

The **Smith Meter® Model M16 Meter** is a 16", 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.

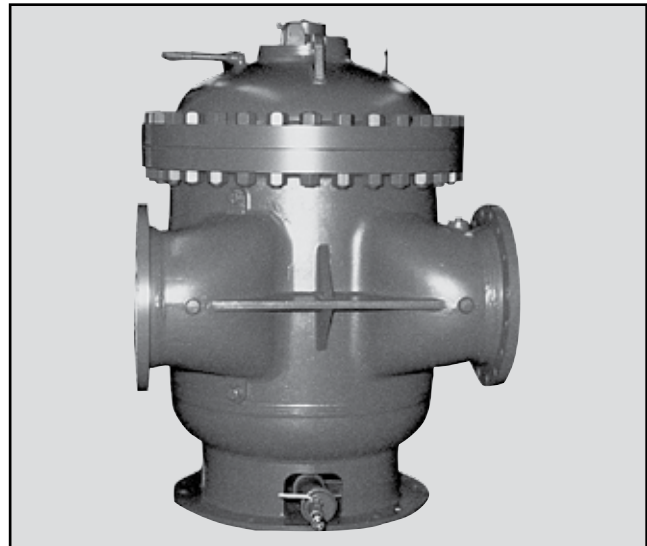
## Options

- **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 105°F to 200°F (41°C to 93°C).
- **All Iron Trim** – For operating temperatures above 200°F (93°C).
- **NACE Construction** – Special components available to meet requirements of NACE Standard MR-01-75.

## Operating Specifications

### Maximum Flow Rate

	BPH	m <sup>3</sup> /h
Continuous Rating - Standard Trim	12,500	2,000
Continuous Rating - All Iron Trim	9,375	1,500



Model M16-S3

### Minimum Flow Rate – Typical Performance

Linearity <sup>1</sup>	Units	Viscosity (Centipoise – mPa•s)				
		1	5	20	100	200
±0.15%	BPH	1,400	560	140	36	18.0
	m <sup>3</sup> /h	222	89	22	6	2.9
±0.25%	BPH	1,050	420	105	27	14.0
	m <sup>3</sup> /h	167	67	17	4	2.2
±0.50%	BPH	700	280	70	18	10.0
	m <sup>3</sup> /h	111	45	11	3	1.6

### Repeatability

±0.02%

### Viscosity

Standard: 200 mPa•s<sup>2</sup> (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 – 6,250 BPH).

<sup>1</sup> Based on a maximum flow rate of 12,500 bph (2,000 m<sup>3</sup>/h).

<sup>2</sup> 1,000 mPa•s.

## Temperature Ranges

### Operating:

Standard Trim, Standard Meter Clearances:  
-20°F to 105°F (-29°C to 41°C).

Standard Trim, High Temperature Meter Clearances:  
-20°F to 200°F (-29°C to 93°C).

All Iron Trim, Standard Meter Clearances:  
-20°F to 400°F (-29°C to 205°C).

### Elastomers:

Buna N: -20°F to 255°F (-29°C to 108°C).  
Viton: 10°F to 400°F (-12°C to 205°C).

## Meter Gearing

One barrel or 50 dekalitres per revolution of meter calibrator output shaft.

## Maximum Working Pressure

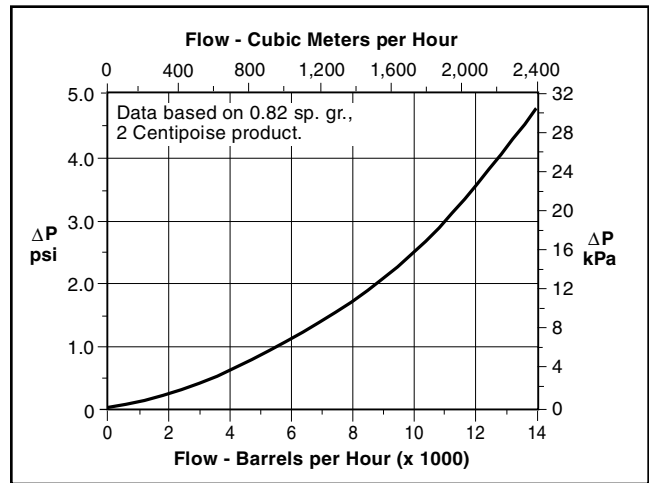
Model	Flange	PSI	kPa
M16-S3	150	285 <sup>3</sup>	1,965 <sup>3</sup>
M16-S5	300	300	2,068
M16-S6	300	740 <sup>3</sup>	5,102 <sup>3</sup>

