



## Standard Specification for Suction Strainer Boxes<sup>1</sup>

This standard is issued under the fixed designation F986; the number immediately following the designation indicates the year of original adoption or, in the case of revision, the year of last revision. A number in parentheses indicates the year of last reapproval. A superscript epsilon ( $\epsilon$ ) indicates an editorial change since the last revision or reapproval.

### 1. Scope

1.1 This specification covers the design, materials, and construction of strainer boxes for use in ships' bilges and other such tank locations that require trash protection for suction pipes and pumps.

1.2 This specification covers pipe sizes from NPS 1½ through NPS 16 (see [Note 1](#)).

NOTE 1—The dimensionless designator NPS (nominal pipe size) has been substituted in this specification for such traditional terms as “nominal diameter,” “size,” and “nominal size.”

1.3 The values stated in inch-pound units are to be regarded as standard. No other units of measurement are included in this standard.

1.4 *This international standard was developed in accordance with internationally recognized principles on standardization established in the Decision on Principles for the Development of International Standards, Guides and Recommendations issued by the World Trade Organization Technical Barriers to Trade (TBT) Committee.*

### 2. Referenced Documents

#### 2.1 ASTM Standards:<sup>2</sup>

A36/A36M Specification for Carbon Structural Steel

A123/A123M Specification for Zinc (Hot-Dip Galvanized) Coatings on Iron and Steel Products

F593 Specification for Stainless Steel Bolts, Hex Cap Screws, and Studs

F594 Specification for Stainless Steel Nuts

F708 Practice for Design and Installation of Rigid Pipe Hangers

#### 2.2 AWS Standard:<sup>3</sup>

AWS D1.3 Structural Welding Code—Sheet Steel

<sup>1</sup> This specification is under the jurisdiction of ASTM Committee F25 on Ships and Marine Technology and is the direct responsibility of Subcommittee F25.11 on Machinery and Piping Systems.

Current edition approved Oct. 1, 2022. Published October 2022. Originally approved in 1986. Last previous edition approved in 2018 as F986 – 86 (2018)<sup>ε1</sup>. DOI: 10.1520/F0986-86R22.

<sup>2</sup> For referenced ASTM standards, visit the ASTM website, [www.astm.org](http://www.astm.org), or contact ASTM Customer Service at [service@astm.org](mailto:service@astm.org). For *Annual Book of ASTM Standards* volume information, refer to the standard's Document Summary page on the ASTM website.

<sup>3</sup> Available from American Welding Society (AWS), 8669 NW 36 St., #130, Miami, FL 33166-6672, <http://www.aws.org>.

### 3. Classification

3.1 This specification covers two types of strainer boxes.

3.1.1 *Type 1*—Strainer boxes with pipe clamp centered on the top of the strainer box (see [Fig. 1](#)).

3.1.2 *Type 2*—Strainer boxes with the pipe clamp off center in the top of the strainer box (see [Fig. 2](#)).

### 4. Ordering Information

4.1 Ordering information required is as follows.

4.1.1 ASTM specification and year of issue.

4.1.2 Type.

4.1.3 Size (suction pipe NPS).

4.1.4 Dimensions *G* and *H* (Type 2 only).

4.1.5 Number of each type and size.

### 5. Materials and Manufacture

5.1 For information on materials, see [Table 1](#).

5.2 Welding shall be in accordance with AWS D1.3.

5.3 Perforated sheet metal shall have ⅜-in. diameter holes on staggered ½-in. centers, 51 % open area.

### 6. Dimensions and Tolerances

6.1 *Tolerance*— $\pm 1/16$  in.

6.2 *Strainer Box Dimensions*:

6.2.1 *Type 1*—See [Table 2](#).

6.2.2 *Type 2*—See [Table 3](#).

### 7. Workmanship, Finish, and Appearance

7.1 Strainer boxes shall be hot galvanized in accordance with Specification [A123/A123M](#) after fabrication. The galvanizing shall be a minimum of 2 mils thick.

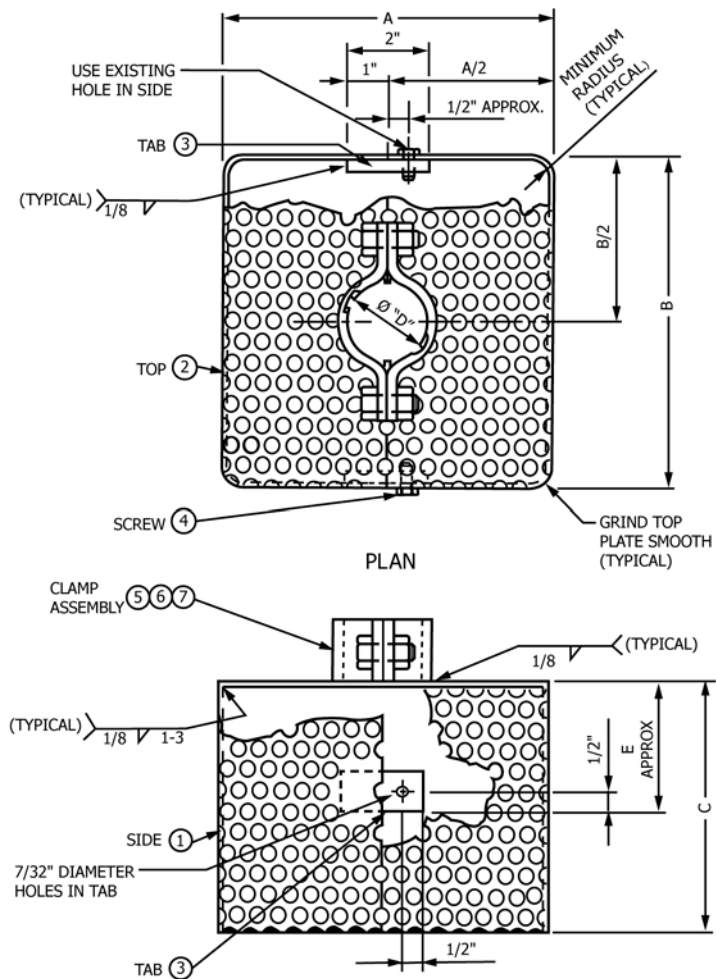
7.2 Strainer boxes shall be free of defects, burrs, and sharp edges.

### 8. Installation

8.1 Strainer boxes are normally installed on suction pipes in ballast and bilge spaces.

8.2 Minimum suction pipe or tank bottom clearances are indicated in Column “F” in [Table 2](#) and [Table 3](#). Dimension callout is based on ½ × the tailpipe nominal pipe size.

8.3 Tank structure and sloping bottom structure may obscure the above clearance down to the limit of the resulting



NOTE 1—Tab location to suit perforated holes.

**FIG. 1 Type 1—Elevation Strainer Box**

periphery clear area, being 1.5× the inside diameter of the tailpipe. Structure outside the limit of ½ the pipe NPS need not be considered as obstructing flow.

## 9. Keywords

9.1 bilge; construction; design; pumps; strainer boxes; suction pipes