

[INCH-POUND]
 A-A-60001A
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 SUPERSEDING
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COMMERCIAL ITEM DESCRIPTION

TRAPS, STEAM

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

1. **SCOPE.** This commercial item description (CID) covers the general requirements for traps, steam. Traps, steam covered by this CID are intended for commercial/industrial applications.

2. **CLASSIFICATION/PART OR IDENTIFICATION NUMBER (PIN).** This CID uses a classification system which is included in the PIN as shown in the following example (see 7.1).

<u>AA60001</u>	-	<u>001</u>	-	<u>C</u>	-	<u>003</u>	-	<u>125</u>	-	<u>AV</u>	-	<u>BR</u>
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CID number		Type code		Style code		Class Code		Size code		Spec. Reqt's		Mat'l
		(see 2.1 & table I)		(see 2.1 & table 1)		(see 2.2 & Table II)		(see 2.3 & table III)		(see 2.4)		(see 2.5)

Beneficial comments, recommendations, additions, deletions, clarifications, etc., and any data that may improve this document should be sent to: DLA Land and Maritime, ATTN: VAI, P.O. Box 3990, Columbus OH 43218-3990, or email fluidflow@dla.mil. Since contact information can change you may want to verify the currency of the address information using the ASSIST Online database at <https://assist.dla.mil/>.

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2.1 Type and style codes. Type and style codes shall be as specified in table I.

TABLE I. Type and style codes.

Type code		Style code	
001	Trap bucket	A	Open bucket
001	Trap bucket	B	Inverted bucket
002	Trap, ball float	--	--
003	Trap, disk, thermodynamic	--	--
004	Trap, orifice or impulse	--	--
005	Trap, thermostatic	C	Bellows or membrane
005	Trap, thermostatic	D	Bimetallic element
006	Trap, combination float and thermostatic	--	--

2.2 Class code for working pressure and steam temperature. Class codes for class code for working pressure and steam temperature shall be as specified in table II.

TABLE II. Class code for working pressure and steam temperature.

	Working pressure range Pounds-force per square inch (psig) (kilopascal (kPa))	Steam temperature range Degrees Fahrenheit (°F) (Celsius (°C))
Class 001	Vacuum to 15 psig (Vacuum to 103.4 kPa)	212 °F to 250 °F (100 °C to 121 °C)
Class 002	0 to 25 psig (0 to 172.4 kPa)	212 °F to 267 °F (100 °C to 131 °C)
Class 003	0 to 65 psig (0 to 448.2 kPa)	212 °F to 312 °F (100 °C to 156 °C)
Class 004	0 to 125 psig (0 to 861.8 kPa)	212 °F to 400 °F (100 °C to 204 °C)
Class 005	0 to 150 psig (0 to 1034.2 kPa)	212 °F to 400 °F (100 °C to 204 °C)
Class 006	0 to 200 psig (0 to 1379.0 kPa)	212 °F to 400 °F (100 °C to 204 °C)
Class 007	0 to 250 psig (0 to 1723.7 kPa)	212 °F to 450 °F (100 °C to 232 °C)
Class 008	0 to 300 psig (0 to 2068.4 kPa)	212 °F to 600 °F (100 °C to 316 °C)
Class 009	0 to 600 psig (0 to 4136.9 kPa)	212 °F to 750 °F (100 °C to 399 °C)

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2.3 Size code. The CID size code for the trap shall be the code associated with nominal pipe size (NPS) of the inlet as specified in table III.

TABLE III. NPS CID size code.

Size code	NPS Size
125	1/8
250	1/4
375	3/8
500	1/2
750	3/4
100	1
225	1-1/4
250	1-1/2
300	2
313	2-1/8
400	3
450	3-1/2

2.4 Special requirements. The CID code for special requirements for air vents and drain plugs are as follows:

- a. CID code for air vent is code AV.
- b. CID code for drain plugs is code DP.

2.5 Material. The CID code for material requirements are as follows:

- a. CID code for Bronze is code BZ.
- b. CID code for Brass is code BR.
- c. CID code for CRES is code CR.
- d. CID code for Nickel Alloy is code NK.
- e. CID code for Bronze is code BZ .
- f. CID code for Carbon Iron is code CI
- g. CID code for Carbon Steel is code CS.

3. SALIENT CHARACTERISTICS.

3.1 Interface and physical dimensions. Traps, steam supplied to this CID shall be as specified herein.

3.1.2 Design and construction. Types I through VI, the design shall be such that the valve and seat (replaceable type), linkage, screens, gaskets, and other components shall be capable of being removed and replaced in service without requiring special tools, skills, adjustments, or be non-repairable permanently sealed units. Type 001 through 006 traps may fail-safe either in open or closed position, at the manufacturers option. All traps, except type 005 class 001 through 005, shall be furnished with female threaded inlet and outlet connections of the same size.

