

INCH-POUND

MIL-DTL-12165G
w/AMENDMENT 1
11 June 2019
SUPERSEDING
MIL-DTL-12165G
28 January 2019

DETAIL SPECIFICATION

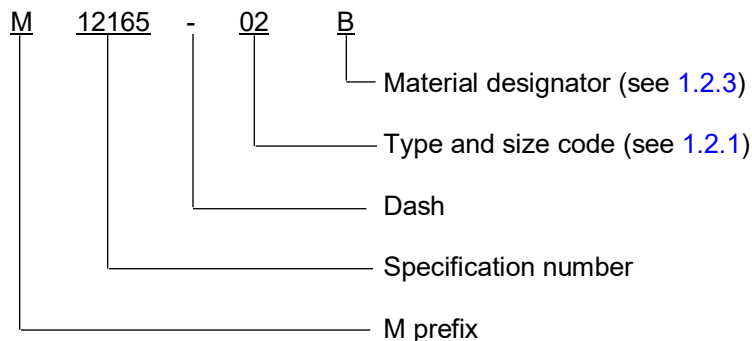
STRAINERS, SUCTION, FIREHOSE; AND STRAINERS, SUCTION, HOSE

This specification is approved for use by all Departments
and Agencies of the Department of Defense.

1. SCOPE

1.1 Scope. This specification covers firehose and water hose strainers to be attached to the intake end of a suction hose. Cast brass strainers are not to be used for potable water.

1.2 Part or Identifying Number (PIN). The PIN consists of the letter “M” followed by the basic specification number a dash, type and size code and the strainer material designator.



PIN example: M12165-02B describes a type I, 2-inch strainer made of brass.

1.2.1 Type and size. The type and size of the strainer (see 3.7 and 3.8) are identified by a two-digit number (see table I).

Comments, suggestions, or questions on this document should be addressed to: DLA Land and Maritime, Columbus, Attn: DSCC-VAI, P. O. Box 3990, Columbus, OH 43218-3990, or emailed to FluidFlow@dla.mil. Since contact information can change, you may want to verify the currency of this address information using the ASSIST Online database at <https://assist.dla.mil>.



MIL-DTL-12165G
w/AMENDMENT 1

TABLE I. Code number to type and size.

Type I (firehose, strainer) number code	Type II (water hose strainer) number code	Strainer, size (inches, nominal)
-	09	1
-	10	1-1/4
01	11	1-1/2
02	12	2
03	-	2-1/2
04	-	3
05	-	4
06	-	4-1/2
07	-	5
08	-	6

1.2.3 Material. Strainer material code is identified by a letter, see table II.

Table II. Body and strainer material.

Material designator	Material
Type I - Firehose strainers	
A	Aluminum with aluminum strainer
B	Brass with brass strainer
S	CRES with CRES strainer
Type II - Water hose strainers	
B	Brass with brass strainer

2. APPLICABLE DOCUMENTS

2.1 General. The documents listed in this section are specified in sections 3 or 4 of this specification. This section does not include documents cited in other sections of this specification or recommended for additional information or as examples. While every effort had been made to ensure the completeness of the list, document users are cautioned that they must meet all specified requirements documents cited in sections 3 or 4 of this specification, whether or not they are listed.

2.2 Government documents.

2.2.1 Specifications, standards, and handbooks. The following specifications, standards, and handbooks form a part of this document to the extent specified herein. Unless otherwise specified, the issues of these documents are those listed in the solicitation or contract.

STANDARDS

FEDERAL

FED-STD-H28/10 - Screw-Thread Standards for Federal Services Section 10 Hose Coupling and Fire Hose Coupling Screw Threads

MIL-DTL-12165G
w/AMENDMENT 1
DEPARTMENT OF DEFENSE SPECIFICATIONS

MIL-A-8625 - Anodic Coatings for Aluminum and Aluminum Alloys

MILITARY

MIL-STD-130 - Identification Marking of US Military Property

(Copies of these documents are available online at <https://quicksearch.dla.mil>.)

2.3 Non-Government Publications. The following documents form a part of this document to the extent specified herein. Unless otherwise specified, the issues of these documents are those cited in the solicitation or contract.

