

## GENERAL

**ALIADPFLOW** ADF280 series V-cone flowmeter is a new type of throttle device based on the measurement principle of venturi tube and combining the advantages of venturi tube, annular orifice plate and wear-resistant orifice plate. The sensor with a tapered throttle structure does not have a stagnant zone, and has the characteristics of fluid reshaping. Its edge is not easy to wear, and can maintain long-term accuracy. There are many types of differential pressure transmitters to choose from, such as APT9000, APT9500, APT9600. Due to the function of temperature and pressure compensation, it can measure the flow of gas, steam, liquid, etc., and is widely used in process control and measurement in petroleum, chemical industry, metallurgy, electric power, heating, and water supply.

## FEATURES

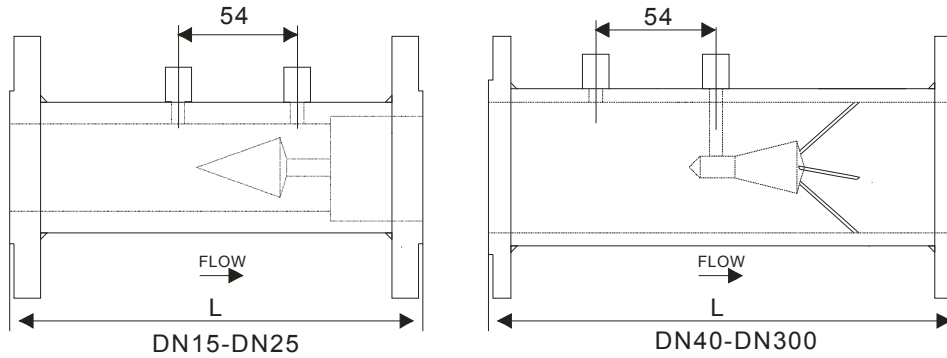
- High accuracy & repeatability, wide turndown ratio and temperature and pressure compensation
- The Max. Temperature is 500 °C; the Max. Pressure is 100 bar
- Very wide selection of size (15-3000 mm)
- The measurement for clean / dry liquids, slurries, gases and steam
- Measurable for multiphase flow
- Fewer requirements for straight pipe distance on upstream and downstream
- Dirt resistant, low pressure loss
- Not sensitive to suspended contaminants

## STANDARD SPECIFICATION

- |                       |   |                        |  |
|-----------------------|---|------------------------|--|
| ● Throttle Device     | : V-cone                                    | ● Process Connection   | : Flange                                 |
| ● Process Fluid       | : Liquid, Gas, Steam                        | ● Flange Type          | : JIS 10K / JIS 20K / JIS 40K            |
| ● Pipe Diameter       | : 15...3000 mm (1/2"...120")                |                        | : ANSI 150# / ANSI 300# / ANSI 600#      |
| ● Measuring Range     | : Liquid: 0-15 m/s                          |                        | : DIN PN10 / PN16 / PN25 / PN40          |
|                       | : Gas / Steam: 0-45 m/s                     | ● Structure            | : Compact or remote                      |
| ● Reynolds Number     | : $5 \times 10^3 - 1 \times 10^7$           | ● Installation         | : Horizontal                             |
| ● $\beta$ Ratio       | : 0.45-0.85                                 |                        | : Vertical                               |
| ● Accuracy            | : $\pm 1.0\%$ of reading                    | ● Pressure Tap Conn.   | : M20 * 1.5 internal thread (standard)   |
| ● Repeatability       | : $\pm 0.2\%$ of reading                    | ● Piping Requirements  | : 0-10D upstream and 0-5D downstream     |
| ● Turn Down Ratio     | : Higher than 10:1                          | ● Transmitter          | : APT9000, APT9500, APT9600              |
| ● Operating Pressure  | : DN1400 $\leq$ 25 bar (Max. 200 °C)        | ● Current Output       | : 4-20 mA (2-Wire)                       |
|                       | : DN300 $\leq$ 100 bar (Max. 200 °C)        |                        | with HART signal (Compatible)            |
| ● Temperature         | : -50~500 °C                                |                        | Load : Rohm=(VDC-9) * 50                 |
| ● Ambient Temperature | : -25~80 °C                                 | ● Protection Class     | : IP67                                   |
| ● Material            |   |                        | : Intrinsically Safe, Ex ia IIC T5       |
|                       | Cone : S.S. 304 / S.S. 316                  |                        | : Explosion Proof, Ex db IIC T6          |
|                       | Flange : Carbon steel / S.S. 304 / S.S. 316 | ● Accessories          |  |
|                       | Body : Carbon steel / S.S. 304 / S.S. 316   | Pressure Transducer    | : Applied to pressure compensation       |
| ● Pressure Loss       | : $\beta=0.45, \Delta\omega=0.74\Delta P$   | Temperature Transducer | : Applied to temperature compensation    |
|                       | : $\beta=0.55, \Delta\omega=0.61\Delta P$   | Flow Computer          | : AFC365                                 |
|                       | : $\beta=0.65, \Delta\omega=0.49\Delta P$   | Valves                 | : 3-Valve manifolds or 5-Valve manifolds |
|                       | : $\beta=0.75, \Delta\omega=0.36\Delta P$   | Others                 | : Isolation Valve, condensate pot        |



**➤ DIMENSIONS**



Size		P ≤ 25 bar		25 bar < P ≤ 100 bar	
		L	Weight	L	Weight
mm	Inch	mm	kg	mm	kg
15	1/2"	160	1.6	160	3.3
20	3/4"	160	2.3	160	3.5
25	1"	160	2.4	160	4.0
40	1-1/2"	254	4.8	305	9.2
50	2"	305	6.2	356	11.2
65	2-1/2"	305	7.5	356	13.2
80	3"	356	10.5	406	17.6
100	4"	406	13.2	457	23
125	5"	559	21	559	32
150	6"	559	25	660	48
200	8"	670	47	762	74
250	10"	711	74.5	864	119
300	12"	762	99	914	159
350	14"	762	134	914	222
400	16"	810	160	914	278
450	18"	914	200	914	295

Size		P ≤ 25 bar		25 bar < P ≤ 100 bar	
		L	Weight	L	Weight
mm	Inch	mm	kg	mm	kg
500	20"	1020	288	1016	392
600	24"	1220	372	1372	639
700	28"	1525	545		
800	32"	1525	640		
900	36"	1620	795		
1000	40"	1720	784		
1200	48"	2120	965		
1400	56"	2520	1503		
1600	64"	3020	2650		
2000	80"	3620	4732		
2200	88"	4020	5163		
2400	96"	4420	6202		
2600	104"	4820	6975		
2800	112"	5220	7805		
3000	120"	5620	8603		

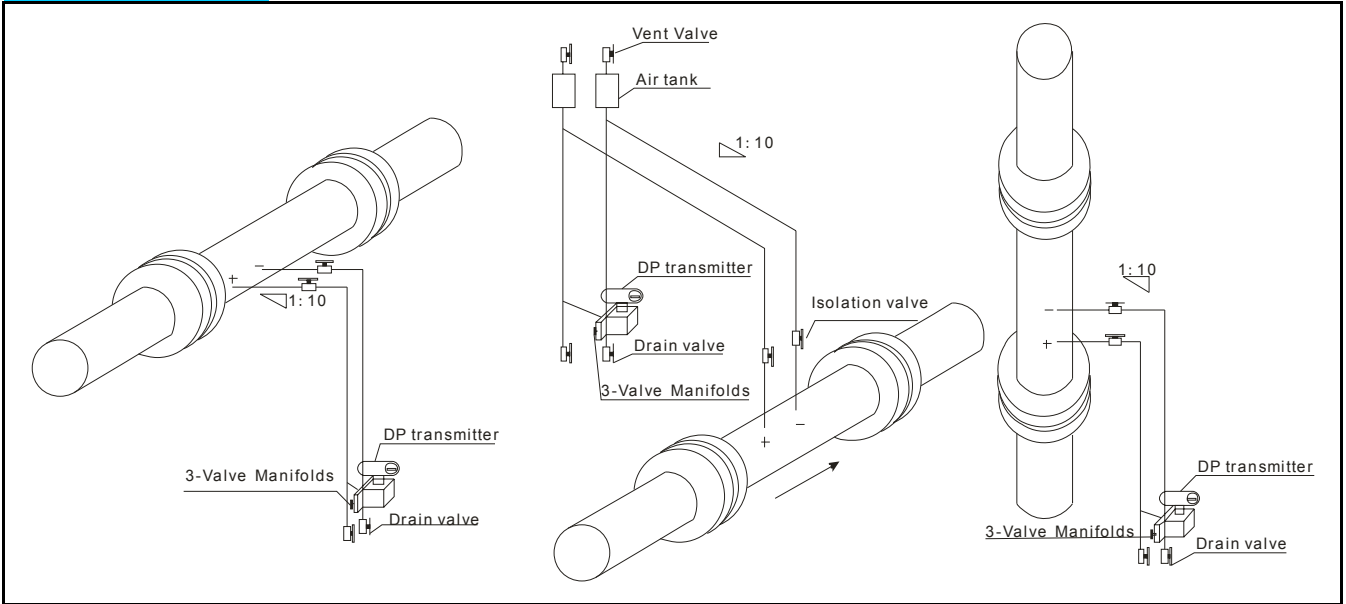
Note: L only for without the pressure / temperature sensor on the tube.

**➤ PIPING REQUIREMENTS**

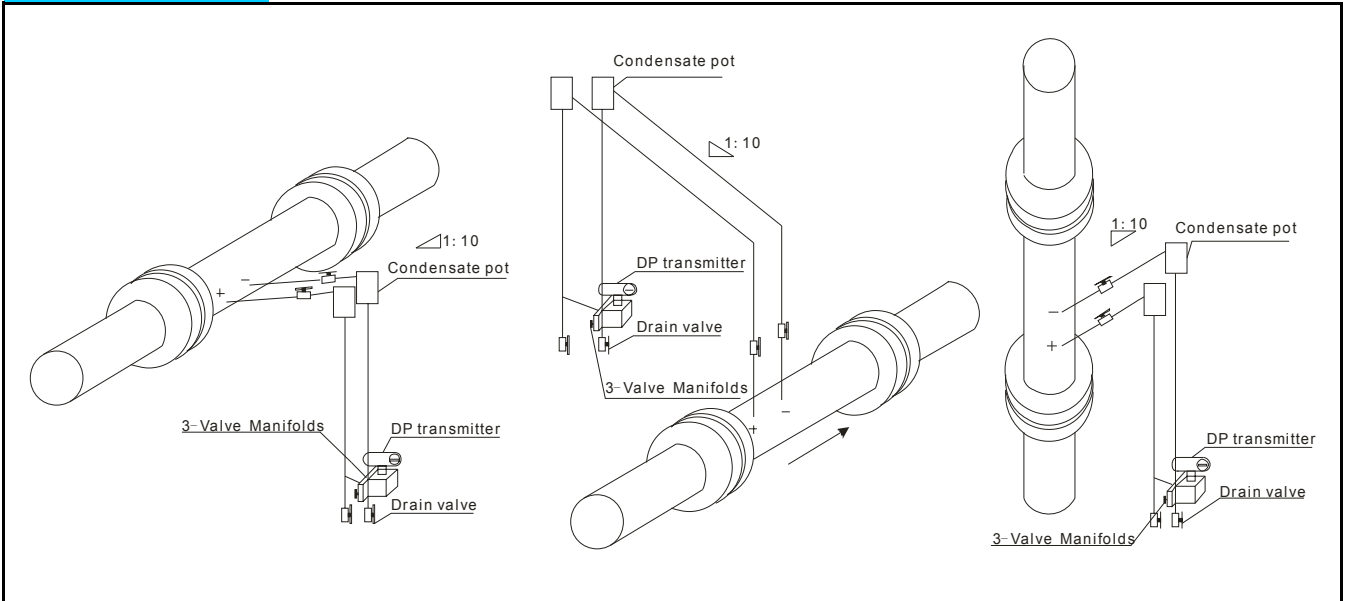
Joints	Liquids, Gases, Steam (Re ≤ 2000,000)		Gases, Steam (Re > 2000,000)	
	Upstream	Downstream	Upstream	Downstream
1 pc of 90° elbow	0D	0D	1D	1D
2 pc of 90° elbows	0D	0D	1D	1D
T joint	0D	0D	1D	1D
Butterfly valve (Flow control valve)	10D	5D	10D	5D
Butterfly valve (Full open)	2D	0D	2D	1D
Gate valve (Full open)	0D	0D	1D	1D
Full port ball valve (Full open)				
Expander: Length 2.5D	2D	1D	2D	1D
Reducer: Length 3.5D	0D	0D	0D	0D

METER INSTALLATION

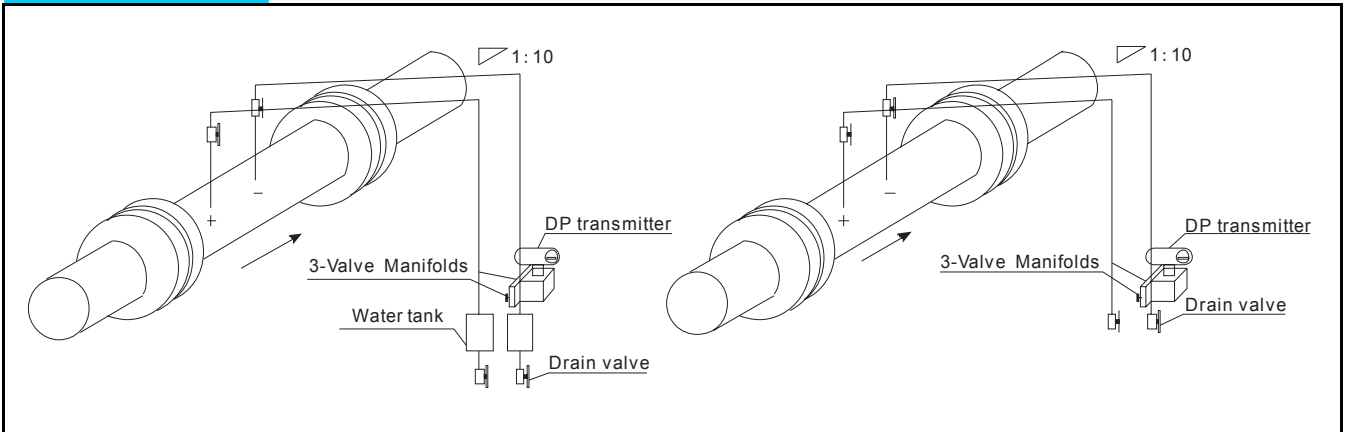
Liquid Measurement



Steam Measurement



Gas Measurement



MODEL SELECTION GUIDE

ADF280 Series												
Example: ADF280-0400-SFHB-4N23-3V/IV/CT												
ADF280-	XXXX	-X	X	X	X	-X	X	X	X	-XX	Description	
Size	0015-3000										0015-3000 mm	
Medium	-L										Liquid	
	-G										Gas	
	-S										Steam	
Process Connection		F										Flange
Installation	H										Horizontal	
	V										Vertical	
	Z										Others (please remark additionally)	
Flange Specification	1										PN10	
	2										PN16	
	3										PN25	
	4										PN40	
	A										ANSI 150#	
	B										ANSI 300#	
	C										ANSI 600#	
	J										JIS 10K	
	K										JIS 20K	
	L										JIS 40K	
Z										Others		
Cone, Flange & Pipe Material	-0										Carbon Steel (Cone: S.S. 304)	
	-4										S.S. 304	
	-6										S.S. 316	
	-Z										Others	
Structure	N										Compact Type	
	R										Remote Type (pressure pipe & valves equipped locally)	
Differential Pressure Transmitter	N										None	
	1										APT9000	
	2										APT9500	
	3										APT9000 + AFC365 (Flow computer)	
	4										APT9600 (with multi-parameter)	
Function	N										None	
	1										Temp. Transducer	
	2										Pressure Transducer	
	3										Temp. & Pressure Transducer	
Others	-NN										None	
	-3V										3-Valve manifolds AHV436T (S.S. 316)	
	-5V										5-Valve manifolds AHV456T (S.S. 316)	
	-IV										Isolation (Block) Valve * 2 pc (S.S. 304)	
	-CT										Condensate pot * 2 pc (S.S. 304)	
	-PC										Pressure tap connections:M20,1/2" NPT,1/2" BSPP etc.	