

[INCH-POUND]
 A-A-59326
September 25, 1998
 SUPERSEDING
 MIL-C-27487
 November 25, 1992

COMMERCIAL ITEM DESCRIPTION
 COUPLING HALVES, QUICK-DISCONNECT,
 CAM-LOCKING TYPE

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

1. SCOPE.

1.1 Abstract. This commercial item description (CID) covers 21 types of quick-disconnect, cam-locking, coupling halves and their fittings.

2. CLASSIFICATION.

2.1 General. The couplings will conform to the following types, classes, and sizes.

2.1.1 Types. The following are types of quick-disconnect, cam-locking, coupling halves and adapters.

Type I	Coupling Half, Male by Internal Pipe Thread	A-A-59326/1
Type II	Coupling Half, Male by Hose Shank	A-A-59326/2
Type III	Coupling Half, Male by External Pipe Thread	A-A-59326/3
Type IV	Coupling Half, Male by Flange (TTMA)	A-A-59326/4
Type V	Coupling Half, Female by Internal Pipe Thread	A-A-59326/5
Type VI	Coupling Half, Female by Hose Shank	A-A-59326/6
Type VII	Coupling Half, Female by External Pipe Thread	A-A-59326/7
Type VIII	Coupling Half, Female by Flange, (TTMA)	A-A-59326/8
Type VIII A	Coupling Half, Female by Flange, Hexagon	A-A-59326/9
Type IX	Coupling Half, Cap, Dust	A-A-59326/10
Type X	Coupling Half, Plug, Dust	A-A-59326/11
Type XI	Reducer, Male by Female and Female by Male	A-A-59326/12
Type XII	Reducer, Male by External Pipe Thread	A-A-59326/13

Beneficial comments, recommendations, additions, deletions, clarifications, etc., and any data which may improve this document should be sent by letter to: US Army Tank-automotive and Armaments Command, ATTN: AMSTA-TR-D/210, Warren, MI 48397-5000.

AMSC N/A

FSC 4730

Distribution Statement A. Approved for public release; distribution is unlimited.

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Type XIII	Reducer, External Pipe Thread by Female	A-A-59326/14
Type XV	Adapter, 45°, Female Thread Swivel Collar by Male	A-A-59326/15
Type XVI	Coupling Half, Female by External Straight Threads	A-A-59326/16
Type XVII	Coupling Half, Male by Internal Straight Threads	A-A-59326/17
Type XVIII	Coupling Half, Female Reducer by Internal Pipe Thread	A-A-59326/18
Type XIX	Nipple Adapter, Male by External Grooved Pipe	A-A-59326/19
Type XX	Y Connection, Flanged	A-A-59326/20
Type XXI	Adapter, Male by Male	A-A-59326/21

2.1.2 Classes. Coupling halves and adapters will be of the following classes:

Class 1 - Aluminum Alloy

Class 2 - Copper Alloy (Brass or Bronze).

Class 3 - Aluminum Bronze

Class 4 - Stainless Steel

2.1.3 Sizes. The coupling halves and adapters will conform to the sizes specified in the applicable table, for the configuration shown on the accompanying figure.

3. SALIENT CHARACTERISTICS.

3.1 Description. These coupling halves and adapters are suitable for use with suction hoses, discharge hoses, nozzles, and for various fittings and manifolds. Requirements shall be as defined herein and on the individual specification sheets. In the event that there is a conflict between the two documents, the specification sheet shall govern.

3.2 Materials. Materials shall be of sufficient durability to meet all performance requirements, in any of the environments, specified herein. Couplings and accessories shall not be made from, leach or otherwise develop toxins, hazardous materials (HazMats), or ozone depleting substances (ODCs). Materials shall not have an adverse effect on the health of personnel when used for their intended purposes.

3.2.1 Fuel distribution service. Couplings and accessories may be manufactured from any materials suitable for use with a wide range of military fuels, to include JP8, JP5, motor gasolines, and diesel fuels. Copper or copper alloys shall not be used where it could come into contact with the fuel.

3.2.2 Drinking water service. Couplings and accessories may be manufactured from any materials suitable for potable water service. Lead shall not be used. The components shall contain no materials or substances that could leak or disintegrate and cause the water to become non-potable. All surfaces that contact the water shall conform to the applicable Federal regulations for use with potable water.

