**Designation: ~~F993 – 17~~ F993 – 21**

An American National Standard

# Standard Specification for Valve Locking Devices[1]

This standard is issued under the fixed designation F993; 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 U.S. Department of Defense.*

## 1. Scope

1.1 This specification[2] 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 supersede NASEA drawing S4824-1385509. However, cancellation of that drawing and adoption of this specification can only be effected by the navy.~~

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

1.5 *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:*[3]

A36/A36M Specification for Carbon Structural Steel
A240 Specification for Chromium and Chromium-Nickel Stainless Steel Plate, Sheet, and Strip for Pressure Vessels and for General Applications
A492 Specification for Stainless Steel Rope Wire
A668/A668M Specification for Steel Forgings, Carbon and Alloy, for General Industrial Use
B209 Specification for Aluminum and Aluminum-Alloy Sheet and Plate (Metric) B0209_B0209M

[1] 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 ~~May 1, 2017~~Sept. 1, 2021. Published ~~May 2017~~September 2021. Originally approved in 1986. Last previous edition approved in ~~2011~~2017 as ~~F993 – 86 (2011).~~F993 – 17. DOI: ~~10.1520/F0993-17.~~10.1520/F0993-21.

[2] This specification ~~is intended~~was developed to supersede NAVSEA Drawing ~~S4824-1385509. However, cancellation of that drawing and adoption of this specification can only be effected by the Navy.~~S4824-1385509, which has subsequently been cancelled and this specification has been approved for use by agencies of the U.S. Department of Defense.

[3] For referenced ASTM standards, visit the ASTM website, www.astm.org, or contact ASTM Customer Service at service@astm.org. For *Annual Book of ASTM Standards* volume information, refer to the ~~standard's~~standard's Document Summary page on the ASTM website.

B580 Specification for Anodic Oxide Coatings on Aluminum
F708 Practice for Design and Installation of Rigid Pipe Hangers
2.2 *Other Documents:*
~~ANSI~~ASME B18.1.1 Small Solid Rivets 7/16 Inch Nominal Diameter and Smaller[4]
~~American Welding Society~~ AWS D1.1 on Steel[5]

## 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 and Fig. 2).

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

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

3.3 *Grades:*

3.3.1 *Grade A*—Stainless steel, Specification A240, Type 316.

3.3.2 *Grade B*—Anodized aluminum, Specification B209, Alloy 5052.

3.3.3 *Grade C*—Carbon steel, commercial quality steel (see Specification A36/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.*

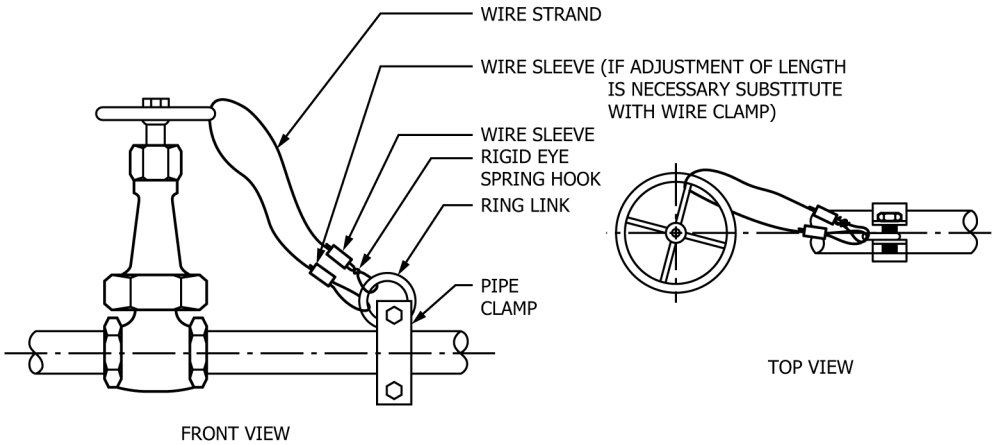
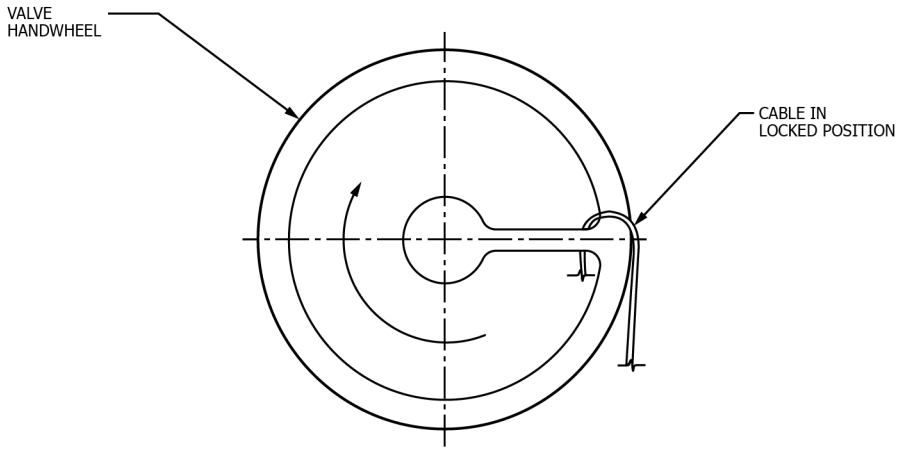
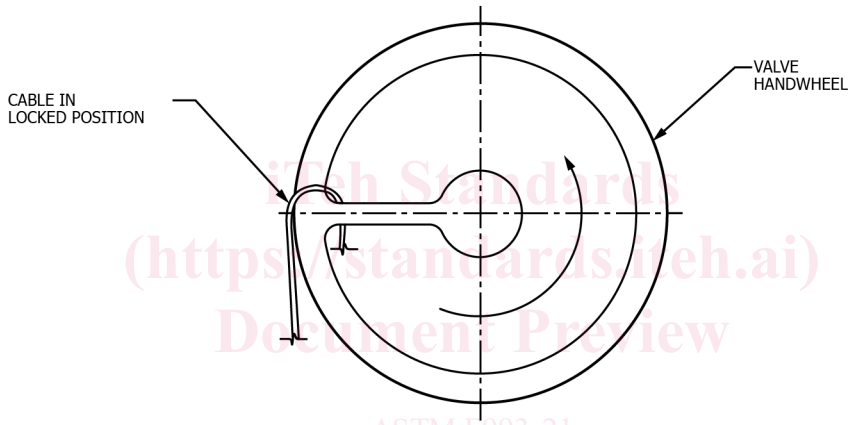



