Sotera Precision Meters incorporate oval gear technology, eliminating metal-to-metal contact within the measuring chamber. This unique design promotes minimal wear, sustained accuracy, and low operating costs.

When measuring the flow of a broad range of products, Sotera’s innovative meter design results in minimal resistance to flow. That means efficient performance and low pressure drop across the meter. Sotera’s combination of low pressure drop with minimum seal or slippage area offers better accuracy over a wide range of flow than other commercially produced meters.

Simplicity in design and high-quality materials and manufacturing practices make Sotera meters more reliable and less costly to operate than other meters. In many cases, you can replace your existing meter with a Sotera meter with minimal disruption to system piping and components.

### Applications

**Truck metering**
- Refined fuels
- LPG
- Aviation fuel
- Alternative fuels
- Lube oils
- Agricultural chemicals

**Bulk plant/terminal metering**
- Refined petroleum products and LPG
- Alternative fuels
- Industrial chemicals/solvents
- Marine fuel/bunker oil
- Hot asphalt/asphalt emulsions

**Dispenser metering**
- LPG and fuels
- Diesel Exhaust Fluid

**Industrial process metering**
- Liquid sweeteners/corn syrup
- Coatings
- Pulp and paper chemicals
- Pharmaceuticals
- Printing inks
- Concrete add mixtures

**Industrial liquids**
- Acids/caustics

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Oval Gear
Simple positive displacement technology, only two moving parts.
**TS06 OVAL GEAR METERS — DEF / AdBlue SOLUTION**

- Compact design, only 3.5" x 4" x 5.6".
- Lighter than 10 pounds.
- Easily serviced in place.
- “Zero point” calibration in place.
  
  *Can measure 1 million gallons between zero point adjustments*
- Accurately measures DEF.
- Individually NTEP approved for DEF custody transfer in the United States.
- Positive displacement oval gear technology.
- All wetted materials are approved per ISO 22241-3.
- Patented “Wave Form” gear technology.
- Three-piece case construction.

**Specifications**

<table>
<thead>
<tr>
<th>Model</th>
<th>Nominal Capacity</th>
<th>Pressure Rating</th>
<th>Temperature Rating</th>
<th>Connections</th>
</tr>
</thead>
<tbody>
<tr>
<td>TS06CEDM</td>
<td>2-20 gpm</td>
<td>75-75 lpm</td>
<td>-40°F to +122°F</td>
<td>3/4&quot; ports NPT or BSPP – companion flanges</td>
</tr>
<tr>
<td></td>
<td>450-4,500 lph</td>
<td>50 psi at 100°F</td>
<td>-40°C to +50°C</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>3.5 bar at 40°C</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>345 kPa at 40°C</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Materials**

<table>
<thead>
<tr>
<th>Case</th>
<th>Gears</th>
<th>Posts</th>
<th>Seals</th>
</tr>
</thead>
<tbody>
<tr>
<td>316SS</td>
<td>316SS with DEF approved engineered polymer bearings</td>
<td>HC316SS</td>
<td>Fluorocarbon</td>
</tr>
</tbody>
</table>

**PULSER**

Internal Hall effect pulser and SCL signal conditioner with quadrature signal out.

**METER PERFORMANCE**

Repeatability and Linearity: NTEP dispenser meter standards

**ALUMINUM LPG METERS**

For LPG service, whether Propane or Propane/Butane mixtures, our lightweight, high pressure TS Series is the perfect choice. With no metal-to-metal contact in the measuring chamber, Tuthill Meters provide long reliable service with a minimum of maintenance. NTEP approved for LPG service. Dual hose meters available.

