



Designation: F 993 – 86 (Reapproved 2001)

An American National Standard

## Standard Specification for Valve Locking Devices<sup>1</sup>

This standard is issued under the fixed designation F 993; 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 (ε) indicates an editorial change since the last revision or reapproval.

*This standard has been approved for use by agencies of the Department of Defense.*

### 1. Scope

1.1 This specification<sup>2</sup> covers the application, design, and materials for valve locking devices.

1.2 Locking devices Types I and II described in this specification are designed to secure the valve in a fully opened or completely closed position.

1.3 This specification does not apply to valves equipped with locking devices from the valve manufacturer, unless this standard is invoked in the procurement ordering data for the valve or its locking device, or both.

1.4 This specification is intended to supercede NASEA drawing S4824-1385509. However, cancellation of that drawing and adoption of this specification can only be effected by the navy.

### 2. Referenced Documents

#### 2.1 ASTM Standards:

- A 36/A36M Specification for Carbon Structural Steel<sup>3</sup>
- A 167 Specification for Stainless and Heat-Resisting Chromium-Nickel Steel Plate, Sheet, and Strip<sup>4</sup>
- A 492 Specification for Stainless Steel Rope Wire<sup>4</sup>
- A 668/A 668M Specification for Steel Forgings, Carbon and Alloy, for General Industrial Use<sup>5</sup>
- B 209 Specification for Aluminum and Aluminum-Alloy Sheet and Plate<sup>6</sup>
- B 580 Specification for Anodic Oxide Coatings on Aluminum<sup>7</sup>
- F 708 Practice for Design and Installation of Rigid Pipe Hangers<sup>8</sup>

#### 2.2 Other Documents:

<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.

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<sup>2</sup> This specification is intended to supersede NAVSEA Drawing S4824-1385509. However, cancellation of that drawing and adoption of this specification can only be effected by the Navy.

<sup>3</sup> Annual Book of ASTM Standards, Vol 01.04.

<sup>4</sup> Annual Book of ASTM Standards, Vol 01.03.

<sup>5</sup> Annual Book of ASTM Standards, Vol 01.05.

<sup>6</sup> Annual Book of ASTM Standards, Vol 02.02.

<sup>7</sup> Annual Book of ASTM Standards, Vol 02.05.

<sup>8</sup> Annual Book of ASTM Standards, Vol 01.07.

ANSI B18.1 Small Solid Rivets<sup>9</sup>

American Welding Society D1.1 on Steel<sup>10</sup>

### 3. Classification

3.1 Valve locking devices shall be classified by the following types and grades in accordance with the method of locking and material used.

#### 3.2 Types:

3.2.1 *Type I*—Wire rope assembly (see Fig. 1 Fig. 2).

3.2.2 *Type II*—Handwheel latch (see Fig. 3 Fig. 4).

3.2.3 *Type III*—Locking shield (see Fig. 5).

#### 3.3 Grades:

3.3.1 *Grade A*—Stainless steel, Specification A 167, Type 316.

3.3.2 *Grade B*—Anodized aluminum, Specification B 209, Alloy 5052.

3.3.3 *Grade C*—Carbon steel, commercial quality steel (see Specification A 36/A36M).

### 4. Ordering Information

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

4.2 ASTM Designation and year of issue.

4.3 *Type*.

4.4 *Grade*.

4.5 *Padlock Size* (if necessary).

4.6 *Rubber Coating* (if necessary).

4.7 *Necessary Dimensions*:

4.7.1 *Type I*:

4.7.1.1 Length of wire strand.

4.7.1.2 Diameter of pipe.

4.7.2 *Type II*:

4.7.2.1 Maximum height (fully opened).

4.7.2.2 Minimum height (fully closed).

4.7.2.3 Handwheel thickness.

4.7.2.4 Handwheel depth.

4.7.2.5 Diameter at location of attachment.

<sup>9</sup> Available from American National Standards Institute, 25 W. 43rd St., 4th Floor, New York, NY 10036.

<sup>10</sup> Available from American Welding Society, 550 N.W. LeJeune Rd., Miami, FL 33126.



