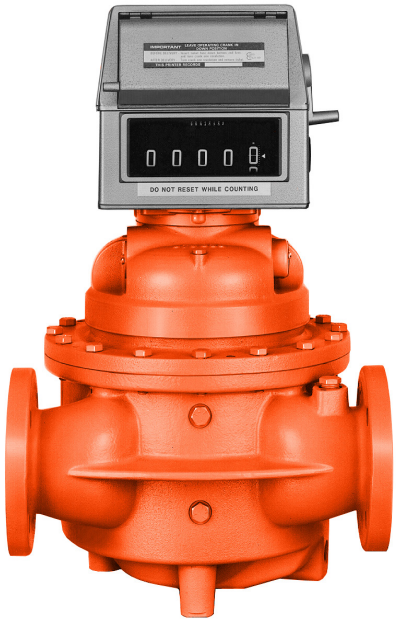
4" Model SF- and VF-60-DI

Bulletin SS01066E Issue/Rev. 0.7 (1/15)



Smith Meter® PD Meters

The **Smith Meter® Model SF-60** is a DN100 (4") single-case, straight-through (also available with vertical manifold **Model VF-60**), 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 and unique offset, inlet, and outlet nozzles combine to minimize pressure drop across the measuring chamber for reduced flow through the meter clearances for maximum accuracy.
- **Low Pressure Drop** – Streamlined flow path provides low pressure drop.
- **Positive and Accurate Registration** – High torque drive calibrator with adjustments in 0.05% increments ensures accurate registration.
- **Long Service Life** – Low friction ball bearings, fixed cam timing, and rugged construction give sustained accuracy and long life.
- **Ductile Iron Housing** – For a maximum working pressure at 16 bar.
- **PED**[1] – Liquid compliant.

Options

- **Vertical Manifold in Ductile Iron or Steel** – For installation flexibility.
- **High Viscosity Meter Clearances** – To extend operation at maximum flow rate from 400 mPa•s to 2,000 mPa•s.
- **High Temperature Meter Clearances** – To extend operating temperatures from 65°C (150°F) to 93°C (200°F).
- **Viton** – for increased application flexibility.
- **All Iron Construction** – For operating temperatures above 93°C (150°F).
- **Load Rack Trim** – For low lubricity products.
- **End Connections** – Available with DIN or ANSI flanges.

Operating Specifications

Maximum Flow Rate		
	USGPM	L/min
Continuous Rating – Standard Trim	600	2,250
Intermittent Rating[2] – Standard Trim	725	2,750
Continuous/Intermittent Rating – All Iron Trim	450	1,700

1 PED required for all European countries. Equipment must be manufactured by Ellerbek, Germany facility.
2 Intermittent rating applies to service on clean, refined products where continuous operation in not required (e.g., truck loading, rail loading, and other batching applications).
3 Linearity based on a maximum flow rate of 600 USGPM (2,250 L/min).

Minimum Flow Rate Typical Performance							
	Viscosity (mPa•s)						
Linearity[3]	Units	0.5	1	5	20	100	400
±0.15%	USGPM	100	60	25	6	1.25	0.30
	L/min	375	227	95	23	4.75	1.14
±0.25%	USGPM	75	45	18	4	1.00	0.25
	L/min	285	170	68	15	3.80	0.95
±0.50%	USGPM	50	30	12	3	0.60	0.15
	L/min	190	114	45	11	2.25	0.57

Repeatability

±0.02%

Viscosity

Standard: 400 mPa•s[4] (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 - 1,125 L/min).

Temperature

Standard Meter Clearances, with –

-Buna-N:	-20°C to 65°C	(-4°F to 150°F)
-Viton seals:	-12°C to 65°C	(10°F to 150°F)

High Temperature Meter Clearances, with –

-Buna-N:	-20°C to 93°C	(-4°F to 200°F)
-Viton seals:	-12°C to 93°C	(10°F to 200°F)

All Iron Trim, with –

-Buna-N seals:	-20°C to 108°C	(-4°F to 225°F)
-Viton seals:	-12°C to 150°C	(10°F to 300°F)

Optional Low Temperature:

-29°C (-20°F) at reduced working pressure of 10 bar (1,000 kPa), with Buna-N Seals.

