

The SmartPD meter is a volumetric meter that provides total volume and flow rate measurements by way of an electronic transmitter. This 2-wire device provides an analog response by way of a 4-20 mA signal, digital feedback via HART® communication, and a visual indication of change on an LCD. There are two variations of this meter; the SmartPD nutating disc (SND) and the SmartPD oscillating piston (SOP).

The SmartPD meter measures volume and flow rate for a wide range of materials. The space-saving design eliminates the need for upstream and downstream pipe requirements, and it is offered in a wide range of materials, finishes and line sizes.

TECHNICAL SPECIFICATIONS

Fluid Types	Liquids
Temperature	See Temperature Graphs
PERFORMANCE	
Accuracy	SND Models: $\pm 1.5\%$ SOP Models: $\pm 0.5\%$
Totalizer Repeatability	$< 0.25\%$
Flow Rate Repeatability	0.25%
Typical Update Rate of Display	1 Second
Typical Update Rate of 4-20 mA Output	100 mS, 8 mA/second max
PHYSICAL	
Flow Direction	Unidirectional
Housing/Flanges	1.0 to 2.5", NPT and Flanges
Pipe Requirements	Typical Straight
Process Connections	Model Dependent NPT or Flange
Electrical Connections	3/4" NPT
Supply Voltage	24 VDC $\pm 10\%$
Line Size	Nutating Disc (SND Models): 0.75, 1.0, 1.25, 1.5, 2.0"
	Oscillating Piston (SOP Models): 1.0" and 2.0"
Mounting Position	Horizontal
Typical Straight Pipe Requirements	None

APPROVALS

CE

FEATURES

- 2 wire loop powered
- 4-20 mA proportional to flow
- HART Communication
- 2 line digital LCD display
- Remote distance up to 50' (15 m)
- Provides total and flow rates
- Wide process temperature rating

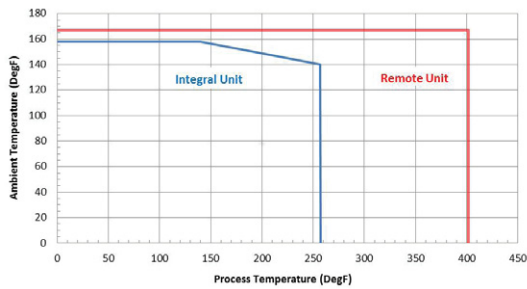
SND SmartPD Nutating Disc



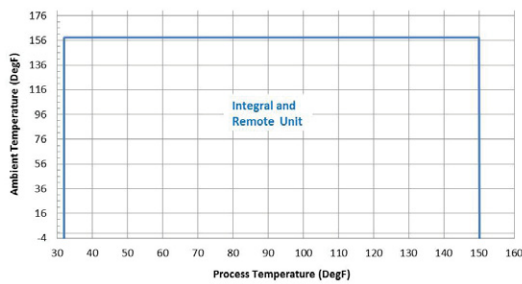
SOP SmartPD Oscillating Piston



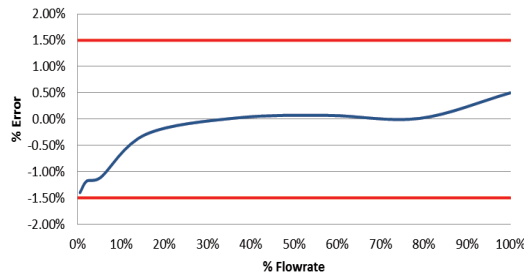
SND Ambient vs Process Temperature Limit



SOP Ambient vs Process Temperature

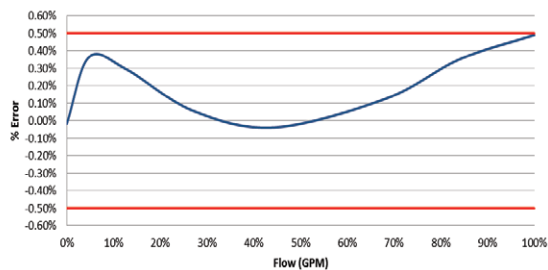


SND Typical Accuracy Curve (Water Calibration)



Notes: 1. Meter accuracy validated at 0%, 10% and 50% flowrates.
2. Repeatability of system is measured at 0.5%.