3.2.3 Recovered materials. Recovered materials, collected from solid waste and reprocessed to become a source of raw material, may be used in the manufacture of the couplings (see 4.1). However, used, rebuilt, or re-manufactured components and parts shall not be incorporated.

3.2.4 Dissimilar metals. The couplings and accessories shall be fabricated from compatible materials, inherently corrosion resistant or treated to provide protection against the various forms

of corrosion and deterioration to which they are susceptible. Dissimilar metals shall not be used in intimate contact with each other unless protected against galvanic corrosion.

3.3 Configuration. The coupling halves and fittings shall conform to these interface requirements.

3.3.1 Assemblies. The coupling half assembly shall conform to figure 1 and table 1.

3.3.2 Male coupling half. Male coupling halves shall conform to figure 2 and table 2.

3.3.2.1 Wrenching surfaces. The flats or lugs on the coupling half shall be of sufficient size to permit a positive grip by standard tools for manipulation of the coupling half. A boss, or other means, to accept the ring of a retaining chain shall be incorporated on or adjacent to one of the flats or lugs. The ring attaching feature shall be of sufficient strength to withstand the repeated free fall of a dust cap in accordance with A-A-59326/10. It shall be of sufficient durability to withstand repeated use, without deformation, and shall not bind or abrade the ring.

3.3.3 Female coupling half. Female coupling halves shall conform to figure 3 and table 3.

3.3.3.1 Pull rings. The cam arms shall incorporate assembled pull rings, of sufficient strength and durability to withstand repeated openings of the arms using the rings. Neither the rings nor arms shall be abraded or deformed, and the ring shall not bind, for the life of the coupling half.

3.3.4 Gaskets. Female coupling halves shall contain gaskets conforming to figure 4 and table 4.

3.3.5 Flanges. Flanges for types IV, VIII, and XX shall conform to figure 5.

3.4 Performance. The coupling assembly shall not leak or distort when subjected to 60 seconds of hydrostatic pressure. The cam arms of the female coupling half shall be provided with an automatic, anti-rotational feature, to preclude their move toward unlocking when vibrating.

3.4.1 Hydrostatic test pressure. Unless otherwise indicated on the specification sheet, ½ through 4-inch couplings shall withstand hydrostatic pressure of not less than 300 pounds per square inch gage (psig), and 6-inch couplings shall withstand not less than 150 psig.

3.4.2 Working pressure. Unless otherwise indicated on the specification sheet, ½- through 4-inch couplings shall be rated for 150 pounds per square inch (psi) and 6-inch couplings shall be rated for 75 psi.

3.4.3 Torque. The torque required to completely close each cam arm shall be as specified in table 3, and the amount of gasket compression shall be as specified in table 4.

3.4.4 Interchangeability. All parts having the same part number shall be capable of being interchanged, without modification, with no impairment of functional or physical characteristics.

3.5 Identification marking. Couplings shall be legibly and permanently marked in $.25 \pm .03$ high characters. On small fittings, characters shall be $.125 \pm .03$ or the couplings may be identified on a securely attached tag or marked on the packaging medium. The markings shall include, as a minimum, the manufacturer's identification and a part number.

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4. REGULATORY REQUIREMENTS

4.1 Recycled material. The offerer/contractor is encouraged to use recovered material to the maximum extent practicable, in accordance with paragraph 23.403 of the Federal Acquisition Regulation (FAR).

5. QUALITY ASSURANCE PROVISIONS

5.1 Product conformance. The products provided shall meet the salient characteristics of this commercial item description, 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.

5.2 Market acceptability. The item offered shall be of the latest model of the standard product of the supplier that shall have been used in the field for at least one year by commercial organizations.

5.3 Examination. Each coupling assembly shall be examined for compliance with requirements specified in 3.2 through 3.5. Any modification necessary following failure to meet the specified requirements shall receive particular attention for adequacy and suitability. This element of inspection shall encompass all examinations of performance and dimensional requirements. Non-compliance with any specified requirement, or the presence of one or more defects lessening required efficiency shall constitute cause for rejection.

6. PACKAGING

6.1 Packaging. Preservation, packing and marking shall be as specified in the contract or purchase order.

7. NOTES

(This section contains information of an explanatory nature that may be helpful but is not mandatory.)

