

FLOW METERING EQUIPMENT

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: ±0.75% of reading, repeatability: ±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 True static transmitter or direct sensing holes indicating meter. Impact velocity

sensing holes

Applications:Liquids and GasesPipe Sizes:2 to 72 inches (50 to 1830 mm)Pressure:800 PSI (5515 kPa) max.

Components:

Specifications

Temperature:800 °F (426 °C) max.Accuracy:± 0.75% of readingTurndown Ratio:17:1 with no vacuum effectStandard

T-type head, 316 SS ¼" or ½" 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) – ¼", CS 316 SS ID tag with wire

Greater than 75,000 maintains most accurate

Less than 75,000 consult factory for

If greater than 0.8, use double support

flow measurements

estimated results

Reynolds Number:

Resonance:

1-800-632-7337

www.preso.com

Model AR Ellipse[®] Annular Flow Meter

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

	L_L_l	L				L	L_I	L_	L L L L L L	l	
				Din e Osiantation	Instrume	nt Connection			nstrumen	t Valvo*	
pe Size	Pipe Size	Sched	ule	Pipe Orientation	(PAR/PA				PAR/PAR		
AR/PAR0)	(PAR1)	A) Std	J) 160	A) Horizontal	A) 1/2" N						
2 inch	A) 12 inc	B) 20	K) XH	B) Vertical	B) 1/2" S				A) 1/2" Ne		
2-1/2 inch	B) 14 inc	ch C) 30	L) XXH	Probe Material –		ntegral 3 Valve			B) 1/2" Ne		
3 inch	C) 16 inc	h D) 40	M) 5S	1) 316/316L-SS		-Mount)			Z) Not req		
3-1/2 inch		h E) 60	N) 10S	2) Monel		ntegral 5 Valve	_		nstrumen	t Valve*	
4 inch	E) 20 inc	h F) 80	O) 40S	3) Inconel [®]		-Mount)		(PAR0)		
5 inch	F) 24 inc	G) 100	P) 80S			mitter Flange		1	A) 1/4" Ne	edle CS	
6 inch	G) 30 inc	h H) 120		4) Hastelloy®	Conne			E	3) 1/4" Ne	edle SS	
8 inch	H) 36 ind	n 1/1/1		X) Other (consult factory to revie		nt Connection		Z	Z) Not req	uired	
10 inch	l) 42 inc			application)		in connection		*	NOTE: Tra	nsmitter	
12 inch	<i>,</i> J) 48 inc			application	(PAR0)	рт			Flange Con		
14 inch	K) 60 inc				A) 1/4" N	PI			Options ava		
16 inch	L) 72 inc		Conne	ection (PAR/PAR1) -						n E under	
18 inch	· ·			Compression	Pip	e Mounting —				Connection	
20 inch	NOTE:			ting w/SS Ferrule		A105 CS 3000#			s selected.	(consult information)	
24 inch	PAR0 installs			Compression	2)	316/316L SS 15	60#	1	actory for I	mormation	
30 inch	on pipe sizes			ting w/SS Ferrule		316/316L SS 30					
36 inch	through 5" o			0		4) A105 CS 3000#		RTD			
	(A through F		Connection (PAR0) A) SS Compression			w/Dbl Support			1) 100 Ohm RTD 3 wire		
	options)			Fitting w/SS Ferule		(see below)		w/ Explosion Proof Head2) 100 Ohm RTD 3 wire, Integration			
				-		316/316L SS 15	00#				
					6)	w/Dbl Support 316/316L SS 30			uminum H		
					6)	w/Dbl Support	00#	w/Alu Z) Not r	uminum H required	lead	
Dime	nsions (incl	hes)			6)	w/Dbl Support 316/316L SS 30 w/Dbl Support	00#	w/Alu Z) Not r DP (Inch upport	uminum H required	r Column) Support	
					6)	w/Dbl Support 316/316L SS 30 w/Dbl Support	000# Allowable Single S	w/Alu Z) Not r DP (Inch upport	uminum H required es of Water Double \$	r Column) Support	
