

TOTAL CONTROL SYSTEMS

“The Standard of Measurement”

MODEL 700

ROTARY POSITIVE DISPLACEMENT FLOW METER

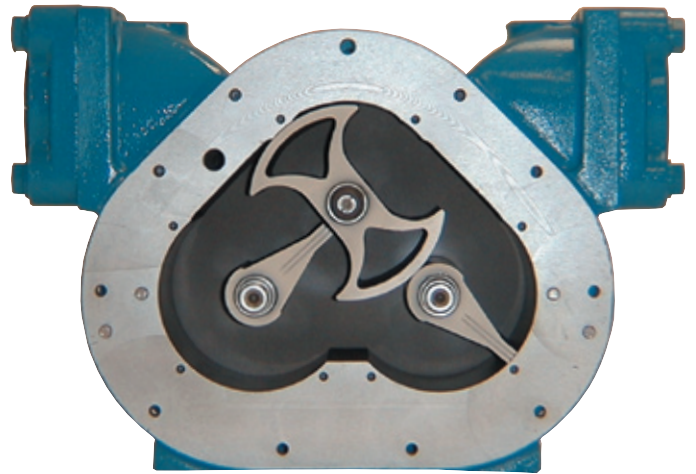


TCS Model 700-20-SP10

The TCS Model 700 series positive displacement rotary flow meter is designed to accurately measure liquids within the Petroleum, Chemical, Food Processing, Agricultural, and other industries requiring precise liquid flow measurement.

DESIGN FEATURES

The TCS model 700 series flow meter has a simple and efficient meter design consisting of a housing and three rotors that rotate in unison within the measuring chamber. The absence of wear, from no metal to metal contact inside the chamber, eliminates any deterioration in accuracy and provides a longer service life. The rotors are supported with Carbon bearings on two bearing plates where at the end of each rotor shaft is a timing gear. The blocking rotor gear has twice the number of teeth as the displacement rotor gears and operates at half the RPM as the displacement rotors. The timed rotation between each rotor will then give a consistent and superior measurement of accuracy. The rotary motion is then transferred through the calibrator to the register.



ACCURACY

The TCS model 700 series flow meter holds the National Type Evaluation Program (NTEP) Certificate of Conformance meeting the National Institute of Standards and Technology (NIST) Handbook 44 requirements. The TCS model 700 series flow meter combines outstanding accuracy with superior performance. At constant flow, with all other conditions being constant, the flow meter does not vary more than $\pm 0.05\%$ in repeatability. Due to the smooth flowing characteristics of this meter design, the minimum seal area provides a sustained accuracy over a wide range of flow and accuracy regardless of pressure fluctuations. The model 700 series flow meter has accurately metered product, regardless of viscosity, from 150 SSU (25 centipoise) to 1,000,000 SSU (217,000 centipoise) *WITHOUT CALIBRATION CHANGE*.

FEATURES

- Excellent accuracy
- Low pressure drop
- Low maintenance
- Long service life
- Wide range of flow - 6 GPM to 450 GPM
- Wide operating temperature - -20°F to 160°F (-28.9°C to 71°C)
- Wide viscosity range - up to 1,500,000 SSU (325,000 centipoise)

METER TYPES

SP - Standard Petroleum

Petroleum base products: Gasoline, Fuel Oil, Jet Fuel, Kerosene, Lubricating Oil, etc.

IP - Industrial Products

Petroleum base products and Industrial Chemicals.

AF - All Ferrous

Petroleum base products, Industrial Chemicals, Agricultural products.

SS - Stainless Steel

Covers the same products as the SP, IP and AF models but includes special handling liquids; such as Acids.

METER CONSTRUCTION

Description	Model 700 SP	Model 700 IP	Model 700 AF	Model 700 SS
Housing & Internals	Aluminum	Hardcoat Anodized Alum.	Cast Iron	316 SS
Gears	NI-Resist	316 SS	316 SS	316 SS
Bearings*	Carbon	Carbon	Carbon	Carbon
Journals	316 SS	Ceramic	Ceramic	Ceramic
Seals	Viton	Teflon®	Teflon®	Teflon®

* All TCS 700-15 models have Hardcoat Anodized Aluminum Bearings
Teflon® is a registered trademark of DuPont

METER SPECIFICATIONS

Model	Flange Connection	Min. Flow Rate (GPM)*	Max. Flow Rate (GPM)*	Working PSI/Bar	Working Temperature
700-15-SP	1 1/2"	6	65	150/10	-20°F - 160°F
700-15-IP	1 1/2"	6	65	150/10	-20°F - 160°F
700-20-SP	2"	12	130	150/10	-20°F - 160°F
700-20-IP	2"	12	130	150/10	-20°F - 160°F
700-20-AF	2"	12	130	150/10	-20°F - 160°F
700-20-SS	2"	12	130	150/10	-20°F - 160°F
700-30-SP	3"	26	260	150/10	-20°F - 160°F
700-30-IP	3"	26	260	150/10	-20°F - 160°F
700-40-SP	4"	50	450	150/10	-20°F - 160°F
700-40-IP	4"	50	450	150/10	-20°F - 160°F

