



F L O W M E T E R I N G E Q U I P M E N T

Model AR Ellipse® Annular Flow Meter

Preso's patented elliptical design outperforms and provides greater accuracy than traditional differential pressure flow measurement devices. This differential pressure flow meter is designed with a series of ports facing the upstream velocity pressures, as well as flow sensing ports strategically located ahead of the trailing edge flow separation.

Features

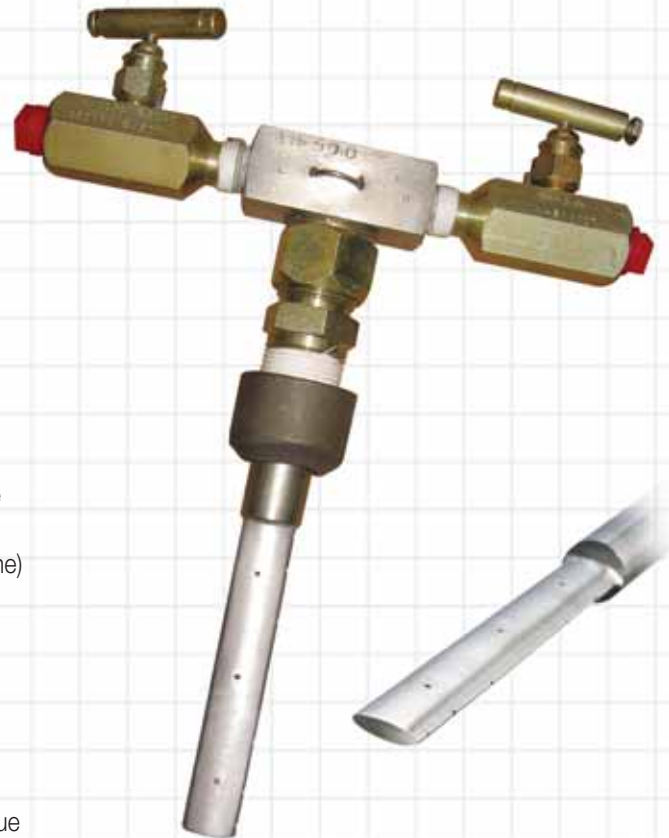
- Patented elliptical design outperforms traditional devices
- Single point pipe entry for DP, temperature and static pressure
- No dampening software required
- Lowest pressure loss in industry (typically 3% of DP in a 12" line) due to its patented aerodynamic profile
- NIST traceable calibration: Optional independent labs

Benefits

- Accuracy: $\pm 0.75\%$ of reading, repeatability: $\pm 0.1\%$ of reading
- Turndown Ratio: 17:1; no vacuum effects
- No moving parts equals long, trouble-free service life
- True static pressure measurement rather than a calculated value
- Overcomes loss of accuracy caused by fluid separation at the sensor body

The multi-ported, self averaging flow element consists of an elliptical shape with two independent flow sensing chambers. The impact velocity sensing holes (high pressure) are located along the leading edge and the true static sensing holes (low pressure) are on the exterior probe side. Model AR comes with instrument shut-off valves with provisions to accept a transmitter or direct indicating meter.

True static sensing holes
Impact velocity sensing holes



Specifications

Applications:	Liquids and Gases
Pipe Sizes:	2 to 72 inches (50 to 1830 mm)
Pressure:	800 PSI (5515 kPa) max.
Temperature:	800 °F (426 °C) max.
Accuracy:	$\pm 0.75\%$ of reading
Turndown Ratio:	17:1 with no vacuum effect
Standard Components:	T-type head, 316 SS 1/4" or 1/2" FNPT connection CS compression fitting with SS ferrule CS 3000 lb. weld fitting – ASTM A105 316/316L SS Ellipse sensor Instrument valves (2 per sensor) – 1/4", CS 316 SS ID tag with wire
Reynolds Number:	Greater than 75,000 maintains most accurate flow measurements Less than 75,000 consult factory for estimated results
Resonance:	If greater than 0.8, use double support

1-800-632-7337

www.preso.com

Model AR Ellipse® Annular Flow Meter

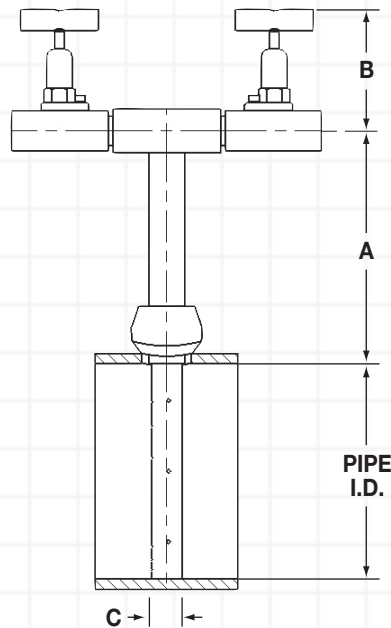
Part Number Construction: PAR0 (1/2") PAR (7/8") PAR1 (1-1/4")

