

INCH-POUND

A-A-59617

22 April 2002

SUPERSEDING

WW-U-516B

29 August 1974

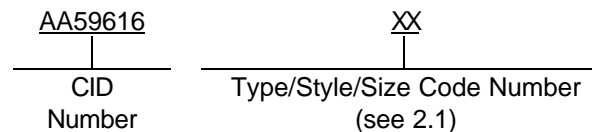
COMMERCIAL ITEM DESCRIPTION

UNIONS, BRASS OR BRONZE, THREADED PIPE CONNECTIONS
AND SOLDER-JOINT TUBE CONNECTIONS

The General Services Administration has authorized the use of this commercial item description (CID) for all federal agencies.

1. **SCOPE.** This CID covers the general requirements for brass or bronze unions with threaded pipe or solder-joint tube connections for joining nonferrous pipe and tubing. The unions covered by this CID, which are intended for commercial/industrial applications, are compatible with standard weight copper or brass pipe, copper water tube, cast bronze threaded fittings, cast bronze solder-joint pressure fittings, and wrought copper and bronze solder-joint pressure fittings.

2. **CLASSIFICATION.** This CID uses a classification system that is included in the Part Identification Number (PIN) as shown in the following example (see 7.1).



2.1 Type, style, and size. The type, style, and size of unions is identified by a two-digit code number that indicates application characteristics (see Table I).

- Type I - Cast Brass or Bronze, Threaded Pipe Ends, Class 125
 - Style A - Female pipe thread to female pipe thread
 - Style B - Female pipe thread to male pipe thread

- Type II - Cast Brass or Bronze, Threaded Pipe Ends, Class 250
 - Style A - Female pipe thread to female pipe thread
 - Style B - Female pipe thread to male pipe thread

Beneficial comments, recommendations, additions, deletions, clarifications, etc. and any other data that may improve this document should be sent to: Defense Supply Center, Columbus, ATTN: DSCC-VAI, P.O. Box 3990, Columbus, OH 43216-5000, or telephone (614) 692-0538, or facsimile (614) 692-6939.

AMSC N/A

FSC 4730

DISTRIBUTION STATEMENT A. Approved for public release: distribution is unlimited.

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Type III - Cast Bronze, Wrought Copper or Wrought Bronze, Solder-Joint Tube Ends
 Style A - Female tube to female tube
 Style B - Female tube to male tube

Type IV - Cast Bronze, Wrought Copper or Wrought Bronze, Solder-Joint Tube End to Threaded Pipe End
 Style A - Female tube to female threaded pipe
 Style B - Female tube to male threaded pipe

Table I. Union characteristic designators.

Union size (inch)	Type I		Type II		Type III		Type IV	
	Style A	Style B	Style A	Style B	Style A	Style B	Style A	Style B
0.125	01	02	03	04	05	06	07	08
0.250	09	10	11	12	13	14	15	16
0.375	17	18	19	20	21	22	23	24
0.500	25	26	27	28	29	30	31	32
0.750	33	34	35	36	37	38	39	40
1.000	41	42	43	44	45	46	47	48
1.250	49	50	51	52	53	54	55	56
1.500	57	58	59	60	61	62	63	64
2.000	65	66	67	68	69	70	71	72
2.500	73	74	75	76	77	78	79	80
3.000	81	82	83	84	85	86	87	88

3. SALIENT CHARACTERISTICS.

3.1 Interface and physical dimensions. Unions supplied to this CID shall be as specified herein.

3.2 Materials.

3.2.1 Type I and II unions. Materials shall be Copper Alloy UNS C83600, UNS C83800 or UNS C84400 (see 7.8).

3.2.2 Type III and IV cast bronze unions. Materials shall be Copper Alloy UNS C83600, UNS C83800 or C84400 (see 7.8).

3.2.3 Type III and IV wrought copper or wrought bronze unions. Materials shall be not less than 83 percent copper content or shall be Copper Alloy UNS C83600 (see 7.8).

