

12" Steel Model K12

Bulletin SS01020 Issue/Rev. 1.0 (10/18)

Smith Meter® CT Series PD meter for crude transportation

The **Smith Meter Model K12 Meter** is a 12", double-case, straight-through type, rotary vane, positive displacement flow meter and is part of the Crude Transportation (CT) Series of large PD meters.

The Crude Transportation Series PD Meters incorporate updated design features including lightened blades, full-width wear strips, Armalloy coated rollers and cam and tungsten carbide roller pins to provide extended service in harsh crude applications.

The Crude Transportation Series is suitable for both crude oil and refined product applications such as blending, batching and leak detection as well as traditional custody transfer applications.



OPTIONS

- **High Viscosity Meter Clearances** – To extend operation at maximum flow rate from 200 mPa*s to 2,000 mPa*s.
- **High Temperature Meter Clearances** – To extend operating temperatures from 115°F to 200°F (46°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

	BPH	m ³ /h
Continuous Rating – Standard Trim	7,200	1,140
Continuous Rating – All Iron or LPG Trim	5,400	855

MINIMUM FLOW RATE TYPICAL PERFORMANCE

Linearity ¹	Units	Viscosity (Centipoise – mPa*s)				
		1	5	20	100	400
±0.15%	BPH	650	260	65	16.0	8.0
	m ³ /h	103	41	10	2.5	1.3
±0.25%	BPH	500	200	50	12.0	6.0
	m ³ /h	80	32	8	1.9	0.9
±0.50%	BPH	325	130	33	8.0	4.0
	m ³ /h	52	21	5	1.3	0.6

¹ Based on a maximum flow rate of 7,200 BPH (1,140 m³/h).

Repeatability

±0.02%

Viscosity

Standard: 200 mPa•s² (1,000 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 – 3,600 BPH).

Temperature

Standard Meter Clearances With:

Buna N: -20°F to 115°F (-29°C to 46°C).

Viton: 10°F to 115°F (-12°C to 46°C).

High Temperature Meter Clearances With:

Buna N: -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).

Viton: 10°F to 400°F (-12°C to 205°C).

Meter Gearing

One barrel or one hectolitres per revolution of meter calibrator output shaft.

Fifty gallons - special

Maximum Working Pressure

Model	Flange	PSI	kPa
K12-S3	150	285 ³	1,965 ³
K12-S5	300	300	2,068
K12-S6	300	740 ³	5,102 ³
K12-S7	600	1,480 ³	10,204 ³

Flange Class per ANSI B16.5 Raised Face Flange.

2 1,000 mPa•s = 1,000 cP = Pa•s.

3 Maximum working pressure at 100°F (38°C).

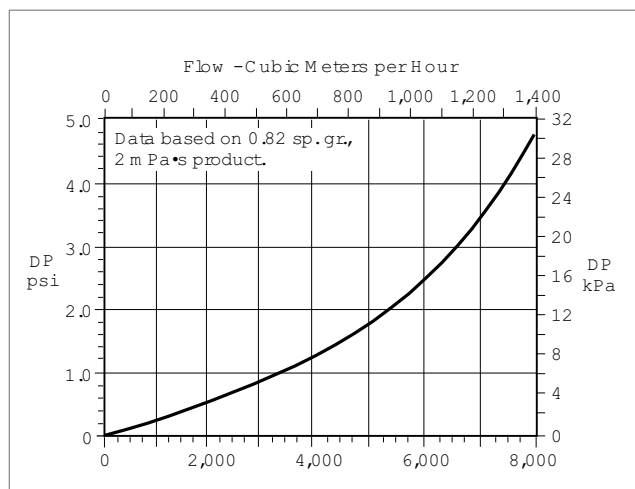
4 Polytetrafluoroethylene (PTFE).

5 Standard.

6 Specify: minimum / normal / maximum.

7 Standard seals supplied unless optional material specified.

Pressure Drop (ΔP)



Materials of Construction

Trim	Housing	Internals	Seals
Standard	Steel	Iron, Steel, Stainless Steel, Aluminum	Buna N ⁵ , Viton, or PTFE ⁴
LPG Trim	Steel	Iron, Steel, Stainless Steel, Aluminum, Rulon and Nylon	Buna N ⁵ or Viton
All Iron	Steel	Iron, Steel, Stainless Steel	Buna N ⁵ or Viton

Installation

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

Weights & Measures Approvals

European Union: MID

INMETRO/DIMEL No. 0148

Consult Factory for other certifications.