7.1 Intended use. The quick-disconnect couplings and accessories covered by this CID are primarily to be used in suction hose, discharge hose, and nozzles for various fittings and manifolds for the handling of liquid products, such as fuel and potable water.

7.2 Conformance data requirements. When this CID is used for procurement, the product conformance clause should appear in the solicitation.

7.3 Acquisition requirements. Acquisition documents must specify the following:

- a. Title, number, and date of this CID and the related specification sheet(s).
- b. Part identification number and quantity required.
- c. Component material designations (see 3.2 and 7.4).
- d. When other than stainless steel wire rings is permissible (see 3.3.3.1 and 7.4.5).
- e. Packaging requirements (see 6.1).

7.4 Material specification. The contracting officer will select from the following options for materials and finishes.

7.4.1 Housings. Unless otherwise indicated on the specification sheet, materials used in the manufacture of the coupling assembly housings will be as follows:

Class 1 - Aluminum alloy - UNS A03560, A07120, or A07130 per ASTM B26

Class 2 - Copper alloy - UNS C37700, C83600, C83800, C84400, C90500, or C92200 per ASTM B584, or copper alloy C37700 per ASTM B283.

Class 3 - Aluminum Bronze - UNS C60600, C61300, C61400, C62400, C63000, C64200 or C64210 per ASTM B150, or per ASTM B148 for castings.

Class 4 - Stainless steel - UNS S30400 or S31600 per ASTM A276 or A582 for bar stock or per ASTM A314 for forgings.

7.4.1.1 Finish. Unless otherwise indicated on the specification sheet, coupling assembly housings will be finished as follows:

Class 1 - Aluminum alloy - Anodic coating, non-dyed, 0.0004 inch minimum thickness.

Class 2 - Copper alloy - Plain (no finish)

Class 3 - Aluminum Bronze - Plain (no finish)

Class 4 - Stainless steel - Plain (no finish)

7.4.2 Gaskets. Gaskets will be of nitrile material and will conform to ASTM D 2000, Grade M2BG610 B14EA14EF21F17Z1Z2.

Z1: The compression set after 22 hours @ 70°Centigrade will not exceed 60 percent when tested in accordance with ANSI/ASTM D 395.

When polyurethane is selected, use the following water resistance test:

Z2: After 14 days in distilled water @ 70°Centigrade the maximum change in strength will be 40 percent when tested in accordance with ANSI/ASTM D 471.

7.4.3 Cam arms. Unless otherwise indicated on the specification sheet, materials used in the manufacture of the cam arms will be Copper Alloy UNS C36500, C37700, C46400, C48200, or C48500 per ASTM B124, or suitable powdered metal per MPIF STD 35.

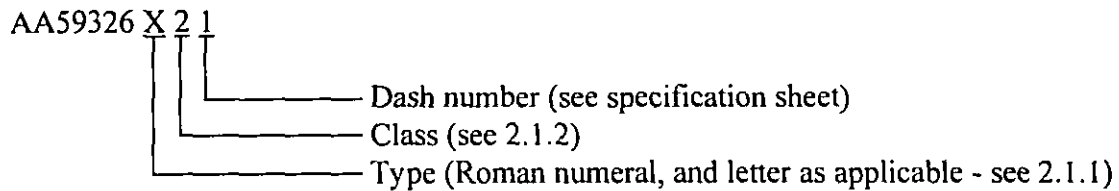
7.4.4 Cam pins. Unless otherwise indicated on the specification sheet, materials used in the manufacture of the cam pins will be CRES Alloy UNS S30323, S30300 per ASTM A582, or Class S30430 or S31600, condition A, per ASTM A276.

7.4.5 Pull rings. Unless otherwise indicated (see 7.3), materials used in the manufacture of the pull rings will be CRES Alloy UNS S30400 or S30200 per ASTM A313.

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7.5 Part Identification Number (PIN). The following part identification numbering procedure is for government purposes and does not constitute a requirement for the contractor. Identification by cross-referenced numbering systems (see 7.6) will be acceptable.

The PIN to be used for a coupling half acquired using this CID, is generated as follows:



Example: AA59326VIIA14 = A 3-inch, aluminum, coupling half; female, cam-locking, quick disconnect to a hexagonal flange interface, with gasket and pull rings (for D-1 nozzle).