3.3 Metal thickness. The metal thickness of the unions shall be as specified in table II.

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Table II. Metal Thickness. 1/, 2/

Union size	Cast			Wrought
	Bodies		Solder cups	Type III and IV
	Type I, III, and IV	Type II	Type III and IV	
0.125	0.08	0.10	0.05	0.022
0.250	0.08	0.11	0.05	0.026
0.375	0.09	0.12	0.05	0.031
0.500	0.09	0.13	0.05	0.036
0.750	0.10	0.16	0.06	0.041
1.000	0.11	0.17	0.07	0.046
1.250	0.12	0.19	0.07	0.050
1.500	0.13	0.20	0.08	0.055
2.000	0.15	0.22	0.09	0.064
2.500	0.17	0.24	0.10	0.074
3.000	0.19	0.26	0.11	0.083

1/ Dimensions are in inches.

2/ Thicknesses are nominal; at no point shall the thickness be less than 90% of the thickness given.

3.4 End connections. Threaded end connections of Type I, II, and IV unions shall have right hand threads in accordance with the style of union. Minimum useful thread lengths shall be as specified in Table III; otherwise, threads shall meet the National Pipe Thread (NPT) requirements of ANSI/ASME B1.20.1. Solder-joint tube ends of Type III and IV unions shall meet the dimensional characteristics specified in Table III.

3.5 Flow diameter. At no point within the unions shall the flow diameter be less than the dimensions specified in Table III.

3.6 Size. The size of the unions are identified by the nominal size as listed in Table III. Threaded pipe connections correspond to "nominal pipe size" and solder-joint tube connections correspond to "standard water tube size".

3.7 Union connections. The threads for the union connection shall be in accordance with the manufacturer's standard practice.

3.8 Seating. Seating joints shall be ball type or ball-to-cone type.

3.9 Pressure surfaces. All surfaces subject to pressure in the tightening of the unions shall be finished smooth and true to insure proper seating of component parts.

3.10 Finish. When cast unions are furnished, finish shall be as cast.

3.11 Wrench surfaces. Wrench surfaces shall be provided on all components having a thread. The wrench surfaces may be a polygon, two opposing flattened surfaces, or a round surface with no less than two ribs raised above the surface controlling the minimum wall thickness. Nuts shall have a polygon wrench surface.

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Table III. Union characteristics. 1/

Union size	Thread length on ends	Male solder-joint			Female solder-joint			Flow diameter	Tensile strength testing force
		Outside diameter		Length	Inside diameter		Cup depth		
	Min	Min	Max	Min	Min	Max	Min	Min	Pounds, Min
0.125	0.250	0.249	0.251	0.375	0.253	0.255	0.312	0.180	1,000
0.250	0.320	0.374	0.376	0.385	0.378	0.380	0.312	0.300	1,400
0.375	0.360	0.499	0.501	0.437	0.503	0.505	0.375	0.390	2,000
0.500	0.430	0.624	0.626	0.562	0.628	0.630	0.500	0.520	3,600
0.750	0.500	0.874	0.876	0.812	0.878	0.880	0.750	0.740	5,500
1.000	0.580	1.124	1.127	0.968	1.128	1.131	0.906	0.980	6,800
1.250	0.670	1.374	1.377	1.031	1.378	1.381	0.968	1.230	8,900
1.500	0.700	1.623	1.627	1.156	1.629	1.632	1.093	1.470	11,000
2.000	0.750	2.123	2.127	1.406	2.129	2.132	1.343	1.940	14,000
2.500	0.920	2.623	2.627	1.531	2.629	2.632	1.468	2.380	20,000
3.000	0.980	3.123	3.127	1.718	3.129	3.132	1.656	2.890	23,000

1/ Dimensions are in inches.

3.12 Performance. The unions covered by this CID shall be compatible with standard weight copper or brass pipe and copper water tube conforming to ASTM B 88, cast bronze threaded fittings conforming to ANSI/ASME B16.15, cast bronze solder-joint pressure fittings conforming to ASME B16.18, and wrought copper and bronze solder-joint pressure fittings conforming to ASME B16.22.

