Prefabricated Gravity Grease Interceptors
American National Standard

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Preface


This Standard was developed by the IAPMO Z1000 Z1001 Technical Subcommittee and approved by the IAPMO Plumbing Standards Committee in accordance with the ANSI Essential Requirements: Due process requirements for American National Standards, and the IAPMO Policies and Procedures for Consensus Development of American National Standards, SCC Requirements and Guidance - Accreditation of Standards Development Organizations, and IAPMO Policies and Procedures for Development of National Standards of Canada. This Standard was approved as an American National Standard on July 15, 2016 YYYY-MM-DD and approved as a National Standard of Canada on YYYY-MM-DD.

Notes:

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5. The significant portion of the subject matter in this standard can be grouped in the International Classification for Standards (13.030.40 Installations and equipment for waste disposal and treatment).
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   (b) the definition of the problem, making reference to the specific section and, when appropriate, an illustrative sketch explaining the question;
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</tr>
<tr>
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<tr>
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</tr>
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<td>D. Mann</td>
<td>CA State Pipe Trades</td>
<td>Livermore, California</td>
</tr>
<tr>
<td>R. Mata</td>
<td>American Society of Plumbing Engineers (ASPE)</td>
<td>Mentor, Ohio, USA</td>
</tr>
<tr>
<td>D. Orton</td>
<td>NSF International</td>
<td>Ann Arbor, Michigan, USA</td>
</tr>
<tr>
<td>S.A. Remedios</td>
<td>Remedios Consulting, LLC</td>
<td>London, Ontario, Canada</td>
</tr>
<tr>
<td>R. Rice</td>
<td>Senior Mechanical Inspector, Retired</td>
<td>Maplewood, Minnesota</td>
</tr>
<tr>
<td>D. Rousseau</td>
<td>Multi Sciences Expertise Inc.</td>
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</tr>
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Zurn Industries, Inc.
Erie, Pennsylvania, USA

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Carmel, Indiana, USA

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IAPMO
Ontario, California, USA

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1 Scope

1.1 This Standard covers prefabricated gravity grease interceptors made of concrete, fiber-reinforced polyester (FRP), thermoplastic, or steel and specifies requirements for design, materials, performance, testing, and markings.

1.2 The requirements of this Standard are not intended to prevent the use of alternative materials or methods of construction provided such alternatives meet the intent and requirements of this Standard.

1.3 In this Standard,
(a) “shall” is used to express a requirement, i.e., a provision that the user is obliged to satisfy to comply with the standard;
(b) “should” is used to express a recommendation but not a requirement;
(c) “may” is used to express an option or something permissible within the scope of the standard; and
(d) “can” is used to express either a possibility or a capability.

Notes accompanying sections of the Standard do not specify requirements or alternative requirements; their purpose is to separate explanatory or informative material from the text. Notes to tables and figures are considered part of the table or figure and can be written as requirements.

1.4 SI units are the primary units of record in global commerce. In this Standard, the inch/pound units are shown in parentheses. The values stated in each measurement system are equivalent in application but each unit system is to be used independently. Combining values from the two measurement systems can result in non-conformance with this Standard. All references to gallons are to U.S. gallons.
2 Reference Publications

This Standard refers to the following publications, and where such reference is made, it shall be to the current edition of those publications, including all amendments published thereto.

**ASME (The American Society of Mechanical Engineers)**
ASME B16.5  
*Pipe Flanges and Flanged Fittings: NPS 1/2 through 24 Metric/Inch Standard*

ASME B1.20.1  
*Pipe Threads, General Purpose, Inch*

**ASTM International (American Society for Testing and Materials)**
ASTM C923  
*Standard Specification for Resilient Connectors Between Reinforced Concrete Manhole Structures, Pipes, and Laterals*

ASTM C1613  
*Standard Specification for Precast Concrete Grease Interceptor Tanks*

ASTM C1644  
*Standard Specification for Resilient Connectors between Reinforced Concrete On-Site Wastewater Tanks and Pipes*

**IAPMO (International Association of Plumbing and Mechanical Officials)**
IAPMO/ANSI Z1000  
*Prefabricated Septic Tanks*

**UL (Underwriters Laboratories)**
UL 969  
*Marking and Labeling Systems*

3 Definitions and Abbreviations

3.1 Definitions
The following definition shall apply in this Standard:

**Gravity grease interceptor** — a plumbing appurtenance identified by volume and intended to be installed in a sanitary drainage system to intercept, using gravity only, nonpetroleum fats, oils, and greases (FOG) from a wastewater discharge.

