Orifice Plate

One-Piece Orifice Plate with Self-Contained/Pressure-Energized Seals

www.pikotek.com
Pikotek is pleased to introduce a new one-piece orifice plate design for flowline and pipeline flow restriction and flow measurement applications. The Pikotek one-piece orifice plate incorporates spring-energized PTFE radial face seals and elastomeric o-ring backup seals which are completely encapsulated in a composite seal retainer which makes the orifice plate one-piece and simple to install. This eliminates the need for conventional orifice plates, plate holders and separate gaskets. This new orifice plate design substantially reduces residual flange/bolt stress in orifice flanges and improves overall sealing performance under even the most extreme operating conditions in all hydrocarbon production, injection and process applications.

Pikotek orifice plates are comprised of stainless steel plates (or other commonly available CRA material) bonded to a high-modulus, matrix-reinforced composite seal retainer. The Pikotek orifice plate's primary sealing mechanism is the combination of the fully-encapsulated, pressure-energized sealing elements compressed into the orifice plate's rigid seal retainer (all of which comprise the orifice plate's one-piece design). Once compressed and encapsulated in the composite seal retainer, these seals possess the ability to operate under even the most extreme chemical and mechanical forces (i.e. highly corrosive fluids/gases, extreme internal system pressures, temperatures, vibration/cavitation, external bending and tension loads). Because of the high modulus of elasticity of the composite seal retainer, the orifice plate possesses good recovery/memory characteristics which enables it to withstand long term pressure/thermal cycling, high vibration/cavitation and joint relaxation.

### ANSI/ASME B16.5 Flange Classes

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**DIMENSIONS (in inches)**

- NPS = Nominal Pipe Size
- RT = Retainer Thickness
- PT = Plate Thickness
- OD = Outside Diameter
**ORIFICE PLATE PRIMARY FEATURES AND BENEFITS INCLUDE:**

- **NO GASKETS REQUIRED**
- **SIMPLE ONE PIECE DESIGN**
- **ELIMINATES GALVANIC CORROSION**
- **EASY INSTALLATION**
- **PRESSURE-ENERGIZED SEALING**
- **WITHSTANDS VIBRATION/CAVITATION**

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- Composite Seal Retainer
- Elastomeric O-Ring
- Back-Up Seal
- Spring-Energized
- Radial Face Seal
- Metal Orifice Plate

**Patented**
Orifice Plate
Advantages and Benefits

• One-piece, self-contained plate and seal design
  (replaces and retrofits conventional plate and ring-joint plate holder designs)
• Available for orifice fittings and orifice flanges (paddle type)
• Flow restriction orifice plates available with any beta orifice size
• Flow measurement orifice plates available with square and sharp edges
  (will not reflect a beam of light when viewed without magnification)
• Flow measurement orifice plate finish: 32 micro-inch roughness
• Flow measurement orifice plate flatness: Flat within 0.010 inches per inch of dam height
  (dam height = pipe diameter minus orifice diameter divided by 2)
• Flow measurement orifice bore tolerance in strict accordance with A.P.I. Chapter 14, Section 3;
  A.G.A. Gas Measurement Committee Report No. 3; and ASME Fluid Meters Committee Report
• Integrated spring-energized radial face seals insure high-integrity/maintenance-free/pressure-
  energized sealing
• Integrated composite seal retainer mitigates galvanic corrosion in dissimilar metal fittings and flanges
• Protects flanges from media-induced corrosion and flow-induced erosion in orifice flanges
• Decreases flange/bolt makeup stresses in orifice flanges
• Increases flange pressure sealing capabilities in orifice flanges
• Increases flange/bolt external (bending and tension) load bearing capabilities in orifice flanges
• Increases resistance to seal relaxation due to pressure/thermal cycling and high vibration/cavitation
• Easy installation and removal
• Reusable orifice plate/seal retainer and seals

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Represented By: