

The **Smith Model T-20 Meter** is a 3", single case, angle type, rotary vane, positive displacement meter. Applications include: blending, batching, dispensing, inventory control and custody transfer of oils, solvents, chemicals, paints, fats, and fertilizers.

Features

- **Superior Accuracy** - The Smith rotary vane meter principle minimizes pressure drop across the measuring chamber which reduces flow through meter clearances to maximize accuracy.
- **Low Pressure Drop** - Streamlined flow path provides low pressure drop.
- **Positive and Accurate Registration** - High torque drive calibrator with adjustment in 0.05% increments ensures accurate registration.
- **Long Service Life** - Low friction ball bearings, fixed cam type timing, and rugged construction give sustained accuracy and long service life.

Operating Specifications

Maximum Flow Rate

	USGPM	l/min
T-20 Continuous Rating	200	750
T-20 Intermittent Rating+	240	900
T-20 (All Iron Trim) Rating	150	570

+ Intermittent rating applies to service on clean, refined products where continuous operation is not required (e.g., truck loading, rail loading, and other batching applications).

Minimum Flow Rate - Typical Performance

Linearity*	Units	Viscosity (mPa·s)					
		0.5	1	5	20	100	400
+/-0.15%	USGPM	40	25	10	2.5	0.50	0.12
	l/min	150	95	38	9.5	1.90	0.45
+/-0.25%	USGPM	30	18	8	2.0	0.40	0.10
	l/min	113	68	30	7.6	1.50	0.38
+/-0.50%	USGPM	20	12	5	1.2	0.25	0.06
	l/min	75	45	19	4.5	0.90	0.22

* Based on a maximum flow rate of 200 USGPM (750 l/min).

Repeatability

±0.02%



T-20 Meter with SPG-3 Preset Valve

Viscosity

Standard: 400 mPa·s* (2,000 SSU) maximum.

Optional: 2 Pa·s (10,000 SSU) maximum - specify "High Viscosity Meter Clearances."

Over 2 Pa·s: Specify "High Viscosity Meter Clearances" and derate maximum flow rate in direct proportion to viscosity over 2 Pa·s (e.g., at 4 Pa·s, derate maximum flow rate to 50% of normal continuous rating - 100 USGPM).

* 1,000 mPa·s = 1,000 cP = 1 Pa·s.

Temperature

Standard: -20°F to 150°F (-29°C to 65°C).

Optional: -20°F to 200°F (-29°C to 93°C) - specify "High Temperature Meter Clearances" or "All Iron Trim."

Other Temperatures: Consult factory.

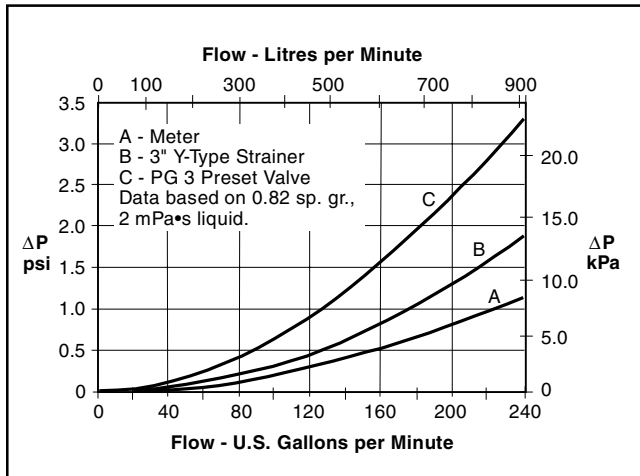
Maximum Working Pressure

Standard: 150 psig (1,034 kPa) up to 200°F (93°C).

Meter Gearing

One U.S. Gallon or 1 dekaliter per revolution of meter calibrator output shaft.