3.12.1 Leakage. All unions shall be capable of withstanding an air pressure of at least 60 pounds per square inch gage (PSIG) or hydrostatic pressure of not less than 250 PSIG without leakage while under water.

3.12.2 Tensile strength. The unions shall exhibit tensile properties in Table III.

3.13 Workmanship. All parts shall be clean, free of fins, and be sound, smoothly cored, true to form, and uniform in texture and strength. There shall be no cold shuts, porosity, or any other defects that may affect serviceability. Repair processes, such as plugging or filling with cold solder, shall not be permitted.

3.14 Marking. Unions supplied to this CID shall be marked with the manufacturer's (MFRs) standard commercial PIN.

4. **REGULATORY REQUIREMENTS.** The offeror/contractor is encouraged to use recovered materials to the maximum extent practicable, in accordance with paragraph 23.403 of the Federal Acquisition Regulation (FAR).

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5. PRODUCT CONFORMANCE PROVISIONS.

5.1 Product conformance. The products provided shall meet the salient characteristics of this CID, conform to the producer's own drawings, specifications, standards, and quality assurance practices, and be the same product offered for sale in the commercial market. The Government reserves the right to require proof of such conformance.

6. PACKAGING. Preservation, packing, and marking shall be as specified in the contract or order.

7. NOTES.

7.1 PIN. The PIN should be used for Government purposes to buy commercial products to this CID. See section 2 for PIN format example.

7.2 Commercial and Government Entity (CAGE) code. For ordering purposes, inventory control, and submission of these unions to DSCC under the Military Parts Control Advisory Group (MPCAG) evaluation program, CAGE code 58536 should be used.

7.3 Source of documents.

Federal Regulations

FEDERAL ACQUISITION REGULATION (FAR)

FAR PARA. 23.403 - Federal Acquisition Regulations

(Application for copies should be addressed to the Superintendent of Documents, U.S. Government Printing Office, Washington, DC 20402-0001.)

Other Publications

AMERICAN SOCIETY OF MECHANICAL ENGINEERS (ASME)

ANSI/ASME B1.20.1	-	Pipe Threads, General Purpose (Inch)
ANSI/ASME B 16.15	-	Cast Bronze Threaded Fittings Classes 125 and 250
ASME B16.18	-	Cast Copper Alloy Solder Joint Pressure Fittings
ASME B16.22	-	Wrought Copper and Copper Alloy Solder Joint Pressure Fittings

(Application for copies should be addressed to the American Society of Mechanical Engineers, 345 East 47th Street, New York, NY 10017.)

AMERICAN SOCIETY FOR TESTING AND MATERIALS (ASTM)

ASTM B 88 - Standard Specification for Seamless Copper Water Tube

(Application for copies should be addressed to the American Society for Testing and Materials, 100 Barr Harbor Drive, West Conshohocken, PA 19428-2959.)

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

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7.4 Ordering data. The contract or order should specify the following:

- a. CID document number, revision, and CID PIN
- b. Product conformance provisions
- c. Packaging requirements

7.5 Commercial products. As part of the market analysis and research effort, this CID was coordinated with the following manufacturers of commercial products. At the time of CID preparation and coordination, these manufacturers were known to have commercial products that would meet the requirements of this CID. (NOTE: This information should not be considered as a list of approved manufacturers or be used to restrict procurement to only the manufacturers shown.)