7.6 Cross reference data. Coupling assemblies conforming to this CID are interchangeable with coupling assemblies conforming to MIL-C-27487. The following listing provides cross-references to the equivalent Military Specification sheet (part number prefixes).

CID Spec sheet	Mil-Spec sheet	CID Spec sheet	Mil-Spec sheet
A-A-59326/1	MS27020	A-A-59326/12	MS49000
A-A-59326/2	MS27021	A-A-59326/13	MS49001
A-A-59326/3	MS27022	A-A-59326/14	MS49002
A-A-59326/4	MS27023	A-A-59326/15	MS70088
A-A-59326/5	MS27024	A-A-59326/16	MS70096
A-A-59326/6	MS27025	A-A-59326/17	MS70095
A-A-59326/7	MS27026	A-A-59326/18	MS70097
A-A-59326/8	MS27027	A-A-59326/19	MS70100
A-A-59326/9	MS70091	A-A-59326/20	MS39336
A-A-59326/10	MS27028	A-A-59326/21	MS39352
A-A-59326/11	MS27029		

7.7 International Standardization. Certain provisions of this specification (dimensions) are the subject of international standardization agreements (STANAG No. 2761 and QSTAG 240). When amendment, revision, or cancellation of this specification is proposed, that will modify the international agreement concerned, the preparing activity will take appropriate action through international standardization channels, including departmental standardization offices, to change the agreement or make other accommodations (see specification sheets 1, 2, 4, 5, 7-14, and 16-21).

7.8 Subject term (key word) listing.

Cam lock
 Fitting
 Hose coupling
 Qdisc

7.9 Sources of documents.

7.9.1 Copies of ASTM standards are available from the American Society for Testing and Materials, 100 Barr Harbor Drive, West Conshohocken, PA 19428-2959.

7.9.2 Copies of ANSI/ASME standards are available from the American National Standard Institute, 11 W. 42nd Street, New York, NY 10036.

7.9.3 Copies of "The Metals & Alloys in the Unified Numbering System (UNS)" are available from the Society of Automotive Engineers, Inc., 400 Commonwealth Drive, Warrendale, PA 15096-0001.

7.9.4 Copies of "MPIF Standard 35" are available from the Metal Powder Industries Federation, 105 College Road East, Princeton, NJ 08540-6692.

7.9.5 The Code of Federal Regulations (CFR) may be obtained from the Superintendent of Documents, U.S. Government Printing Office, Washington, DC 20402.

