



Standard Specification for Water Trap for Diesel Exhaust¹

This standard is issued under the fixed designation F1431; 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.

1. Scope

1.1 This specification covers the material, dimensions, and construction of diesel exhaust water traps, which shall be required whenever the exhaust is to be expelled through the hull of the vessel.

1.2 The traps are designed to prevent sea backwash from entering the diesel exhaust system.

1.3 The values stated in SI units are to be regarded as standard. The values given in parentheses after SI units are provided for information only and are not considered standard.

1.4 *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:*²

[B443 Specification for Nickel-Chromium-Molybdenum-Columbium Alloy and Nickel-Chromium-Molybdenum-Silicon Alloy Plate, Sheet, and Strip](#)

[F104 Classification System for Nonmetallic Gasket Materials](#)

2.2 *Military Standard:*³

[MIL-S-901 Requirements for Shock Tests, High Impact, Shipboard Machinery, Equipment and Systems](#)

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 Jan. 1, 2021. Published January 2021. Originally approved in 1992. Last previous edition approved in 2016 as F1431 – 92 (2016). DOI: 10.1520/F1431-92R21.

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 U.S. Government Printing Office, Superintendent of Documents, 732 N. Capitol St., NW, Washington, DC 20401-0001, <http://www.access.gpo.gov>.

2.3 *Other Documents:*

[ABS Rules for Building and Classing Steel Vessels](#)⁴

[AWS D1.1 Structural Welding Code](#)⁵

3. Ordering Information

3.1 Water traps ordered under this specification shall include the following information:

3.1.1 ASTM designation, title and date of this specification,

3.1.2 Quantity,

3.1.3 Size,

3.1.4 Shock test and grade (see Supplementary Requirement S1),

3.1.5 Handhole shall be at 45° unless otherwise specified, and

3.1.6 Flange dimensions shall be indicated for gaskets.

4. Materials and Manufacture

4.1 *Materials:*

4.1.1 The tank and baffles shall be of nickel-chromium-molybdenum-columbium alloy and tested in accordance with Specification B443.

4.1.2 *Gaskets*—Gaskets shall be Classification System F104 (F712100–A9B4–E22K5M6) and shall withstand temperatures of 650°C (1200°F).

4.2 *Manufacture:*

4.2.1 Construction of the water traps shall be in accordance with this specification and Fig. 1.

4.2.2 Welding shall be in accordance with ABS Rules for Building and Classing Steel Vessels or AWS D1.1.

5. Requirements

5.1 Water traps for diesel exhaust systems shall be designed for maximum temperatures of 650°C (1200°F).

⁴ Available from American Bureau of Shipping (ABS), ABS Plaza, 1701 City Plaza Dr., Spring, TX 77389, <http://www.eagle.org>.

⁵ Available from American Welding Society (AWS), 8669 NW 36 St., #130, Miami, FL 33166-6672, <http://www.aws.org>.

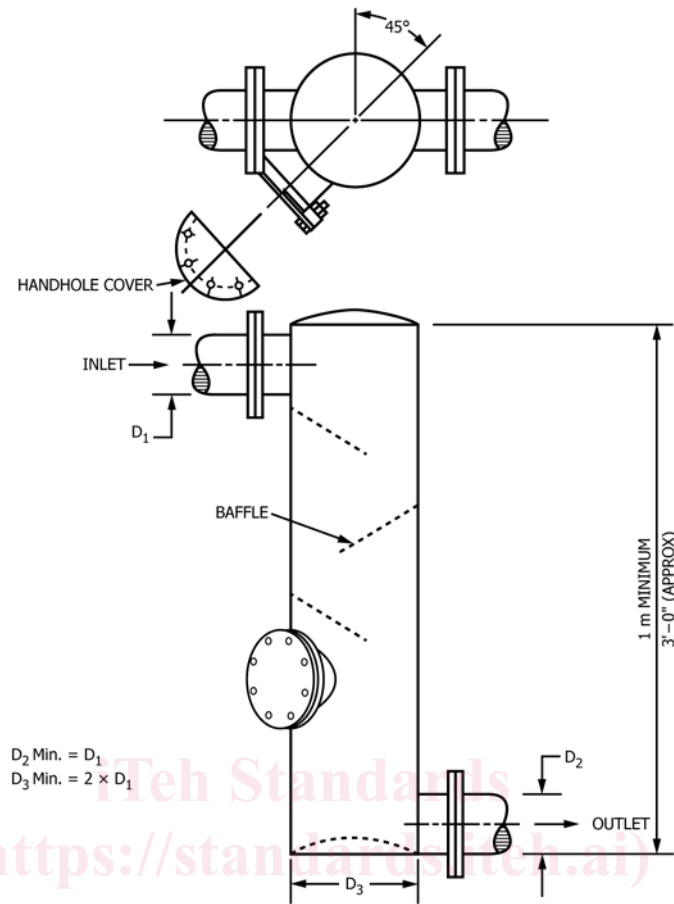


FIG. 1 Water Trap for Diesel Exhaust

5.2 Baffles:

5.2.1 No less than three baffles shall be installed. The bottom baffle shall not extend below the top of the outlet pipe, as shown in Fig. 1.

5.2.2 The inlet may be rotated about the centerline of the trap to suit the installations. The top baffle shall also be rotated to retain the same relation with the inlet as shown in Fig. 1.

5.3 Trap Size:

5.3.1 The trap size shall be a minimum of 1 m (3 ft) high.

5.3.2 The diameter shall equal twice the diameter of the inlet exhaust line.

5.3.3 The minimum free area through the trap shall equal twice the area of the outlet exhaust line.

5.4 Hand Hole—The hand hole shall be configured as indicated in Fig. 1.

6. Dimensions

6.1 The dimensions in Fig. 1 are recommended nominal dimensions.

7. Workmanship, Finish, and Appearance

7.1 Workmanship on traps and piping shall be of sufficient quality to prevent dirt accumulation. Welding shall have small, even beading, free of slag and spatter.

7.2 The trap shall be free of paint.

8. Test Method

8.1 Each trap shall be pneumatically proof tested 35 kPa (5 psi) with no visible seam leakage.

9. Packaging

9.1 The water traps shall be crated or packaged individually for shipment by a commercial common carrier.

9.1.1 Talc and talcum used in the packaging process of items shall be free of asbestos and asbestiform-like materials.

10. Marking

10.1 Each water trap shall bear a weathertight tag showing the purchase order number, ASTM designation, size, and name of manufacturer. The markings on the package shall be approximately 25.4 mm (1 in.) high.

11. Quality Assurance Provisions

11.1 Source Inspection—The purchaser reserves the right to inspect the manufacturing process and end product in the supplier’s plant.

12. Keywords

12.1 diesel exhaust systems; piping systems