ASME INTERNATIONAL

ASME B46.1 - Surface Texture (Surface Roughness, Waviness, and Lay)

(Copies of these documents are available online at <https://www.asme.org>.)

AMERICAN SOCIETY FOR TESTING AND MATERIALS (ASTM)

ASTM E8/E8M - Standard Test Methods for Tension Testing of Metallic Materials
ASTM E10 - Standard Test Method for Brinell Hardness of Metallic Materials
ASTM-B26/B26M - Standard Specification for Aluminum-Alloy Sand Castings

(Copies of these documents are available online at <https://www.astm.org>.)

SAE INTERNATIONAL

SAE-AS6018 - Wrench, Spanner

(Copies of these documents are available online at <https://sae.org>.)

2.4 Order of precedence. Unless otherwise noted here in or in the contract, in the event of a conflict between the text of this document and the references cited herein (except for related specification sheets), the text of this document takes precedence. Nothing in this document, however, supersedes applicable laws and regulations unless a specific exemption has been obtained.

3. REQUIREMENTS

3.1 First article. When specified in the contract, the contractor shall furnish first article units in accordance with 4.3.

3.2 Recycled, recovered, environmentally preferable, or biobased materials. Recycled, recovered, environmentally preferable, or biobased 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.

MIL-DTL-12165G
w/AMENDMENT 1

3.2.1 Recovered materials. The term “recovered materials” means materials, which have been collected or recovered from solid waste and reprocessed to become a source of raw materials, as opposed to virgin raw materials. Unless otherwise specified, none of the above shall be interpreted to mean that the use of used or rebuilt products is allowed under this specification.

3.3 Description. The suction strainers shall be cylindrical. When components are fabricated from sheet metal, seams shall be welded or brazed. Seamless tubing may be used. When the strainer is fabricated from cast and sheet or tube components, the components shall be joined by riveting, brazing, or welding.

3.4 Materials. Cast aluminum, cast brass, and corrosion resisting steel shall conform to the requirements shown in [table III](#); or cast brass shall conform to the chemical composition of [table IV](#) or to the mechanical properties of [table V](#).

TABLE III. Materials.

Material	Specification
Aluminum castings	ASTM-B26/B26M, Alloy 356.0, Temper T6, or Alloy D712.0, Temper T5
Brass castings	UNS C85700, C85400, C85200 or C83600, static castings.
Corrosion resisting steel	UNS designation or class optional.

TABLE IV. Chemical composition for cast brass.

Element	Minimum percent	Maximum percent
Copper	82.00	84.00
Tin	2.50	3.50
Lead	2.50	3.50
Zinc	9.00	11.00
Phosphorus	-	0.03
Antimony	-	0.25
Nickel	0.25	0.50
Other elements, other than copper, zinc, lead, and nickel ^{1/}	-	0.50

^{1/} Includes iron, maximum percent 0.35.

TABLE V. Mechanical requirements for cast brass.

Properties	Minimum	Maximum
Tensile strength, pounds per square inch (psi)	30,000	-
Elongation in 2 inches (percent)	20	-
Reduction in area (percent)	17	32
Brinell hardness (500 kilograms (kg) for 30 seconds)	50	65

3.4.1 Cast aluminum or cast brass. When the body of the strainer is of cast construction, the thickness of the metal shall be not less than 0.063 inch or 2.5 percent of the outside diameter of the strainer, whichever is the greater.

MIL-DTL-12165G
w/AMENDMENT 1

3.4.2 Sheet metal and tubing. The thickness of sheet metal or wall thickness of tubing shall be not less than 0.032 inch.

3.5 Finish. Strainer surfaces shall not be painted or dyed. Non-mating surfaces, when fabricated from cast material, shall have a sandcast finish.

3.5.1 Aluminum strainers (entire assembly). Aluminum strainers shall be hard anodized in accordance with MIL-A-8625, Type III, class 1.

3.5.2 Surface roughness (sheet or tube). When fabricated from sheet or tube material, the finish shall have a roughness value of R_a 500 in accordance with ASME B46.1.