Special low temperature of -40°C (-40°F) on request.

Meter Gearing

One dekalitre per revolution of meter calibrator output shaft.

End Connections and Maximum Working Pressure		
End Connections	Housing Material	Pressure – bar (kPa)
Class 150 ANSI B16.42 raised face flanges DIN EN PN16 raised face flanges	Ductile Iron	16 (1,600)

Materials of Construction		
Housing	Internals	Seals
Ductile Iron **Optional:** Steel, Manifold	Iron, Steel, Stainless Steel, Aluminum **Optional:** All Iron	Buna **Optional:** Viton

Installation

Its is recommended that the meter be protected with a 40 mesh strainer.

Strainer Specifications			
Type	End Connections	Housing Material	Pressure – bar (kPa)
E-40	Class 150 ANSI B16.5 raised face flanges DIN EN PN16 raised face flanges	Cast Steel	19.7 (1,965) 16 (1,600)

Meter Ordering Information	
Application	Batching, Loading, Blending, Inventory, Process Control, etc.
Operating Conditions	**Liquid** – Name, Viscosity (Min./Max.), and Specific Gravity **Flow Range** – Min./Norm./Max. **Temperature Range** – Min./Max. **Maximum Working Pressure**
Units of Registration	Litres, Dekalitres, Gallons, Kilograms, or Pounds
Options	**Seals** – Buna or Viton **Internal Construction** – Iron/Aluminum, All Iron/PTFE Seals **Clearances** – Standard, High Viscosity, or High Temperature **End Connections** – ANSI or DIN
Accessories	As required, see next page.

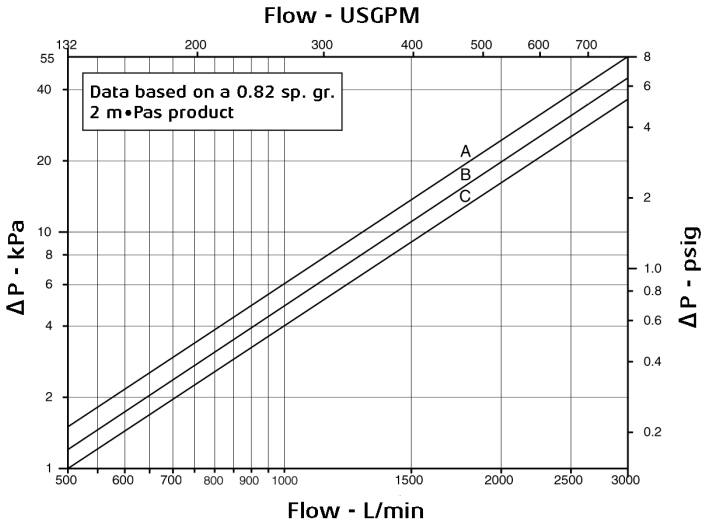
4 1,000 mPa•s = 1,000 cP = 1 Pa•s.

Pressure Drop

A - Strainer - 40 Mesh
B - Meter
C - Preset Valve

To approximate pressure drop for strainers with other than 40 mesh baskets, multiply chart reading by the appropriate factor.

Mesh	Factor
4	.65
10	.75
20	.85
80	1.25



Accessories

Strainers

Housing Material – Cast Steel.
Seals – Buna-N (standard) or Viton.
Liner – 40 (standard), 4, 10, 20, or 80 mesh.
Options – RB Type Air Release Kit.

Deaerator

Type – Vertical or Horizontal.
Housing Material – Steel.
Seals – Buna-N (standard) or Viton.

Hydraulic Valves

Type – Globe-Type.
Housing Material – Cast Steel.