<u>MFR's CAGE</u>	<u>MFR's Name and Address</u>	<u>MFR's CAGE</u>	<u>MFR's Name and Address</u>
03670	Ansul Inc. 1 Stanton Street Marinette, WI 54143 Phone number: 1-715-735-7411	79500	Westinghouse Electric Group 11 Stanwix Street Pittsburgh, PA 15222 Phone number: 1-412-256-1000
05869	Raytheon Co. 3310 1901 W. Malvern Avenue Fullerton, CA 92834 Phone number: 1-714-732-3597	97942	Northrup Grumman Corporation 1580 W. Nursery Road A Lithicum Heights, MD 21090-7632 Phone number: 1-410-765-7632
12168	Northern Indiana Business Svc (NIBCO) 1167 52777 Winding Waters Lane Elkhart, IN 46516 Phone number: 1-219-295-3000	26512	Northrup Grumman Corporation S. Oyster Bay Road Bethpage, NY 11714 Phone number: 1-516-346-7086
050R4	Patriot Valve and Fitting Corp. 298B Montrose Road Westbury, NY 11590 Phone number: 1-516-333-8430 Fax number: 1-516-333-8774	0RVB7	Westwater Supply-Springfield Inc. 30 Walnut Street Springfield, OH 45501 Phone number: 1-513-325-2434
03958	Mindeco Corp. 3345 Royal Avenue Oceanside, NY 11572 Phone number: 1-516-678-4301	1BS72	C.W. Supply Inc. 661 W. Vine Street Salt Lake City, UT 84123 Phone number: 1-801-261-4922 Fax number: 1-801-261-5441

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<u>MFR's CAGE</u>	<u>MFR's Name and Address</u>	<u>MFR's CAGE</u>	<u>MFR's Name and Address</u>
41947	Mueller Brass 2199 Laper Avenue Port Huron, MI 48061 Phone number: 1-800-553-3336	4M357	Lin-Fasteners Inc. 770 S. Rt. 73 West Berlin, NJ 08091 Phone number: 1-856-768-2320 Fax number: 1-856-767-0949
5A784	Southeastern Sales Co. Springfield, OH 45501	61096	Alchrome Products Co. 98 Elizabeth Street Newcomerstown, OH 43832 Phone number: 1-614-498-7202
65430	Standard Nipple Works Inc. 15 North Avenue Garwood, NJ 07027 Phone number: 1-908-789-4747	66200	Pioneer Industries Inc. 93 Seigel Street Brooklyn, NY 11206 Phone number: 1-718-387-4724 Fax number: 1-718-387-2345
6Z024	Sunbury Supply Co. Sunbury, OH 43074 Phone number: 1-614-965-3133	84849	Levine Samuel Plumbing and Heating Supplies Inc. 283 W. Broadway New York, NY 10013 Phone number: 1-212-431-6760 Fax number: 1-212-925-8249
91050	Woodward-Wanger Co. 5301 Tacony Street Philadelphia, PA 19137 Phone number: 1-215-535-4600 Fax number: 1-215-535-3309	9M105	A Better Way Inc. 401-A N. Poplar Avenue Waynesboro, VA 22980 Phone number: 1-540-949-7640 Fax number: 1-540-949-7643
04BQ9	VJ Supply Inc. 838 Sussex Blvd., 2nd Floor Broomall, PA 19008 Phone number: 1-610-604-4447 Fax number: 1-610-604-4448	0BGU9	A Z E Supply Co. Inc. 18 Rockhill Road Bala Cynwyd, PA 19004 Phone number: 1-610-667-3406 Fax number: 1-610-667-3415
8A440	New England Union Co. Inc. 70 Hay Street West Warwick, RI 02893 Phone number: 1-401-821-0800	1C6Z1	Cohn and Gregory Inc. 1805 East Avenue Fort Worth, TX 76111 Phone number: 1-972-641-0835
0APY9	Wisconsin Supply Corp. 6800 Gisholt Drive Madison, WI 53708 Phone number: 1-608-222-7799 Fax number: 1-608-223-6621		
1F524	Worly Plumbing Supply Inc. 400 Greenlawn Avenue Columbus, OH 43223 Phone number: 1-614-445-1000		

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7.6 Part number (P/N) supersession data. These CID part numbers supersede the following MFR's P/Ns as shown. This information is being provided to assist in reducing proliferation in the Government inventory system.

TABLE IV. - P/N Data.