3.5.3 Gasket surface roughness. Mating and gasket surface shall have a roughness value of R_a 125 in accordance with ASME B46.1.

3.6 Identification marking. The strainers shall be identified in accordance with MIL-STD-130.

3.7 Type I, firehose strainers. The strainers shall be all aluminum, all brass, or all corrosion resisting steel. The following details shall apply:

- a. Firehose strainers shall have holes not less than 0.062 inch and not more than 0.437 inch in diameter to provide an effective open area of not less than 1.4 times the inside cross sectional area of the hose with which the strainer will be used.
- b. The strainer shall be equipped with rocker-type lugs for use with spanner wrenches conforming to SAE-AS6018.
- c. Each strainer shall be equipped with an eye or lug for attaching a 1.125 inch nominal circumference rope. The strainers shall conform to the dimensions shown in [table VI](#).
- d. Strainer throats shall be rounded to reduce friction and turbulence.
- e. Strainers shall conform to the dimensions shown in [table VI](#).

TABLE VI. Dimensions, firehose strainers.

Nominal size	Length (minimum)	Inside diameter (minimum)
inches	inches	inches
1-1/2	6.00	1.5
2	7.00	2.00
2-1/2	8.00	2.50
3	9.00	3.00
4	10.00	4.00
4-1/2	10.00	4.50
5	12.00	5.00
6	12.00	6.00

3.7.1 Type I, washers. Each strainer shall be furnished with a washer conforming to the applicable dimensions shown in [table VII](#). Washers shall be fabricated from synthetic rubber.

MIL-DTL-12165G
w/AMENDMENT 1
TABLE VII. Washer dimensions.

Nominal size	Inside diameter +0.031, -0	Outside diameter +0, -0.031	Nominal thickness
inches	inches	inches	inches
1-1/2	1.562	2.062	0.125
2	2.031	2.562	0.125
2-1/2	2.562	3.187	0.187
3	3.062	3.750	0.250
4	4.062	5.125	0.250
4-1/2	4.562	5.875	0.250
5	5.062	6.375	0.250
6	6.062	7.125	0.250

3.7.2 Type I, threads. Threads shall be internal, American National Firehose Coupling threads (NH) conforming to FED-STD-H28/10.

3.8 Type II, water hose strainers. The strainers shall be all brass. The following details shall apply:

- a. The bottom plate and the top connector shall be fabricated from brass.
- b. The top connector shall be provided with a hexagonal or octagonal wrenching feature.
- c. The body shall be of seamless brass tubing reinforced with longitudinal flat ridges and provided with inside-cut V-slots.
- d. The exterior width of the V-slots shall be not more than 0.040 inch and not less than 0.030 inch. The effective open area shall be not less than 1.5 times the inside cross sectional area of the hose with which the strainer will be used.
- e. Strainers shall conform to the dimensions shown in [table VIII](#).

TABLE VIII. Dimensions, water hose strainers.

Nominal size	Length of body (minimum)	Overall length of strainer (maximum)	Outside diameter of tubing (body) (minimum)
inches	inches	inches	inches
1	4.00	5.50	1.375
1-1/4	4.50	6.00	1.750
1-1/2	4.50	6.00	2.000
2	5.00	7.00	2.500

3.8.1 Type II, threads. Threads shall be internal, (NPSH) American National Hose Coupling threads conforming to FED-STD-H28/10.

3.9 Workmanship. All cast and fabricated components of the strainers including welded parts shall be clean and free from sand, dirt, fins, sprues, scale, flux, and other harmful extraneous material. External surfaces shall be free from burrs, sharp edges, and corners. The forming of material shall be performed by methods that will not cause damage to the material.

4. VERIFICATION

4.1 Classification of inspection. The inspection requirements specified herein are classified as follows:

- a. First article inspection (see [4.3](#)).
- b. Conformance inspection (see [4.5](#)).

4.2 Responsibility for compliance. All items shall meet all requirements of sections [3](#) and [4](#). The inspection set forth in this specification shall become a part of the contractor's overall inspection system or quality program. The absence of any inspection requirements in the specification shall not relieve the contractor of the responsibility of ensuring that all products or supplies submitted to the Government for acceptance comply with all requirements of the contract. Sampling inspection, as part of manufacturing operations, is an acceptable practice to ascertain conformance to requirements, however, this does not authorize submission of known defective material, either indicated or actual, nor does it commit the Government to accept defective material.

