



## **Standard Specification for Docking/Drain Plug and Boss Assemblies [Metric]<sup>1</sup>**

This standard is issued under the fixed designation F 991M; 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 provides design, construction, and purchasing criteria for docking/drain plug and boss assemblies.
- 1.2 Assemblies are intended for installation in shell, rudder, and tank bottom plate from 8 through 38 mm.
- 1.3 Assemblies shall be installed at the lowest point of a tank or rudder for draining during dry docking.
- 1.4 The values stated in SI units are to be regarded as the standard.

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**2. Referenced Documents**

- 2.1 *ASTM Standards:*<sup>2</sup>  
B 164 Specification for Nickel-Copper Alloy Rod, Bar, and Wire
- 2.2 *Other Documents:*  
ABS Rules for Building and Classing Steel Vessels<sup>3</sup>  
ANSI B2.1 Standard Pipe Threads Except Dryseal<sup>4</sup>

**3. Classification**

- 3.1 Docking plugs and bosses shall be classified as follows:
  - 3.1.1 *Type I*—Docking plug and bosses for plating from 8 to 15 mm (see Fig. 1).
  - 3.1.2 *Type II*—Docking plug and bosses for plating greater than 15 to 38 mm (see Fig. 2).

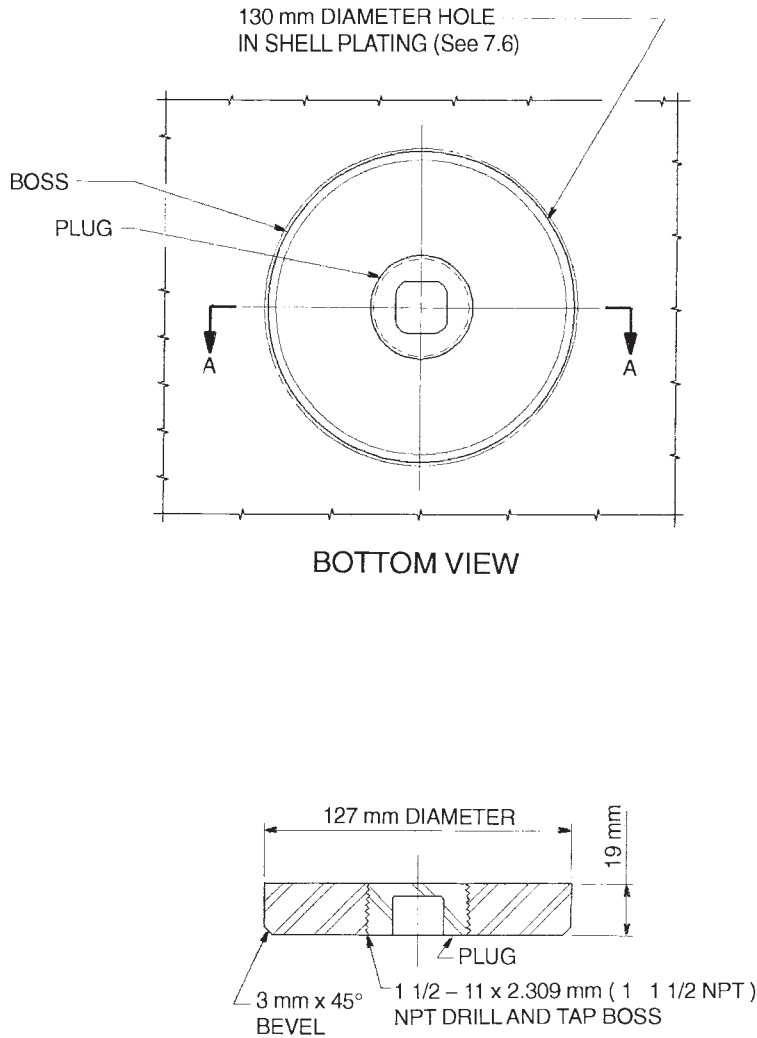
**4. Ordering Information**

- 4.1 Orders for material under this specification shall include the following:

<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*, Vol 02.04, volume information, refer to the standard's Document Summary page on the ASTM website.

<sup>3</sup> Available from American Bureau of Shipping, 2 World Trade Center, 106th Floor, New York, NY 10048; Shipping (ABS), ABS Plaza, 16855 Northchase Dr., Houston, TX 77060.

<sup>4</sup> Available from American National Standards Institute (ANSI), 11 W. 42nd St., 13th Floor, New York, NY 10036.