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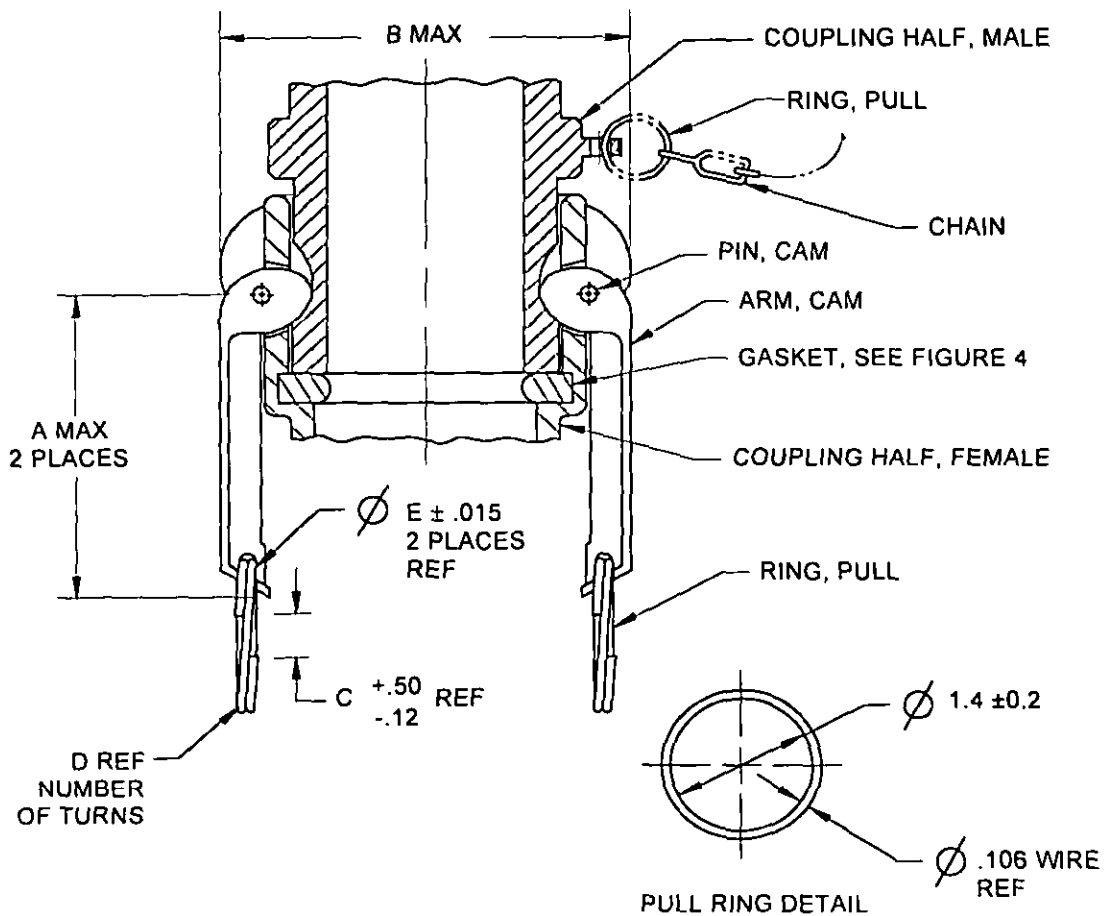
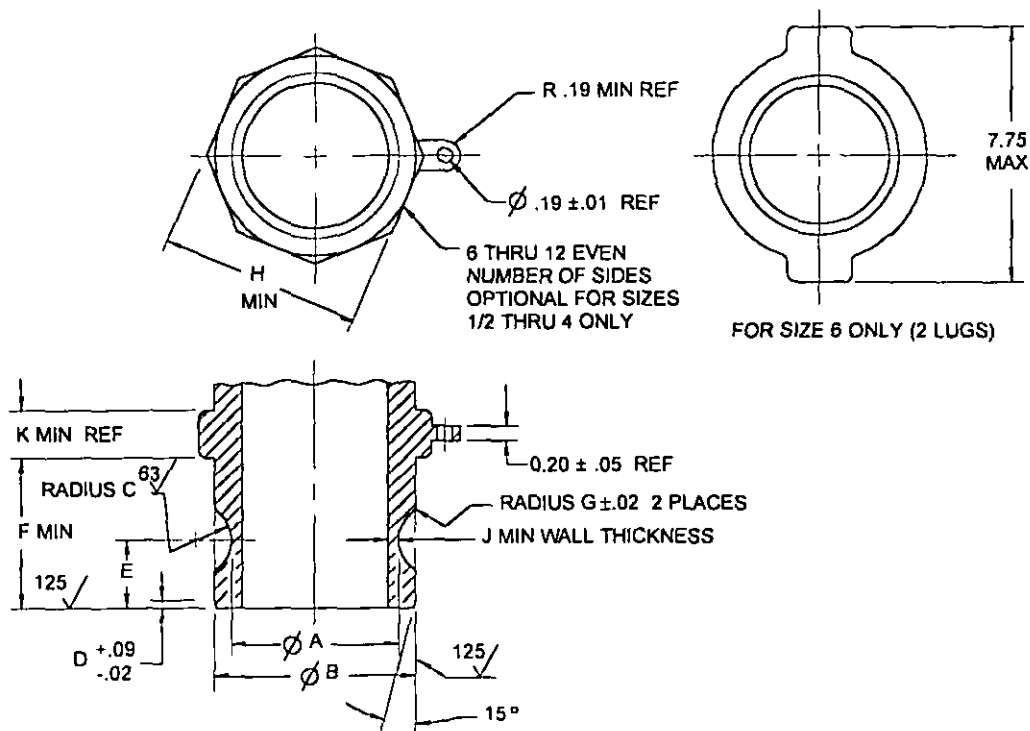


FIGURE 1. Coupling assembly, quick-disconnect, cam-locking type.

TABLE I. Coupling assembly, quick-disconnect, cam-locking type.

