



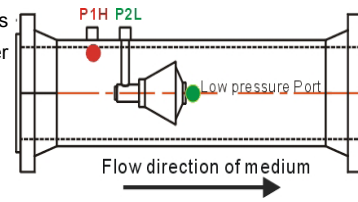
ACONE

Differential Pressure Flowmeter

SMC ACONE Series

GENERAL

The **SMC ACONE** differential flowmeter is designed for the harshest operating environments for the widest variety of fluids. This sensor consistently outperforms traditional ΔP devices and other major flow technologies. The ACONE's enhanced performance is due to the shape and position of a V-cone inside the flow body in relation to the ΔP measurement ports. The cone interacts with the flow, reshaping the fluid's velocity profile and creating a region of lower pressure immediately downstream of itself. Two pressure taps are designed to measure the differential pressure between the static line pressure and the low-pressure zone created downstream of the cone. Flow is calculated the Bernoulli equation of conservation of energy. The cone shape also acts as its own flow conditioner fully conditioning any turbulence in flow due to limited upstream and downstream straight runs.



FEATURES

- High accuracy and repeatability
- Conditions flow before measuring with minimum straight pipe requirer
- Very wide selection of sizes - 1/2"-120" (15~3000mm)
- Lower pressure loss than most flow meters
- Can measure clean or dirty liquids, slurries, gases and steam
- Low signal noise
- Stain resistant, non-clogging design
- Will accommodate multiphase flows
- Good particle tolerance; not sensitive to suspended contaminants



SPECIFICATION

- Size : 1/2", 3/4", 1", 1 1/4", 1 1/2", 2", 2 1/2", 3", 4", 5", 6", 8", 10", 12", 14", 16", 18", 20" -up to 120" n
- Measuring Range : Based on $Re > 8000$
For Gases, Liquid and Steam
- Material : 304L/SS, 306L, CPVC ,PTFE, Brass, A106
A335-P11, A335-P22, Dual - Phase Steel
Inconel 625, Hastelloy C276
- Accuracy : Cone-(Chlorinated polyvinyl chloride, PTFE)
Liquid : $\pm 0.5\%$ of reading
Gas & Steam : $\pm 1.0\%$ of reading
- Repeatability : $\pm 0.1\%$ of reading
- Turn-down ratio : Better than 10:1
- Process Connections : NPT, Flange, Wafer or Butt weld
Flanges type : JIS 10K / JIS 20K / JIS 40K
ANSI 150# to ANSI 2500#
DIN PIN 10 to PN 40
- Temperature : $-320 \sim 1500^\circ F$ ($-196 \sim 850^\circ C$)
- Pressure : up to 61,000 psig (420 Mpa)
- Piping Requirements: 0-3 Φ upstream and 0-1 Φ downstream
- Standard Beta Ratios: 0.45 through 0.85, special betas available.
- Certificates : ISO9001 and ISO 14001

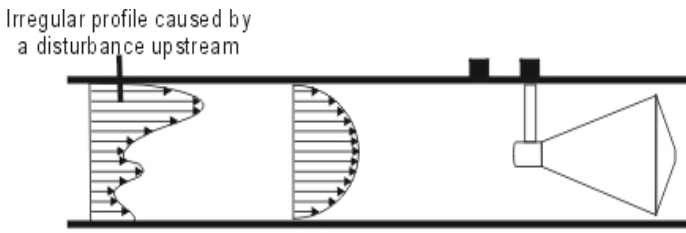
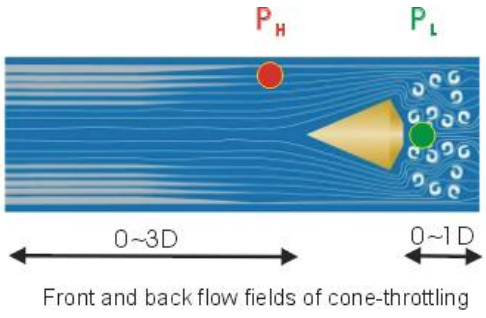
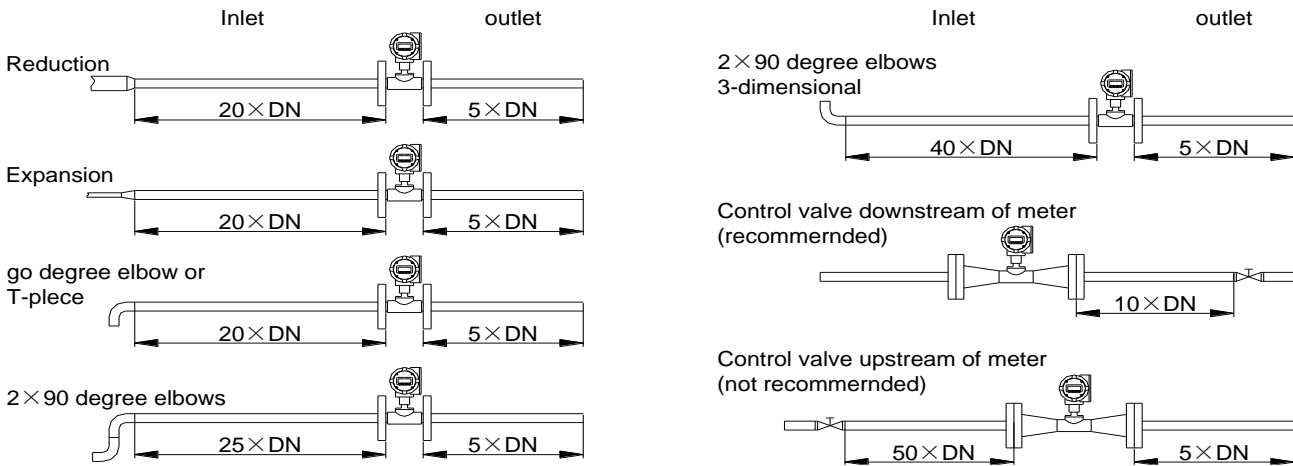
Various Designs to Meet Application Requirements



NOTE: Acone is a primary element and requires a third-party DP transmitter

The Alia Advantage

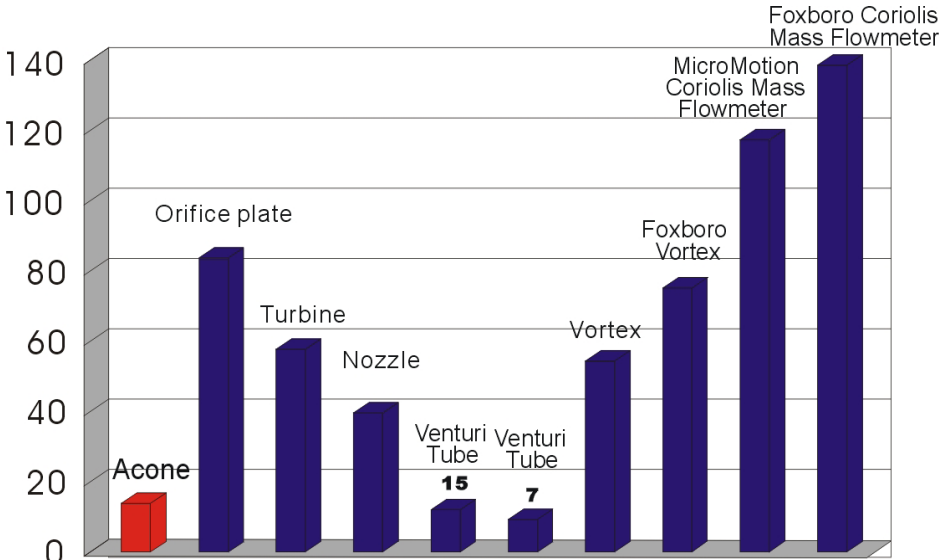
The Acone PD flowmeter's design significantly reduces the requirements for straight, unobstructed upstream piping. Depending upon configuration, the traditionally required upstream straight run can be 10, 20, even 50 diameters (see diagram below recommending installation piping for standard flowmeters).