**Specifications**

<table>
<thead>
<tr>
<th>Model</th>
<th>Flow</th>
<th>Pressure Rating</th>
<th>Pulse Resolution (PPG)</th>
<th>Repeatability</th>
<th>Linearity</th>
</tr>
</thead>
<tbody>
<tr>
<td>TS06A</td>
<td>3-18 gpm (11-68 lpm)</td>
<td>350 psi at 100 °F (24 bar at 40°C)</td>
<td>400 ppg (105 ppl)</td>
<td>±0.20%</td>
<td>±0.50%</td>
</tr>
<tr>
<td>TS10A</td>
<td>4-40 gpm (15-150 lpm)</td>
<td>350 psi at 100 °F (24 bar at 40°C)</td>
<td>1728 ppg (456 ppl)</td>
<td>±0.20%</td>
<td>±0.50%</td>
</tr>
<tr>
<td>TS20A</td>
<td>15-150 gpm (57-570 lpm)</td>
<td>350 psi at 100 °F (24 bar at 40°C)</td>
<td>395 ppg (104 ppl)</td>
<td>±0.20%</td>
<td>±0.50%</td>
</tr>
</tbody>
</table>

**Materials**

<table>
<thead>
<tr>
<th>Case</th>
<th>Gears</th>
<th>Posts</th>
<th>Seals</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hardcoat anodized aluminum</td>
<td>PPS (polyphenylene sulfide resin) with carbon bearings (TS06A only - 316SS with carbon bearings)</td>
<td>Stainless Steel</td>
<td>UL Approved Buna N</td>
</tr>
</tbody>
</table>

**APPROVALS**

NTEP (US Weights & Measures), UL listed, CE Mark Pending - OIML and MID

**ACCESSORIES**

Electronic Registers, Strainer, Vapor Eliminator, Control Valve, Relief Valve
TS OVAL GEAR METERS

Our TS Series meters are the standard in the Rotary Positive Displacement meter category. The accuracy and repeatability make this ideal for any environment. Mounted to a truck for bulk delivery, High Speed batching and unloading, Chemical and fertilizer transfer or delivery; the TS meters are compact, lightweight and easy to maintain. The unique oval gear design allows for compact mounting with minimal piping. The modular design allows flexibility in assembly for either mechanical registration or glandless pulse output to a variety of electronic counters, controllers or signal conditioners.

- Only two moving parts.
- No metal-to-metal contact in chamber or bearings.
- Electronic gland-less meter.
- Patented "Wave Form" oval gear design.
- Low differential pressure for maximum flow.

Specifications

<table>
<thead>
<tr>
<th>Model</th>
<th>Capacity on 1cSt at 10:1 turndown</th>
<th>Port Connections</th>
<th>Linearity over 5:1 turn-down from max capacity</th>
<th>Linearity over 10:1 turn-down from max capacity</th>
<th>Linearity over 30:1 turn-down from max capacity</th>
</tr>
</thead>
<tbody>
<tr>
<td>TS10</td>
<td>40 gpm 150 lpm</td>
<td>1&quot; FNPT or BSPP</td>
<td>±0.175%</td>
<td>±0.25%</td>
<td>±0.5%</td>
</tr>
<tr>
<td></td>
<td></td>
<td>9 ft3/h</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>TS15</td>
<td>60 gpm 230 lpm</td>
<td>1.5&quot; 150# RF bolted, FNPT or BSPP</td>
<td>±0.175%</td>
<td>±0.25%</td>
<td>±0.5%</td>
</tr>
<tr>
<td></td>
<td></td>
<td>14 ft3/h</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>TS20</td>
<td>150 gpm 570 lpm</td>
<td>2&quot; 150# RF bolted, FNPT or BSPP</td>
<td>±0.175%</td>
<td>±0.25%</td>
<td>±0.5%</td>
</tr>
<tr>
<td></td>
<td></td>
<td>34 ft3/h</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>TS30</td>
<td>200 gpm 760 lpm</td>
<td>3&quot; 150# RF</td>
<td>±0.175%</td>
<td>±0.25%</td>
<td>±0.5%</td>
</tr>
<tr>
<td></td>
<td></td>
<td>45 ft3/h</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

- Pressure Rating: at 100°F (38°C), Electronic: 400 psi/28 bar except TS30 — 275 psi/19 bar  Mechanical: 150 psi/10 bar
- Temperature Rating: Design -40°F/+257°F = -40°C to +125°C