Ordering Information

Application	Batching, Loading, Blending, Inventory, Custody Transfer, etc.
Operating Conditions	Liquid – Name and sp. gr., Flow Range ⁶ , Temp. Range ⁶ , Viscosity Range ⁶ , Maximum Working Pressure
Seals	Buna N ⁷ or Viton
Units of Registration	Gallons, Barrels, Cubic Meters, Tons
Direction of Flow	Left to right flow (as viewed above) is standard and will be supplied unless right to left flow is specified.
Options and Accessories	As required

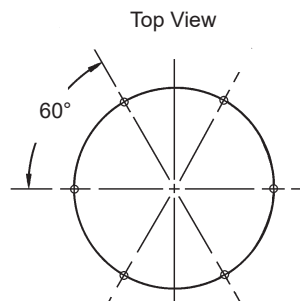
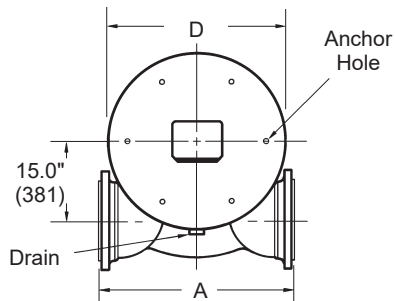
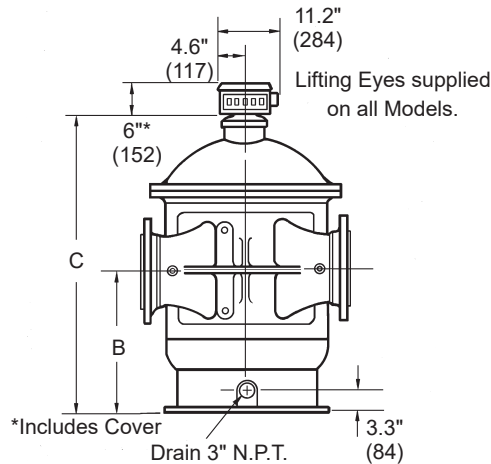
Dimensions

Inches (Millimeters)

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	Weight – lb (kg)
K12-S3	38.0" (965)	26.0" (660)	54.3" (1,379)	35.5" (902)	27.0" (686)	3,025 (1,372)
K12-S5	38.8" (986)	26.0" (660)	54.3" (1,379)	35.5" (902)	27.0" (686)	3,500 (1,588)
K12-S6	46.3" (1,176)	26.3" (667)	56.8" (1,443)	40.5" (1,029)	30.0" (762)	4,830 (2,191)
K12-S7	48.8" (1,240)	28.2" (716)	60.6" (1,539)	42.5" (1,080)	30.0" (762)	10,644 (4,828)

Model K12-S3 through S7



Meter Anchor Bolt Holes

6 1-1/8" (29) bolt holes on an "E" diameter bolt circle.

Accessories

Counters

200 Series - Accumulative, 9-digit, non-reset type.

600 Series - Large 5 digit reset, small 8 digit non-reset.

Electronic Pulse Transmitters

LNC Pulse Transmitter (adapts to 600 Series Counters).

Low-Resolution - 1 or 10 pulses¹⁰.

High-Resolution (HR) - 50 or 100 pulses¹⁰.

UPT

Universal Pulse Transmitter – High Resolution dual pulse quadrature output in a weather-tight explosion-proof enclosure (up to 1000 pulses/rev) used to provide pulse inputs to optional electronic indicators/controllers/flow computers which may perform electronic temperature compensation.

Flow Rate Indicator

Direct Mount Mechanical.

Remote Electronic.

Remote Registration

Electronic Totalizers.

Mechanical Automatic Temperature Compensation

Model ATC - Factory-set for a given product.

Model ATG - Field-adjustable for different products.

Revisions included in SS01020 Issue/Rev. 1.0 (10/18):

Approvals updated. Accessories section added.

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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