Section "A-A" ( see 7.6 )

**FIG. 1 Type I**

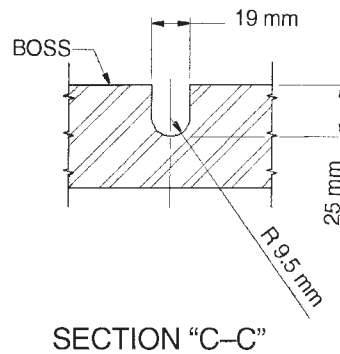
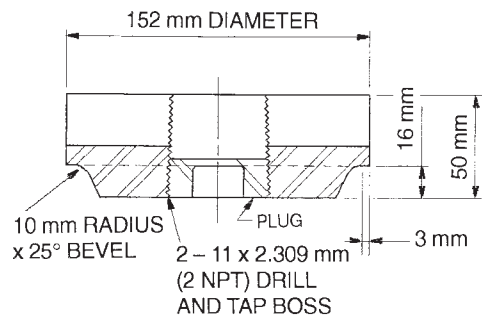
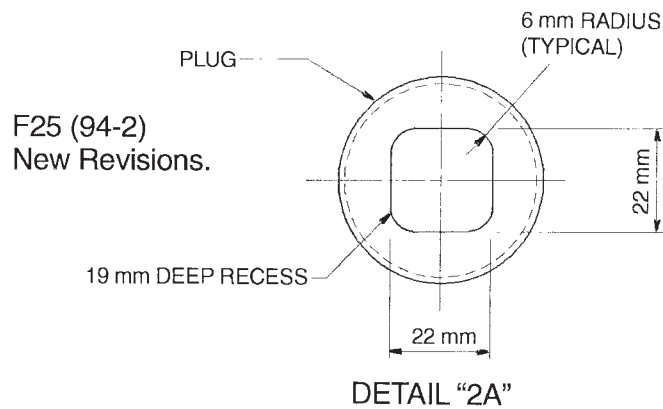
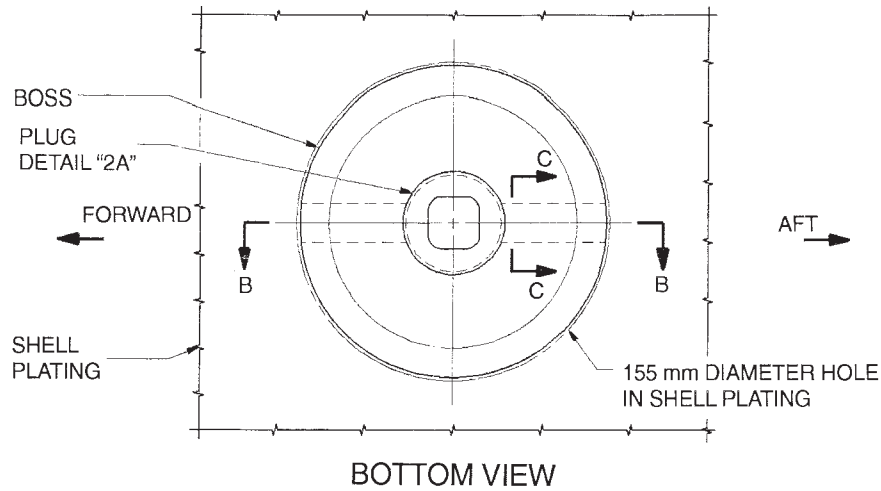


FIG. 2 Type II

- 4.1.1 ASTM designation and year of issue.
- 4.1.2 Type (See Section 3).
- 4.1.3 Optional nonstandard materials.

**5. Materials and Manufacture**

5.1 *Materials:*

- 5.1.1 *Boss*—ABS Grade A or B, plate or bar.
- 5.1.2 *Plug*—Specification B 164 rod or bar.
- 5.1.3 Other materials may be substituted to suit hull construction as approved by regulatory bodies.

5.2 *Manufacture:*

- 5.2.1 Plugs and bosses shall be machined.
- 5.2.2 Threads shall be in accordance with ANSI B2.1.

**6. Dimensions and Tolerances**

- 6.1 Dimensions shall be as indicated in Fig. 1 and Fig. 2.

6.2 Tolerance shall be  $\pm 1.5$  mm.

6.3 Mass shall be as follows:

	Type I	Type II
Boss	1.6 kg	5.7 kg
— Plug	<del>—6 kg</del>	4.0 kg
— Plug	<u>0.6 kg</u>	<u>1.0 kg</u>
Total	2.2 kg	6.7 kg

## 7. Installation

- 7.1 All welding shall be to the standards of the Rules for Building and Classing of Steel Vessels (ABS).
- 7.2 Threads shall be adequately protected during installation.
- 7.3 Fill plug face with portland cement or other suitable compound and finish flush with face of boss.
- 7.4 Boss shall be inserted so that drain grooves run forward and aft.
- 7.5 Plugs shall not be installed near large structural discontinuities.
- 7.6 Adjacent shell plating weld joint preparation shall be as required to ensure full penetration.

## 8. Keywords

- 8.1 boss assemblies; docking/drain plug; drydocking; rudder; shell; tank bottom plate

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