Mechanical Set Stop Valves

Type – Straight-through.
Housing Material – Steel.
Seals – Buna-N (standard), Viton.

Automatic Temperature Compensation

Model ATC – Factory-set for a given product.
Model ATG – Field-adjustable for different products.

Counters

200 Series – Accumulative, nine-digit, non-reset type.
600 Series – Five large-digit reset, eight small-digit non-reset.

Printers

Seven-digit accumulative.
Optional six-digit zero-start.

Preset Counters

300C Series – Five-digit mechanical pushbutton preset with valve linkage. Microswitch package for pump control or other interlock optional.

Pulse Transmitters

GPST2 – Dual-channel, photoelectric transmitter to ATEX (EEx)d IIB T6. Maximum output 500 pulses/revolution.
LNC Transmitter (Adapts to new-style 600 Series Counter) – Low Resolution: 1 or 10 pulses/revolution of counter R.H. Wheel. ATEX approved (EEx)d IIA T6.
High Resolution (HR): 100 or 50 pulses/revolution of counter R.H. Wheel. ATEX approved (EEx)d IIA T6.

PE-P Portable Photoelectric Transmitter – General purpose enclosure. Requires Right-Angle-Drive on meter.

UPT – Universal Pulse Transmitter.
ATEX approved (EEx)d IIB T6.
Max output 1000 pulses/revolution

Flow Rate Indicators

Direct mount mechanical.
Remote electronic.

Remote Registration

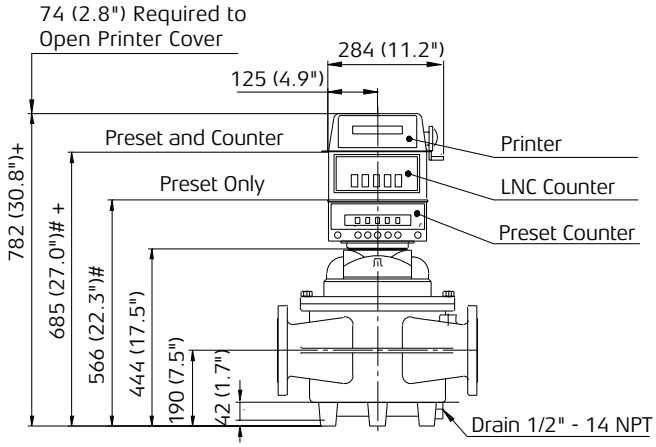
Electromechanical counters.
Electronic totalizers.
Load printer.

Dimensions[5]

millimetres (inches)

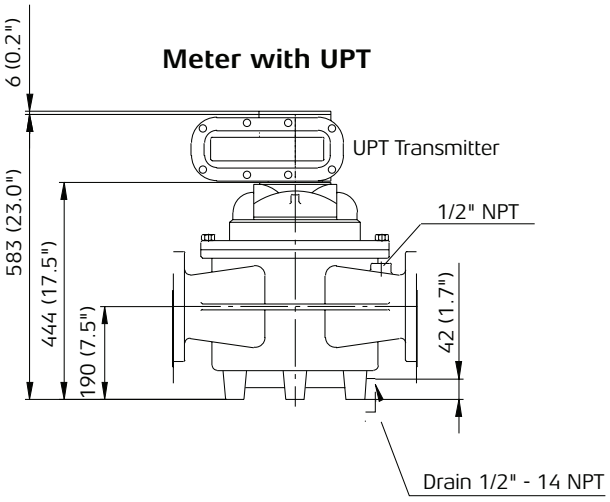
Meter SF-60-DI with Accessories

Meter SF-60-DI



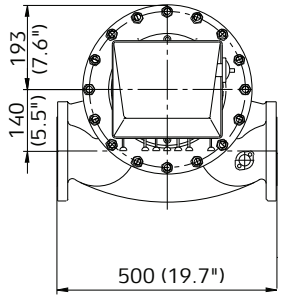
Includes cover
+ Deduct 94 (3.7") if preset counter is not required