SOP Typical Accuracy Curve (Water Calibration)



Notes: 1. Meter accuracy validated at 0%, 50% and 100% flowrates.
2. Repeatability of system is measured at 0.25%.

SND-

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Calibration

1 = Water
2 = Oil

Temperature Range

A = -4 to 257° F
(-20 to 125C)
B = -4 to 400° F
(-20 to 205° C)
(Note 3)

Transmitter Mounting

V = Integral
R = Remote

Gear

2 = 25:1

Gasket/O-Ring

F = Fiber, Standard
T = Teflon; Line Size must equal B,
D or G

Disc/Ball

1 = Ryton/Ryton; Case cannot be SSN or SSF
2 = Ryton/Carbon (Note 2); Chamber must equal SS

Chamber

BR = Bronze; Case cannot equal SSN or SSF
NR = Ni-resist; Oil calibration only;
Case must equal IRN with a Line Size C
SS = Stainless Steel; Case cannot equal BRN;
Line Size cannot equal F or G

Case

BRN = Bronze Case with Bronze MNPT
IRN = Iron MNPT, Epoxy Coated
HCN = Carbon Steel MNPT, Epoxy Coated
HIN = Iron INK MNPT, Epoxy Coated
HCF = 300# ANSI Flange, Carbon Steel, Epoxy Coated
SSN = Stainless Steel MNPT
SSF = 150# ANSI Flange, Stainless Steel

Line Size (Note 1)

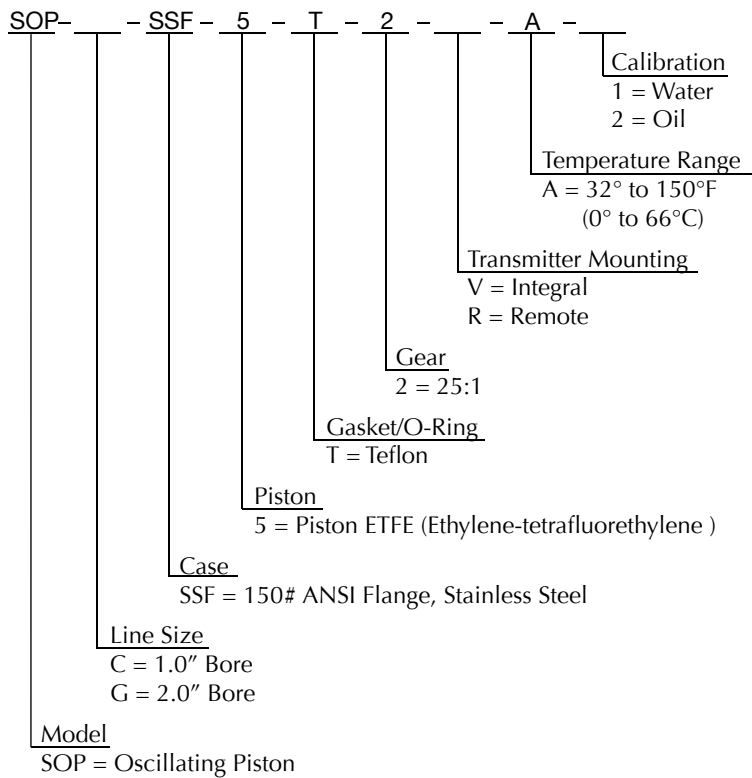
B = 0.75" Bore
C = 1" Bore
D = 1.25" Bore
F = 1.5" Bore
G = 2.0" Bore