**Note:** Flange Class per ANSI B16.5 Raised Face.

## Installation

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

## Pressure Drop ( $\Delta P$ )



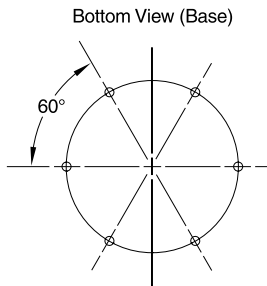
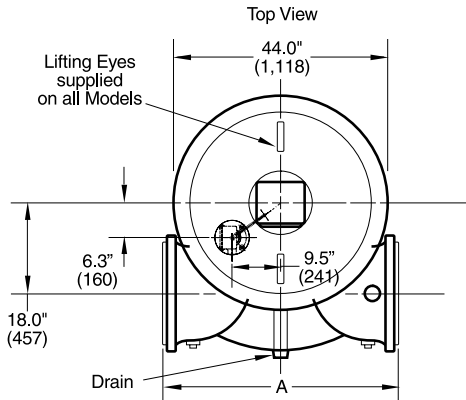
## Materials of Construction

Trim	Housing	Internals	Seals
Standard	Steel	Iron, Steel, Stainless Steel, Aluminum	Buna N, Viton, or Teflon
All Iron	Steel	Delete Aluminum	Buna N, Viton, or Teflon

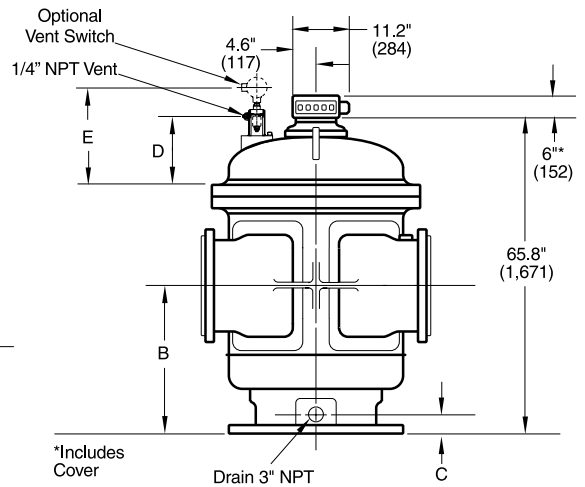
## Dimensions

Inches (mm)

### Model M16-S3 through S6



**Meter Anchor Bolt Holes**  
6 - 1-1/8" (29) Bolt Holes  
on a 33.0" (838) 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	Weight – lb (kg)
M16-S3	46.0" (1,168)	30.5" (775)	3.5" (89)	14.0" (355)	19.4" (493)	6,505 (2,927)
M16-S5	46.0" (1,168)	30.5" (775)	3.5" (89)	14.0" (355)	19.4" (493)	7,400 (3,330)
M16-S6	47.0" (1,194)	30.5" (775)	4.0" (102)	14.4" (366)	19.8" (503)	9,600 (4,320)

<sup>3</sup> Maximum working pressure at 100° F (38° C).

## Ordering Information

<b>Application</b>	Batching, Loading, Blending, Inventory, Custody Transfer, etc.
<b>Operating Conditions</b>	Liquid – Name and sp. gr., Flow Range <sup>4</sup> , Temp Range <sup>4</sup> , Viscosity Range <sup>4</sup> , Maximum Working Pressure.
<b>Seals</b>	Buna-N or Viton
<b>Units of Registration</b>	Gallons, Barrels, Cubic Meters, Tons.
<b>Direction of Flow</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.

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<sup>4</sup> Specify: minimum/normal/maximum.

Revisions included in SS01021 Issue/Rev. 0.7 (2/10):  
Page 2 - Maximum Working Pressure M16-S6, PSI and kPa revised.  
Editorial Change - 10/27/2010 - page 2, dimensions of A corrected.

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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