Materials

<table>
<thead>
<tr>
<th>Case</th>
<th>Gears</th>
<th>Posts</th>
<th>Seals</th>
</tr>
</thead>
<tbody>
<tr>
<td>316 stainless steel</td>
<td>PPS (polyphenylene sulfide resin) with carbon bearings (Std), PTFE optional</td>
<td>316SS hard chrome coated</td>
<td>PTFE standard</td>
</tr>
<tr>
<td>Anodized Aluminum</td>
<td>PPS (polyphenylene sulfide resin) with carbon bearings (Std), PTFE optional</td>
<td>316SS hard chrome coated</td>
<td>Fluorocarbon (Std), PTFE</td>
</tr>
</tbody>
</table>

Nominal Pulse Resolution (± 3% nominal)

<table>
<thead>
<tr>
<th>Standard Models</th>
<th>1 cP Viscosity Stainless Steel</th>
<th>1 cP Viscosity Aluminum</th>
</tr>
</thead>
<tbody>
<tr>
<td>TS10</td>
<td>2,178 ppg (574.8 ppl)</td>
<td>1,728 ppg (456.5 ppl)</td>
</tr>
<tr>
<td>TS15</td>
<td>1,152 ppg (304.3 ppl)</td>
<td>1,013 ppg (267.6 ppl)</td>
</tr>
<tr>
<td>TS20</td>
<td>395 ppg (104.3 ppl)</td>
<td>395 ppg (104.3 ppl)</td>
</tr>
<tr>
<td>TS30</td>
<td>275 ppg (72.6 ppl)</td>
<td>275 ppg (72.6 ppl)</td>
</tr>
</tbody>
</table>

- Repeatability: ±0.05%
- Pulser: TBB, SCL - 5, 12, or 24V
  SCL Change: ±3%
**TM MINI OVAL GEAR METERS**

The TM Series of meters are meters up to 3/4” with capacities to 20 gpm (76 lpm) where medium to high operating pressures are common. This make them ideal for use in Additive Injection Service, industrial process, batching, fuel consumption systems and monitoring flow lubricants to critical bearings in large rotating equipment. Our TM Series provide compact, accurate and high performance with minimal piping requirements. With only 2 moving parts, this meter provides performance with ease of maintenance.

- Only two moving parts.
- No metal-to-metal contact in chamber or bearings.
- Electronic gland-less meter.
- Low differential pressure for maximum flow.

**Specifications**

<table>
<thead>
<tr>
<th>Model</th>
<th>Capacity on 1cSt at 10:1 turndown</th>
<th>Port Connections</th>
<th>Linearity over 10:1 turn-down from nominal capacity</th>
<th>Repeatability</th>
</tr>
</thead>
<tbody>
<tr>
<td>TM02</td>
<td>0.3 gpm / 1.1 lpm</td>
<td>¼” FNPT or BSPP</td>
<td>±2-3%</td>
<td>±0.25%</td>
</tr>
<tr>
<td></td>
<td>18 gph / 68 lph</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>TM03</td>
<td>3.0 gpm / 11 lpm</td>
<td>3/8” FNPT or BSPP</td>
<td>±1%</td>
<td>±0.25%</td>
</tr>
<tr>
<td></td>
<td>180 gph / 681 lph</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>TM04</td>
<td>10 gpm / 38 lpm</td>
<td>½” FNPT or BSPP</td>
<td>±0.5%</td>
<td>±0.175%</td>
</tr>
<tr>
<td></td>
<td>600 gph / 2,271 lph</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>TM06</td>
<td>20 gpm / 76 lpm</td>
<td>¾”FNPT or BSPP</td>
<td>±0.5%</td>
<td>±0.175%</td>
</tr>
<tr>
<td></td>
<td>1,200 gph / 4,542 lph</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

- **Pressure rating** at 100°F (38°C), with 3:1 safety factor: 1,500 psi = 103 BAR
- **Temperature rating**: Design -40°F/+300°F = -40°C to +150°C

**Materials**

<table>
<thead>
<tr>
<th>Case</th>
<th>Gears</th>
<th>Posts</th>
<th>Seals</th>
</tr>
</thead>
<tbody>
<tr>
<td>316 stainless steel</td>
<td>PPS (polyphenylene sulfide resin) (TM02 only - 31655)</td>
<td>316SS hard chrome coated</td>
<td>PTFE</td>
</tr>
<tr>
<td>Anodized Aluminum</td>
<td>PPS (polyphenylene sulfide resin)</td>
<td>316SS hard chrome coated</td>
<td>PTFE</td>
</tr>
</tbody>
</table>

**Registration, Signals & Accessories**

**ELECTRONIC REGISTERS**

Tuthill electronic flow meters will support most common electronic registers and controllers.