	Probe Leng	th			6)	w/Dbl Support 316/316L SS 30 w/Dbl Support Maximum / Pipe Size	000# Allowable Single S Probe	w/Alu Z) Not r DP (Inch upport Size	uminum H required es of Water Double S Probe	r Column) Support Size	
	Probe Leng A	th B			6)	w/Dbl Support 316/316L SS 30 w/Dbl Support Pipe Size (inches) 2 2-1/2	Allowable Single S Probe 7/8 880 525	w/Alu Z) Not r DP (Inch upport Size 1-1/4 —	es of Water Double S Probe 7/8 2380 1568	r Column) Support Size 1-1/4 —	
AR0	Probe Leng A 4.188	th B 2.250			6)	w/Dbl Support 316/316L SS 30 w/Dbl Support Pipe Size (inches) 2 2-1/2 3	Allowable Single S Probe 7/8 880 525 396	w/Alu Z) Not r DP (Inch size 1-1/4 — —	es of Water Double S Probe 7/8 2380 1568 1283	r Column) Support Size 1-1/4 — — —	
	Probe Leng A	th B			6)	w/Dbl Support 316/316L SS 30 w/Dbl Support Pipe Size (inches) 2 2-1/2 3 3-1/2	Allowable Single S Probe 7/8 880 525 396 283	w/Alu Z) Not r DP (Inch size 1-1/4 — — —	es of Water Double S Probe 7/8 2380 1568 1283 1117	r Column) Support Size 1-1/4 — — — —	
AR0	Probe Leng A 4.188	th B 2.250			6)	w/Dbl Support 316/316L SS 30 w/Dbl Support Pipe Size (inches) 2 2-1/2 3 3-1/2 4	Allowable Single S Probe 7/8 880 525 396 283 197	w/Alu Z) Not r DP (Inch size 1-1/4 	uminum H required es of Water Double \$ Probe 7/8 2380 1568 1283 1117 980	r Column) Support Size 1-1/4 — — — — — —	
AR0 AR	Probe Leng A 4.188 6.625	th B 2.250 3.125			6)	w/Dbl Support 316/316L SS 30 w/Dbl Support Pipe Size (inches) 2 2-1/2 3 3-1/2 4 5	Allowable Single S Probe 7/8 880 525 396 283 197 153	w/Alu Z) Not r DP (Inch size 1-1/4 — — —	uminum H required es of Water Double \$ Probe 7/8 2380 1568 1283 1117 980 757	r Column) Support Size 1-1/4 — — — —	
AR0 AR	Probe Leng A 4.188 6.625	th B 2.250 3.125			6)	w/Dbl Support 316/316L SS 30 w/Dbl Support Pipe Size (inches) 2 2-1/2 3 3-1/2 4 5 6	Allowable Single S Probe 7/8 880 525 396 283 197 153 126	w/Alu Z) Not r DP (Inch size 1-1/4 	uminum H required es of Water Double S Probe 7/8 2380 1568 1283 1117 980 757 689	r Column) Support Size 1-1/4 — — — — — —	
AR0 AR AR1	Probe Leng A 4.188 6.625	th B 2.250 3.125 3.125			6)	w/Dbl Support 316/316L SS 30 w/Dbl Support Pipe Size (inches) 2 2-1/2 3 3-1/2 4 5 6 8	Allowable Single S Probe 7/8 880 525 396 283 197 153 126 114	w/Alu Z) Not r DP (Inch upport Size 1-1/4 — — — — — — — 360	uminum H required es of Water Double S Probe 7/8 2380 1568 1283 1117 980 757 689 512 512	r Column) Support Size 1-1/4 — — — — — — — — — — — — —	
AR0 AR AR1	Probe Leng A 4.188 6.625 6.625	th B 2.250 3.125 3.125			6)	w/Dbl Support 316/316L SS 30 w/Dbl Support Pipe Size (inches) 2 2-1/2 3 3-1/2 4 5 6	Allowable Single S Probe 7/8 880 525 396 283 197 153 126	w/Alu Z) Not r DP (Inch size 1-1/4 	uminum H required es of Water Double S Probe 7/8 2380 1568 1283 1117 980 757 689	r Column) Support Size 1-1/4 — — — — — —	
AR0 AR AR1	Probe Leng A 4.188 6.625 6.625 Probe Width C	th B 2.250 3.125 3.125			6)	w/Dbl Support 316/316L SS 30 w/Dbl Support Pipe Size (inches) 2 2-1/2 3 3-1/2 4 5 6 8 10	Allowable Single S Probe 7/8 880 525 396 283 197 153 126 114 100	w/Alu Z) Not r DP (Inch upport Size 1-1/4 	uminum H required es of Water Double S Probe 7/8 2380 1568 1283 1117 980 757 689 512 315	r Column) Support Size 1-1/4 — — — — — — — — — — — — — — — — 960	