<p>Pipe Size (PAR/PAR0)</p> <p>A) 2 inch B) 2-1/2 inch C) 3 inch D) 3-1/2 inch E) 4 inch F) 5 inch G) 6 inch H) 8 inch I) 10 inch J) 12 inch K) 14 inch L) 16 inch M) 18 inch N) 20 inch O) 24 inch P) 30 inch Q) 36 inch</p>	<p>Pipe Size (PAR1)</p> <p>A) 12 inch B) 14 inch C) 16 inch D) 18 inch E) 20 inch F) 24 inch G) 30 inch H) 36 inch I) 42 inch J) 48 inch K) 60 inch L) 72 inch</p>	<p>Schedule</p> <p>A) Std J) 160 B) 20 K) XH C) 30 L) XXH D) 40 M) 5S E) 60 N) 10S F) 80 O) 40S G) 100 P) 80S H) 120 I) 140</p>	<p>Pipe Orientation</p> <p>A) Horizontal B) Vertical</p>	<p>Probe Material</p> <p>1) 316/316L-SS 2) Monel 3) Inconel® 4) Hastelloy® X) Other (consult factory to review application)</p>	<p>Instrument Connection (PAR/PAR1)</p> <p>A) 1/2" NPT B) 1/2" Socket C) TT3 (Integral 3 Valve Trans-Mount) D) TT5 (Integral 5 Valve Trans-Mount) E) Transmitter Flange Connection</p> <p>Instrument Connection (PAR0)</p> <p>A) 1/4" NPT</p>	<p>Instrument Valve* (PAR/PAR1)</p> <p>A) 1/2" Needle CS B) 1/2" Needle SS Z) Not required</p> <p>Instrument Valve* (PAR0)</p> <p>A) 1/4" Needle CS B) 1/4" Needle SS Z) Not required</p> <p>*NOTE: Transmitter Flange Connection Options available when Option E under Instrument Connection is selected. (consult factory for information)</p>
<p>NOTE: PAR0 installs on pipe sizes 2" through 5" only (A through F options)</p>		<p>Connection (PAR/PAR1)</p> <p>A) CS Compression Fitting w/SS Ferrule B) SS Compression Fitting w/SS Ferrule</p> <p>Connection (PAR0)</p> <p>A) SS Compression Fitting w/SS Ferrule</p>	<p>Pipe Mounting</p> <p>1) A105 CS 3000# 2) 316/316L SS 150# 3) 316/316L SS 3000# 4) A105 CS 3000# w/Dbl Support (see below) 5) 316/316L SS 150# w/Dbl Support 6) 316/316L SS 3000# w/Dbl Support</p>	<p>RTD</p> <p>1) 100 Ohm RTD 3 wire w/ Explosion Proof Head 2) 100 Ohm RTD 3 wire, Integral w/Aluminum Head Z) Not required</p>		

Dimensions (inches)

Probe Length		
	A	B
AR0	4.188	2.250
AR	6.625	3.125
AR1	6.625	3.125

Probe Width	
	C
AR0	.5
AR	.875
AR1	1.25



Maximum Allowable DP (Inches of Water Column)

Pipe Size (inches)	Single Support Probe Size		Double Support Probe Size	
	7/8	1-1/4	7/8	1-1/4
2	880	—	2380	—
2-1/2	525	—	1568	—
3	396	—	1283	—
3-1/2	283	—	1117	—
4	197	—	980	—
5	153	—	757	—
6	126	—	689	—
8	114	360	512	—
10	100	240	315	960
12	87	175	250	700
14	53	147	195	585
16	—	113	—	450
18	—	90	—	360
20	—	74	—	295
24	—	68	—	270
26	—	50	—	215
30	—	34	—	155
32	—	—	—	—
36	—	—	—	—
42	—	—	—	—



FLOW METERING EQUIPMENT

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Hastelloy is a registered trademark of Haynes International

Form No. 4-25-01 AR Rev. 1/07 Printed in USA



F L O W M E T E R I N G E Q U I P M E N T

Model AF Ellipse® Pitot Tube Annular Flanged Flow Meter

Preso's patented elliptical design outperforms and provides greater accuracy than traditional differential pressure flow measurement devices. This differential pressure flow meter is designed with a series of ports facing the upstream velocity pressures, as well as flow sensing ports strategically located ahead of the trailing edge flow separation.

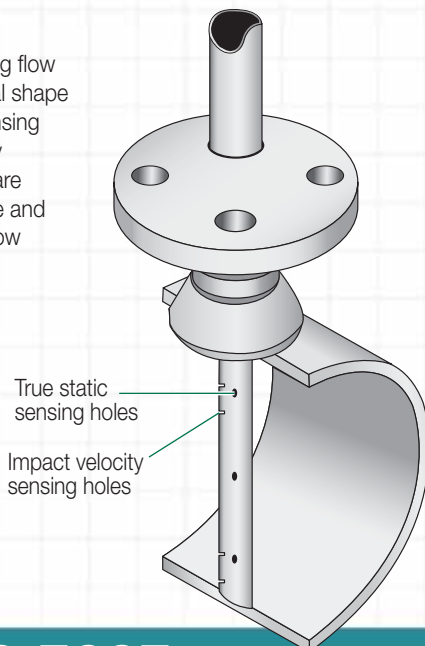
Features

- Patented elliptical design outperforms traditional devices
- Single point pipe entry for DP, temperature and static pressure
- No dampening software required
- Lowest pressure loss in industry (typically 3% of DP in a 12" line) due to its patented aerodynamic profile
- NIST traceable calibration: Optional independent labs

Benefits

- Accuracy: $\pm 0.75\%$ of reading, repeatability: $\pm 0.1\%$ of reading
- Turndown Ratio: 17:1; no vacuum effects
- No moving parts equals long, trouble-free service life
- True static pressure measurement rather than a calculated value
- Overcomes loss of accuracy caused by fluid separation at the sensor body

The multi-ported, self averaging flow element consists of an elliptical shape with two independent flow sensing chambers. The impact velocity sensing holes (high pressure) are located along the leading edge and the true static sensing holes (low pressure) are on the exterior probe side. Model AF comes with instrument shut-off valves with connections to accept a transmitter or direct indicating meter.



Specifications

Applications:	Air, Liquids and Gases
Pipe Sizes:	2 to 72 inches (50 to 1830 mm)
Pressure:	Vary per flange ratings
Temperature:	Vary per flange ratings
Accuracy:	$\pm 0.75\%$ of reading
Turndown Ratio:	17:1 with no vacuum effect
Standard Components:	T-type head, 316 SS $\frac{1}{4}$ " or $\frac{1}{2}$ " FNPT connection CS 3000 lb. weld fitting – ASTM A105 316/316L SS Ellipse sensor Instrument valves (2 per sensor) – $\frac{1}{2}$ ", CS 316 SS ID tag with wire 150 lbs. 316/316L SS sensor flange CS gasket with SS spiral wound ring CS mounting flange, 150 lbs. ASTM A 105 with nuts and bolts
Reynolds Number:	Greater than 75,000 maintains most accurate flow measurements Less than 75,000 consult factory for estimated results
Resonance:	If greater than 0.8, use double support per ASME PTC 19.3

