

Meters and accessories for Aviation (Jet A and AvGas)

Application Brochure TCS900-300

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**TOTAL
CONTROL
SYSTEMS**

“The Standard of Measurement”



MADE IN AMERICA

www.tcsmeters.com

About Us

Total Control Systems is a leading manufacturer of piston and rotary positive displacement flow meters located in Fort Wayne, Indiana. All meters are designed with the highest quality to provide superior performance in custody-transfer measurement of refined fuels, LPG, fertilizers, chemicals, alcohols, and solvents. Marketed to provide application-driven flow meter solutions for vehicles, dispensers, and fixed-site installations, we provide a full line of accessory equipment including strainers, air and vapor eliminators, control valves, pulse transmitters, and mechanical or electronic registration to complete system requirements. Meters are designed and created using sound engineering principles and state-of-the-art computer numerically controlled (CNC) machines in a world-class manufacturing facility. Each flow meter is completely assembled and tested by highly skilled members of our production team, who strive for excellence in workmanship and quality. Our reputation for providing innovative, high-quality, and reliable fluid measurement products is coupled with our sense of customer-driven services. Our first priority is to help our customers achieve increased productivity and provide value to your business today and tomorrow.

APPLICATIONS

Aviation refuelers
Hydrant carts
Truck loading
Product blending

FEATURES

10-year warranty (Series 682)
Reciprocating 3-piston design
Flow range 0.2-50 gpm (0.76-190 lpm)
Sustained high accuracy
Long service life, low maintenance
Wide viscosity range to 50,000 SSU
75 years of proven performance

CONSTRUCTION (non-ferrous)

Available metallurgies:
Aluminum, stainless steel

Available seal materials:
Viton®¹, Teflon®¹, and Simriz®¹

ACCURACY²

250:1 = +/- 0.10%

REPEATABILITY²

0.01% of rated flow

- (1) Teflon is a registered trademark of DuPont Dow Elastomers, LLC. Viton is a registered trademark of E.I. DuPont de Nemours & Co. Simriz is a registered trademark of Freudenberg-NOK.
(2) Accuracy tested at constant operating conditions with 682 Series meter and mechanical registration using 1CPS test fluid.

682-SPA Piston Flow Meters For Aviation

The 682-SPA flow meter is a non-ferrous positive displacement meter that has an inline design consisting of three (3) reciprocating pistons operating within their respective measuring chambers. 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 cylinder bore, controlling the sequence of events in a smooth mechanical motion. The 682 piston flow meter combines outstanding accuracy (+/-0.1%) with an exceptional turndown ratio of 250:1 (flow range of 0.2 - 50 gpm).

Accessories

The 682 Series Meter is available with a full complement of accessories including air eliminators, strainers, valves, rate-of-flow indicators, mechanical and electronic registers with temperature volume compensation (TVC), and printers from industry leading suppliers.

Testing and Approvals

Meters are Weights & Measures approved for custody transfer (NIST, OIML, NMI, MID, and SABS), and are flow-tested for accuracy before leaving the factory. A test report is supplied with every meter.

Meter Model No.	Flange Size NPT ⁺⁺	Max. Capacity		Working Pressure		Working Temperature	
		gpm	lpm	psi	bar	°F	°C
682-15	1-1/2"	50	190	150	10.5	-40 to 160	-40 to 71

+ NPT flange is standard. BSPT, Slip Weld, ANSI and others available upon request.
* Optional flange sizes available upon request.



Mechanical Register is pictured.

Also available with electronic registers from industry-leading suppliers.



700-SPA Series Flow Meters for Aviation

The 700 Series Type SPA Standard Petroleum Positive Displacement Flow Meters are available in non-ferrous construction, and are specifically designed for metering aviation fuels including Jet A and AvGas. Meters reflect a tri-rotor design with no metal-to-metal contact between rotors and housing to minimize internal wear, maintain high accuracy over time, and extend the time between meter calibrations.

Accessories

The 700 Series Meters are available with a full complement of accessories including air eliminators, strainers, valves, rate-of-flow indicators, mechanical and electronic registers with temperature volume compensation (TVC), and printers from industry leading suppliers.

Testing and Approvals

Meters are Weights & Measures approved for custody transfer (NIST, OIML, NMI, MID, and SABS), and are flow-tested for accuracy before leaving the factory. A test report is supplied with every meter.

APPLICATIONS

- Aviation Refuelers
- Hydrant Carts
- Truck Loading
- Product blending

FEATURES

- Sustained high accuracy
- Long service life, low maintenance
- Low pressure drop
- Light-weight design

CONSTRUCTION (non-ferrous)

Housing and rotors:
Anodized aluminum

Bearing plate and bearings:
Ni-Resist II bearing plate
Plated SS journals, carbon bearings

Gears:
Stainless steel

Seals:
Viton®¹

ACCURACY²

- 5:1 = +/- 0.10%
- 10:1 = +/- 0.125%
- 15:1 = +/- 0.15%

REPEATABILITY²

0.02% of rated flow

(1) Viton is a registered trademark of E.I. DuPont de Nemours & Co.
(2) Accuracy tested at constant operating conditions with 700 Series meter and mechanical registration using 1 CPS test fluid.



Electronic register is pictured.
Also available with mechanical register.

Meter Model No.	Flange Size NPT ⁺ *	Max. Capacity		Working Pressure		Working Temperature	
		gpm	lpm	psi	bar	°F	°C
700-15	1-1/2"	60	227	150	10.5	-40 to 160	-40 to 71
700-20	2"	100	380	150	10.5	-40 to 160	-40 to 71
700-25	2"	150	567	150	10.5	-40 to 160	-40 to 71
700-30	3"	200	760	150	10.5	-40 to 160	-40 to 71
700-35	3"	300	1135	150	10.5	-40 to 160	-40 to 71
700-40	4"	500	1893	150	10.5	-40 to 160	-40 to 71
700-45	4"	600	2271	150	10.5	-40 to 160	-40 to 71

+ NPT flange is standard. BSPT, Slip Weld, ANSI and others available upon request.
* Optional flange sizes available upon request.



Total Control Systems is a leading manufacturer of precision measurement systems. Our world-class positive displacement flow meters are among the most accurate available in any industry and are backed by excellent customer service, support, and prompt deliveries.

TCS meters are designed and manufactured to meet or exceed your needs. Our meters are used world-wide in a multitude of applications including Agriculture, Aviation, Marine, LPG, Refined Fuels, Industrial Chemicals, and Alternative Fuels.

***Discover why Total Control Systems
should be the future of your metering solutions!***



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