

Smith Meter Inc

An **FMC EnergySystems** business

P.D. Rotary Vane Meters **Low Profile Aircraft Fueling Series** Specifications

Bulletin SS01070E

Description

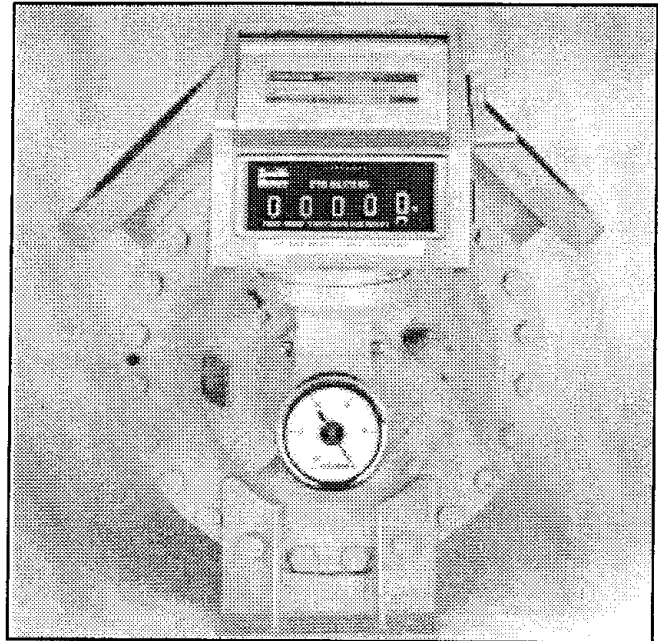
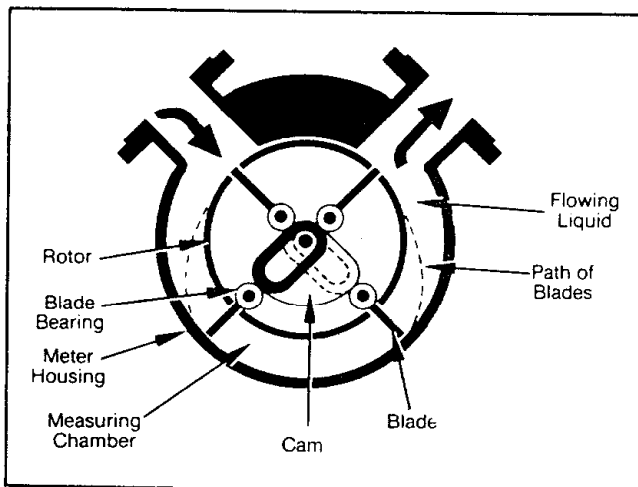
The **Smith Low Profile Aircraft Refueling Meters** are compact, single case, rotary vane positive displacement meters with an angle flow path and DIN PN16 or Class 125 ANSI B16.1 flat face flanges. Applications include: refuelers, defuelers, and truck loading.

Features

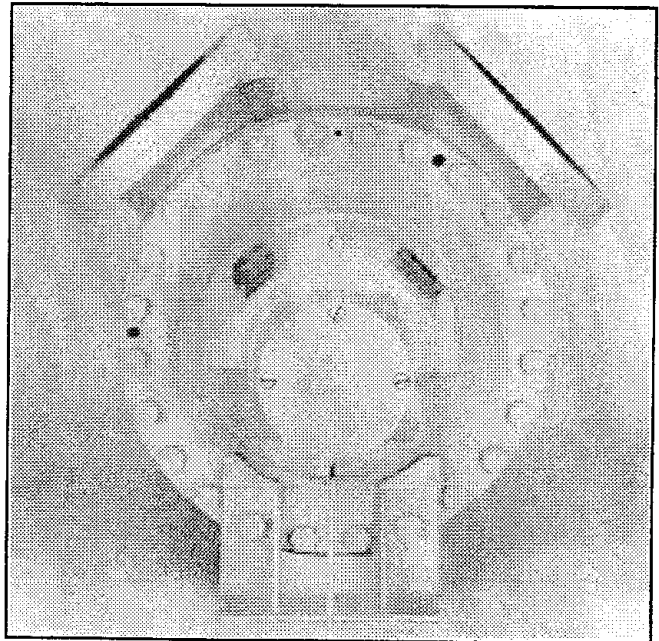
- **Superior Accuracy** - The Smith Rotary Vane Meter principle minimizes pressure drop across the measuring chamber, which reduces flow through meter clearances to maximize accuracy.
- **Low Pressure Drop** - Streamlined flow path provides low pressure drop.
- **Positive and Accurate Registration**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