Pressure Drop (ΔP)



Materials of Construction

Meter	Housing	Internals	Seals
T-20	Cast Iron	Iron, Steel, Stainless Steel, Aluminum*, Bronze*	Loctite Master Gasket+; Viton+ or Teflon Shaft Seal
Valve: SPG-3 Preset Valve	Aluminum	Steel, Iron, Aluminum	Buna N+, Viton

+ Standard; for other than petroleum applications, consult factory.

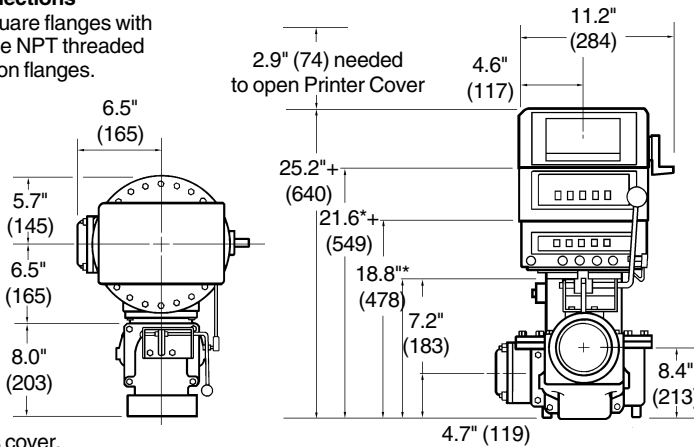
* All iron trim (no aluminum or bronze) optional.

Dimensions

Inches (mm)

Meter End Connections

Smith square flanges with 3" Female NPT threaded companion flanges.



*Includes cover.

+Deduct 3.7" (94) if Present Counter is not required.

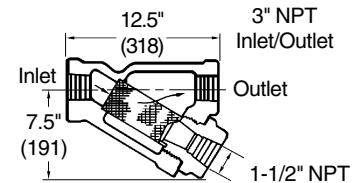
Weights

	lb.	kg.
Meter	82	37
3" "Y" Type Strainer	33	15
Meter/LNC+	97	44
Preset Package+*	123	56

+ Add 10 lb. (4.5 kg) if ticket printer is required.

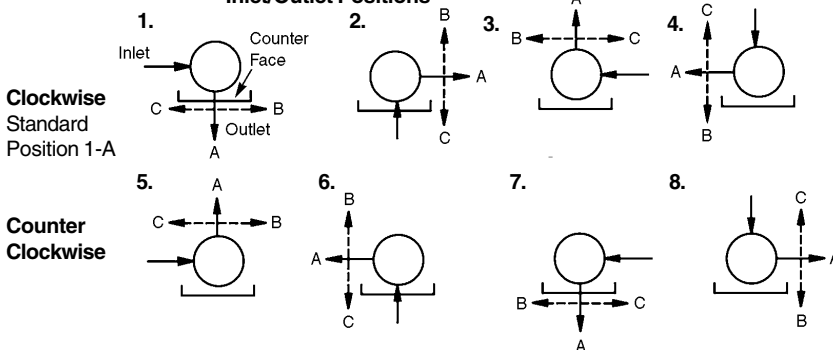
*Includes Meter, LNC, Preset Counter and valve.

3" "Y" Type Cast Iron Strainer

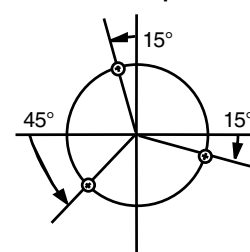


It is recommended that meter be protected with a suitable mesh strainer.

Inlet/Outlet Positions



Top View



Meter Anchor Bolt Holes
3-3/8" - 16 Tapped Holes equally spaced on a 8.125" (206) dia. bolt circle.

Note: A, B, C denotes orientation of valve outlet if used.

Note: Dimensions — Inches to the nearest tenth (millimetres to the nearest whole mm), each independently dimensioned from respective engineering drawings.