4.2.1 Lot records. Manufacturers shall keep lot records for 3 years minimum. Manufacturers shall monitor for compliance to the prescribed procedures, and observe that satisfactory manufacturing conditions and records on lots are maintained for these strainers. The records, including as a minimum, an attributes summary of all quality conformance inspections conducted on each lot, shall be available to review by customers at all times.

4.3 First article inspection. First article inspection shall be performed at a laboratory acceptable to the procuring activity on sample units produced with equipment and procedures used in production.

4.3.1 Samples for first article. Samples for first article shall be representative of the products proposed to be furnished to this specification. Sampling for strainer's shall be in accordance with [4.4.2](#).

4.4 First article inspection routine. All samples shall be subjected to first article testing in accordance with [table IX](#).

4.4.1 Lot. For the purpose of inspection, a lot shall consist of all strainers of the same type and size offered for delivery at one time.

4.4.2 Sampling. Sampling for examination shall be 2 strainers.

TABLE IX. First article inspections.

Examination	Requirement Paragraph	Test paragraph
Visual examination	3.5 , 3.6 , 3.7 , 3.8 , and 3.9	4.6.1
Tension and Brinell Hardness Testing	3.4	4.6.2

4.4.3 Failures. All samples must meet all of the contract requirements. Failure of a sample unit to pass any test shall be cause for rejection of the entire lot and to grant first article approval.

MIL-DTL-12165G
w/AMENDMENT 1

4.4.4 Disposition of samples. First article samples shall be furnished to the Government as directed by the contracting officer (see 6.2). Unless otherwise specified, after award of the contract or order, the manufacturer shall forward, from randomly selected samples, 1 strainer. The sample shall be representative of the construction, workmanship, components, and materials to be used during production.

4.4.5 First article information. Upon completion of first article inspection, the Government activity responsible for conducting the inspection program (see 6.2), shall report the results of the inspection, with appropriate recommendation, to the contracting officer. Approval of the first article samples or the waiving of first article inspection does not preclude the requirements for performing conformance inspection.

4.4.6 Waivers or deviations to specification requirements. All waivers or deviations to specification requirements shall be coordinated through the preparing activity: DLA Land and Maritime, Attn: VAI, P.O. Box 3990, Columbus, Ohio 43218-3990 or e-mailed to FluidFlow@dla.mil.

4.5 Conformance inspection.

4.5.1 Conformance inspection. For manufacturers that have successfully passed first article inspections and are continuously producing adapters to this specification on going inspections shall consist of individual inspections see [table X](#). If first article is waived due to prior successful first article inspection, the individual inspections, see [table X](#), and sampling, see [table XI](#), shall be the manufactures in house inspection procedures.

4.5.2 Inspection of product for delivery. Inspection of product for delivery shall consist of individual inspections in [table X](#).

TABLE X. Individual inspections.

Examination	Requirement Paragraph	Test paragraph
Visual examination	3.5 , 3.6 , 3.7 , 3.8 , and 3.9	4.6.1

4.5.3 Sampling for individual inspections. Fittings for sampling shall be selected from a production lot (see [4.5.3.1](#)) and shall be subjected to the individual inspections. The sampling size shall be as specified in [4.5.3.2](#).

4.5.3.1 Production lot. A production lot shall consist of all fittings of the same part number, which have been manufactured under the same conditions and on the same continuous run.

4.5.3.2 Inspection sample. The inspection sample shall be product selected at random from the production lot without regard to quality and shall be the sample size specified in [table XI](#).

MIL-DTL-12165G
w/AMENDMENT 1
TABLE XI. Inspection sample.

Production lot size	Sample size
1 to 8	All
9 to 90	8
91 to 150	12
151 to 280	19
281 to 500	21
501 to 1,200	27
1,201 to 3,200	35
3,201 to 10,000	38
10,001 to 35,000	46

4.5.4 Nonconformance of sampling tests. If one or more defects are identified, then the entire production lot shall be screened for that defect and all defects shall be removed. A second inspection sample shall then be selected and the sampling tests shall be performed again. If one or more defects are identified from the second inspection lot, then the entire production lot shall be rejected and not supplied to this specification.