1-800-632-7337

www.preso.com

Model AF Ellipse® Pitot Tube Annular Flanged Flow Meter

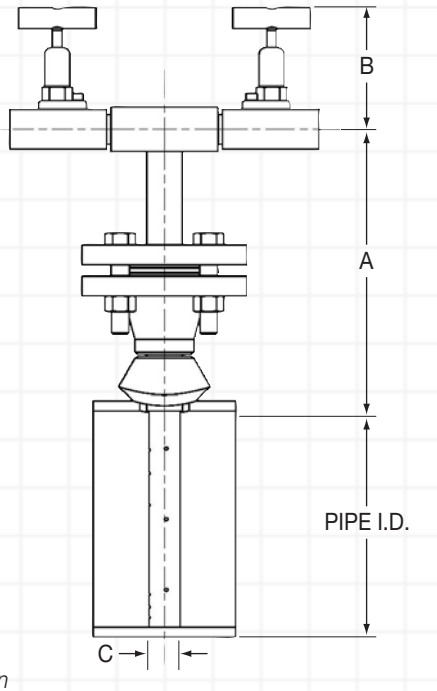
Part Number Construction: PAF0(1/2") PAF (7/8") PAF1 (1-1/4") PAF2 (2-1/4")

Pipe Size (PAF/PAF0) A) 2 inch B) 2-1/2 inch C) 3 inch D) 3-1/2 inch E) 4 inch F) 5 inch G) 6 inch H) 8 inch I) 10 inch J) 12 inch K) 14 inch L) 16 inch M) 18 inch N) 20 inch O) 24 inch P) 30 inch Q) 36 inch	Pipe Size (PAF1/PAF2) A) 12 inch B) 14 inch C) 16 inch D) 18 inch E) 20 inch F) 24 inch G) 30 inch H) 36 inch I) 42 inch J) 48 inch K) 60 inch L) 72 inch	Pipe Orientation A) Horizontal B) Vertical	Probe Material 1) 316/316L-SS 2) Monel® 3) Inconel® 4) Hastelloy® X) Other (consult factory to review application)	Instrument Connection (PAF/PAF1/PAF2) A) 1/2" NPT B) 1/2" Socket C) TT3 (Integral 3 Valve Trans-Mount) D) TT5 (Integral 5 Valve Trans-Mount) E) Transmitter Flange Connection Instrument Connection (PAF0) A) 1/4" NPT	Pipe Mounting 1) A105 CS 3000# 2) 316/316L SS 3000# 3) A105 CS 3000# w/Dbl Support (see below) 4) 316/316L SS 3000# w/Dbl Support Z) Not required	Instrument Valve* (PAF/PAF1/PAF2) A) 1/2" Needle CS B) 1/2" Needle SS C) 1/2" Gate CS D) 1/2" Gate SS Z) Not required Instrument Valve (PAF0) A) 1/4" Needle CS B) 1/4" Needle SS Z) Not required *NOTE: Transmitter Flange Connection Options available when Option E under Instrument Connection is selected. (consult factory for information)																																														
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NOTE: PAF0 installs on pipe sizes 2" through 5" only (A through F options)		RTD 1) 100 Ohm RTD 3 wire w/ Explosion Proof Head 2) 100 Ohm RTD 3 wire, Integral w/Aluminum Head Z) Not required																																																		

Dimensions (inches)

Probe Length		
	A	B
AF0	6.62	3.13
AF	8.00	3.13
AF1	8.75	3.13
*AF2	13.92	N/A

Probe Width	
	C
AF0	.5
AF	.875
AF1	1.25
*AF2	2.25



*AF2 probe design not pictured contact factory for more information

Maximum Allowable DP (Inches of Water Column)

Pipe Size (inches)	Single Support Probe Size			Double Support Probe Size		
	7/8	1-1/4	2-1/4	7/8	1-1/4	2-1/4
2	880	—	—	2380	—	—
2-1/2	525	—	—	1568	—	—
3	396	—	—	1283	—	—
3-1/2	283	—	—	1117	—	—
4	197	—	—	980	—	—
5	153	—	—	757	—	—
6	126	—	—	689	—	—
8	114	360	—	512	—	—
10	100	240	779	315	960	—
12	87	175	660	250	700	—
14	53	147	610	195	585	—
16	—	113	495	—	450	—
18	—	90	410	—	360	—
20	—	74	346	—	295	—
24	—	68	315	—	270	952
26	—	50	218	—	215	878
30	—	34	187	—	155	780
32	—	—	136	—	—	550
36	—	—	105	—	—	410
42	—	—	85	—	—	350



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 Form No. 4-25-01 AF Rev. 6/07 Printed in USA



F L O W M E T E R I N G E Q U I P M E N T

Model AS Ellipse[®] Annular Flow Meter

Preso's patented elliptical design outperforms and provides greater accuracy than traditional differential pressure flow measurement devices. This differential pressure flow meter is designed with a series of ports facing the upstream velocity pressures, as well as flow sensing ports strategically located ahead of the trailing edge flow separation.

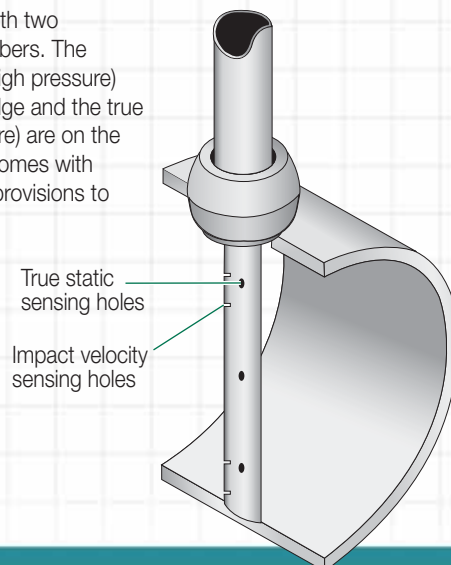
Features

- Patented elliptical design outperforms traditional devices
- Single point pipe entry for DP, temperature and static pressure
- No dampening software required
- Lowest pressure loss in industry (typically 3% of DP in a 12" line) due to its patented aerodynamic profile
- NIST traceable calibration: Optional independent labs

Benefits

- Accuracy: $\pm 0.75\%$ of reading, repeatability: $\pm 0.1\%$ of reading
- Turndown ratio: 17:1; no vacuum effects
- No moving parts equals long, trouble-free service life
- True static pressure measurement rather than a calculated value
- Overcomes loss of accuracy caused by fluid separation at the sensor body

The multi-ported, self averaging flow element consists of an elliptical shape with two independent flow sensing chambers. The impact velocity sensing holes (high pressure) are located along the leading edge and the true static sensing holes (low pressure) are on the exterior probe side. Model AS comes with instrument shut-off valves with provisions to accept a transmitter or direct indicating meter.



