



# Standard Specification for Doors, Watertight, Gastight/Airtight and Weathertight, Individually Dogged, for Marine Use<sup>1</sup>

This standard is issued under the fixed designation F1069; 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, to be used in conjunction with Specification F1073, covers the principal dimensions and the mechanical requirements for manufacturing steel, aluminum, and glass-reinforced plastic, individually dogged, watertight, gastight/airtight, and weathertight doors, for personnel access through bulkheads, complete with frames, for marine use intended to maintain the structural and tightness integrity of bulkheads.

1.2 The values stated in inch-pound units are to be regarded as the standard. The values given in parentheses are for information only.

1.3 The following safety hazards caveat pertains to the test method portion, Section 8, of this specification: *This standard does not purport to address all of the safety concerns, if any, associated with its use. It is the responsibility of the user of this standard to establish appropriate safety and health practices and determine the applicability of regulatory limitations prior to use.*

## 2. Referenced Documents

- 2.1 *ASTM Standards*:<sup>2</sup>
- A36/A36M Specification for Carbon Structural Steel
  - A131/A131M Specification for Structural Steel for Ships
  - B209 Specification for Aluminum and Aluminum-Alloy Sheet and Plate
  - F1073 Specification for Door Fittings, for Watertight /Gastight /Airtight, Weathertight, and Non-Tight Doors, for Marine Use
- 2.2 *ABS Standard*:<sup>3</sup>
- Rules for Building and Classing Steel Vessels

<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 F25.03 on Outfitting and Deck Machinery.

Current edition approved April 1, 2012. Published November 2012. Originally approved in 1987. Last previous edition approved in 2004 as F1069 – 87 (2004). DOI: 10.1520/F1069-87R12.

<sup>2</sup> 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.

<sup>3</sup> Available from American Bureau of Shipping (ABS), ABS Plaza, 16855 Northchase Dr., Houston, TX 77060, http://www.eagle.org.

## 2.3 *Military Standards*:<sup>4</sup>

- MIL-R-900 Rubber Gasket Material (45 Durometer Hardness)
- MIL-R-21607 Resins, Polyester Low-Pressure Laminating Fire Retardant
- MIL-P-17549 Plastic Laminates, Fibrous Glass Reinforced
- MIL-G-17927 Gaskets, Glass-Metallic Cover, Silicone Core
- MIL-C-81706 Coating, Aluminum and Aluminum Alloys
- MIL-P-24441 Epoxy-Polyamide Paint
- DoD-STD-2138 Metal Sprayed Coating Systems for Corrosion Protection
- TT-E-490 Enamel Silicone Alkyd Copolymer, Semi-gloss Exterior

## 3. Classification

3.1 The doors shall be classified into groups as given in Table 1, according to their application; in addition, the length “L” shall be in accordance with the ABS Rules for Building and Classing Steel Vessels.

3.2 The doors shall be of two types. Type I doors shall conform to all dimensions, scantlings, and details of this specification. Type II doors shall be to special openings conforming to the test methods of this specification and scantlings indicated in Figs. 1-4. Special built doors with more than 9 psi (62 kPa) shall be indicated in the ordering information (see Supplementary Requirements).

3.2.1 Tolerances of all doors shall be  $\pm 1/8$  in. (3 mm).

3.3 Where structural fire protection requirements are applicable, the doors shall meet the same requirements as required for the bulkheads in which fitted.

## 4. Ordering Information

4.1 Orders for doors, under this specification, shall include the following:

4.1.1 Group (see Table 1), type of material and dimensions (see Tables 2-5 inclusive) of doors,

4.1.2 Nominal and ASTM designations indicating fixed lights or no lights,

<sup>4</sup> Available from Standardization Documents Order Desk, DODSSP, Bldg. 4, Section D, 700 Robbins Ave., Philadelphia, PA 19111-5098, http://dodssp.daps.dla.mil.