Available through Tuthill: Consult factory.
**ACCESSORIES**

**Air or Vapor Eliminator & Strainer**

Custody Transfer requires metering of fluids only. The Air Eliminator, featuring a Float and Reed Valve setup, ensures measurements of fluid only by preventing air and vapors from entering the meter. The strainer provides protection against particles entering the metering chamber. A High Capacity Air Eliminator / Strainer version is available for high flow rate bulk fluid delivery. Aluminum Construction is standard with 20 or 40 mesh screens available.

**Preset Valve**

**Mechanical** – This is an In-Line, 2 Stage control valve that can be linked to a Preset Counter. Aluminum construction, Fluorocarbon or PTFE seals, 90° inlet/outlet, NPT or BSPP

**Electrical** – This has 2 Solenoid valves for control of the piston preset valve. Aluminum construction, Fluorocarbon seals, UL listed, Explosion Proof, 12 or 24VDC or 110 or 220VAC, NPT

**Air Check Valve**

This increases efficiency of the Air Eliminator when the tank is getting low. The valve will stop flow through the meter when the Air Eliminator vents. Aluminum construction with either Fluorocarbon or PTFE seals

**Mechanical Registers**

**Veeder-Root 7887** - This rugged, precise mechanical meter register is designed for all kinds of liquid inventory and delivery operations. This register totalizes and displays high-speed deliveries and transactions in large, easy-to-read figures.

**Key features:**
- Highly visible 5 digit display
- Mechanical dispense preset and ticket printer
- Accurate readings up to 99,999,999 units

**Veeder-Root 7886** - Boost efficiency with the series 7886 High-Capacity Meter Register that totalizes and displays high-speed deliveries and transactions to 999,999 gallons in large, easy-to-read figures.

**Key features:**
- Works with any liquid inventory and delivery operations
- Highly visible 6 digit display
e:Count is more than just an electronic counter or register. It's the state of the art for easy mounting and use on any brand or type of meter.

Features include:

- Large easy to read alpha numeric display
- Easy to follow legends for all operations
- Self contained calibration and set up functions
- Accepts any type of pulse input
- Built in Enduro Switch® control keys (for harsh environments)
- Sealed connectors including power, valve control and remote readout
- Field programmable for custom applications
- Eliminate change gears, adjusters, linkages and other mechanical parts

We have partnered with the one company that has supplied easy to use electronic systems for the truck meter business for 30 years, MID:COM.

e:Count can be connected to an Epson slip printer, our own impact or our new thermal printer, to provide basic pump and print functions. Our modular design allows a user to upgrade the system by adding components in the cab and leaving the original register, valve and cables to the meter intact. Possible upgrades include all of the current MID:COM computers, general purpose computers and other common peripheral components. NTEP Weights and Measures approved for US.

PD6830 ProtEX Explosion-Proof Multi-Powered Pulse Input Rate/Totalizer

The PD6830 is a rugged, explosion-proof NEMA 4X pulse-input rate/totalizer perfect for local or remote display of flow application information in a NEMA 4 and/or hazardous area enclosure.

The PD6830 can be battery, DC, or output loop-powered. The PD6830 has four SafeTouch through-glass buttons used to operate the meter without removing the cover. Features such as automatic unit conversions from flowmeter k-factor units to desired display units, and the ability to log up to 1024 data points make it one of the most advanced registers in the ProtEX family. The pulse input accepts a wide range of flow transmitter signals, including the mV input from a magnetic flowmeter as well as high frequency signals. Backlighting and 2 open collector outputs are standard.

The PD6830's rugged cast aluminum enclosure provides three threaded conduit holes and integrated pipe or wall mounting holes. It boasts an operating temperature range of -40 to 75°C. The PD6830 carries a number of approvals, including FM, ATEX, CSA, IECEx, and CE.