Nominal Size	Dimensions				
	A	B	C	D	E
½	1.50	2.13	0.38	2	0.156
¾	1.50	2.19	0.38	2	0.156
1	1.75	2.55	0.38	2	0.156
1¼	3.00	3.00	0.38	2	0.156
1½	3.00	3.38	0.38	2	0.156
2	3.00	3.75	0.38	2	0.156
2½	3.00	4.38	0.38	2	0.156
3	3.25	5.25	0.25	3	0.250
4	3.25	6.25	0.25	3	0.250
6	4.25	8.63	0.25	3	0.250

Note: Dimensions are in inches, tolerance shall be $\pm .02$ for two place, $\pm .005$ for three place decimals, unless otherwise specified hereon.

FIGURE 2. Coupling half, male.TABLE 2. Coupling half, male.

Nominal Size	Dimensions									
	A	B	C	D	E	F	G	H	J	K
½	1.035	1.264	.378	0.09	.471	1.00	0.06	1.264	.10	.58
	1.030	1.259	.372		.465			1.259		
¾	1.035	1.264	.378	0.09	.471	1.00	0.06	1.264	.10	.58
	1.030	1.259	.372		.465			1.259		
1	1.144	1.446	.378	0.13	.565	1.32	0.09	1.446	.10	.58
	1.139	1.441	.372		.559			1.441		
1¼	1.388	1.792	.441	0.13	.690	1.56	0.12	1.792	.13	.58
	1.383	1.787	.435		.684			1.787		
1½	1.690	2.105	.441	0.13	.690	1.62	0.12	2.105	.13	.58
	1.685	2.100	.435		.684			2.100		
2	2.065	2.484	.441	0.13	.848	1.87	0.12	2.484	.13	.58
	2.060	2.479	.435		.842			2.479		
2½	2.545	2.985	.441	0.19	.848	1.94	0.12	2.985	.16	.75
	2.540	2.980	.435		.842			2.980		
3	3.202	3.604	.503	0.19	.895	2.00	0.12	3.604	.16	.75
	3.197	3.599	.497		.889			3.599		
4	4.307	4.708	.503	0.22	.895	2.07	0.12	4.708	.22	1.00
	4.302	4.703	.497		.889			4.703		
6	6.362	6.929	.659	0.22	.963	2.25	0.12	6.929	.22	1.00
	6.357	6.924	.653		.957			6.924		

Note: Dimensions are in inches; tolerance shall be $\pm .02$ for two place, $\pm .005$ for three place decimals; angles $\pm \frac{1}{2}^\circ$, unless otherwise specified hereon.

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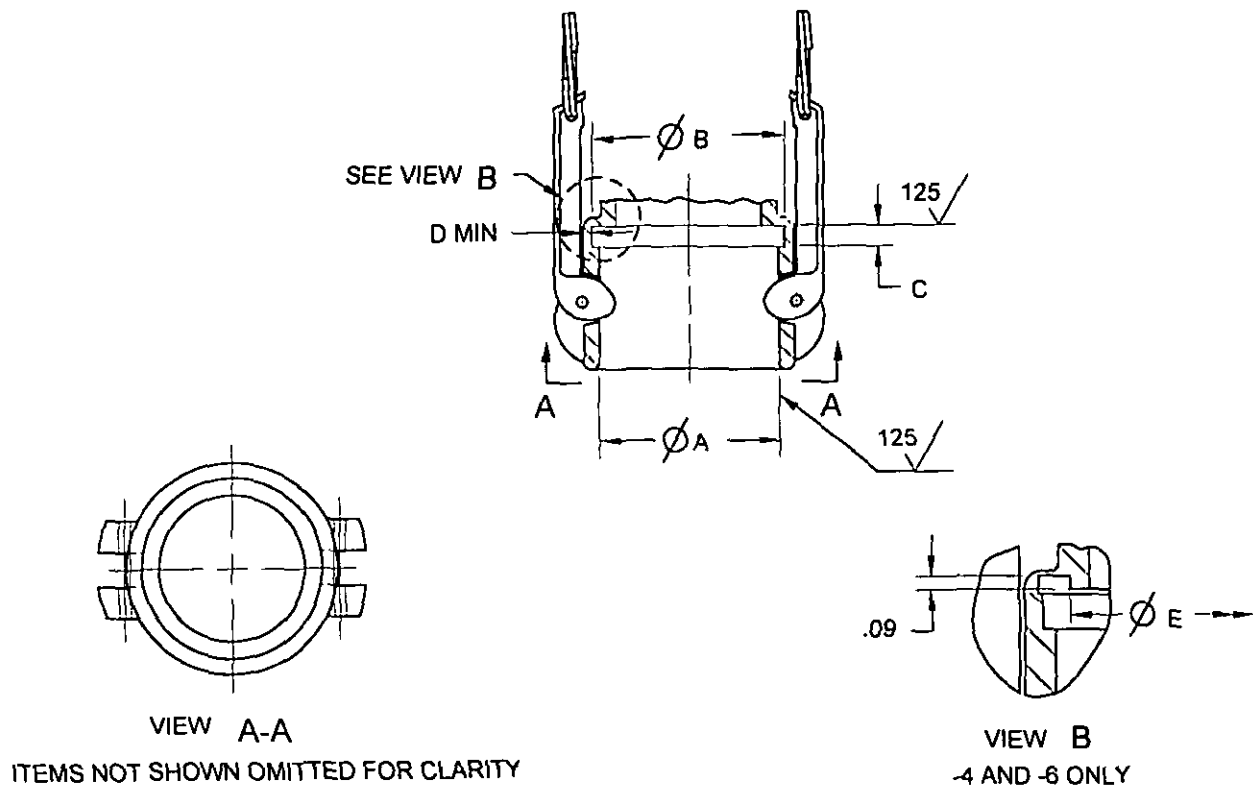