**FIG. 1 Type I—Wire Rope Assembly**

[4] Available from American ~~National Standards Institute (ANSI), 25 W. 43rd St., 4th Floor,~~ Society of Mechanical Engineers (ASME), ASME International Headquarters, Two Park Ave., New York, NY ~~10036, http://www.ansi.org.~~10016-5990, http://www.asme.org.
[5] Available from American Welding Society (AWS), 8669 NW 36 St., #130, Miami, FL 33166-6672, http://www.aws.org.




**(a)** Handwheel locked in maximum position clockwise rotation




**(b)** Handwheel locked in maximum position counterclockwise rotation

**FIG. 2 Miscellaneous Type I Details**



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.

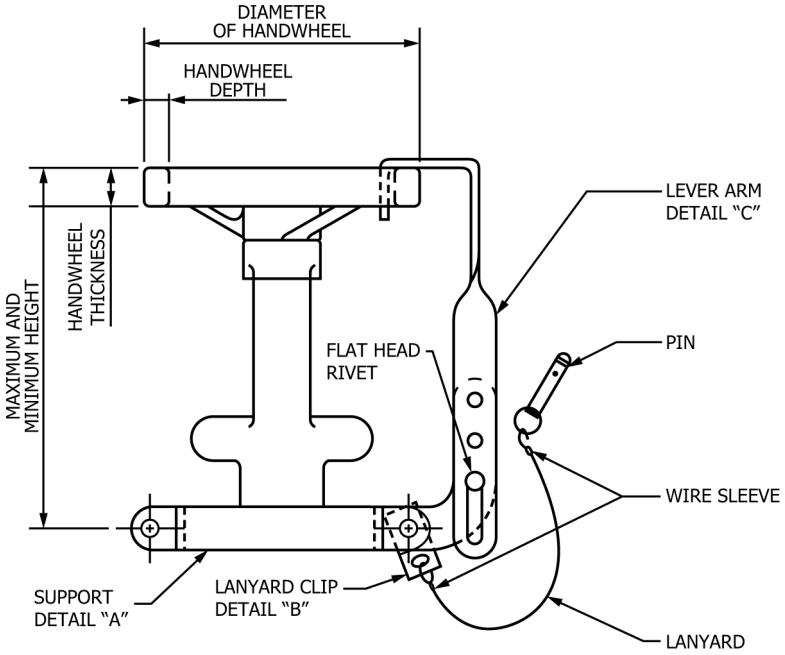



**FIG. 3 Type II—Handwheel Latch**



4.7.2.4 Handwheel depth.

4.7.2.5 Diameter at location of attachment.

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.

## 5. Materials and Manufacture

5.1 *Materials:*

5.1.1 *Type I Materials:*

5.1.1.1 *Pipe Clamp*—Indicate diameter, similar to Practice F708, Fig. 1, material specified by grade.

5.1.1.2 *Ring Link*—Size to be not less than clearance shown in Practice F708, Table 3, Column F, material specified by grade.

5.1.1.3 *Common Wire Strand*—3⁄16-in. diameter, seven strands of seven wires each, stainless steel, Specification A492, Alloy 316.

5.1.1.4 *Tiller Rope Clamp*—3⁄16-in. cable size, manufacturer, stainless steel (optional).

5.1.1.5 *Rigid Eye Spring Hook*—5⁄8-in. eye diameter, ½-in. snap opening, plated forged steel, Specification A668/A668M, Class D.

5.1.1.6 *Sleeve*—Swaging, oval, for 3⁄16-in. diameter wire rope, copper.