



Standard Specification for Indicators, Sight, Liquid Level, Direct and Indirect Reading, Tubular Glass/Plastic¹

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

1. Scope

1.1 This specification covers the requirements for direct and indirect reading sight liquid level indicators for general applications. General applications for indirect reading sight glasses are water and fuel service at working pressures 2.07 MPa (300 lb/in.²) and below, temperatures of 149°C (300°F) and below. General applications for direct reading sight glasses are applications in which the temperature does not exceed 66°C (150°F).

1.2 Direct reading sight glass indicators may consist of glass or plastic tubes with fittings including shutoff valves. Glass tubes may be used for low shock direct reading sight glass indicators in which the fluid is not compatible with plastic.

1.3 Indirect reading indicators may consist of a sealed chamber with a magnetic float or flag indicator.

1.4 Special requirements for naval shipboard applications are included in the supplement to this standard.

1.5 The values stated in SI units are to be regarded as the standard. The values given in parentheses are for information only.

2. Referenced Documents

2.1 *ASTM Standards*:²

D3951 Practice for Commercial Packaging

2.2 *ANSI Standards*:

B16.5 Pipe Flanges and Flanged Fittings (DoD adopted)³

3. Terminology

3.1 Definitions:

¹ This specification is under the jurisdiction of ASTM Committee F25 on Ships and Marine Technology and is the direct responsibility of Subcommittee F25.10 on Electrical.

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² 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 Document Summary page on the ASTM website.

³ Available from American National Standards Institute (ANSI), 25 W. 43rd St., 4th Floor, New York, NY 10036, <http://www.ansi.org>.

3.1.1 *SI (Le Systeme International d'Unites) Units*—units of measurement recognized by the CIPM (Comite' International des Poids et Mesures).

4. Design Classification

4.1 *Types*—Indicator designs are classified as either direct reading or indirect reading. Both types are depicted in Fig. 1, complete with dimensions that facilitate ordering.

4.2 *Special Considerations*—Special considerations that may affect selection and installation are listed below. This is not to be construed as a complete listing.

- (1) Type of indicator,
- (2) Manual or automatic shutoff valves,
- (3) Indication length of liquid level range,
- (4) Method of connection,
- (5) Location of indicator relative to vibrating equipment,
- (6) Protection of the instrumentation,
- (7) Application of each indicator,
- (8) Cleaning procedure or reference to the cleaning procedure being used, and
- (9) Selection of indicator for compatibility with materials, temperature, pressure, ambient environment, and with the parameter being measured.

5. Ordering Information

5.1 The buyer shall provide the manufacturer with all of the pertinent application data outlined in the acquisition requirements.

5.2 *Acquisition Requirements*—Acquisition documents shall specify the following:

- (1) Title, number, and date of this specification;
- (2) Type and quantity of indicators required;
- (3) Manufacturer's part number;
- (4) When qualification testing is required;
- (5) Final disposition of qualification test samples;
- (6) Environmental requirements;
- (7) Operating media;
- (8) Viscosity and specific gravity of fluid for indirect indicators;
- (9) Materials;
- (10) Indication length;