Specifications

Applications:	Steam
Pipe Sizes:	2 to 48 inches (50 to 1220 mm)
Pressure:	600 PSI (4100 kPa) max.
Temperature:	480 °F (250 °C) max.
Accuracy:	$\pm 0.75\%$ of reading
Turndown Ratio:	17:1 with no vacuum effect
Standard Components:	T-type head, 316 SS 1/2" FNPT connection CS compression fitting with SS ferrule CS 3000 lb. weld fitting – ASTM A105 316/316L SS Ellipse sensor 316 SS ID tag with wire
Reynolds Number:	Greater than 75,000 maintains most accurate flow measurements Less than 75,000 consult factory for estimated results
Resonance:	If greater than 0.8, use double support

1-800-632-7337

www.preso.com

Model AS Ellipse® Annular Flow Meter

Part Number Construction

PAS (7/8")

PAS1 (1-1/4")

Pipe Size (PAS)

- A) 2 inch
- B) 2-1/2 inch
- C) 3 inch
- D) 3-1/2 inch
- E) 4 inch
- F) 5 inch
- G) 6 inch
- H) 8 inch
- I) 10 inch
- J) 12 inch
- K) 14 inch

Pipe Size (PAS1)

- A) 12 inch
- B) 14 inch
- C) 16 inch
- D) 18 inch
- E) 20 inch
- F) 24 inch
- G) 30 inch
- H) 36 inch
- I) 42 inch
- J) 48 inch

Pipe Orientation

- A) Horizontal
- B) Vertical

Probe Material

- 1) 316/316L-SS
- 2) Monel
- 3) Inconel®
- 4) Hastelloy®
- X) Other (consult factory for information)

Instrument Connection

- A) 1/2" NPT
- B) 1/2" Socket
- C) TT3 (Integral 3 Valve Trans-Mount)
- D) TT5 (Integral 5 Valve Trans-Mount)
- E) Transmitter Flange Connection

Connection

- A) CS Compression Fitting w/SS Ferrule
- B) SS Compression Fitting w/SS Ferrule

Instrument Valve*

- A) 1/2" Gate CS w/cross
- B) 1/2" Gate SS w/cross
- Z) Not required

*NOTE: Transmitter Flange Connection Options available when Option E under Instrument Connection is selected. (consult factory for information)

Pipe Mounting

- 1) A105 CS 3000#
- 2) 316/316L SS 3000#
- 3) A105 CS 3000# w/DbI Support (see below)
- 4) 316/316L SS 3000# w/DbI Support

RTD (Use with Instrument Connection option E only)

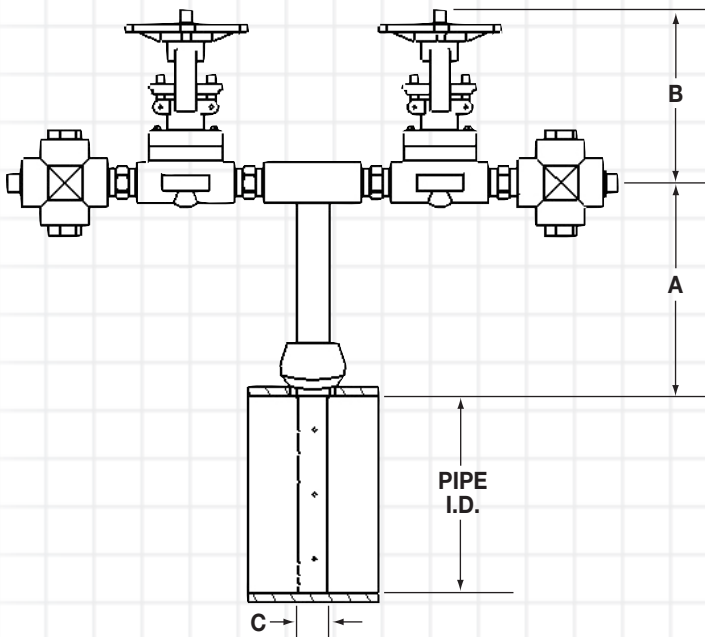
- 1) 100 Ohm RTD 3 wire w/Explosion Proof Head
- 2) 100 Ohm RTD 3 wire, Integral w/Aluminum Head
- Z) Not required

Schedule

- A) Std
- B) 20
- C) 30
- D) 40
- E) 60
- F) 80
- G) 100
- H) 120
- I) 140
- J) 160
- K) XH
- L) XXH
- M) 5S
- N) 10S
- O) 40S
- P) 80S

Dimensions (inches)

	Probe Length		Probe Width
	A	B	C
AS	6.625	5.813	.875
AS1	6.750	5.813	1.25



Maximum Allowable DP (Inches of Water Column)

Pipe Size (inches)	Single Support Probe Size		Double Support Probe Size	
	7/8	1-1/4	7/8	1-1/4
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FLOW METERING EQUIPMENT

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FLOW METERING EQUIPMENT

Model ASF Ellipse® Pitot Tube Annular Flow Meter

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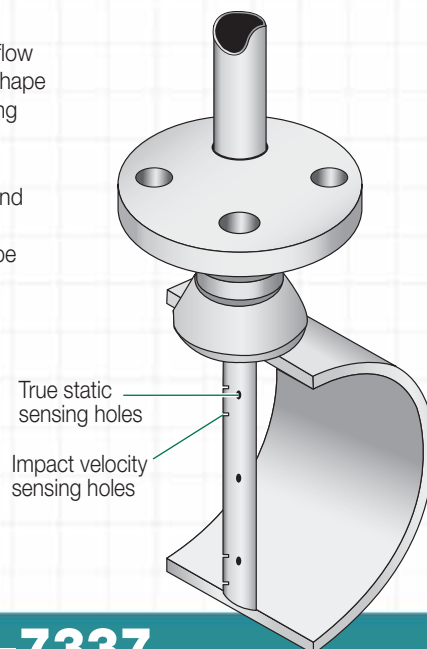
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- Overcomes loss of accuracy caused by fluid separation at the sensor body

The multi-ported, self averaging flow element consists of an elliptical shape with two independent flow sensing chambers. The impact velocity sensing holes (high pressure) are located along the leading edge and the true static sensing holes (low pressure) are on the exterior probe side. Model ASF comes with instrument shut-off valves with connections to accept a transmitter or direct indicating meter.



