

The **Smith Meter™ Model C2 Meter** is a 2", double-case, straight-through (S1 through S7), 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 Meter™ Rotary Vane Meter principle, combined with the meter's uniquely designed (offset) inlet and outlet nozzles, minimizes pressure drop across the measuring chamber, which reduces flow through the 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.

### Options

- **High Viscosity Meter Clearances** - To extend operation at maximum flow rate from 400 mPa•s to 2,000 mPa•s.
- **High Temperature Clearances** - To extend operating temperatures from 150°F to 200°F (65°C to 93°C).
- **All Iron Trim** - For operating temperatures above 200°F (93°C).
- **LPG Trim** - For low lubricity liquids such as LPG.
- **NACE Construction** - Special components available to meet requirements of NACE Standard MR-01-75.

### Operating Specifications

#### Maximum Flow Rate

	USGPM	L/min
Continuous Rating	125	475
Intermittent Rating <sup>1</sup>	150	570
Continuous/Intermittent Rating - All Iron, and LPG Construction	100	375

<sup>1</sup> 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).

<sup>2</sup> Linearity based on a maximum flow rate of 125 USGPM (475 L/min)

<sup>3</sup> 1,000 mPa•s = 1,000 cP = 1 Pa•s.



**Model C2-S1 with Large Numeral Counter and Ticket Printer**

### Minimum Flow Rate — Typical Performance

Linearity <sup>2</sup>	Units	Viscosity (Centipoise - mPa•s)					
		0.5	1	5	20	100	400
±0.15%	USGPM	25	15	6	1.5	0.30	0.08
	l/min	95	57	23	6.0	1.00	0.30
±0.25%	USGPM	17	10	4	1.0	0.20	0.05
	l/min	65	38	15	4.0	0.75	0.20
±0.50%	USGPM	13	8	3	0.8	0.16	0.04
	l/min	50	30	11	3.0	0.60	0.15

### Repeatability

±0.02%

### Viscosity

Standard: 400 mPa•s<sup>3</sup> (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 - 63 USGPM).

## Temperature

Standard Meter Clearances With:

Buna N/EPR/Teflon: -20°F to 150°F (-29°C to 65°C).  
 Viton: 10°F to 150°F (-12°C to 65°C).

High Temperature Meter Clearances With:

Buna N/EPR/Teflon: -20°F to 200°F (-29°C to 93°C).  
 Viton: 10°F to 200°F (-12°C to 93°C).

All Iron Trim With:

Buna N: -20°F to 225°F (-29°C to 108°C).  
 EPR: -20°F to 300°F (-29°C to 149°C).  
 Teflon: -20°F to 400°F (-29°C to 205°C).  
 Viton: 10°F to 400°F (-12°C to 205°C).

## Meter Gearing

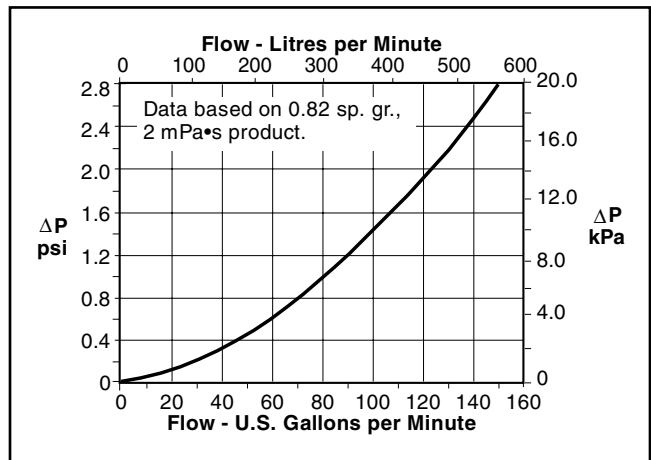
Five U.S. gallons or 1 dekalitre per revolution of meter calibrator output shaft (standard).

## Maximum Working Pressure

Model	Flange	PSI	kPa
C2-S1	150	150	1,034
C2-S3	150	285 <sup>4</sup>	1,965 <sup>4</sup>
C2-S5	300	300	2,068
C2-S6	300	720 <sup>4</sup>	4,964 <sup>4</sup>
C2-S7	600	1,440 <sup>4</sup>	9,929 <sup>4</sup>

Flange Class per ANSI B16.5 Raised Face Flange.

## Pressure Drop ( $\Delta P$ )



## Materials of Construction

Trim	Housing	Internals	Seals
Standard	Steel	Iron, Steel, Stainless Steel, Aluminum	Buna N <sup>6</sup> , Teflon, or Viton <sup>5</sup> , EPR
LPG		Add Rulon and Nylon	
All Iron		Delete Aluminum	

## Installation

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

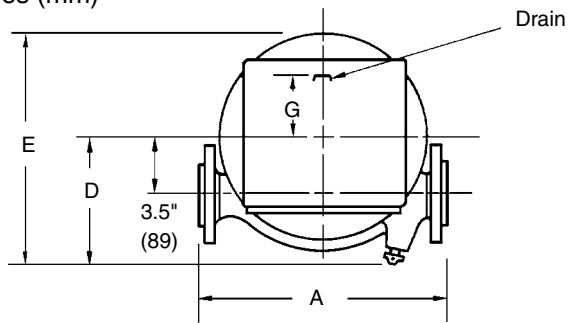
<sup>4</sup> Maximum W.P. at 100°F (38° C).

