

700 Series

Rotary Positive Displacement Flow Meter



The Standard of Measurement



www.TCSmeters.com

Design Principle

The TCS 700 series rotary 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 within 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, giving a consistent and superior measurement of accuracy.



Performance Features

The TCS 700 rotary flow meter combines excellent accuracy with low pressure drop. The TCS 700 rotary flow meter has a compact size and lightweight design that offers minimal maintenance and long service life. This meter is built with advanced materials of construction for a broad range of measurement applications and is accompanied by a full selection of accessories and electronic registration.

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| FLOW: | Capable of up to 1,000 GPM (3,785 LPM); Bi-directional flow |
| LINEAR ACCURACY: | Capable of $\pm 0.15\%$ over the full flow range |
| REPEATABILITY: | Capable of 0.02% (constant operation conditions with 700SP meters & mechanical registration, using 1 CPS test fluid) |
| VISCOSITY: | Will accurately measure liquids up to 1,500,000 SSU (325,000 CPS) |
| REGULATORY: | Meets a wide range of global weights and measures requirements. (Contact factory for information on specific approvals.) |

Meter Operating Specifications

| Meter | Type(s) Available | Flange Connection(s)* | Max. Capacity | Working Pressure** | Working Temperature*** |
|--------|---|---------------------------------------|-------------------------|-----------------------|-----------------------------------|
| 700-15 | SP, SPA, IP & IC | 1 1/2" NPT Flange; 1" & 2" Options | 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, SSD & LP | 2" NPT Flange; 1 1/2" Option | 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" Option | 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 (1,135 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" Option | 500 GPM (1,893 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 (2,271 LPM) | 150 PSI (10.5 BAR) | -40°F to 160°F (-40°C to 71°C) |
| 700-60 | SPA | 6" ANSI Flange | 800 GPM (3,040 LPM) | 150 PSI (10.5 BAR) | -40°F to 160°F (-40°C to 71°C) |
| 700-65 | SPA | 6" ANSI Flange | 1000 GPM (3,800 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 pressures are available. (Consult factory for more information.)

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

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. |
| IP | Industrial Products | For 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 Chemicals | For metering Alcohols, Chemicals, Solvents, Water and many other Non-Lubricating Liquids such as Acetones, Ethanol, Naphta, Xylene, MEK, Toluene, Resins, etc. |
| SS | Stainless Steel | For metering the same products as the SP, SPA, SPD, IP, IC and AF meter types, but includes special handling liquids; such as Acids, Anti-Icing Fluids, Vinegar, Fruit Juices, Corn Syrup, Micro-Nutrients, etc. |
| SSD | Stainless Steel (DEF) | For metering Diesel Exhaust Fluid (DEF), AdBlue, ARLA and AUS32 |
| LP | Liquefied Petroleum | For metering Liquefied Petroleum Gas (LPG), NH3 |








Meter Materials of Construction

| Description | SP | SPA | SPD | AF | IP | IC | SS | SSD | LP |
|------------------------|----------------------------|----------------------------|------------------------|------------------------|----------------------------|----------------------------|------------------------|------------------------|----------------------------|
| Housing | Hardcoat Anodized Aluminum | Hardcoat Anodized Aluminum | Ductile Iron | Ductile Iron | Hardcoat Anodized Aluminum | Hardcoat Anodized Aluminum | Stainless Steel | Stainless Steel | Hardcoat Anodized Aluminum |
| Rotors | Hardcoat Anodized Aluminum | Hardcoat Anodized Aluminum | Ni-Resist | Ni-Resist | Hardcoat Anodized Aluminum | Hardcoat Anodized Aluminum | Stainless Steel | Stainless Steel | Hardcoat Anodized Aluminum |
| Rotor Journals | Plated Stainless Steel | Plated Stainless Steel | Plated Stainless Steel | Plated Stainless Steel | Plated Stainless Steel | Plated Stainless Steel | Plated Stainless Steel | Plated Stainless Steel | Plated Stainless Steel |
| Bearing Plates | Ni-Resist | Ni-Resist | Ni-Resist | Ni-Resist | Ni-Resist | Ni-Resist | Stainless Steel | Ryton | Ni-Resist |
| Bearing Sleeves | Ni-Resist | Carbon Graphite | Carbon Graphite | Carbon Graphite | Ni-Resist | Carbon Graphite | Carbon Graphite | Ryton | Ni-Resist |
| Timing Gears | Stainless Steel | Stainless Steel | Stainless Steel | Stainless Steel | Stainless Steel | Stainless Steel | Stainless Steel | Stainless Steel | Stainless Steel |
| Packing Seal | FKM | FKM | Simriz® | Simriz® | Simriz® | Simriz® | Simriz® | EPDM | Buna |
| Body O-ring | FKM | FKM | FKM | PTFE | PTFE | PTFE | PTFE | EPDM | Buna |

*Simriz is a registered trademark of Freudenberg-NOK

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Meter Accessories

| | | |
|---|----------------------------------|--|
|  | Electronic Registration | TCS 3000 electronic register is a fully integrated flow computer that will control all delivery operations. The modular design and open software architecture provide you with a tailored system that is expandable for future needs. |
|  | TCS HUB Delivery Software | TCS HUB is a SQL-based software designed to capture truck delivery information wirelessly to be electronically collected at locations and/or the home office. The TCS HUB software supports both line of sight wireless modems and/or cellular modems for real-time delivery tracking. |
|  | Pulse Transmission | The DMP pulse transmitters provide accurate signals for remote indication, totalizers and data monitoring systems by transferring the mechanical rotation of the flow meter into an electronic pulse. This pulse can be used by the TCS 3000 or a flow computer of your choice. |
|  | Air/Vapor Elimination | Mechanical and electronic air eliminators are devices designed to extract free or accumulated volumes of air or vapor from a liquid dispensing system to achieve accurate measurement results. |
|  | Control Valves | Mechanical, pneumatic and electronic actuated piston and diaphragm control valves designed to meet the variety of needs in the fluid process industry. Such valves include preset flow control valves, air differential control valves, pressure relief and safety valves. |
|  | Mechanical Registration | Mechanical 5 wheel register V/R 7887 or 6 wheel register V/R 7886 with optional preset, ticket printer, swivel, micro switch and register mounted pulser. |
|  | Miscellaneous | Miscellaneous product accessories were developed to increase functionality of your metering solution. Such items as flow indication, RTD temperature probes, clutch assemblies, insulation jackets, protective covers and various flange connections. |

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