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3.2.1. Type I, style A. Type I, style A traps shall consist of a body, cover, an upright bucket mechanism, and a replaceable head and seat. The bucket mechanism shall be capable of discharging condensate and retaining steam over the entire specified pressure designated for the class. Inlet and outlet connections shall be in the horizontal or vertical plane.

3.2.2 Type I, style B. Type I, style B traps shall either be repairable units consisting of a body, a cover, an inverted bucket mechanism, and a replaceable head and seat or be non-repairable permanently sealed units. The bucket mechanism shall be capable of discharging condensate and retaining steam over the entire specified pressure designated for the class. Traps shall be fitted with a vent hole capable of removing air during startup. When traps shall be fitted with auxiliary air vents. Inlet and outlet connections shall be in the horizontal or vertical plane, as specified.

3.2.3 Strainer, type I traps. Type I traps shall be furnished with an integral strainer.

3.2.4 Type II traps. Type II traps shall either consist of a body, cover, replaceable head and seat, and an integral ball float mechanism capable of modulating the discharge of condensate over the specified pressure class or be a nonrepairable permanently sealed unit. The traps shall be fitted with drain plugs. To ensure a liquid seal, the design of type II traps shall be such that the liquid level is always over the valve orifice or seat. Traps shall be provided with a female threaded connection to accept an equalizing line.

3.2.5 Type III traps. Type III traps shall consist of a body, cover, and hardened seat, and disk capable of removing condensate from a steam system ranging from 10 pounds per square inch (psi) (68.9 kilopascal (kPa)) through 600 psi (4136 kPa). The trap shall be capable of closing tight when subjected to steam.

3.2.6 Strainer, type III traps. Type III traps shall be furnished with an integral strainer.

3.2.4 Type IV traps. Type IV traps shall consist of a body, cover, replaceable head and seat, and be capable of removing condensate and air from a steam system ranging from 10 psi (68.9 kPa) through the pressure class specified. The traps shall be so designed so that the maximum steam loss not be greater than 20 pounds (lb) (9.0 kilograms (kg)) of steam per hour.

3.2.5 Type V traps. Type V traps, styles A and B shall be repairable units consisting of a body, cover, and a replaceable or renewable valve and seat. The valve shall be attached to a bellows, diaphragm, or bimetallic element capable of closing the valve to steam and opening to condensate and air throughout the pressure class. The diaphragm or bellows shall be sealed and shall be filled with a fluid that expands and contracts the element which, in turn, closes the valve to steam and opens it to air and condensate. Bellows and diaphragm types shall be limited to applications of not greater than 300 psi (2069 kPa) and 425 °F (218 °C). Unless otherwise specified (see 7.3), the inlet and outlet connections for classes 1 through 5 traps shall be of the same size and have a male union tailpiece on the inlet connection and female threaded on the outlet connection.

3.2.5.1 Strainer V traps. Type V traps shall be furnished with an integral strainer.

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3.2.6 Type VI traps. Type VI traps shall consist of a body, cover, replaceable valve and seat, and either a ball float valve mechanism capable of modulating the condensate discharge or a bucket float mechanism capable of discharging condensate throughout the pressure class specified. A separate diaphragm, bellows, or mechanism shall be incorporated in the design to vent air throughout the pressure class specified. The valve shall shut tight to steam and open to condensate and air. The design shall be such that the condensate valve and seat are water-sealed at all times. The trap shall contain a drain plug at the lowest point to remove condensate when required.

3.3.1 Material for strainer screens. When specified strainer screens shall be made either from brass conforming to ASTM B 36, nickel copper alloys conforming to ASTM B 127, or corrosion resisting steel (CRES), type 304 or 316 conforming to ASTM A 240.

3.3.2 Gaskets. Gaskets for cover and flanges shall be the manufacturer's standard commercial product.

3.3.3 Inlet and outlet connections. Inlet and outlet trap connections shall be NPS,

3.3.4 Threaded pipe connections. All threaded pipe connections shall conform to AMSE B 1.20.1.

3.3.5 Union connection. Traps with union connections shall be furnished complete with nuts and tailpieces.

3.3.6 Flange connections. Flanges shall be in accordance with ASME B 16.5.

3.3.7 Socket-welding connection. Welded connection shall be in accordance with ASME B 16.11.

3.4 Valve and seats orifices. The seating surface of traps having removable seats shall be made of corrosion resistant materials, and have a hardness of not less than 250 Brinell for classes 1 through 6, and 500 Brinell for classes 7 through 9.

3.4.1 Interchangeability. All traps of the same type, style, class, size, and manufacture furnished under a specific contract shall be identical to the extent necessary to ensure interchangeability of component parts, assemblies, accessories, and spare parts.

