



"The Standard of Measurement"

682 SERIES PISTON POSITIVE DISPLACEMENT FLOW METER



Model 682-15SP10AG

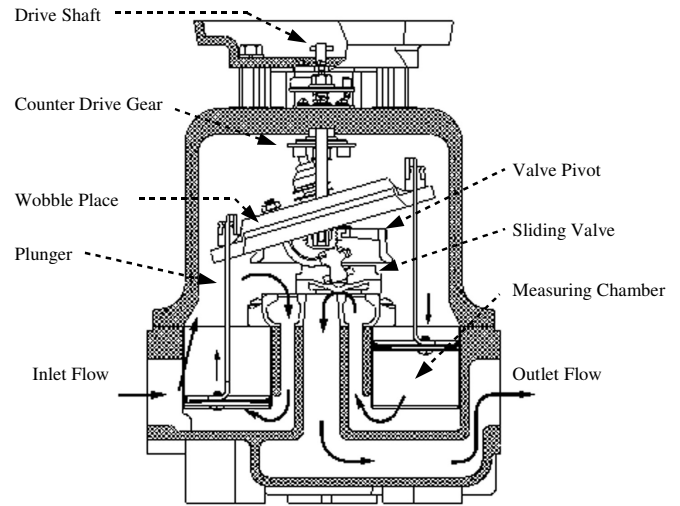


Made in U.S.A.

Distributed By:

DESIGN PRINCIPLE

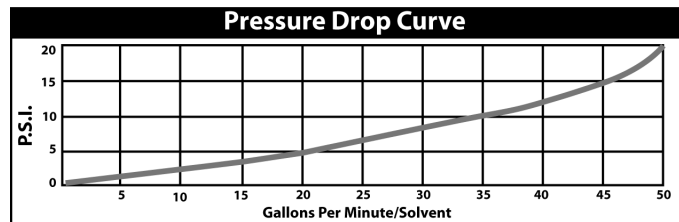
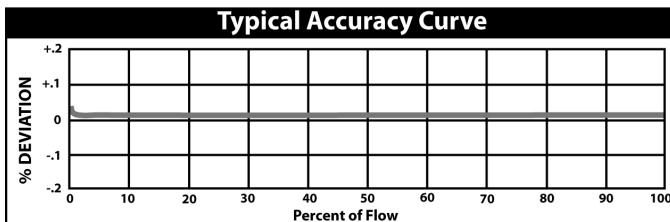
The 682 series flow meter is a true positive displacement meter that has a unique inline design consisting of three (3) reciprocating pistons operating within their respective measuring chambers, where each piston works in a manner similar to an automobile engine. The pistons are fitted to a wobble plate, which has a shaft extending from its upper surface and a valve pivot attached beneath it. The valve pivot drives a sliding valve from piston to piston as a known amount of product flows through each cylindrical bore, controlling the sequence of events in a smooth mechanical motion. This smooth mechanical motion is then transferred through the calibrator to the register.



PERFORMANCE FEATURES

The 682 reciprocating piston flow meter combines outstanding accuracy (0.1% of flow rate) with one of the widest turndown ratio's (250:1) in the industry. The 682 reciprocating piston flow meter has a rugged industrial design that is tolerant to changing viscosities, temperatures and liquids with suspensions and solids. This proven design has over 70 years of unmatched performance and continues to provide the very best in flow measurement, backed by our industry leading 10 year warranty!

- FLOW RANGE: 0.2 to 50 GPM (0.76 to 189 LPM); 250:1 Turndown Ratio
- LINEAR ACCURACY: 250:1 Turndown - capable of $\pm 0.1\%$ of maximum nominal flow rate
- REPEATABILITY: capable of 0.01% over the entire range of flow.
- PRESSURE RANGE: 150 PSI (10.5 BAR)
- TEMPERATURE RANGE: -40°F to 160°F (-40°C to 71°C)
- VISCOSITY RANGE: will accurately measure liquids up to 50,000 SSU (11,000 CPS)
- CONNECTIONS: 1-1/2" NPT Companion Flanges are Standard, 1" & 2" NPT Optional. BSPT, Slip Weld, ANSI and DIN flanges are available upon request.
- REGULATORY: NIST, OIML, SABS, NMI, S. WA and other international weights and measures approved.



Test data based on 32 SSU (1 CPS) stoddard solvent.