Principle of Operation

The rotor, which revolves on stainless steel bearings, has four evenly-spaced slots. The slots control the position of two blades that are at right angles to each other. As liquid flows through the meter, the rotor and blades revolve around a fixed cam. Ball bearings fixed to the blades roll around the cam, causing the blades to move radially. The successive movement of the blades, outward toward the case wall, forms a measuring chamber of precise volume between the blades, rotor, case wall,



Meter with Counter Printer and Flow Rate Indicator



Meter with Transmitter

and the bottom of the case. Four measuring chambers are produced for each revolution of the rotor, continuously and uninterrupted. Neither the blades nor the rotor contact the stationary walls of the measuring chamber.

Following is an illustration of a straight through meter. Port location of angle meters does not change this basic principle of operation.

Materials of Construction

| | |
|-----------------------|------------------------------------------|
| Body and Cover | Anodized Aluminum |
| Block | Anodized Aluminum |
| Rotor | Cast Iron Optional: Aluminum |
| Bearings | Stainless Steel |
| Shaft and Cam | Stainless Steel |
| Gears | (In Contact with Liquid) Stainless Steel |
| Blades | Aluminum with PEK Wear Strips |
| Bushings | Rulon |

Temperature

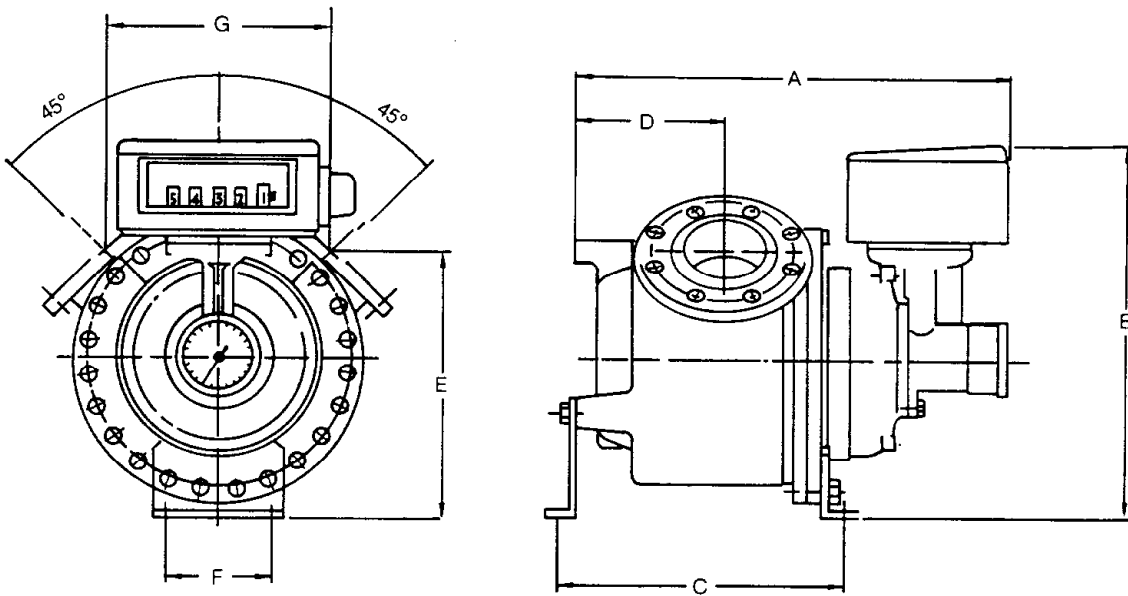
Standard

-30° C to 65° C (-20° F to 150° F).

Maximum Working Pressure

All meters 10 bar (150 psi).