3.2 Abbreviations
The following abbreviations apply in this Standard:

- **FOG** — fat, oil, and grease
- **FRP** — fiber-reinforced polyester
- **NPS** — nominal pipe size
4 General Requirements

4.1 General
Prefabricated gravity grease interceptors
(a) shall be watertight;
(b) shall have a static liquid volume of at least 1,136 L (300 gal); and
(c) should have at least two compartments.

4.2 Drawings and Supporting Documentation
Drawings and supporting documentation for grease interceptors shall show materials, dimensions, and capacities and other information necessary to demonstrate compliance with this Standard. Supporting documentation, including structural design calculations, shall be signed by a licensed professional engineer.

4.3 Structural Strength

4.3.1

4.3.1.1 Grease interceptors shall be capable of withstanding the loads specified in Sections 4.3.2 to 4.3.5 when full and when empty.

4.3.1.2 Structural performance shall be verified by design calculations conducted by a licensed professional engineer in accordance with Sections 4.3.2 and 4.3.3.

4.3.2 Grease interceptor exterior walls shall be capable of withstanding
(a) an internal hydrostatic pressure exerted by a column of water of a height equivalent to the height of the outlet invert; and
(b) an external earth load equivalent to the pressure exerted by a fluid with a density of 480 kg/m³ (30 lb/ft³).

4.3.3 Grease interceptors and their covers shall be capable of carrying a vertical earth load of at least 24 kPa (500 lb/ft²) [i.e., equivalent to a burial depth of 900 mm (3 ft)].

4.3.4 Partitions and baffles shall be capable of withstanding hydrostatic loads occurring when one compartment is empty and the remaining compartment(s) is full.

4.3.5 Where the expected earth loads or installation conditions differ from the conditions in Sections 4.3.1 to 4.3.4, grease interceptor walls and covers shall be designed to withstand all anticipated earth and other loads.
4.4  Access Openings

4.4.1  Grease interceptors shall have at least two access openings, as follows:
(a) one access opening shall be located over the inlet device; and
(b) the second access opening over the outlet device.

4.4.2  Every compartment of a grease interceptor shall have at least one access opening with a minimum dimension of 500 mm (20 in) inside dimension. When a compartment exceeds 3.65 m (12 ft) in length, (a) a second access opening shall be provided; and
(b) the second opening shall be located over the baffle, when applicable.

4.5  Inlets and Outlets

4.5.1  Grease interceptor inlets and outlets shall be able to accommodate NPS-4 or larger pipes.

4.5.2  Inlet and outlet devices shall
(a) be open-topped; and,
(b) extend at least 120 mm (5 in) above the liquid surface.

4.5.3  Inlet devices shall extend to below the liquid level.

4.5.4  Outlet devices shall extend to within 305 mm (12 in) of the inside floor of the grease interceptor.

4.5.5  Outlet devices shall not be smaller in size than the connecting service pipe.

4.5.6  The invert of the inlet pipe shall be at least 50 mm (2 in) above the invert of the outlet pipe.

4.6  Venting

4.6.1  Partitions, baffles, and inlet and outlet devices shall have a venting area not smaller than the cross-sectional area of the inlet or the outlet, whichever is greater.

4.6.2  There shall be a separation of at least 25 mm (1 in) between the top of the grease interceptor and the top of the vent opening.
4.7 Partitions and Baffles

4.7.1 Partitions and baffles separate compartments and shall extend at least 120 mm (5 in) above the liquid surface.

4.7.2 Flow between compartments shall be through a
(a) horizontal slot having a cross-sectional area of at least two times the area of the inlet device;
(b) inverted tee, 90° elbow, or similar fitting at least NPS-4 but in no case smaller than the grease interceptor inlet; or
(c) two or more equally spaced openings having a combined cross-sectional area of at least two times the area of the inlet device.