METER TYPES

SP Standard Petroleum

For metering refined petroleum products such as Gasoline, Fuel Oils, Diesel, Bio-Diesel, Kerosene, Vegetable Oils, Motor Oils, Naptha, Ethylene Glycol, etc.

SPA Standard Petroleum (Aviation)

For metering refined petroleum products such as Aviation Gasoline, Jet Fuels, Ethanol, Gasoline, Fuel Oils, Diesel, Bio-Diesel, Kerosene, Vegetable Oils, Motor Oils, Naptha, Ethylene Glycol, etc.

SPD Standard Petroleum (Ductile Iron)

For metering refined petroleum products such as Ethanol, Methanol, Gasoline, Fuel Oils, Diesel, Bio-Diesel, Kerosene, Aviation Gasoline, Vegetable Oils, Motor Oils, Naptha, Ethylene Glycol, etc.

AF All-Ferrous

For metering Pesticides, Fertilizers, Food Processing Liquids, Industrial Chemicals, Solvents, Paints, Inks, Alcohols and many other liquids; such as Liquid Sugars, Liquid Feeds, MEK, Ethanol, Corn Syrup, Soy Bean Oil, Shortenings, Latex Products, Adhesives, Naptha, etc.

SS Stainless Steel

For metering the same products as the SP, SPA, SPD and AF meter types, but includes special handling liquids; such as Acids, Anti-Icing Fluids, Vinegar, Fruit Juices, Corn Syrup, Micro-Nutrients, etc.

MATERIALS OF CONSTRUCTION

Type	Housing	Internal Hardware	Cups	Seals
SP	Anodized Aluminum	Iron, Steel & Stainless Steel	Glass-filled TFE	Viton ®
SPA	Anodized Aluminum	Ni-Resist & Stainless Steel	Glass-filled TFE	Viton ®
SPD	Ductile Iron	Iron, Steel & Stainless Steel	Glass-filled TFE	Teflon ® & Simriz ®
AF	Ductile Iron	Iron, Steel & Stainless Steel	Glass-filled TFE	Teflon ® & Simriz ®
SS	Stainless Steel	Stainless Steel	Glass-filled TFE	Teflon ® & Simriz ®

Viton is a registered trademark of E.I. Dupont de Nemours & Co.

Teflon is a registered trademark of Dupont Dow Elastomers

Simriz is a registered trademark of Freudenberg-NOK

METER ACCESSORIES

AIR ELIMINATOR A float and stop valve design senses and removes free air or vapor before it can enter the flow meter.

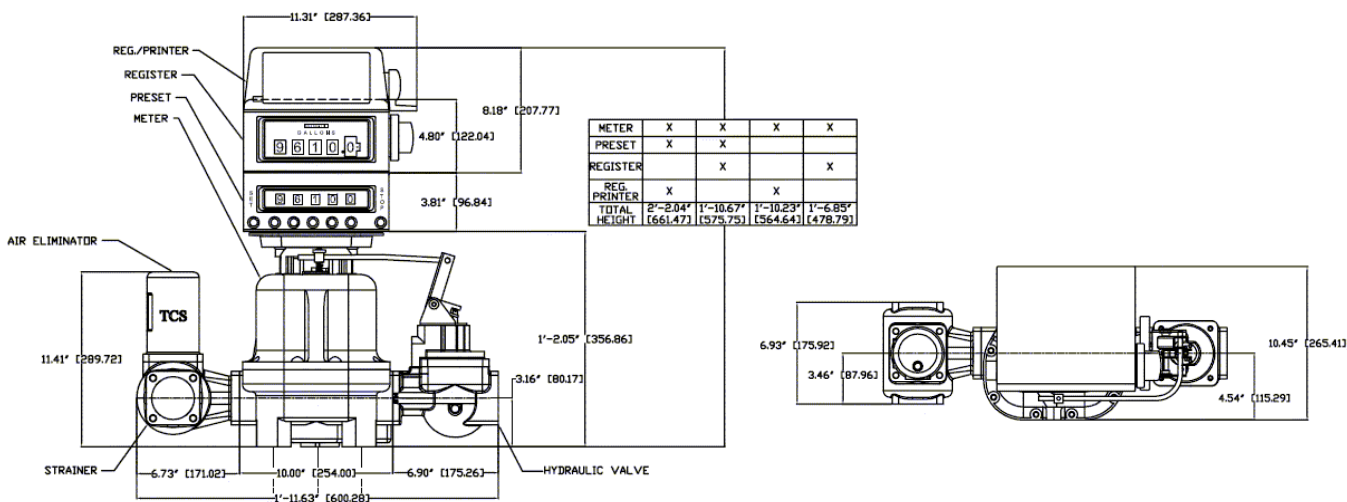
STRAINER A 90° strainer provides protection from debris entering into the flow meter. Stainless Steel screens are available in 40 mesh.