Specifications

Applications:	Steam
Pipe Sizes:	2 to 48 inches (50 to 1220 mm)
Pressure:	Vary per flange ratings
Temperature:	Vary per flange ratings
Accuracy:	$\pm 0.75\%$ of reading
Turndown Ratio:	17:1 with no vacuum effect
Standard Components:	T-type head, 316 SS 1/2" FNPT connection CS compression fitting with SS ferrule CS 3000 lb. weld fitting – ASTM A105 316/316L SS Ellipse sensor 316 SS ID tag with wire
Reynolds Number:	Greater than 75,000 maintains most accurate flow measurements Less than 75,000 consult factory for estimated results
Resonance:	If greater than 0.8, use double support per ASME PTC 19.3

1-800-632-7337

www.preso.com



Model ASF Ellipse® Pitot Tube Annular Flanged Flow Meter

Part Number Construction: PASF (7/8") PASF1 (1-1/4") PASF2 (2-1/4")

Pipe Size (PASF)	Pipe Size (PASF1) (PASF2)	Pipe Orientation	Probe Material	Instrument Connection	Pipe Mounting	Instrument Valve*
A) 2 inch B) 2-1/2 inch C) 3 inch D) 3-1/2 inch E) 4 inch F) 5 inch G) 6 inch H) 8 inch I) 10 inch J) 12 inch K) 14 inch	A) 12 inch B) 14 inch C) 16 inch D) 18 inch E) 20 inch F) 24 inch G) 30 inch H) 36 inch I) 42 inch J) 48 inch	A) Horizontal B) Vertical	1) 316/316L-SS 2) Monel® 3) Inconel® 4) Hastelloy® X) Other (consult factory for information)	A) 1/2" NPT B) 1/2" Socket C) TT3 (Integral 3 Valve Trans-Mount) D) TT5 (Integral 5 Valve Trans-Mount) E) Transmitter Flange Connection	1) A105 CS 3000# 2) 316/316L SS 3000# 3) A105 CS 3000# w/DbI Support (see below) 4) 316/316L SS 3000# w/DbI Support	A) 1/2" Gate CS w/cross B) 1/2" Gate SS w/cross Z) Not required
Schedule						
A) Std B) 20 C) 30 D) 40 E) 60 F) 80		G) 100 H) 120 I) 140 J) 160 K) XH	L) XXH M) 5S N) 10S O) 40S P) 80S			

Connection

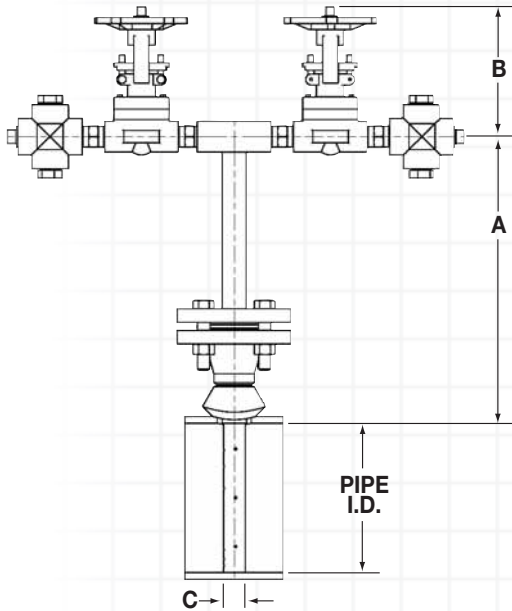
PASFO	PASF	PASF1	PASF2	
A) 3/4"	1-1/4"	1-1/2"	3"	RF Flange 150# CS
B) 3/4"	1-1/4"	1-1/2"	3"	RF Flange 300# CS
C) 3/4"	1-1/4"	1-1/2"	3"	RF Flange 600# CS
D) 3/4"	1-1/4"	1-1/2"	3"	RF Flange 900/1500# CS
E) 3/4"	1-1/4"	1-1/2"	3"	RF Flange 150# SS
F) 3/4"	1-1/4"	1-1/2"	3"	RF Flange 300# SS
G) 3/4"	1-1/4"	1-1/2"	3"	RF Flange 600# SS
H) 3/4"	1-1/4"	1-1/2"	3"	RF Flange 900/1500# SS

RTD

- 1) 100 Ohm RTD 3 wire w/Explosion Proof Head
- 2) 100 Ohm RTD 3 wire, Integral w/Aluminum Head
- Z) Not required

Dimensions (inches)

	Probe Length		Probe Width	
	A	B	C	
ASF	11.63	5.25	ASF .875	
ASF1	11.63	5.25	ASF1 1.25	
*ASF2	10.00	5.25	*ASF2 2.25	



*ASF2 probe design not pictured
contact factory for more information

Maximum Allowable DP (Inches of Water Column)

Pipe Size (inches)	Single Support Probe Size			Double Support Probe Size		
	7/8	1-1/4	2-1/4	7/8	1-1/4	2-1/4
2	880	—	—	2380	—	—
2-1/2	525	—	—	1568	—	—
3	396	—	—	1283	—	—
3-1/2	283	—	—	1117	—	—
4	197	—	—	980	—	—
5	153	—	—	757	—	—
6	126	—	—	689	—	—
8	114	360	—	512	—	—
10	100	240	779	315	960	—
12	87	175	660	250	700	—
14	53	147	610	195	585	—
16	—	113	495	—	450	—
18	—	90	410	—	360	—
20	—	74	346	—	295	—
24	—	68	315	—	270	952
26	—	50	218	—	215	878
30	—	34	187	—	155	780
32	—	—	136	—	—	550
36	—	—	105	—	—	410
42	—	—	85	—	—	350



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F L O W M E T E R I N G E Q U I P M E N T

Model AHL Ellipse® Pitot Tube Annular High Pressure Hot Tap Flow Meter

Preso's patented elliptical design outperforms and provides greater accuracy than traditional differential pressure flow measurement devices. This differential pressure flow meter is designed with a series of ports facing the upstream velocity pressures, as well as flow sensing ports strategically located ahead of the trailing edge flow separation.

