any special markings required by the contract or order, all containers shall be marked in accordance with Fed. Std. No. 123.

5.3.2 Military agencies. In addition to any special markings required in the contract or order, all containers shall be marked in accordance with MIL-STD-129.

6. NOTES

6.1 Intended use. The nipples covered by this specification are intended for use in pipe assemblies for general application compatible with: Steel, copper, or brass, standard and extra-strong pipe, threaded fittings covered by Military and ASTM standards and specifications to the extent specified herein.

6.2 Ordering data. Purchasers should select the preferred options permitted herein, and include the following information in procurement documents:

- (a) Title, number, and date of this specification.
- (b) Weight and type required (MS part number may be used) (see 1.2).
- (c) Material to be used (see 3.2).
- (d) Whether steel nipples shall be black or zinc coated (see 3.2.1(a) and 3.2.1(b)).
- (e) Whether ASTM Designation A106 steel nipples shall be hot finished or cold drawn (see 3.2.1(c)).
- (f) When threads shall be other than specified (see 3.3).
- (g) When right and left-hand nipples are required (see 3.3).
- (h) Pipe size and length required (see 3.5).
- (i) MS part number (see 3.5).
- (j) Marking required (see 3.7).
- (k) Level of preservation-packaging and level of packing required (see 5.1 and 5.2).

6.3 Contract data requirements. When this specification is used in a procurement which incorporates a DD Form 1423 and invokes the provisions of paragraph 7-104.9(n) of the Armed Services Procurement Regulation (ASPR), the Data item Description identified below will be developed as specified by an approved Data Item Description (DD Form 1664) and delivered in accordance with the Contract Data Requirements List (DD Form 1423) incorporated into the contract. When the provisions of ASPR 7-104.9(n) are not invoked, the data specified below shall be delivered in accordance with the contract requirements. Deliverable data required by this specification is cited in the following paragraph:

Paragraph	Data requirements	Applicable DD 1664
4.7	Certificate of Compliance	DI-E-2121

(Copies of Data Item Descriptions required by the contractors in connection with specific procurement functions should be obtained from the procuring activity or as directed by the contracting officer.)

6.4 Cross-reference of classification. The following changes were made to the classification of nipples, pipe, in this specification.

WW-N-351b

Type I - Standard

Type II - Extra-strong

WW-N-351C

Weight - Standard

Weight - Extra-strong

Type I - Close

Type II - Short

Type III - Long

MILITARY CUSTODIANS:

Army - ME

Navy - YD

Air Force - 82

User activities:

Army - WC

Navy - MC, CG

CIVIL AGENCY COORDINATING ACTIVITIES:

GSA - FSS

DOT - FIS

HEW - FEC

INTERIOR - BPA

NASA - JFK

Preparing activity:

Navy - YD

Project No. 4730-0107

Orders for this publication are to be placed with General Services Administration, acting as an agent for the Superintendent of Documents. See section 2 of this specification to obtain extra copies and other documents referenced herein. Price 35 cents each.

WW-N-351C
INTERIM AMENDMENT-1 (YD)
February 8, 1977

INTERIM AMENDMENT

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FEDERAL SPECIFICATION

NIPPLES, PIPE, THREADED

This interim amendment was developed by the Naval Facilities Engineering Command, Naval Construction Battalion Center, Port Hueneme, CA, based upon currently available technical information. It is recommended that Federal agencies use it in procurement and forward recommendations for changes to the preparing activity at the address shown above.

The General Services Administration has authorized the use of this interim amendment as a valid exception to Federal Specification WW-N-351C, dated February 13, 1976.

PAGE 5

Paragraph 3.5.1, delete last sentence.

PAGE 7

Paragraph 4.7, delete paragraph and substitute the following:

"4.7 Tests. Pipe from each lot used in the fabrication of pipe nipples shall be tested in accordance with the applicable ASTM documents listing in Section 2 of this specification. A certificate of compliance from an independent laboratory, approved by the contracting officer, will be accepted as evidence that the material has passed the required tests."

Military custodians:

Army - ME
Navy - YD
Air Force - 99

Civil Agency Coordinating Activities:

GSA - FSS
DOT - FIS
HEW - FEC
INTERIOR - BPA
NASA - JFK

User activities:

Army - WC
Navy - MC, CG

Preparing activity:

Navy - YD

Project No. 4730-0663

NOTICE
OF CANCELLATION

WW-N-351C
NOTICE 2
5 March 1990

FEDERAL SPECIFICATION

NIPPLE, PIPE, THREADED

WW-N-351C, dated 13 February 1976, with Amendment 1, dated 8 February 1977, is hereby canceled. Future acquisitions for this material should refer to ASTM A733-86 and ASTM B687. (Application for copies of ASTM publications should be addressed to ASTM, 1916 Race Street, Philadelphia, PA 19103-1187.)

Custodians:

Army - AR
Air Force - 99

Preparing activity:

Army - AR

Reviewer:

Army - ME

(Project Number 4730-1169)

Users:

Army - AR
Navy - MC, CG