FIGURE 3. Coupling half, female.

TABLE 3. Coupling half, female.

Nominal Size	Dimensions					Gasket (see figure 4)	Torque to close cam arms
	A	B	C	D	E		
½	1.276	1.42	.25	.094	NA	-1	60 pounds, max
¾	1.276	1.42	.25	.094	NA	-2	60 pounds, max
1	1.466	1.59	.28	.094	NA	-3	70 pounds, max
1¼	1.812	2.00	.28	.125	NA	-4	100 pounds, max
1½	2.125	2.25	.28	.125	NA	-5	100 pounds, max
2	2.510	2.69	.28	.125	NA	-6	100 pounds, max
2½	3.011	3.19	.28	.156	NA	-7	100 pounds, max
3	3.630	3.78	.28	.156	NA	-8	120 pounds, max
4	4.734	4.94	.28	.219	3.906	-9	150 pounds, max
6	6.950	7.94	.28	.219	5.906	-10	200 pounds, max

Note: Dimensions are in inches; tolerance shall be $\pm .02$ for two place, $\pm .005$ for three place decimals; angles $\pm 1^\circ$ unless otherwise specified hereon.

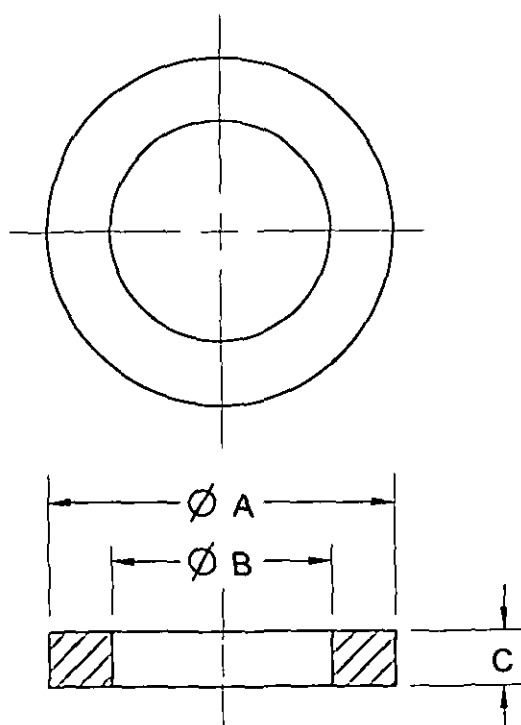


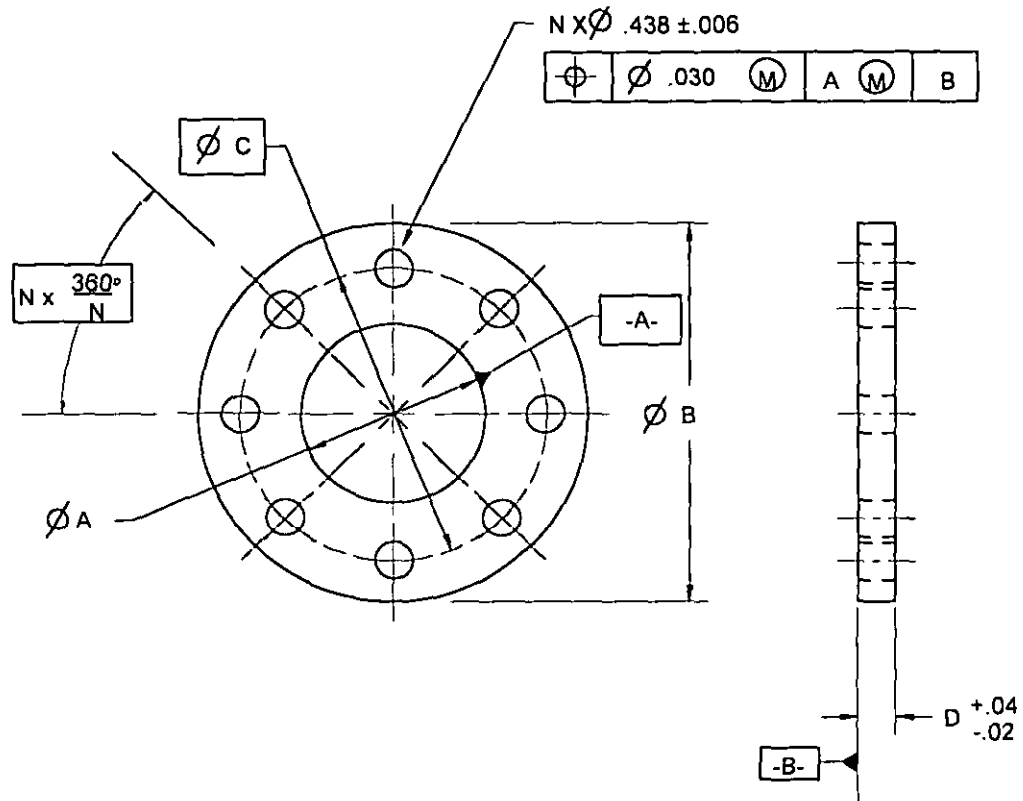
FIGURE 4. Gasket.

TABLE 4. Gasket dimensions and specifications.

Dash Number	Coupling Nominal Size	Dimension			Min. gasket compression
		A	B	C	
-1	½	1.375	.875	.218	0.030 Ref
-2	¾	1.375	.875	.218	0.030 Ref
-3	1	1.563	1.063	.250	0.030 Ref
-4	1¼	1.938	1.359	.250	0.030 Ref
-5	1½	2.188	1.625	.250	0.030 Ref
-6	2	2.625	2.000	.250	0.030 Ref