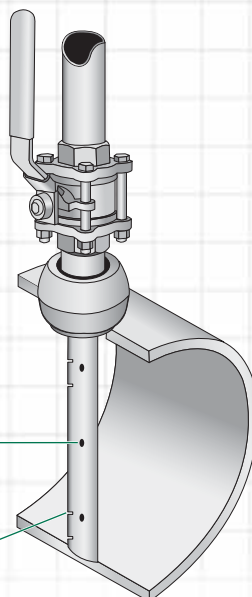
Features

- Hot-tap model installs without system shutdown
- Single point pipe entry for DP, temperature and static pressure
- No dampening software required
- Lowest pressure loss in industry (typically 3% of DP in a 12" line) due to its patented aerodynamic profile
- Optional NIST traceable calibration

Benefits

- Accuracy: $\pm 0.75\%$ of reading
- Repeatability: $\pm 0.1\%$ of reading
- Turndown Ratio: 17:1; no vacuum effects
- No moving parts equals long, trouble-free service life
- True static pressure measurement rather than a calculated value
- Overcomes loss of accuracy caused by fluid separation at the sensor body

The multi-ported, self averaging flow element consists of an elliptical shape with two independent flow sensing chambers. The impact velocity sensing holes (high pressure) are located along the leading edge and the true static sensing holes (low pressure) are on the exterior probe side. Model AHL comes with instrument shut-off valves or optional integral manifold valve for direct transmitter mount.



True static sensing holes

Impact velocity sensing holes



Specifications

Applications:	Air, Liquids and Gases
Pipe Sizes:	2 to 30 inches (50 to 760 mm)
Pressure:	800 PSI (5515 kPa) max. Consult factory for higher pressure
Temperature:	800 °F (426 °C) max. Consult factory for higher temperature
Accuracy:	$\pm 0.75\%$ of reading
Turndown Ratio:	17:1 with no vacuum effect
Standard Components:	T-type head, 316 SS 1/4" or 1/2" FNPT connection CS 3000 lb. weld fitting – ASTM A105 316/316L SS Ellipse sensor Instrument valves (2 per sensor) 1/4" or 1/2", CS 316 SS ID tag with wire 150 lb. 316/316L SS sensor flange CS packing chamber with molythane or graphite packing gland CS packing chamber flange, 150 lb. with SS cap 316-SS isolation ball valve, NPT threaded CS threaded nuts and bolts CS nipples, schedule 40
Reynolds Number:	Greater than 75,000 maintains most accurate flow measurements Less than 75,000 consult factory for estimated results
Resonance:	Less than 0.8 but greater than 1.2. If greater than 0.8, use double support. System shutdown is required when the double support option is used. Select larger diameter Ellipse to avoid double support.



1-800-632-7337

www.preso.com

Model AHL Ellipse® Pitot Tube Annular High Pressure Hot Tap Flow Meter

Part Number Construction

PAHL (7/8")

PAHL1 (1-1/4")

Pipe Size* (PAHL)

- A) 2 inch
- B) 2-1/2 inch
- C) 3 inch
- D) 3-1/2 inch
- E) 4 inch
- F) 5 inch
- G) 6 inch
- H) 8 inch
- I) 10 inch
- J) 12 inch
- K) 14 inch

Pipe Size* (PAHL1)

- A) 12 inch
- B) 14 inch
- C) 16 inch
- D) 18 inch
- E) 20 inch
- F) 24 inch
- G) 30 inch

Schedule

- | | | |
|--------|--------|--------|
| A) Std | G) 100 | L) XXH |
| B) 20 | H) 120 | M) 5S |
| C) 30 | I) 140 | N) 10S |
| D) 40 | J) 160 | O) 40S |
| E) 60 | K) XH | P) 80S |
| F) 80 | | |

Pipe Orientation

- A) Horizontal
- B) Vertical

Probe Material

- 1) 316/316L-SS
- 2) Monel®
- 3) Inconel®
- 4) Hastelloy®
- X) Other (consult factory to review application)

Instrument Connection

- A) 1/2" NPT
- B) 1/2" Socket
- C) TT3 (Integral 3 Valve Trans-Mount)
- D) TT5 (Integral 5 Valve Trans-Mount)
- E) Transmitter Flange Connection

Insertion Mechanism/ Isolation Ball valve

- A) CS cage nipple & rods
- B) SS cage nipple & rods
- C) CS gear drive, cage nipple & rods
- D) SS gear drive, cage nipple & rods
(Note: SS gear drive - SS for housing & wetted parts only)
- X) Other

Packing Material

- 1) Molythane (-65 °F to 200 °F, 140 °F in water and high water-based fluids)
- 2) Viton®/Fluorocarbon (-20 °F to 400 °F)
- 3) Graphoil (1200 °F)
- 4) EPDM (-65 °F to 300 °F, 400 °F in steam)
- 5) Fluoromyte (-65 °F to 300 °F)
- X) Other

Pipe Mounting

- 1) A105 CS 3000#
- 2) 316/316L SS 3000#
- 3) Supplied separately by Preso

NOTE: Ensure that DP falls within range noted on chart below. Double Supports are not recommended for Hot Tap/Wet Tap models.

Instrument Valve

- A) 1/2" Needle CS
- B) 1/2" Needle SS
- C) 1/2" Gate CS
- D) 1/2" Gate SS
- Z) Not required

NOTE: Transmitter Flange Connection Options available when Option E under Instrument Connection is selected. (consult factory for information)

RTD

- 1) 100 Ohm RTD 3 wire w/ Explosion Proof Head
- 2) 100 Ohm RTD 3 wire, Integral w/Aluminum Head
- Z) Not required

*For larger pipe sizes, see the AHF brochure.