* UNITS OF MEASURE: U.S. Gallons, STANDARD; Liters, Pounds, etc. available upon request

• CONNECTIONS: Flanged NPT is standard; BSPT available upon request

• For a higher temperature rating, consult factory

TCS MODEL 700 SERIES FLOW METER OPTIONS

Register	Veeder Root 5 wheel resettable with totalizer.
Preset	Veeder Root 5-digit
Ticket Printer	Veeder Root Zero Start (Standard)
Shut-off Valve	Available with Veeder Root Preset Register. Appropriate internals, gaskets, and seals to each model. Note: 2 stage valve closure.
Cutoff Switch	Available with 2 stage Veeder Root Preset Register.
Temperature Compensator	Veeder Root
Transmitter Type	Veeder Root
Transmitter Output	1, 10 or 100 pulses per revolution of output shaft.
Wafer Check Valve	Available
Air Check Valve	Available
Air Eliminator & Strainer	Available with the appropriate internals, gaskets, and seals to each model.

TCS MODEL 700 SERIES FLOW METER DESCRIPTIONS

Description	1 1/2" Model 700 Approx. Weight		2" Model 700 Approx. Weight				3" Model 700 Approx. Weight		4" Model 700 Approx. Weight	
	SP	IP	SP	IP	AF	SS	SP	IP	SP	IP
Meter	700-15-SP1 22 lbs.	700-15-IP1 22 lbs.	700-20-SP1 25 lbs.	700-20-IP1 25 lbs.	700-20-AF1 39 lbs.	700-20-SS1 47 lbs.	700-30-SP1 48 lbs.	700-30-IP1 48 lbs.	700-40-SP1 105 lbs.	700-40-IP1 105 lbs.
Meter and register	700-15-SP2 34 lbs.	700-15-IP2 34 lbs.	700-20-SP2 37 lbs.	700-20-IP2 37 lbs.	700-20-AF2 51 lbs.	700-20-SS2 59 lbs.	700-30-SP2 60 lbs.	700-30-IP2 60 lbs.	700-40-SP2 117 lbs.	700-40-IP2 117 lbs.
Meter, register, and printer	700-15-SP3 46 lbs.	700-15-IP3 46 lbs.	700-20-SP3 49 lbs.	700-20-IP3 49 lbs.	700-20-AF3 62 lbs.	700-20-SS3 71 lbs.	700-30-SP3 72 lbs.	700-30-IP3 72 lbs.	700-40-SP3 129 lbs.	700-40-IP3 129 lbs.
Meter, register, and air eliminator / strainer	700-15-SP4 50 lbs.	700-15-IP4 50 lbs.	700-20-SP4 53 lbs.	700-20-IP4 53 lbs.	700-20-AF4 88 lbs.	700-20-SS4 96 lbs.	700-30-SP4 80 lbs.	700-30-IP4 80 lbs.	700-40-SP4 144 lbs.	700-40-IP4 144 lbs.
Meter, register, printer, and air eliminator / strainer	700-15-SP6 62 lbs.	700-15-IP6 62 lbs.	700-20-SP6 65 lbs.	700-20-IP6 65 lbs.	700-20-AF6 99 lbs.	700-20-SS6 108 lbs.	700-30-SP6 92 lbs.	700-30-IP6 92 lbs.	700-40-SP6 156 lbs.	700-40-IP6 156 lbs.
Meter, register, preset, and valve RIGHT HAND FLOW	700-15-SP8 52 lbs.	700-15-IP8 52 lbs.	700-20-SP8 55 lbs.	700-20-IP8 55 lbs.	700-20-AF8 72 lbs.	700-20-SS8 80 lbs.	700-30-SP8 81 lbs.	700-30-IP8 81 lbs.	700-40-SP8 143 lbs.	700-40-IP8 143 lbs.
Meter, register, printer, preset, and valve RIGHT HAND FLOW	700-15-SP9 64 lbs.	700-15-IP9 64 lbs.	700-20-SP9 67 lbs.	700-20-IP9 67 lbs.	700-20-AF9 83 lbs.	700-20-SS9 92 lbs.	700-30-SP9 93 lbs.	700-30-IP9 93 lbs.	700-40-SP9 155 lbs.	700-40-IP9 155 lbs.
Meter, register, preset, valve, and air eliminator / strainer RIGHT HAND FLOW	700-15-SP10 68 lbs.	700-15-IP10 68 lbs.	700-20-SP10 71 lbs.	700-20-IP10 71 lbs.	700-20-AF10 109 lbs.	700-20-SS10 117 lbs.	700-30-SP10 101 lbs.	700-30-IP10 101 lbs.	700-40-SP10 170 lbs.	700-40-IP10 170 lbs.
Meter, register, printer, preset, valve, and air eliminator / strainer RIGHT HAND FLOW	700-15-SP11 80 lbs.	700-15-IP11 80 lbs.	700-20-SP11 83 lbs.	700-20-IP11 83 lbs.	700-20-AF11 120 lbs.	700-20-SS11 129 lbs.	700-30-SP11 113 lbs.	700-30-IP11 113 lbs.	700-40-SP11 182 lbs.	700-40-IP11 182 lbs.