-7	2½	3.125	2.375	.250	0.030 Ref
-8	3	3.719	3.000	.250	0.025 Ref
-9	4	4.875	4.000	.250	0.025 Ref
-10	6	7.063	6.000	.250	0.025 Ref

Note: Dimensions are in inches; tolerance shall be $\pm .005$ for three place decimals, unless otherwise specified hereon.

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NOTE: For interpretation of geometric tolerancing symbology, see ASME Y14.5M.

FIGURE 5. Flange drilling template.

TABLE 5. Flange dimensions.

Nominal size	Dimension				N (No. of holes)
	A	B	C	D	
2	2.00	4.500	3.750	.375	6
2½	2.50	5.000	4.250	.375	6
3	3.00	5.625	4.875	.375	8
4	4.00	6.625	5.875	.375	8
6	6.00	8.875	8.125	.500	12
1 X 2	1.00	4.500	3.750	.375	6
2 X 3	2.00	5.625	4.875	.375	8
2 X 4	2.00	6.625	5.875	.375	8
3 X 4	3.00	8.625	5.875	.375	8

Note: Dimensions are in inches, tolerance shall be $\pm .02$ for two place, $\pm .005$ for three place decimals, unless otherwise specified hereon.

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Custodians:

Army - AT

Navy - YD1

Air Force - 99

Preparing Activity:

Army - AT

(Project 4730-1035-1)

Review Activities:

Army - AV, GL

Navy - MC, SH

Air Force - 82

DLA - CC

Civilian Coordinating Activity:

GSA - FSS