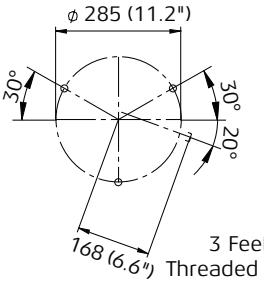
Meter with UPT

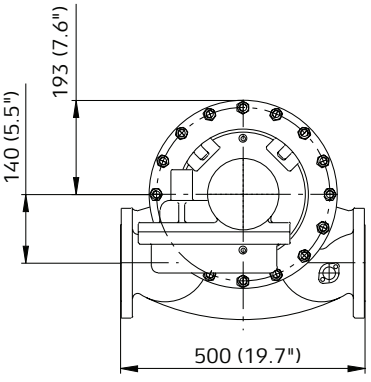


Meter Mounting Bolt Holes (Horizontal or Vertical)

3-M16 Threaded Bolt Holes, Equally Spaced on a
285 mm (11.2") Diameter Bolt Circle

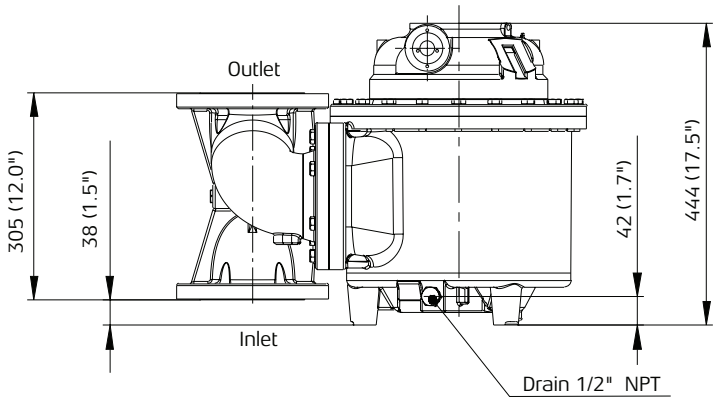


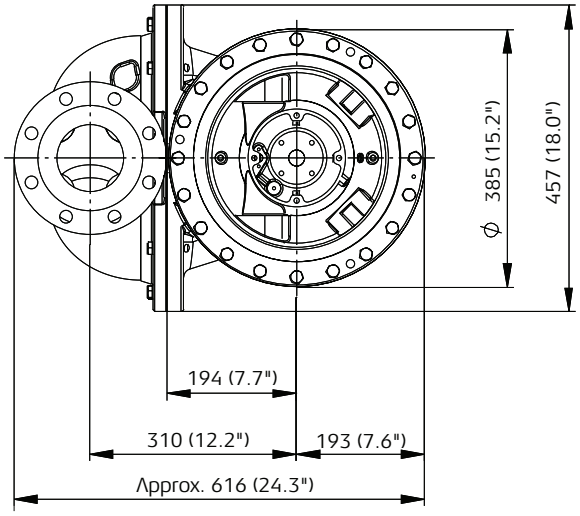


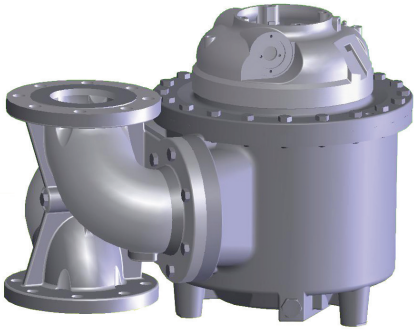


5 Dimensions – millimetres to the nearest whole mm (inches to the nearest tenth), each independently dimensioned for respective engineering drawings.

Meter VF-60-DI with Vertical Manifold







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Revisions included in SS01066E Issue/Rev. 0.7 (1/15):
Page 1: Note added for PED; LPG Trim removed. Editorial Change March 2019 - New company branding/contact information.
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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