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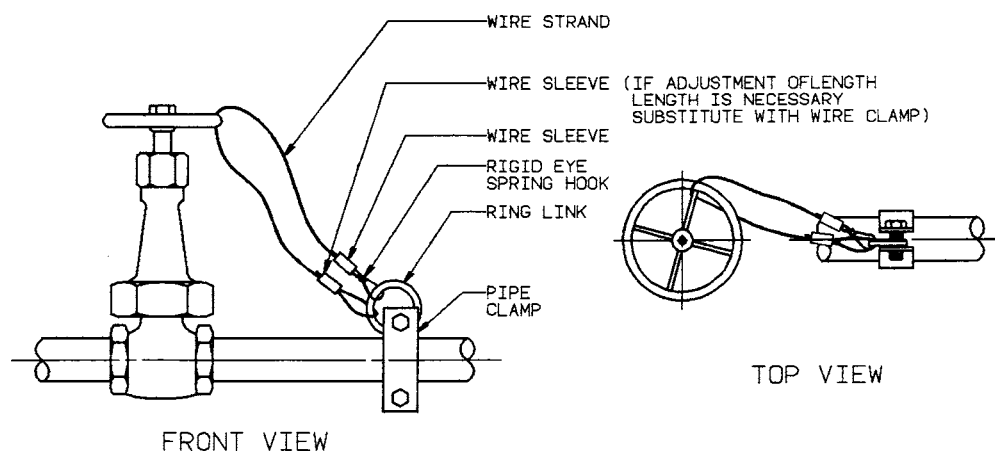
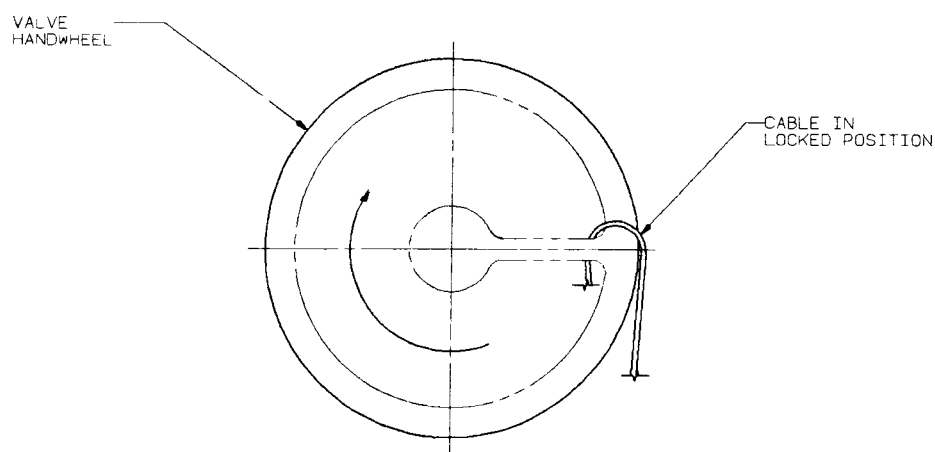
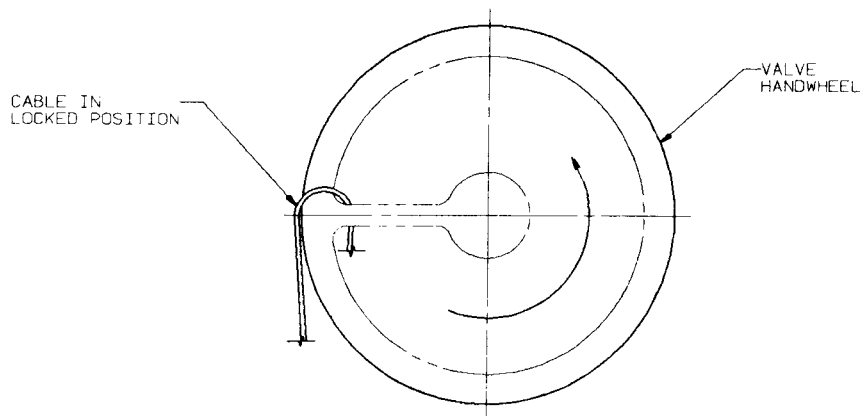


FIG. 1 Type I—Wire Rope Assembly



(a) Handwheel locked in maximum position clockwise rotation



(b) Handwheel locked in maximum position counterclockwise rotation

FIG. 2 Miscellaneous Type I Details

4.7.3 Type III:

4.7.3.1 Depth.

4.7.3.2 Height.

4.7.3.3 Width.

4.7.3.4 Outside diameter (OD) of pipe.