The Acone design shapes irregular flows into a smooth flow stream by its cone design see below:

The smoothing of the flow profile means less than three diameters are needed upstream of the measuring point

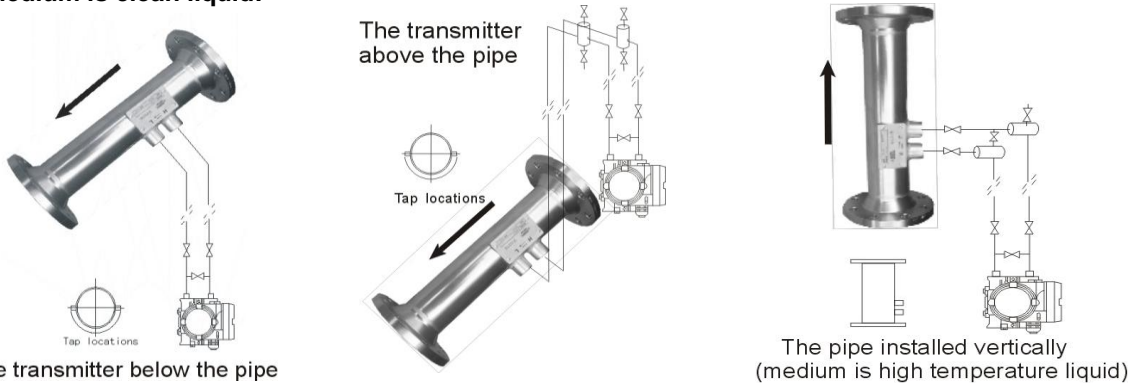
Advantage



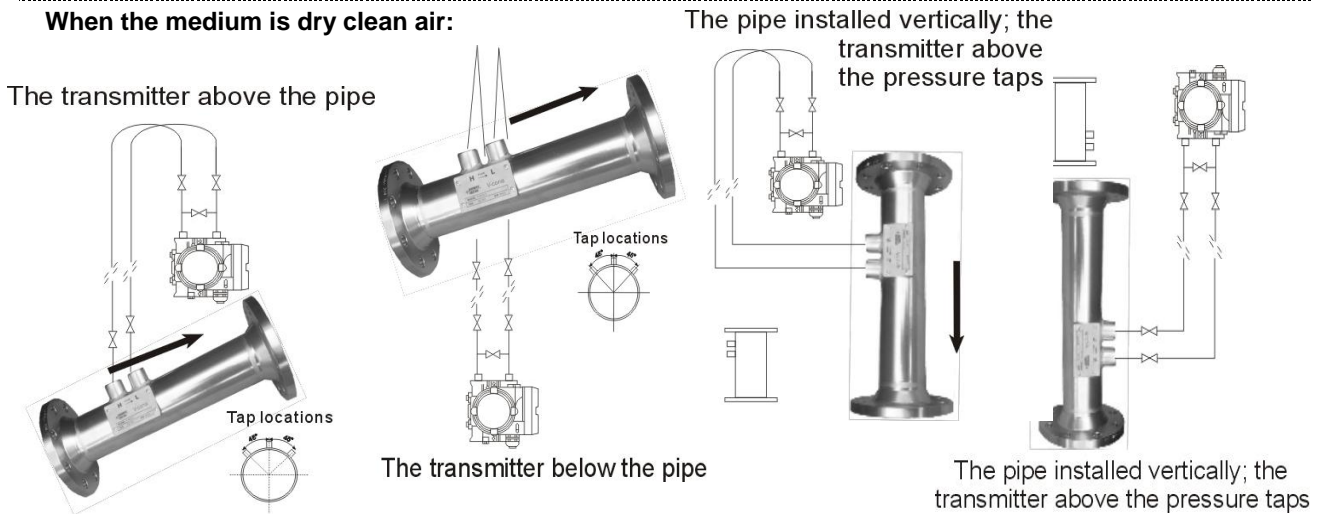
Lower pressure drop versus other flowmeters