AHL "A" Dimensions (inches)

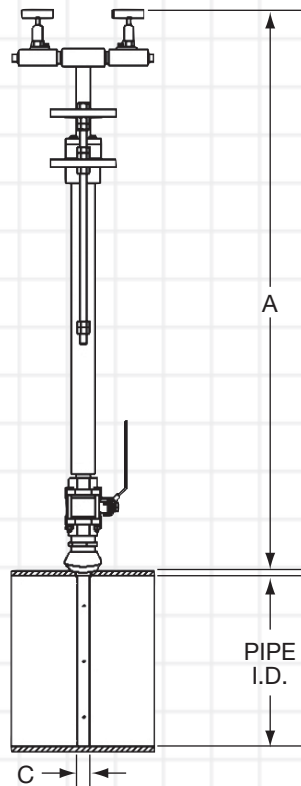
	Size	Inserted	Retracted
SCH. STANDARD	2"	29-1/2"	38-1/2"
	2-1/2"	30"	39-1/2"
	3"	30-1/2"	40-1/2"
	3-1/2"	31"	41-1/2"
	4"	31-1/2"	42-1/2"
	5"	32-1/2"	44-1/2"
	6"	33-3/8"	46-1/2"
	8"	35-3/8"	50-1/2"
	10"	37-3/8"	54-1/2"
	12"	39-3/8"	58-1/2"
14"	41-3/8"	61-3/4"	

AHL1 "A" Dimensions (inches)

	Size	Inserted	Retracted
SCH. STANDARD	12"	42-1/8"	61-3/4"
	14"	44-1/8"	65"
	16"	46-1/8"	69"
	18"	48-1/8"	73"
	20"	50-1/8"	77"
	24"	54-1/8"	85"
	30"	60-1/8"	97"

Probe Width

	C
AHL	.875
AHL1	1.25



Maximum Allowable DP (Inches of Water Column)

Pipe Size (inches)	Single Support Probe Size		Double Support Probe Size*	
	7/8"	1-1/4"	7/8"	1-1/4"
2	880	—	2380	—
2-1/2	525	—	1568	—
3	396	—	1283	—
3-1/2	283	—	1117	—
4	197	—	980	—
5	153	—	757	—
6	126	—	689	—
8	114	360	512	—
10	100	240	315	960
12	87	175	250	700
14	53	147	195	585
16	—	113	—	450
18	—	90	—	360
20	—	74	—	295
24	—	68	—	270
26	—	50	—	215
30	—	34	—	155

Note: Probe with optional gear drive not pictured. Contact factory for more information.



FLOW METERING EQUIPMENT

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F L O W M E T E R I N G E Q U I P M E N T

Model AHS Ellipse® Pitot Tube Annular Threaded Hot Tap Steam Flow Meter

Preso's patented elliptical design outperforms and provides greater accuracy than traditional differential pressure flow measurement devices. This differential pressure flow meter is designed with a series of ports facing the upstream velocity pressures, as well as flow sensing ports strategically located ahead of the trailing edge flow separation.

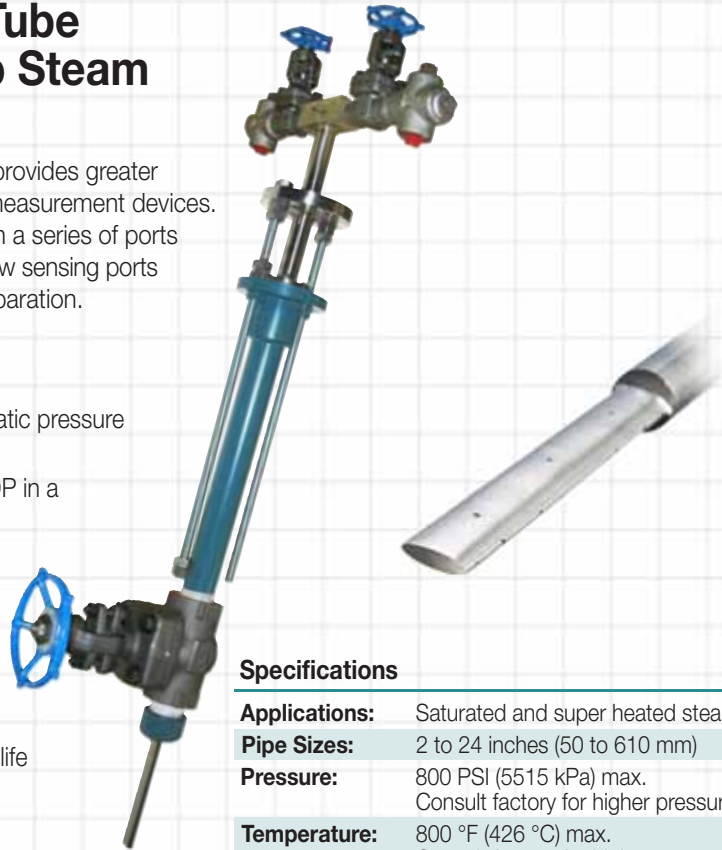
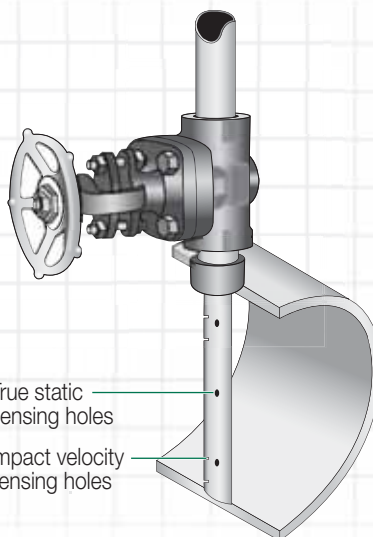
Features

- Hot-tap model installs without system shutdown
- Single point pipe entry for DP, temperature and static pressure
- No dampening software required
- Lowest pressure loss in industry (typically 3% of DP in a 12" line) due to its patented aerodynamic profile
- Optional NIST traceable calibration

Benefits

- Accuracy: $\pm 0.75\%$ of reading
- Repeatability: $\pm 0.1\%$ of reading
- Turndown Ratio: 17:1; no vacuum effects
- No moving parts equals long, trouble-free service life
- True static pressure measurement rather than a calculated value
- Overcomes loss of accuracy caused by fluid separation at the sensor body

The multi-ported, self averaging flow element consists of an elliptical shape with two independent flow sensing chambers. The impact velocity sensing holes (high pressure) are located along the leading edge and the true static sensing holes (low pressure) are on the exterior probe side. Model AHS comes with instrument shut-off valves or optional integral manifold valve for direct transmitter mount.