3.5 Air cock. Traps shall be fitted with an air cock for testing and venting of air from the trap.

3.5.1 Antifouling. Traps shall be designed to prevent fouling by accumulated sediment, scale, and nonvolatile, insoluble foreign matter such as oil and grease. Traps shall be provided with drain plugs or cocks to facilitate flushing.

3.6 Performance requirements for traps.

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3.6.1 Capacity of traps. The capacity shall be expressed in lb of condensate discharged continuously per hour under specified conditions of pressure differentials the inlet pressure minus the discharge pressure, and at the discharge temperature depression listed in table II. The condensate temperature depression for type V traps shall be 20 °F (11 °C) as specified in table II.

TABLE II. Condensate temperature depressions.

Type Trap	Maximum temperature depression ^{1/} °F (°C)
Type I	5 (2.8)
Type II	5 (2.8)
Type III	5 (2.8)
Type IV	30 (17)
Type V	20 (11)
Type VI	5 (2.8)

^{1/} For purposes of this specification, temperature depression is defined as the Δ °F (°C) below saturated steam temperature corresponding to the inlet pressure specified.

3.6.2 Operation of trap. The traps shall be capable of discharging condensate and closing to steam throughout the pressure class specified. The trap shall operate automatically and regularly at both maximum pressure and at 10 percent of the maximum pressure.

3.6.3 Steam loss. Steam loss of traps shall be not greater than 2 lb. (0.9 kg) per hour except for type IV traps, which shall be not greater than 20 lb. (9.0 kg) per hour.

3.6.4 Hydrostatic pressure requirement. Traps shall be capable of withstanding a hydrostatic pressure of 150 percent of the maximum working pressure of the class for a duration of 5 minutes.

3.6.5 Material. Material shall be specified using 2.5.

3.6.6 Machined surface. The surface roughness of flange gasket facings shall be not more than 125 micro-inches (3.2 micrometers) in accordance with ASME B16.5.

3.6.7 Material finish. Brass, bronze, or stainless steel bodies and covers or bonnets shall be furnished in natural finish or shall be electroplated when iron and steel is specified shall be treated and painted in accordance with the manufacturer's best standard practice.

3.7 Marking. Traps, steam supplied to this CID shall be marked with the manufacturer's (MFR's) standard commercial PIN. (NOTE: The part number marked on the unit pack shall be the CID PIN.)

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3.8 Recycled, recovered, or environmentally preferable materials. Recycled, recovered, or environmentally preferable materials should be used to the maximum extent possible provided that the material meets or exceeds the operational and maintenance requirements, and promotes economically advantageous life cycle costs.

3.9 Workmanship. Traps, steam shall be processed in such a manner as to be uniform in quality and shall be free from other defects that will affect life, serviceability, or appearance.

3.9.1 Castings. All castings shall be sound and free from patching, misplaced coring, warping, or other defect which reduces the casting's ability to perform its intended function.

3.9.2 Welds. Welds shall be continuous, sound, smooth, and free from closely spaced in line surface porosity, cracks, incomplete fusion, or deformation of material.

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

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 place. The Government reserves the right to require proof of such conformance

5.3 Certification. Certification may be done as an option to testing by using the government's trusted suppliers and with the procuring activity approval. The contractor shall certify that the product offered meets the requirements of this document and manufactured to industry standards, and quality assurance practices, and is the same as the product offered for sale in the commercial marketplace. The government reserves the right to require proof of such conformance prior to first delivery and thereafter as may be otherwise provided for under the provisions of the contract

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 Environmentally preferable material. Environmentally preferable materials should be used to the maximum extent possible to meet the requirements of this specification. As of the dating of this document, the U.S. Environmental Protection Agency (EPA) is focusing efforts on reducing 31 priority chemicals. The list of chemicals and additional information is available on their website <http://www.epa.gov/osw/hazard/wastemin/priority.htm>. Included in the EPA list of

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31 priority chemicals are cadmium, lead, and mercury. Use of these materials should be minimized or eliminated unless needed to meet the requirements specified herein (see Section 3).

7.3 Commercial and Government Entity (CAGE) code. For ordering purposes, inventory control, and submission of these Traps, steam to DLA Land and Maritime under the Military Parts Control Advisory Group (MPCAG) evaluation program, CAGE code 58536 should be used.

7.4 Source of documents.

FEDERAL REGULATIONS

FAR – Federal Acquisition Regulations (FAR)

(Copies of these documents are available online at www.acquisition.gov/comp/far/index.html or from the U.S. Government Printing Office, 732 North Capital Street, NW, Washington D.C. 20401.)

ASME INTERNATIONAL

ASME B1.20.1 – Pipe Threads, General Purpose (Inch) - Revision and Redesignation of ASME/ANSI B2.1

ASME B16.5 – Pipe Flanges and Flanged Fittings NPS 1/2 Through NPS 24 Metric/Inch Standard

ASME B16.11 – Forged Fittings, Socket-Welding and Threaded

(Copies of these documents are available online at <http://www.asme.org> or from the ASME International, Three Park Avenue, New York, NY 10016-5990.)

