



"The Standard of Measurement"

# 700 SERIES ROTARY POSITIVE DISPLACEMENT FLOW METER

The Total Control Systems 700 series rotary flow meter was designed to measure liquids within the Adhesives, Agricultural, Aviation, Chemical, Food Processing, Paint, Petrochemical, Petroleum, Pharmaceutical, Printing, Textiles and other industries, requiring precise liquid measurement solutions.



## DESIGN

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 long service life. The rotors are supported by bearings inserted into two bearing plates, where at the end of each rotor shaft is a timing gear. The timed rotation between each rotor is then transferred through the calibration adjuster to the register, which will then give a consistent and superior measurement of accuracy.


## FEATURES

- Excellent Accuracy:
  - 5:1 - +/- 0.1% of max. nominal rate
  - 10:1 - +/- 0.125% of max. nominal rate
  - 15:1 - +/- 0.15% of max. nominal rate
  - Repeatability – 0.02% of rated flow
  - (constant operating conditions with 700SP meters & mechanical registration, using 1 CPS test fluid)*
- Low-pressure drop
- Advanced material of construction
- Low maintenance
- Long service life
- Compact size & light weight design
- Broad range of measurement applications
- Right or left hand direction of flow
- Full selection of meter accessories and electronic registration
- Wide range of flow - up to 600 GPM (2271 LPM)
- Wide viscosity range - up to 1,500,000 SSU (325,000 centipoise)
- Meets NIST, USA military specifications and other international weights & measures accuracy requirements



## METER TYPES

SP - Standard Petroleum	Refined Petroleum Products; such as Gasoline, Fuel Oils, Diesel, Bio-Diesel, Vegetable Oils, Soy Oil, Kerosene, Motor Oils, Ethylene Glycol (Anti-Freeze), etc.
SPA - Standard Petroleum (Aviation)	Refined Petroleum Products such as Aviation Gasoline, Jet Fuels, Gasoline, Fuel Oils, Diesel, Bio-Diesel, Kerosene, etc.
SPD - Standard Petroleum (Ductile Iron)	Refined Petroleum Products such as Aviation Gasoline, Ethanol Blends, Methanol Blends, Bio-Diesel, Gasoline, Fuel Oils, Diesel, Kerosene, Vegetable Oils, Soy Oil, etc.
IP - Industrial Products	Food Processing, Chemicals, General Solvents and many other liquids; such as Corn Syrup, Soy Bean Oil, Liquid Sugars, Shortenings, Latex Products, Adhesives, etc.
IC - Industrial Products (Carbon Bearings)	Alcohols, Chemicals, Solvents, Water and many other <u>Non- Lubricating Liquids</u> ; such as Acetones, Ethanol, Naphtha, Xylene, MEK, Toluene, Resins, etc.
AF - All Ferrous	Pesticides, Fertilizers, Chemicals, Chlorinated Solvents, Agricultural Chemicals, Paints, Ink, Alkaline pH Latex Products, Adhesives, Liquid Feeds, etc.
SS - Stainless Steel	Covers the same products as the SP, SPA, IP, IC and AF models but includes special handling liquids; such as Acids, Anti-Icing Fluids, Vinegar, Fruit Juices, etc.

 "Made in the U.S.A."

## METER MATERIAL OF CONSTRUCTION

Description	SP	SPA	SPD	IP	IC	AF	SS
Housing	Anodized Aluminum	Anodized Aluminum	Ductile Iron	HC Anodized Aluminum	HC Anodized Aluminum	Ductile Iron	Stainless Steel
Rotors	Anodized Aluminum	Anodized Aluminum	Ni-Resist	HC Anodized Aluminum	HC Anodized Aluminum	Stainless Steel	Stainless Steel
Bearing Plates	Ni-Resist	Stainless Steel	Ni-Resist	Stainless Steel	Ni-Resist	Ni-Resist	Stainless Steel
Rotor Journals	Plated SS	Plated SS	Plated SS	Plated SS	Plated SS	Plated SS	Plated SS
Bearings *	Ni-Resist	Carbon	Carbon	SS Alloy	Carbon	AT Carbon	AT Carbon
Gears	Stainless Steel	Stainless Steel	Stainless Steel	Stainless Steel	Stainless Steel	Stainless Steel	Stainless Steel
Seals	Viton®	Viton®	Teflon® & Simriz®	Teflon® & Simriz®	Teflon® & Simriz®	Teflon® & Simriz®	Teflon® & Simriz®

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

Simriz is a registered trademark of Freudenberg-NOK.

Teflon is a registered trademark of DuPont Dow Elastomers, L.L.C.

\* Ceramic bearings available upon request.

## METER OPERATING SPECIFICATIONS

Meter	Type Available	Flange Connection*	Max. Capacity	Working Pressure	Working Temperature**
700-15	SP, SPA, IP & IC	1½" NPT Flange; 2" optional	60 GPM (227 LPM)	150 PSI (10.5 BAR)	-40°F to 160°F (-40°C to 71°C)
700-20	SP, SPA, SPD, IP, IC, AF & SS	2" NPT Flange; 1½" optional	100 GPM (380 LPM)	150 PSI (10.5 BAR)	-40°F to 160°F (-40°C to 71°C)
700-25	SPA & SPD	2" NPT Flange	150 GPM (567 LPM)	150 PSI (10.5 BAR)	-40°F to 160°F (-40°C to 71°C)
700-30	SP, SPA, SPD IP, IC & AF	3" NPT Flange 2" optional	200 GPM (760 LPM)	150 PSI (10.5 BAR)	-40°F to 160°F (-40°C to 71°C)
700-35	SPA & SPD	3" NPT Flange	300 GPM (1135 LPM)	150 PSI (10.5 BAR)	-40°F to 160°F (-40°C to 71°C)
700-40	SP, SPA, SPD IP, IC & AF	4" NPT Flange; 3" optional	500 GPM (1893 LPM)	150 PSI (10.5 BAR)	-40°F to 160°F (-40°C to 71°C)
700-45	SPA & SPD	4" NPT Flange	600 GPM (2271 LPM)	150 PSI (10.5 BAR)	-40°F to 160°F (-40°C to 71°C)

\* Flanged NPT is standard; BSPT, Slip Weld, ANSI & others are available upon request.

\*\* Higher working temperatures can be achieved at reduced pressures (Consult factory for more information).

## HISTORY

Total Control Systems, a division of Murray Equipment, Inc., located in Fort Wayne, Indiana, was formed in 1995 to manufacture and market the 682-piston flow meter line, which had been purchased from Tokheim Corporation in the same year. Because of the 682-piston flow meter's low volume capacity, Total Control Systems expanded its product line in 1999 to include the 700-rotary flow meter to meet the demand for the higher volume capacities.

Total Control Systems flow meters are created by some of the most state of the art machining centers available to date while using sound engineering principles, to ensure the precise accuracy tolerances that we require to maintain our conformance to Weights & Measures. Each flow meter is completely assembled and tested by highly skilled members of our production team whom strive for the highest level of excellence and performance to guarantee the finest quality and dependable service that we can provide.

As a family owned company since 1950, we believe that service first begins with understanding the needs of our customers and ends with our commitment to our customers. Our reputation as a company that puts the customer first and has flexible working relationships puts our service above our competition.

Through our dedicated employees, responsive service, and proven processes, Total Control Systems will continue to strive to exceeding meet the needs of our customers, both through our manufactured products and our service. We look forward to serving you in the future.

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