Dimensions (mm)



| Meter Type | Dimensions (mm) | | | | | | | Approx. Weight |
|------------|-----------------|-----|-----|-----|-----|-----|-----|----------------|
| | A | B | C | D | E | F | G | |
| ASG 100-H | 655 | 530 | 475 | 240 | 466 | 170 | 412 | 105 kg |
| ASF 60-H | 585 | 480 | 405 | 190 | 398 | 150 | 356 | 78 kg |
| ASD 30-H | 490 | 455 | 310 | 115 | 353 | 130 | 306 | 50 kg |

Modeling

Example: **A S F60 — HC — 4A — R**

Angle Flow Path

Single Case

Rotor Size/Flow Rate

D30 - 1,600 l/min
F60 - 3,000 l/min
G100 - 4,600 l/min

Horizontal Rotor

Rotor Material

C - Cast Iron
A - Aluminum

Calibrator

Blank - Standard Clutch
R - Bidirectional
G Calibrator

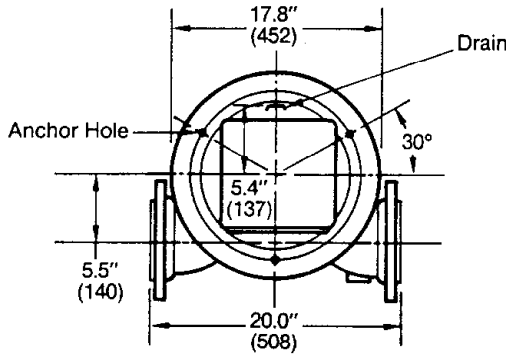
Connection Type

A - ANSI Flange
D - DIN Flange
V - Victaulic Flange

Connection Size

3 - 3" (D Rotor)
4 - 4" (D or F Rotor)
6 - 6" (F or G Rotor)

Dimensions — Inches (mm)

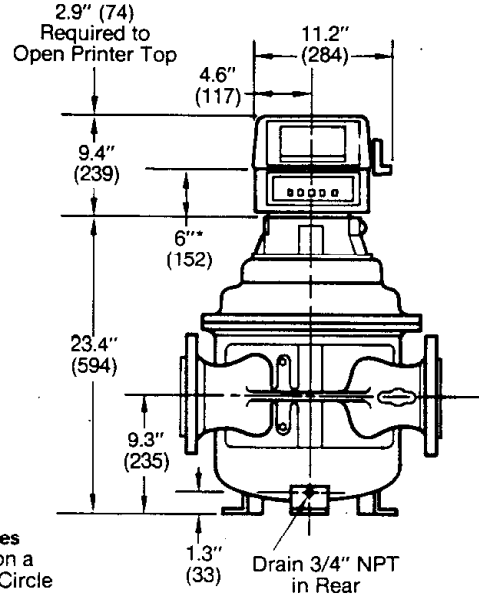


Top View

*Includes cover.

Weight: 302 lb (137 kg).

Meter Anchor Bolt Holes
3 - 0.8" (20) Bolt Holes on a
13.5" (343) Diameter Bolt Circle



Note: Dimensions - Inches to the nearest tenth (millimeters 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. or API gravity, Flow Range*, Temp Range*, Viscosity Range*, Maximum Working Pressure, C of E. *Specify: minimum/normal/maximum. |
| Seals | Buna N+, Viton, Teflon or EPR. +Standard seals supplied unless optional material specified. |
| Units of Registration | Gallons, Liters, Pounds, Kilograms, Dekaliters, Barrels, Tons, etc. |
| Direction of Flow | Left to right (as viewed above) is standard and will be supplied unless right to left flow is specified. |
| Style | Straight Through or Angle Type. |
| Options & Accessories | As required. |

Deaerator

Steel, Flanged, DN100, PN16.

Counters

200 Series - Accumulative, 9 digit, non-reset type.
600 Series - 5 large digit reset, 8 small digit non-reset.

Printer

7 digit accumulative.
Optional 6 digit zero start.

Preset Counter

300C Series - 4 digit (5 digit optional) mechanical push-button 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*.
High Resolution (HR) - 50 or 100 pulses*.

*Per revolution of LNC Right Hand Wheel.

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

PST - Dual channel, high resolution security pulse generator.

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

Stepper Drive and Motor.
Electro-mechanical Counters.
Electronic Totalizers.

Automatic Temperature Compensation

Model ATC - Factory set for a given product.
Model ATG - Field adjustable for different products.
Model DATC - Field adjustable for different products with de-activation.
Model LEATC - Electronic, field programmable for different products.

Accessories

Strainer

Steel, Flanged, DN100, PN16, 10 mesh or finer screen.

Mechanical Preset Valves

Straight Through type, Steel, Flanged, DN100, PN16.

Hydraulic Valves

Globe type, Steel, Flanged, DN100, PN16.

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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