Model

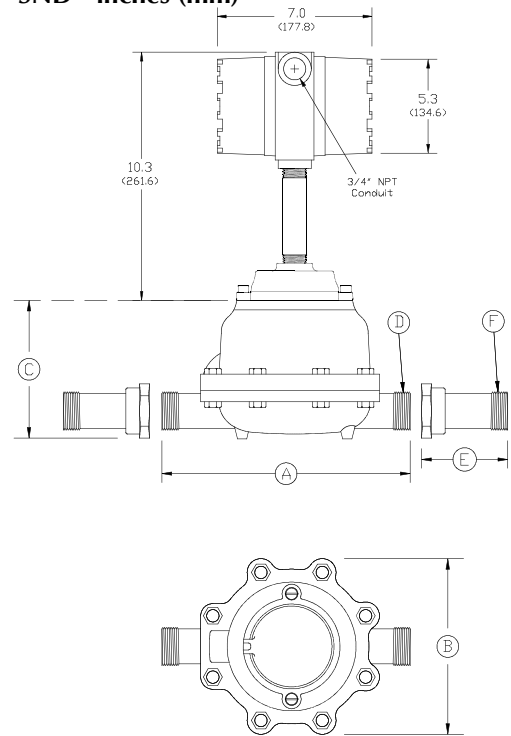
SND = Nutating Disc

Notes:

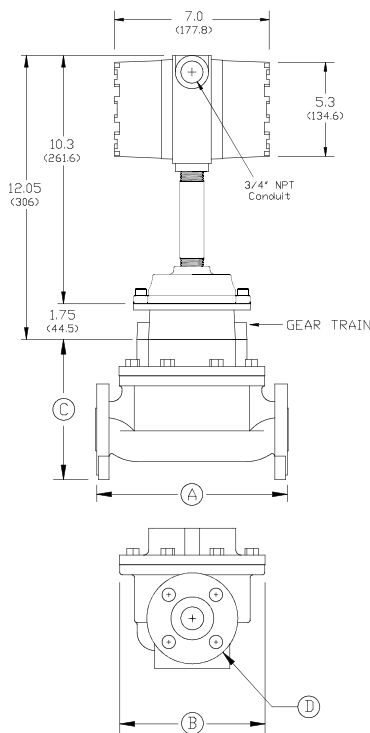
1. See meter dimension chart for NPT sizes.
2. For fluids with low lubricity (water based)
3. Option only available for remote units



SND - inches (mm)

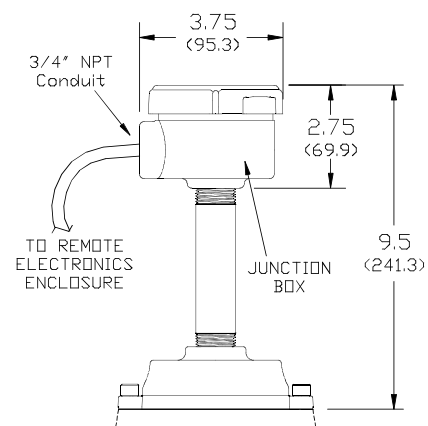


SOP - inches (mm)



Remote

Remote for SND or SOP Meter - inches (mm)



Meter Dimensions

FAMILY	A	B	C	D	E
SND Line Size B	8.00	6.31	4.59	1.0" MNPT	2.50
SND Line Size C	9.00	7.25	4.88	1.25" MNPT	2.38
SND Line Size D	10.75	8.88	6.81	1.5" MNPT	2.75
SND Line Size F	12.63	8.78	6.93	2.0" MNPT	2.88
SND Line Size G	15.25	11.88	8.13	2.5" MNPT	3
SOP Line Size C	9.00	6.88	6.56	ANSI 1" 150 lb Class	x
SOP Line Size G	13.00	9.38	7.25	ANSI 2" 150 lb Class	x

PRESSURE DROP CHARTS

The plots below describe the maximum pressure drop for each meter and each flow group throughout the meter's allowable flow range. To determine pressure drop:

1. Select the applicable meter size/chart.
2. Select the flow group curve to match application.

GROUP	MATERIAL VISCOSITY
1	Up to 30 SSU (0.20 to 1.00 Centipoise)
2	31 to 450 SSU (1 to 90 Centipoise)
3	450 to 1,000 SSU (90 to 220 Centipoise)
4	1,000 to 5,000 SSU (220 to 1,100 Centipoise)
5	5,500 to 20,000 SSU (1,100 to 4,400 Centipoise)
6	20,000 to 50,000 SSU (4,400 to 11,000 Centipoise)

3. Find the location on the curve that corresponds to the maximum flowrate for the end application.
4. The maximum pressure drop is identifiable from the vertical axis on the chart.