4.8 Air Space
Grease interceptors shall have at least 230 mm (9 in) of air space above the liquid level. The air space shall have a volume equivalent to at least 10% of the working liquid volume of the grease interceptor.

4.9 Risers
When applicable, grease interceptors shall have a means of connecting with an access opening extension system (i.e., risers) that is watertight.

4.10 Covers
Openings shall be capable of accommodating covers (i.e., lids) that
(a) are watertight;
(b) are secure;
   Note: Acceptable measures for securing covers include padlock(s), covers that can be removed only with tools, or covers with a mass of at least 30 kg (66 lb).
(c) do not slide, rotate, or flip open; and
(d) are capable of supporting the anticipated loads.

4.11 Pipe Connectors
Connections between pipes and grease interceptors shall be made with
(a) plain-end connectors;
(b) flanged connectors complying with ASME B16.5;
(c) threaded male or female connectors complying with ASME B1.20.1;
(d) flexible connectors that comply with ASTM C923 or ASTM C1644, for precast-concrete grease interceptors; or
(e) flexible connectors that comply with Section 7 of ASTM C923 or Section 7 of ASTM C1644, for grease interceptors made of materials other than precast concrete.

4.12 Installation-Site Assembly
Installation-site assembly of grease interceptors and components (i.e., assembly at a location other than the grease interceptor manufacturing facility or manufacturer-authorized assembly facility) shall be kept to a minimum. When installation-site assembly of grease interceptors is necessary, all materials for proper assembly shall be provided with each grease interceptor. Joints made on site shall be as durable and watertight as joints made at the manufacturing or manufacturer-authorized assembly facility.
4.13 Joints

4.13.1 Joints intended for assembly at a location other than the grease interceptor manufacturing facility shall
(a) be manufactured in such a way that uniform pressure is exerted on the connection along its entire
length; and
(b) have a continuous watertight seal.

4.13.2 The means for sealing the joints shall be as specified by the manufacturer.

4.14 Free Surface Area
Grease interceptors shall have a free liquid surface area of at least 0.09 m² (1 ft²) for every 170 L (45 gal)
of liquid volume.

5 Precast-Concrete Grease Interceptors

Precast-concrete grease interceptors shall comply with the materials and manufacturing requirements of
ASTM C1613.

6 Fiber-Reinforced Polyester Grease Interceptors

Fiber-reinforced polyester used for manufacturing grease interceptors and components shall comply with
Section 6 of IAPMO/ANSI Z1000.

7 Thermoplastic Grease Interceptors

Thermoplastic grease interceptors shall comply with Section 7 of IAPMO/ANSI Z1000.

8 Steel Grease Interceptors

Steel grease interceptors shall comply with Section 8 of IAPMO/ANSI Z1000.

9 Testing Requirements and Performance Criteria

9.1 Watertightness Tests
Grease interceptors shall comply with one of the watertightness tests specified in Sections 9.1.2 to 9.1.4
of IAPMO/ANSI Z1000.
9.2 Fiber-Reinforced Polyester Tests
Fiber-reinforced polyester shall be tested in accordance with the tests for fiber-reinforced polyester specified in Section 9.2 of IAPMO/ANSI Z1000.

9.3 Thermoplastic Grease Interceptor Tests
Grease interceptors made of thermoplastic materials shall be tested in accordance with the tests for thermoplastic tanks specified in Section 9.3 of IAPMO/ANSI Z1000.

10 Markings and Accompanying Literature

10.1 Prefabricated gravity grease interceptors complying with this Standard shall be marked with the
(a) manufacturer’s name or trademark;
(b) model number;
(c) working liquid volume, expressed at least in gallons;
(d) date (i.e., month and year), date code, or identifier traceable to the date of manufacture;
(e) maximum design load and maximum burial depth for which the grease interceptor is designed; and
(f) inlet and outlet.

10.2 Markings shall be permanent, legible, and visible.

10.3 Acceptable means of applying permanent markings shall include permanently-affixed metal plates, etching, mechanical stamping, stamping with a permanent (non-water-soluble) ink, and molding in.

Adhesive labels that comply with UL 969 shall also be considered permanent when placed on a surface that is not normally submerged in water.

10.4 Grease interceptors shall be accompanied by instructions for their installation.
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