ASTM INTERNATIONAL

ASTM A240/240M – Standard Specification for Chromium and Chromium-Nickel Stainless Steel Plate, Sheet, and Strip for Pressure Vessels and for General Applications

ASTM B36/A36M – Standard Specification for Brass Plate, Sheet, Strip, And Rolled Bar

ASTM B127 – Standard Specification for Nickel-Copper Alloy (UNS N04400) Plate, Sheet, and Strip

(Copies of these documents are available online at <http://www.astm.org> or from the ASTM International, P.O. Box C700, 100 Barr Harbor Drive, West Conshohocken, PA 19428-2959.)

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

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

7.5.1 Intended application. When used in steam lines and steam heated equipment, traps are intended to release condensate and air or gas and hold back live steam. Applications for the various types of traps covered by this CID include:

- a. Draining water from steam lines and steam heated equipment.
- b. Draining water from compressed air systems due to condensation in intercooler and line.
- c. Venting air from steam lines and steam heated equipment resulting from using fresh water in boiler and the vacuum formed when steam is off.
- d. Draining liquids of various specific gravities and viscosities from lines of gases.

7.6 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 acquisition to only the manufacturers shown.)

<u>MFR's CAGE</u>	<u>MFR's name and address</u>
0VW10	AM-MAC INCORPORATED 311 US Highway 46 ste C Fairfield, NJ 07004-2419 (973) 575-7567 ammac1@aol.com
64D56	SPECIALTY MFG. & SUPPLY COMPANY 3819 WICK PLACE WEXFORD, PA 15090 - USA (412) 584-3488 specialty.mfg.supply.co@gmail.com
9YD1	QUALITY SUPPLY CORPORATION 97 Totten Rd. Gray, ME 207-657-4313 tank0313@maine.rr.com plamour1@maine.rr.com

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7.8 Government users. To acquire information on obtaining these traps, steam from the Government inventory system, contact DLA Land and Maritime, attn. DLA Land and Maritime Call Center (-NAB), P.O. Box 3990, Columbus, OH 43218-3990 or telephone (614) 692-2271 or (614) 692-3191.

7.8 Legacy. This commercial item description is a replacement for WW-T-696 for all federal agencies (WW-T-696 is canceled as of 21 May 1984 and copies of these documents are available online at <https://assist.daps.dla.mil/quicksearch/> or from the DLA Document Services Order Desk, 700 Robbins Avenue, Building 4D, Philadelphia, PA 19111-5094).

7.9 Trap limitations. When traps are selected, the following limitations on the various types of traps should be considered:

- a. Type I, bucket trap.
 - (1) Trap will not operate where a continuous water seal cannot be maintained.
 - (2) Must be protected from freezing.
 - (3) Air handling capacity not as great as type VI traps.
- b. Type II, ball float trap.
 - (1) Must be protected from freezing.
 - (2) Operation of some models may be affected by water hammer.
 - (3) Primary application is as a liquid drainer or air vent.
- c. Type III, disk trap.
 - (1) Not suitable for pressures below 10 psi (68.9 kPa).
 - (2) Not recommended for back pressures greater than 50 percent of inlet pressure.
- d. Type IV, impulse or orifice trap.
 - (1) Not recommended for systems having back pressure greater than 50 percent of the inlet pressure.
 - (2) Not recommended where subcooling temperature is 30°F (17°C) below the saturated steam pressure.
 - (3) Should not be used where efficiency is a factor.
- e. Type V, thermostatic trap.
 - (1) Limited to applications in which condensate can be held back and subcooled before being discharged.
 - (2) Operation of some models may be affected by water hammer.
 - (3) Diaphragm and bellows types are limited to applications of 300 psi (2068.4 kPa) and 425°F (218.3°C) maximum.

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f. Type VI combination trap.

- (1) Cannot be used on superheated steam systems.
- (2) Must be protected from freezing.
- (3) Operation of some models may be affected by water hammer.

7.10 Changes from previous issue. Marginal notations are not used in this revision to identify changes with respect to the previous issue due to the extensiveness of the changes.

CONCLUDING MATERIAL

MILITARY INTERESTS

Custodians:

Army - CE
Navy - YD
Air Force - 99
DLA - CC

Review activities:

Navy – SA, YD
Air Force - 71

CIVIL AGENCY COORDINATING ACTIVITY:

GSA - FSS

Preparing activity:
DLA - CC

Project 4730-2014-003

NOTE: The activities listed above were interested in this document as of the date of this document. Since organizations and responsibilities can change, you should verify the currency of the information above using the ASSIST Online database at <https://assist.dla.mil/>.