

**INTERNATIONAL ASSOCIATION OF PLUMBING  
AND MECHANICAL OFFICIALS**

**IAPMO GUIDE CRITERIA**

**FOR**

**OIL/WATER SEPARATORS AND  
COALESCING PLATE SEPARATORS**

**IGC 183 - 2008 (R2014)**

**1. PURPOSE**

- 1.1** The purpose of this standard is to establish specifications for the construction of oil/water separators and coalescing plate separators. It is intended to serve as a guide for producers, distributors, architects, code officials, contractors, installers and end users; to promote understanding regarding materials, manufacture, installation and performance, and to provide a means for identifying oil/water separators and coalescing plate separators.
- 1.2** This standard is intended to be a general guideline and does not prevent the use of alternate materials, provided that any such alternate meets or exceeds the requirements of this standard.

**2. SCOPE**

- 2.1** Oil/water separators and coalescing plate separators shall be designed to remove petroleum based oils from storm or process water. The separators shall be designed to separate oils and solids having different specific gravities than water. The separators shall retain the oil until accumulations can be removed. This standard covers referenced standards, definitions, general requirements, material requirements, testing requirements, installation requirements and markings and identification for oil/water separators and coalescing plate separators.

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### 3. REFERENCED STANDARDS

|                  |                                                                                       |
|------------------|---------------------------------------------------------------------------------------|
| ACI 318          | Building Code Requirements                                                            |
| ACI 350          | Code Requirements of Environmental Engineering Concrete Structures and Commentary     |
| API Publ. 421    | Management of Water Discharges: Design and Operations of Oil-Water Separators         |
| ASTM C 150       | Portland Cement                                                                       |
| ASTM C 595       | Blended Hydraulic Cements                                                             |
| ASTM C 857       | Minimum Structures Design Loading for Underground Precast Concrete Utility Structures |
| ASTM C 858       | Underground Precast Concrete Utility Structures                                       |
| ASTM C 891       | Installation of Underground Precast Concrete Utility Structures                       |
| ASTM D 1785      | Poly Vinyl Chloride (PVC) Plastic Pipe, Schs. 40, 80 and 210                          |
| ASTM D 2665      | Poly Vinyl Chloride (PVC) Plastic Drain, Waste and Vent Pipe and Fittings             |
| ASTM F 891       | Coextruded Poly Vinyl Chloride (PVC) Plastic Pipe with a Cellular Core                |
| IAPMO/ANSI Z1000 | Prefabricated Septic Tanks                                                            |

### 4. DEFINITIONS

- 4.1 Oil/water separators** - gravity separators which rely on the tendency of oil droplets to rise in water. Oil water separators collect the oil droplets and contain them in a stationary layer of water at the top of the separator chamber.
- 4.2 Coalescing plate separators** – are oil/water separators in which the oil is collected and contained through the use of “coalescing media” (or equal).
- 4.3 Oleophilic** – having an affinity to oils rather than water.

## 5. GENERAL REQUIREMENTS

- 5.1** Sizing oil/water separators and coalescing plate separators is based on the provision of horizontal separation area according to Hazen's surface-loading theory (see Appendix A), and is in accordance with API Publication 421
- 5.2 Oil / Water Separators**
- 5.2.1** Drawings shall show all product components, dimensions and unit capacity. All pipes, baffle and weir walls, design flow water depth and other critical elements are to be specifically labeled, located and dimensioned.
- 5.2.2** Each oil/water separator shall have a minimum of three compartments, with the separation chamber being 45% to 65% of the total volume of the unit. Using the principles of Sedimentation Physics, Hazen's Principle of Surface Loading and a residence time of 15 minutes, the design flow (Q), separation length (L), width (B) and water depth (d) can be calculated and verified. The chamber walls are to be placed, splitting the inlet and outlet chamber volumes at least 50/50, but no more than 60/40 either way.
- 5.2.3** Access to the oil/water separator shall be provided by galvanized steel or aluminum doors, or round cast iron manhole frames and covers. One access per compartment or one large access that allows entry into all chambers shall be provided. The access openings shall be sized to allow for proper maintenance of the units, and shall have a cover that cannot flip, rotate or slide, when properly installed. The use of mechanical fasteners is allowed, but not required.
- 5.2.4** The inlets, outlets, baffles and weirs shall be placed, and provided with the required piping, tees and other approved fittings, allowing for the proper operation of the units. For pipes, refer to ASTM F891, for tees and other approved fittings, refer to ASTM D1785 and D2665.
- 5.2.5** The baffles and weirs shall be constructed of material comply with Section 6 of this standard.