PRESET VALVE A normally closed, control valve allows for auto-batch preset deliveries. Mechanical or Electronic actuated control valves are available.

REGISTRATION OPTIONS

- COUNTER REGISTER** Large Numeral Counter (LNC) indicating the measurement in volume, using a 5 digit large numeral reset display and an 8 digit non-reset totalizer. Electronic or mechanical counter registers are available.
- COUNTER PRESET** Select predetermined volume for precise batch control, utilizing 4 digit or 5 digit counter preset and control valve. Mechanical or electronic preset counters or batch controllers are available.
- TICKET PRINTER** Provides an imprinted ticket record of each delivery transaction. Accumulative or Zero-Start, Face Down or Face Up mechanical ticket printers available. Electronic slip or roll printers are available for use with electronic registration.
- PULSE TRANSMITTER** The electronic pulse signal output converts the register counter volume per unit value into an electrical pulse frequency, which can be transmitted to other electronic controllers for rate-of-flow, volume indication, additive injection or data acquisition.
- TEMPERATURE** Automatically corrects changes in volume caused by liquid temperature variations, during metered delivery. Normally corrects net volume to 60°F (15°C) based on the product's coefficient of expansion, API or specific gravity.
- MICROSWITCH** Mechanical signal from the counter preset converted into an electrical or pneumatic signal that provides control of remotely located valve, pump, and other system related equipment.
- COUNTER EXTENSION** Raises the elevation of the counter registration for easy visibility or to protect from high temperatures. Counter Extension is required for temperatures more than 180°F (82°C).
- SWIVEL** Allows mechanical registration to be rotated 360°.
- RATE OF FLOW** Mechanical indication of the volume through the flow meter. Available in US Gallons or Litres units of measure.

DIMENSIONS IN INCHES (MM)



NET WEIGHTS IN POUNDS (KILOGRAMS)

Meter Type	Flow Meter	Register Counter	Preset Counter	Ticket Printer	Air Eliminator / Strainer	Mechanical Valve	Electronic Valve
SP	33 (15)	12 (5.4)	10 (4.5)	12 (5.4)	12 (5.5)	7 (3.2)	13 (5.9)
SPA	33 (15)	12 (5.4)	10 (4.5)	12 (5.4)	12 (5.5)	7 (3.2)	13 (5.9)
SPD	57 (26.0)	12 (5.4)	10 (4.5)	12 (5.4)	27 (12.2)	16 (7.3)	-
AF	57 (26.0)	12 (5.4)	10 (4.5)	12 (5.4)	27 (12.2)	16 (7.3)	-
SS	86 (39)	12 (5.4)	10 (4.5)	12 (5.4)	45 (20.4)	24 (10.9)	-

WARRANTY

Total Control Systems 682 piston meters sold to the original purchaser for a period of TEN (10) years from the date of shipment, to be free, under normal use and service, from defects in material and workmanship. The ten (10) year warranty applies to meters only and does not apply to accessories such as valves and air eliminators. If a warranty dispute occurs the DISTRIBUTOR may be required to provide proof of date of sale. Defects occurring within the stated warranty period, will be repaired or replaced, at TCS's option; provided that part or parts are returned to TCS transportation charges prepaid, and TCS's examination discloses the parts or workmanship to have been defective upon delivery to the purchaser. All repaired or warranted meters will be shipped Ex-works Fort Wayne, Indiana. Total Control Systems shall not be liable for consequential damages, whether or not arising out of warranty, negligence, general maintenance, calibration, clean-up, normal wear or otherwise. Warranty applies only to Total Control Systems, Fort Wayne, Indiana manufactured products. Private label and OEM engineered products are specifically excluded from the above warranty. Consult factory for non-TCS manufacturer's warranty.



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