<sup>5</sup> All S3 through S7 meters with Viton adder will have Teflon packing gland seals.

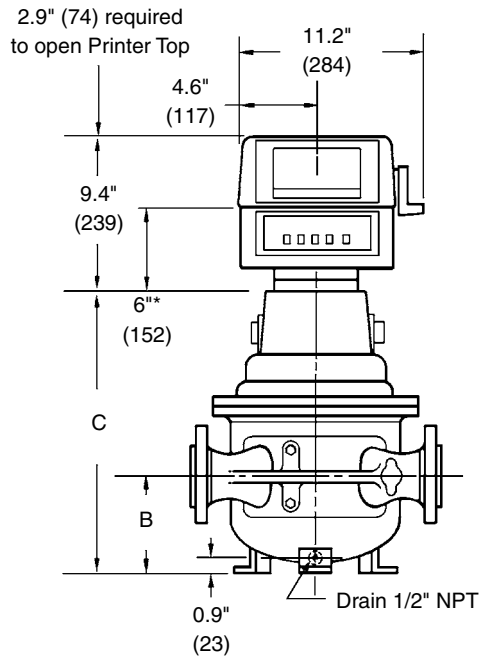
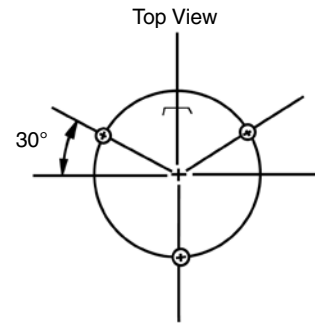
<sup>6</sup> Standard.

## Dimensions

Inches (mm)



**Meter  
Anchor Bolt Holes**  
3 - 0.6" (15) Bolt Holes  
on a "F" Diameter Bolt Circle.



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

Model	A	B	C	D	E	F	G	Weight - lb (kg)
C2-S1	14.0" (356)	5.6" (142)	15.8" (400)	7.4" (188)	13.4" (340)	8.5" (216)	3.8" (97)	95 (43)
C2-S3	14.0" (356)	5.6" (142)	18.6" (472)	7.4" (188)	13.4" (340)	8.5" (216)	3.8" (97)	110 (50)
C2-S5	14.6" (371)	5.6" (142)	18.6" (472)	7.4" (188)	13.4" (340)	8.5" (216)	3.8" (97)	115 (52)
C2-S6	18.0" (457)	5.8" (147)	21.0" (533)	7.8" (198)	14.8" (375)	9.1" (232)	4.3" (109)	170 (77)
C2-S7	18.8" (476)	6.4" (162)	21.6" (548)	7.8" (198)	15.1" (385)	9.1" (232)	4.3" (109)	255 (116)

## Ordering Information

<b>Application</b>	Batching, Loading, Blending, Inventory, Process Control, etc.
<b>Operating</b>	Liquid — Name and sp. gr. or API Gravity, Flow Range <sup>7</sup> , Temp. Range <sup>7</sup> , Viscosity Range <sup>7</sup> , Maximum Working Pressure, C of E.
<b>Seals</b>	Buna N <sup>8</sup> , Viton, Teflon or EPR.
<b>Units of Registration</b>	Gallons, Litres, Pounds, Kilograms
<b>Direction of Flow<sup>9</sup></b>	Left to right flow (as viewed above) is standard and will be supplied unless right to left flow is specified.
<b>Options and Accessories</b>	As required.

## Accessories

### Strainer

2" steel, R.F. flanged, 4 mesh or finer screen.

### Mechanical Preset Valves

2" offset or straight through type, steel, flanged, 150 psi and 300 psi (300 psi straight through only) maximum working pressure respectively.

### Hydraulic Valves

2" globe type, steel, R.F. flanged, 300 psi maximum working pressure.

### Air Eliminator

2" steel, R.F. flanged.

### 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 pushbutton preset with valve linkage. Microswitch package for hydraulic valve, pump control, or other interlock optional.

### Pulse Transmitters

Type E - SPDT Mercury Wetted Switch.

LNC Pulse Transmitter (adapts to 600 Series Counters).

Low-Resolution - 1 or 10 pulses<sup>10</sup>.

High-Resolution (HR) - 50 or 100 pulses<sup>10</sup>.

UPT - Quad-channel, infrared, 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.

### Automatic Temperature Compensation

Model ATC - Factory-set for a given product.

Model ATG - Field-adjustable for different products.

<sup>7</sup> Specify: minimum/normal/maximum.

<sup>8</sup> Standard seals supplied unless optional material specified.

<sup>9</sup> For right-to-left flow on C2-S1 meters, add reversing gear kit.

<sup>10</sup> Per revolution of LNC right hand wheel.

Revisions included in SS01010 Issue/Rev. 0.6 (2/07):

Page 2: Revised Max. Working Pressure for Model C2-S3 to 285 PSI/1,965 kPa.

Page 4: Revised description of UPT and removed PEX and PPS from Pulse Transmitters section; Removed Model LEATC from Automatic Temperature Compensator.

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.

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