Specifications

Applications:	Saturated and super heated steam
Pipe Sizes:	2 to 24 inches (50 to 610 mm)
Pressure:	800 PSI (5515 kPa) max. Consult factory for higher pressure
Temperature:	800 °F (426 °C) max. Consult factory for higher temperature
Accuracy:	$\pm 0.75\%$ of reading
Turndown Ratio:	17:1 with no vacuum effect
Standard Components:	T-type head, 316 SS ¼" or ½" FNPT connection CS 3000 lb. weld fitting – ASTM A105 316/316L SS Ellipse sensor Instrument valves (2 per sensor) ¼" or ½", CS 316 SS ID tag with wire 150 lb. 316/316L SS sensor flange CS packing chamber with molythane or graphite packing gland CS packing chamber flange, 150 lb. with SS cap 316-SS isolation ball valve, NPT threaded CS threaded nuts and bolts CS nipples, schedule 40
Reynolds Number:	Greater than 75,000 maintains most accurate flow measurements Less than 75,000 consult factory for estimated results
Resonance:	Less than 0.8 but greater than 1.2. If greater than 0.8, use double support. System shutdown is required when the double support option is used. Select larger diameter Ellipse to avoid double support.



1-800-632-7337

www.preso.com

Model AHS Ellipse® Pitot Tube Annular Threaded Hot Tap Steam Flow Meter

Part Number Construction

PAHS (7/8")

PAHS1 (1-1/4")

Pipe Size (PAHS)

- A) 2 inch
- B) 2-1/2 inch
- C) 3 inch
- D) 3-1/2 inch
- E) 4 inch
- F) 5 inch
- G) 6 inch
- H) 8 inch
- I) 10 inch
- J) 12 inch
- K) 14 inch

Pipe Size (PAHS1)

- A) 14 inch
- B) 16 inch
- C) 18 inch
- D) 20 inch
- E) 24 inch

Schedule

- A) Std G) 100 L) XXH
- B) 20 H) 120 M) 5S
- C) 30 I) 140 N) 10S
- D) 40 J) 160 O) 40S
- E) 60 K) XH P) 80S
- F) 80

Pipe Orientation

- A) Horizontal
- B) Vertical

Probe Material

- 1) 316/316L-SS
- 2) Monel®
- 3) Inconel®
- 4) Hastelloy®
- X) Other (consult factory to review application)

Instrument Connection

- A) 1/2" NPT
- B) 1/2" Socket
- C) TT3 (Integral 3 Valve Trans-Mount)
- D) TT5 (Integral 5 Valve Trans-Mount)
- E) Transmitter Flange Connection

Insertion Mechanism/ Isolation Ball valve

- A) CS cage nipple & rods
- B) SS cage nipple & rods
- C) CS gear drive, cage nipple & rods
- D) SS gear drive, cage nipple & rods (Note: SS gear drive - SS for housing & wetted parts only)
- X) Other

Packing Material

- 1) EPDM (-65 °F to 300 °F, 400 °F in steam)
- 2) Viton®/Fluorocarbon (-20 °F to 400 °F)
- 3) Graphoil (1200 °F)
- 4) Fluoromyte (-65 °F to 300 °F)
- X) Other

Pipe Mounting

- 1) A105 CS 3000#
 - 2) 316/316L SS 3000#
 - 3) Supplied separately by Preso
- NOTE: Ensure that DP falls within range noted on chart below. Double Supports are not recommended for Hot Tap/Wet Tap models.

Instrument Valve

- A) 1/2" Gate CS with cross
 - B) 1/2" Gate SS with cross
 - Z) Not required
- NOTE: Transmitter Flange Connection Options available when Option E under Instrument Connection is selected. (consult factory for information)

RTD

- 1) 100 Ohm RTD 3 wire w/ Explosion Proof Head
- 2) 100 Ohm RTD 3 wire, Integral w/Aluminum Head
- Z) Not required

*For larger pipe sizes, see the AHZ brochure.

AHS "A" Dimensions (inches)

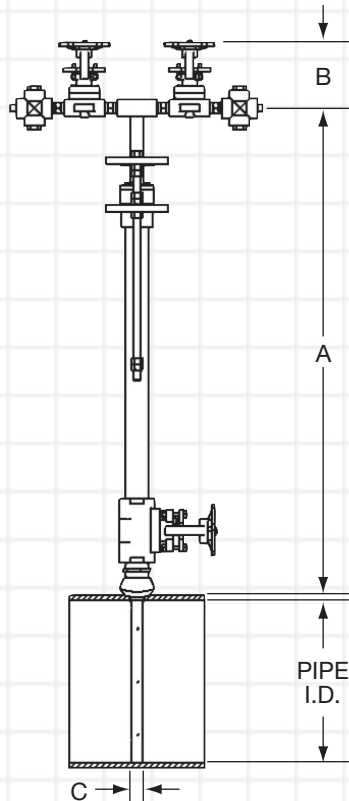
Size	Inserted	Retracted
2"	24-5/8"	34"
2-1/2"	25"	35"
3"	25-1/2"	36"
3-1/2"	26"	37"
4"	26-1/2"	38"
5"	27-1/2"	40"
6"	28-3/8"	42"
8"	30-3/8"	46"
10"	32-3/8"	50"
12"	34-3/8"	54"
14"	36-3/8"	57"

AHS1 "A" Dimensions (inches)

Size	Inserted	Retracted
12"	38-1/2"	58-3/4"
14"	40-1/2"	62"
16"	42-1/2"	66"
18"	44-1/2"	70"
20"	46-1/2"	74"
24"	50-1/2"	82"

Probe Width

	C
AHL	.875
AHL1	1.25



Maximum Allowable DP (Inches of Water Column)

Pipe Size (inches)	Single Support Probe Size		Double Support Probe Size	
	7/8"	1-1/4"	7/8"	1-1/4"
2	880	—	2380	—
2-1/2	525	—	1568	—
3	396	—	1283	—
3-1/2	283	—	1117	—
4	197	—	980	—
5	153	—	757	—
6	126	—	689	—
8	114	360	512	—
10	100	240	315	960
12	87	175	250	700
14	53	147	195	585
16	—	113	—	450
18	—	90	—	360
20	—	74	—	295
24	—	68	—	270

Note: Probe with optional gear drive not pictured. Contact factory for more information



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