CID PIN (See Section 2)	Superseded part number	NSN	MFR's CAGE	MFR's P/N <u>1/</u>
AA59617-03	WWU516-03	4730-00-287-0421	050R4	
			65430	
AA59617-11	WWU516-11	4730-00-189-2588	84849	
			8A440	
			1F524	
AA59617-17	WWU516-17	4730-00-248-9348	84849	
AA59617-19	WWU516-19	4730-00-287-0422	84849	
			03958	
			8A440	
			5A784	
AA59617-25	WWU516-25	4730-01-073-8113	3Z031	61-657-1/2
			05869	716517
				716516-4
AA59617-27	WWU516-27	4730-00-289-5091	84849	
			050R4	
			91050	
			1BS72	
			8A440	
AA59617-29	WWU516-29	4730-00-266-3899	66200	
			04BQ9	
			84849	
			9M105	
			0APY9	
			0RVB7	
			03958	
			5A784	
AA59617-33	WWU516-33	4730-01-005-6006	03670	19835
			9M105	
			84849	
			03958	

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TABLE IV. - P/N Data Continued.

CID PIN (See Section 2)	Superseded part number	NSN	MFR's CAGE	MFR's P/N <u>1/</u>
AA59617-35	WWU516-35	4730-00-287-0420	84849	
			050R4	
			1C6Z1	
			0BGU9	
			91050	
			03958	
			6Z024	
			5A784	
			61096	
AA59617-37	WWU516-37	4730-00-088-8389	11699	C402-3-4
				402
			41947	WC407W8004
				W8004
				196284
AA59617-43	WWU516-43	4730-00-189-2592	03670	26052
			84849	
AA59617-45	WWU516-45	4730-00-980-0967	26512	GF11V
				GF11V1010UN11
			41947	W-8005
			79500	342C378H04
			97942	342C378H04
			12168	633-1
AA59617-49	WWU516-49	4730-00-902-0156	82985	655
			84849	
AA59617-53	WWU516-53	4730-00-266-3901	12168	633-1 1/4
			4M357	
			03958	
			0APY9	
			84849	
			5A784	
AA59617-57	WWU516-57	4730-00-088-8952	72426	3095-300
			56232	775177-012

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TABLE IV. - P/N Data Continued.

CID PIN (See Section 2)	Superseded part number	NSN	MFR's CAGE	MFR's P/N <u>1/</u>
AA59617-59	WWU516-59	4730-00-289-5506	84849	
			03958	
AA49617-61	WWU516-61	4730-00-517-8057	41947	A11206
			12168	733-1-1-2
AA59617-64	WWU516-64	4730-00-613-2091	70876	3668
				9995664
			12168	733-4-1-1-2
AA59617-67	WWU516-67	4730-00-189-2595	84849	9995664
AA59617-75	WWU516-75	4730-00-200-0311	91050	
			ORVB7	

1/ The manufacturer's P/N shall not be used for procurement to the requirements of this CID. At the time of preparation of this CID, the aforementioned commercial products were reviewed and could be replaced by the CID P/N shown. For actual part marking requirements see 3.14.

7.7 Government users. To acquire information on obtaining these unions from the Government inventory system, contact DSCC-ADB, DSCC-LDA, or DSCC-MEA at the Defense Supply Center, Columbus, Post Office Box 3990, Columbus, OH 43216-5000, or telephone (614) 692-3869, (614) 692-3719, or (614) 692-2079, respectively.

7.7.1 National stock number (NSN). Table IV includes a list of NSN's assigned which correspond to this CID. The list is for information only and may not be indicative of all possible NSN's associated with the CID. For up to date information on assigned NSN's, please contact the aforementioned DSCC office (See 7.7).

7.8 Materials. ASTM B 62 describes the chemical and tensile requirements of Copper Alloy UNS C83600. ASTM B 584 describes the chemical and tensile requirements of Copper Alloys UNS C83800 and UNS C84400.

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MILITARY INTERESTS:

Custodians:

Air Force - 99

Army - CE

Navy - SH

DLA - CC

Review activities:

Air Force - 71

Navy - CG, MC, SA

CIVIL AGENCY COORDINATING ACTIVITY:

GSA/FSS

Preparing activity:

DLA - CC

(Project 4730-2107-001)