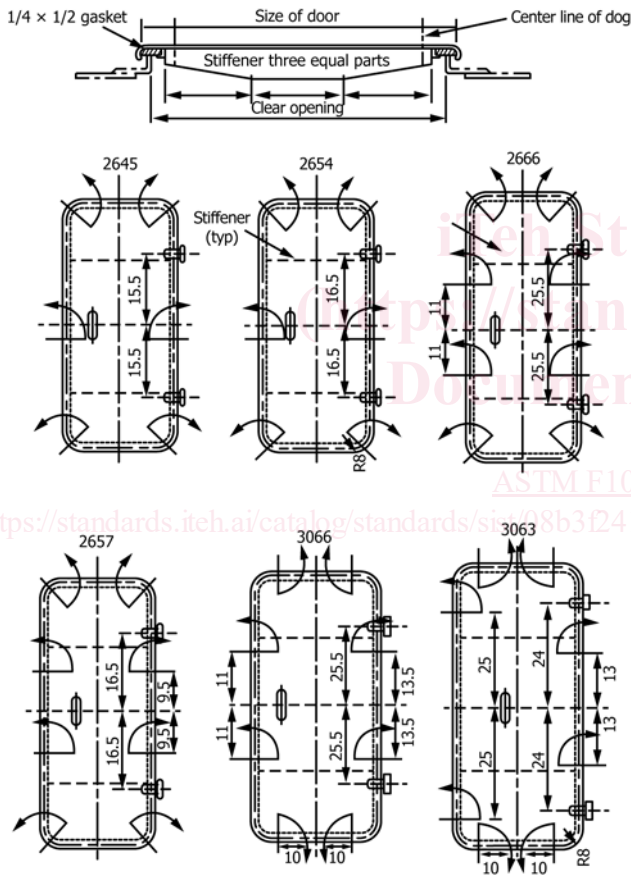
TABLE 1 Door Groups

Group	Application
A (WT) <sup>A</sup>	Doors in the bridge front bulkhead and the unprotected bulkhead of deckhouses/superstructures having the length of 0.4L or more and deckhouses that enclose machinery openings.
B (WT) <sup>A</sup>	Doors in the deckhouse bulkheads partially protected or in the bulkhead of deckhouses/superstructures having the length below 0.4L and not around machinery openings, watertight and airtight doors below weather deck.
C (AT/GT) <sup>B</sup>	Doors in the aft end bulkhead of the bridge, forecastle, and deckhouses at the weather deck level.
D (WEAT) <sup>C</sup>	Doors in the deckhouse above the weather deck level.

<sup>A</sup> WT—Indicates watertight.  
<sup>B</sup> AT/GT—Indicates airtight/gastight. (Airtight is Naval terminology and is identical to gastight doors in commercial vessels.)  
<sup>C</sup> WEAT—Indicates weathertight.

STEEL DOORS

Unit : inches



Remarks: 1. Stiffeners shall be spaced to divide the doorway into four equal parts.  
 2. Corner radius 8"R shows the inside of the doorframe.

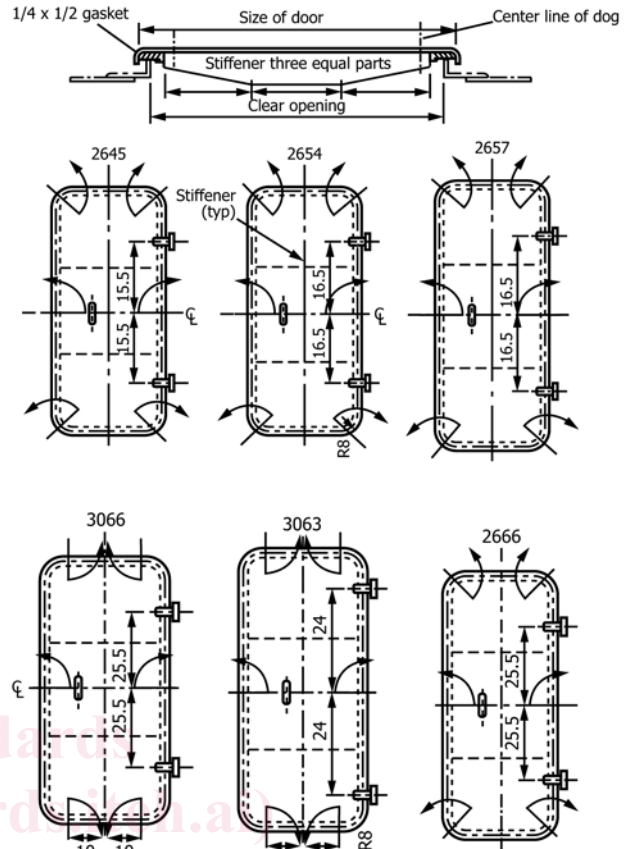
NOTE 1—1 in. = 25.4 mm.

FIG. 1 Group A and B

- 4.1.3 Quantity of each hand of door (right hand/left hand),
- 4.1.4 Test head to be indicated when Type II door is required, and
- 4.1.5 Hasp and staple assemblies.

STEEL DOORS

Unit : inches



Remarks: 1. Stiffeners shall be spaced to divide the doorway into three equal parts.  
 2. Corner radius 8"R shows the inside of the doorframe.

NOTE 1—1 in. = 25.4 mm.

