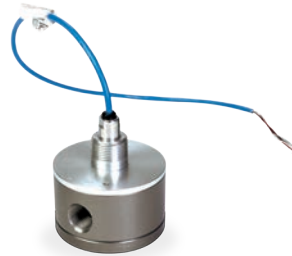




Tuthill

PRECISION METERS & ACCESSORIES



PROUDLY
 **Made in**
USA

www.commercialfuelsolutions.co.uk

Commercial Fuel Solutions Ltd, 43 City Industrial Park, Southern Road, Southampton, SO15 1AH. Tel: 0845 688 6755

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

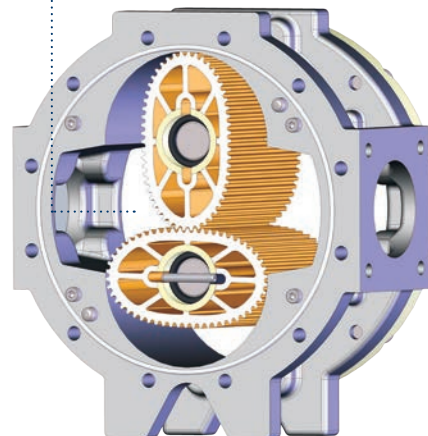
- Liquid sweeteners/corn syrup
- Coatings
- Pulp and paper chemicals
- Pharmaceuticals
- Printing inks
- Concrete add mixtures

Industrial liquids

- Acids/caustics

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.
- NTEP and Measurement Canada approved for DEF custody transfer.
- Positive displacement oval gear technology.
- All wetted materials are approved per ISO 22241-3.
- Patented "Wave Form" gear technology.
- Three-piece case construction.



Specifications

Model	Nominal Capacity		Pressure Rating	Temperature Rating	Connections
TS06CEDM	2-20 gpm	7.5-75 lpm	50 psi at 100°F 3.5 bar at 40°C 345 kPa at 40°C	-40°F to +122°F -40°C to +50°C	3/4" ports NPT or BSPP – companion flanges
	450-4,500 lph				

Materials

Case	Gears	Posts	Seals
316SS	316SS with DEF approved engineered polymer bearings	HC316SS	Fluorocarbon

PULSER

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

METER PERFORMANCE

Repeatability and Linearity: Meets NTEP and Measurement Canada (MC) requirements. Tested to ± 0.25% linearity, 0.1% repeatability with 50 liter test standard.

APPROVALS

Flow Meter: CE, NTEP 99-210, MC AV-2360

See specific approvals for approved flow ranges.

Pulser: Intrinsically safe (UL, cUL & ATEX)

Pulse Resolution: 1,024 ppg (270.5 ppl) or 400 ppg (105.7 ppl)

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

Model	Flow	Pressure Rating	Pulse Resolution (PPG)	Repeatability	Linearity
TS06A	3-18 gpm (11-68 lpm)	350 psi at 100 °F (24 bar at 40°C)	400 ppg (106 ppl)	±0.24%	±0.60%
TS10A	4-40 gpm (15-150 lpm)	350 psi at 100 °F (24 bar at 40°C)	1728 ppg (456 ppl)	±0.24%	±0.60%
TS20A	20-100 gpm (76-380 lpm)	350 psi at 100 °F (24 bar at 40°C)	395 ppg (104 ppl)	±0.24%	±0.60%

Materials

Case	Gears	Posts	Seals
Hardcoat anodized aluminum	PPS (polyphenylene sulfide resin) with carbon bearings (TS06A only - 316SS with carbon bearings)	Stainless Steel	UL Approved Buna N

APPROVALS

NTEP (US Weights & Measures), UL listed, CE Mark
MID / OIML TS06A Only.

ACCESSORIES

Electronic Registers, Strainer, Vapor Eliminator, Control Valve, Relief Valve

Excellence at work.
Excellence in life.



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

Model	Capacity on 1cSt at 10:1 turndown		Port Connections	Linearity over 5:1 turn-down from max capacity	Linearity over 10:1 turn-down from max capacity	Linearity over 30:1 turn-down from max capacity
TS10	40 gpm	150 lpm	1" FNPT or BSPP	±0.175%	±0.25%	±0.5%
	9 m³/h					
TS15	60 gpm	230 lpm	1.5" 150# RF bolted, FNPT or BSPP	±0.175%	±0.25%	±0.5%
	14 m³/h					
TS20	150 gpm	570 lpm	2" 150# RF bolted, FNPT or BSPP	±0.175%	±0.25%	±0.5%
	34 m³/h					
TS30	200 gpm	760 lpm	3" 150# RF	±0.175%	±0.25%	±0.5%
	45 m³/h					

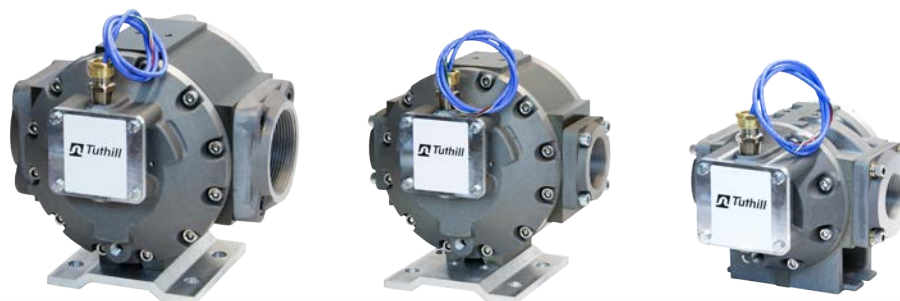
- **Pressure Rating** at 100°F (38°C), **Electronic:** 400 psi/28 bar except TS30 — 275 psi/19 bar **Mechanical:** 150 psi/10 bar
- **Temperature Rating:** Design -15°F/+257°F = -26°C to +125°C
- **Repeatability:** 0.05%
- **Pulser:** TBB, SCL - 5, 12, or 24V
SCL Change: ±3%

Materials

Case	Gears	Posts	Seals
316 stainless steel	PPS (polyphenylene sulfide resin) with carbon bearings (Std), PTFE optional	316SS hard chrome coated	PTFE standard
Anodized Aluminum	PPS (polyphenylene sulfide resin) with carbon bearings (Std), PTFE optional	316SS hard chrome coated	Fluorocarbon (Std), PTFE

Nominal Pulse Resolution (± 3% nominal)

Standard Models	1 cP Viscosity Stainless Steel	1 cP Viscosity Aluminum
TS10	2,178 ppg (574.8 ppl)	1,728 ppg (456.5 ppl)
TS15	1,152 ppg (304.3 ppl)	1,013 ppg (267.6 ppl)
TS20	395 ppg (104.3 ppl)	395 ppg (104.3 ppl)
TS30	275 ppg (72.6 ppl)	275 ppg (72.6 ppl)



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 makes 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

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

- **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

Case	Gears	Posts	Seals
316 stainless steel	PPS (polyphenylene sulfide resin) (TM02 only - 316SS)	316SS hard chrome coated	PTFE
Anodized Aluminum	PPS (polyphenylene sulfide resin)	316SS hard chrome coated	PTFE

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



MID:COM

Improves Accuracy & Efficiency

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.

PRECISION DIGITAL

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.



Excellence at work. Excellence in life.

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Tuthill TS Series flow meters are Stocked, Distributed and Serviced under licence in the UK by Commercial Fuel Solutions Limited as authorised representatives of the Tuthill, Fill Rite and Sotera Brands

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