Ordering Information

Application	Batching, Loading, Blending, Inventory, Process Control, etc.
Operating Conditions	Liquid – Name and Sp. Gr., Flow Range*, Temp. Range*, Viscosity Range*, Maximum Working Pressure. <i>*Specify: minimum/normal/maximum.</i>
Seals	Meter: Viton+ or Teflon. Valve: Buna+, Viton. <i>+Standard seals supplied unless optional material specified.</i>
Units of Registration	Gallons, Liters, Pounds, Kilograms.
Inlet/Outlet Position	Position 1-A is standard and will be supplied unless another position (e.g., 2-C) is specified.
Options & Accessories	As required.

Accessories

Strainer

“Y” type 3" NPT, cast iron.

Mechanical Preset Valves

3" offset type, cast aluminum, NPT outlet.

Automatic Temperature Compensation

Model ATC - Factory set for a given product.

Model ATG - Field-adjustable for different products.

Model LEATC - Electronic, field-programmable for different products.

Counters

200 Series - Accumulative, nine digit, non-reset type.

600 Series - Five large digit reset, eight small digit non-reset.

Printer

Seven digit accumulative. Optional six digit zero start.

Preset Counter

300C Series - Four digit (five digit optional) mechanical push-button preset with microswitch package for valve or pump control.

Pulse Transmitters

Type “E” - SPDT mercury wetted switch.

LNC Pulse Transmitter (adapts to 600 Series counters).

Low Resolution - 1 or 10 pulses*.

High Resolution (HR) - 50 or 100 pulses*.

**Per revolution of LNC right-hand wheel.*

PEXP - Photo-electric pulse transmitter in an explosion proof housing (up to 1,000 pulses/rev.).

PPS - Dual channel, photo-electric, security pulse transmitter in an explosion-proof housing (up to 1,000 pulses/rev.).

Flow Rate Indicator

Direct mount mechanical.

Remote electronic.

Remote Registration

Electro-mechanical counters.

Electronic totalizers.

Revisions included in SS01002 Issue/Rev. 0.5 (6/02):
Page 1: Added repeatability $\pm 0.02\%$.

The specifications contained herein are subject to change without notice and any user of said specifications should verify from the manufacturer that the specifications are currently in effect. Otherwise, the manufacturer assumes no responsibility for the use of specifications which may have been changed and are no longer in effect.

Headquarters:

6677 North Gessner Road, Houston, TX 77040 USA, Phone: 713/510-6970, Fax: 713/510-6972

Locations:

Erie, PA USA Phone 814/898-5000, Fax 814/899-8927

Corpus Christi, TX USA Phone 361/289-3400, Fax 361/289-1115

Caldwell, TX USA Phone 979/567-1693, Fax 979/567-0480

Longmont, CO USA Phone 303/702-7400, Fax 303/702-1608

Los Angeles, CA USA Phone 661/296-7711, Fax 661/296-5166

Eunice, LA USA Phone 337/550-7133, Fax 337/550-7134

Thetford, England Phone (44) 1842-82-2900, Fax (44) 1842-76-5402

Slough, England Phone (44) 1753-57-1515, Fax (44) 1753-52-9966

Ellerbek, Germany Phone (49) 4101-3040, Fax (49) 4101-304133

Kongsberg, Norway Phone (47) 32/286-700, Fax (47) 32/289-590

Barcelona, Spain Phone (34) 93/201-0989, Fax (34) 93/201-0576

Moscow, Russia Phone (7) 095/564-8705, Fax (7) 095/926-5066

Melbourne, Australia Phone (61) 3/9807-2818, Fax (61) 3/9807-2816

Beijing, China Phone (86) 10/6500-2251, Fax (86) 10/6512-6857

Chennai, India Phone (91) 44/450-4400, Fax (91) 44/450-2114

San Juan, Puerto Rico Phone 787/274-3760, Fax 787/274-1020

Caracas, Venezuela Phone (58) 212/242-4018, Fax (58) 212/243-5632

Singapore, Phone (65) 6769-9332, Fax (65) 6765-5904

Visit our website at www.fmcmeasurementsolutions.com