FIG. 2 Group C

4.2 Inspection and acceptance of doors shall be agreed upon between the purchaser and the supplier.

5. Materials and Manufacture

5.1 The materials and specifications shall be as shown in Table 5.

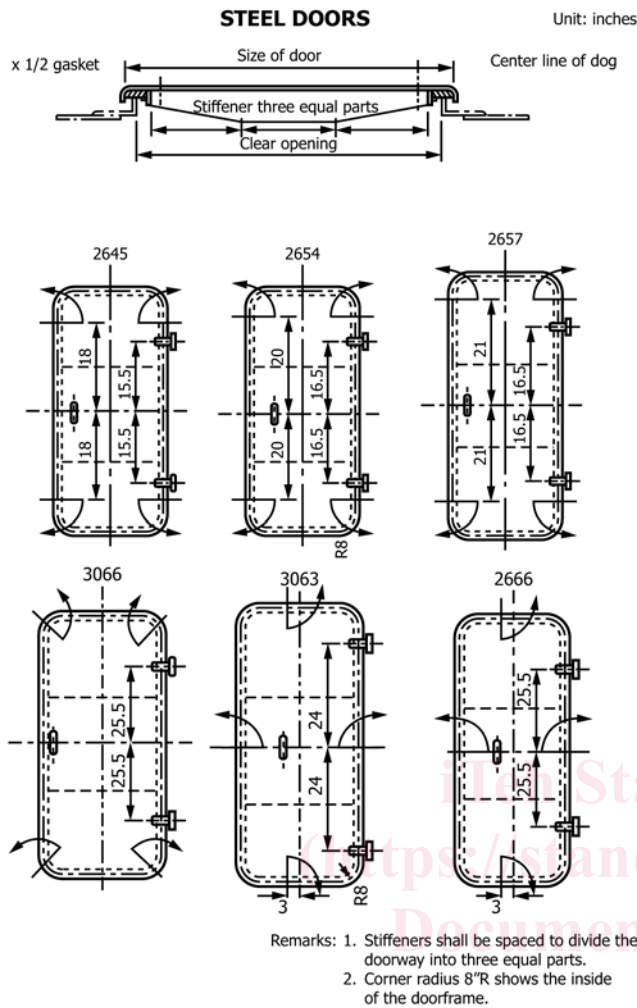
5.2 Glass-reinforced plastic (GRP) material of doors and frames shall meet the requirements of MIL-P-17549, Grade 1. In addition, laminate must have the flammability limits equal to the requirements for Grade 2, Class A, of MIL-R-21607.

5.2.1 All GRP material that is drilled, cut, and sanded, leaving the surface exposed, shall be sealed with the same resin as the exposed material.

6. Construction, Shape, and Dimensions

6.1 The construction, shape, and clear opening dimensions shall be as shown in Table 2, Table 3, Table 4, and Fig. 1, Fig. 2, and shall also conform to the following:

6.1.1 A right-hand opening door shall be construed as one that opens toward you with hinges located on right side of door. A left-hand opening is similar but with hinges on the left.



NOTE 1—1 in. = 25.4 mm.

FIG. 3 Group D

6.1.2 Door frames shall be supplied as indicated in Fig. 4. The corner radius, inside of door frame, shall be 8 in. (203 mm).

6.1.3 Dogs shall be located on the door panels unless otherwise specified. To hold dogs in open position, steel wedges or equivalent shall be welded to the panels.

6.1.4 Doors shall be fitted with dogs, hinges, grab handles, label plates, and hook assemblies; for details, see Specification F1073.

6.1.5 Doors shall be fitted with hasp and staple assemblies if so specified by the purchaser in the ordering information.

6.1.6 The material for the standard door components shall be as shown in Table 5.

6.1.7 Welding shall be done in accordance with the Rules of the American Bureau of Shipping (indicated in Section 30).

## 7. Workmanship, Finish, and Appearance

7.1 All sharp and ragged edges shall be ground flush and removed for personnel protection.

7.2 Pretreatment and priming of door components shall be as follows:

7.2.1 Steel door and components shall be coated with inorganic zinc-rich primer SSPC Paint 20 Type I-C at 1.5 to 3.0 mil (MDFT) both sides, before assembly, following surface preparation in accordance with the manufacturer's instructions.

7.2.2 Aluminum door and components are to be pretreated with wash primer coating followed with lead-free, chromate-free, anticorrosion prime coating. Pretreatment and primer are to be applied before assembly, following surface preparation, in accordance with the manufacturer's instructions.

7.2.3 GRP door and components are to have color tint "haze gray" painted upon completion of the molding process.

## 8. Test Methods

8.1 Design all steel watertight doors with their respective fittings to an internal pressure of 9 psi (62 kPa). Watertight aluminum and GRP doors shall be 5 psi (34 kPa). Design gastight/airtight doors to an internal pressure of 2 psi (14 kPa).

8.2 Before delivery, certify the doors applicable to watertight, airtight, or weathertight integrity.

## 9. Product Marking

9.1 Each door shall be marked with the purchase order number by attaching a CRES label plate to the door panel using letters at least 1/2 in. (12.7 mm) high, indicating the ASTM designation number, class, nominal number, thickness of door plate, and direction of opening. Other markings may be in paint.

9.2 Label plates shall be screwed or bolted to the door panel on steel and aluminum doors, but in no way adversely affect the watertightness.

9.3 GRP door label plates shall be affixed to the door, with epoxy.

## 10. Packaging and Package Marking

10.1 Doors shall be crated or attached to a pallet in a manner acceptable for shipment by a common carrier. The door and door frame assembly shall be shipped as one unit with gasket protected from knife edge by an inserted partition.

## 11. Keywords

11.1 airtight; bulkheads; doors; gastight; marine; ship; tightness integrity; watertight; weathertight