Installation Configuration using third party DP transmitters

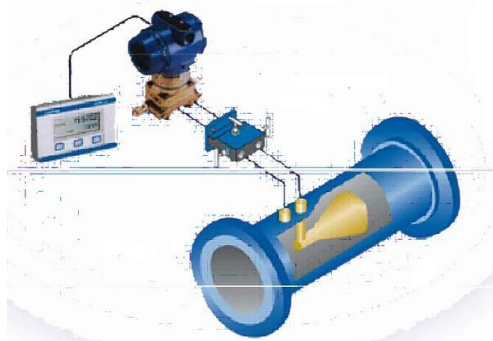
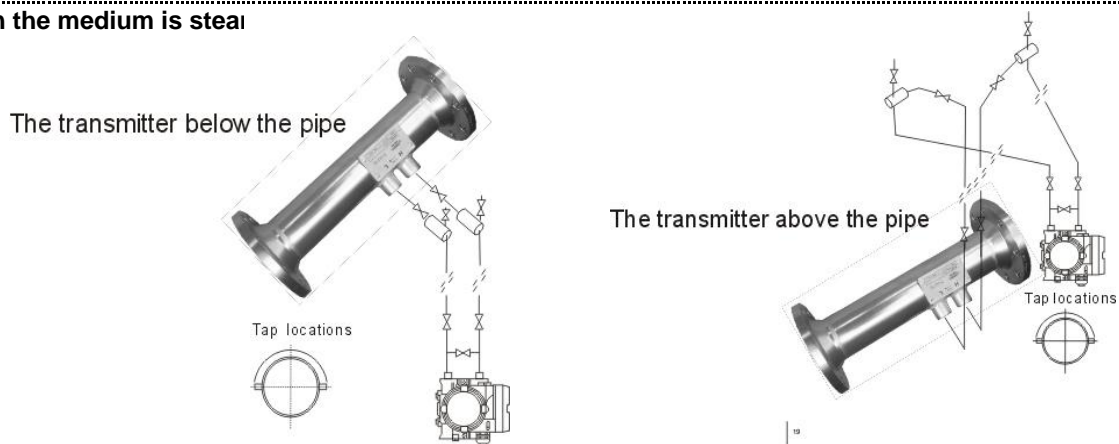
When the medium is clean liquid:



When the medium is dry clean air:



When the medium is steam:



7 Model Selection Guide

Acone Series											
Example:ACONE-F250-SS316-MONEL400-A600-RF-WIN-T1/2-NT-ND											
Acone	X	-X	-X	-X	XXX-	-X	X	X -	X	X	Description
Connection Type	F										Flanged Connection
	D										Direct Weld to Pipe
	J										Jacket Style
	S										Square Pipe
Size inches (mm)	015 ~ 3000										½"-120" (15 ~ 3000mm)
Material For Flange and Body	SS304										Stainless Steel 304
	SS316										Stainless Steel 316
	SS321										SS321
	SS347H										SS347H
	Dual- Phase										Dual- Phase (SAF2507)
	INCONEL625										INCONEL625
	25 Cr-20Ni										25 Cr-20Ni
	MONEL400										MONEL400
	Hasteloy C276										Hasteloy C276
Hasteloy B										Hasteloy B	
Material for the Cone			Same as above						Same material options		
Flow Body Flange Type	NF										No Flange
	A150										ANSI 150#
	A300										ANSI 300#
	A600										ANSI 600#
	A900										ANSI 900#
	A1500										ANSI 1500#
	A2500										ANSI 2500#
	PN10										DN PN10
	PN16										DN PN16
	PN40										DN PN40
	PN100										DN PN100
	PN160										DN PN160
	PN250										DN PN250
Flow Body Flange Style					RF						Raised Face
					RJ						Ring Joint
					FM						Female Face
Flow Body Flange Connection					WN						Butt Weld
					SO						Flat Weld
Pressure Taps Connections					T1/2						Threaded - ½" NPT
					T1/4						Threaded ¼"NPT
					F	Flange-see flow body flange style above					
					S						Socket Joint
Pressure Transmitter Options					NT						No Transmitters
					RT						Rosemount Pressure transmitter
					SM						Siemens Pressure transmitter
					ST						Other Pressure transmitters
Display options					ND						No Display
					RAT						Rate and Total
					COM						Flow Computer
Option										None	