4.6 Test methods.

4.6.1 Visual examination. The strainer shall be examined as specified in [table X](#) for the following defects:

TABLE X. Visual examinations.

Examination	Paragraph
Material not as specified.	3.4 and 3.7 or 3.8
Cast construction thickness	3.4.1
Sheet metal and tubing thickness	3.4.2
Components not as specified.	3.7 or 3.8
Dimensions not as specified.	3.7(e) or 3.8(e)
Effective open area of strainers less than that specified.	3.7(a) or 3.8
Strainers not equipped with rocker lugs as specified. (Type I, firehose)	3.7(b) or 3.8(b))
Strainers not equipped with lug or eye for rope attachment.	3.7(c)
Strainer throats not rounded. (Type I, firehose)	3.7(d)
Washers not as specified or missing. (Type I, firehose)	3.7.1
Threads not as specified or damaged.	3.7.2 or 3.8.1
Top connector not provided with wrenching feature (Type II, water hose).	3.8(b)
Workmanship not as specified.	3.9
Defective seams.	3.4
Finish not as specified.	3.5 , 3.5.1 , 3.5.2 , and 3.5.3
Identification marking missing, incomplete, or illegible.	3.6

4.6.2 Tension and Brinell Hardness Testing. Brass castings of [table III](#) and [table IV](#) material shall be tested in accordance with ASTM E8/E8M and ASTM E10. Failure to conform to the chemical and mechanical requirements shown in [tables III](#) or [IV](#) and [V](#) shall constitute failure of these tests.

5. PACKAGING

5.1 Packaging. For acquisition purposes, the packaging requirements shall be as specified in the contract or order (see 6.2). When packaging of materiel is to be performed by DoD or in-house contractor personnel, these personnel need to contact the responsible packaging activity to ascertain packaging activities within the Military Service or Defense Agency, or within the military service's system commands. Packaging data retrieval is available from the managing Military Department's or Defense Agency's automated packaging files, CD-ROM products, or by contacting the responsible packaging activity.

6. NOTES

(This section contains information of a general or explanatory nature that may be helpful, but is not mandatory.)

6.1 Intended use. The strainers are intended to be attached to the intake end of a hose line to prevent foreign particles from passing through the line when water is pumped from lakes, rivers, streams, or similar water sources.

6.2 Ordering data. Procurement documents should specify the following:

- a. Title, number, and date of this specification
- b. PIN required (see 1.2 and 6.3).
- c. Whether first article inspection is waived (see 4.5.1).
- d. Name and address of the Government activity responsible for conducting the first article inspection program (see 4.4.5).
- e. Name and address of the Government activity responsible for receiving a production sample (see 4.4.4).
- c. Packaging requirements (see 5.1).

6.3 First article. The contracting officer should include specific instructions in acquisition documents regarding arrangements for examinations, approval of first article test results, and disposition of first article samples. Invitations for bids should provide that the Government reserves the right to waive the requirement for samples for first article inspection to those bidders offering a product which has been previously acquired or tested by the Government, and that bidders offering such products, who wish to rely on such production or test, must furnish evidence with the bid that prior Government approval is presently appropriate for the pending contract.

6.4 Subject term (key word) listing.

Lead
NH
Nickel
NPSH
Rocker lugs
Spanner Wrench

6.5 Amendment notations. The margins of this amendment are marked with vertical lines to indicate where changes from the previous issue were made. This was done as a convenience only and the Government assumes no liability whatsoever for any inaccuracies in these notations. Bidders and contractors are cautioned to evaluate the requirements of this document based on the entire content irrespective of the marginal notations and relationship to the last previous issue.

MIL-DTL-12165G
w/AMENDMENT 1

CONCLUDING MATERIAL

Custodians:

Army- AT
Navy - YD
DLA - CC

Preparing activity:

DLA - CC

(Project 4730-2019-047)

Review activities:

Army - EA

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>.