AR0 AR AR1 AR1	Probe Leng A 4.188 6.625 6.625 Probe Width C .5	th B 2.250 3.125 3.125			6)	w/Dbl Support 316/316L SS 30 w/Dbl Support Pipe Size (inches) 2 2-1/2 3 3-1/2 4 5 6 8 10 12	Allowable Single S Probe 7/8 880 525 396 283 197 153 126 114 100 87	w/Alu Z) Not r DP (Inch upport Size 1-1/4 	uminum H required es of Water Double S Probe 7/8 2380 1568 1283 1117 980 757 689 512 315 250 250	r Column) Support Size 1-1/4 — — — — — — — — — — 960 700	
AR0 AR AR1 AR0 AR0	Probe Leng A 4.188 6.625 6.625 Probe Width C .5 .875	th B 2.250 3.125 3.125			6)	w/Dbl Support 316/316L SS 30 w/Dbl Support Pipe Size (inches) 2 2-1/2 3 3-1/2 4 5 6 8 10 12 14 16 18	Allowable Single S Probe 7/8 880 525 396 283 197 153 126 114 100 87 53	w/Alu 2) Not r DP (Inch upport Size 1-1/4 	uminum H required Image: second sec	r Column) Support Size 1-1/4 960 700 585 450 360	
AR0 AR AR1 AR1	Probe Leng A 4.188 6.625 6.625 Probe Width C .5	th B 2.250 3.125 3.125			6)	w/Dbl Support 316/316L SS 30 w/Dbl Support Pipe Size (inches) 2 2-1/2 3 3-1/2 4 5 6 8 10 12 14 16 18 20	Allowable Single S Probe 7/8 880 525 396 283 197 153 126 114 100 87 53 	w/Alu 2) Not r DP (Inch upport Size 1-1/4 	uminum H required es of Water Double S Probe 7/8 2380 1568 1283 1117 980 757 689 512 315 250 195 — —	r Column) Support Size 1-1/4 960 700 585 450 360 295	
AR0 AR AR1 AR0 AR0	Probe Leng A 4.188 6.625 6.625 Probe Width C .5 .875	th B 2.250 3.125 3.125			6)	w/Dbl Support 316/316L SS 30 w/Dbl Support Pipe Size (inches) 2 2-1/2 3 3-1/2 4 5 6 8 10 12 14 16 18 20 24	Allowable Single S Probe 7/8 880 525 396 283 197 153 126 114 100 87 53 — 53 —	w/Alu 2) Not r DP (Inch upport Size 1-1/4 360 240 175 147 113 90 74 68	uminum H required bouble S Probe 7/8 2380 1568 1283 1117 980 757 689 512 315 250 195 — — — — — —	r Column) Support Size 1-1/4 960 700 585 450 360 295 270	
AR0 AR AR1 AR0 AR0	Probe Leng A 4.188 6.625 6.625 Probe Width C .5 .875	th B 2.250 3.125 3.125			6)	w/Dbl Support 316/316L SS 30 w/Dbl Support Pipe Size (inches) 2 2-1/2 3 3-1/2 4 5 6 8 10 12 14 16 18 20 24 26	Allowable Single S Probe 7/8 880 525 396 283 197 153 126 114 100 87 53 53 	w/Alu DP (Inch upport Size 1-1/4 -	uminum H required Image: Comparison of the second	r Column) Support Size 1-1/4 960 700 585 450 360 295 270 215	
AR0 AR AR1 AR0 AR0	Probe Leng A 4.188 6.625 6.625 Probe Width C .5 .875	th B 2.250 3.125 3.125			6)	w/Dbl Support 316/316L SS 30 w/Dbl Support Pipe Size (inches) 2 2-1/2 3 3-1/2 4 5 6 8 10 12 14 16 18 20 24 26 30	Allowable Single S Probe 7/8 880 525 396 283 197 153 126 114 100 87 53 — - - - - -	w/Alu 2) Not r DP (Inch upport Size 1-1/4 360 240 175 147 113 90 74 68 50 34	uminum H required bouble S Probe 7/8 2380 1568 1283 1117 980 757 689 512 315 250 195 — — — — — —	r Column) Support Size 1-1/4 960 700 585 450 360 295 270 215 155	
AR0 AR AR1 AR0 AR0	Probe Leng A 4.188 6.625 6.625 Probe Width C .5 .875	th B 2.250 3.125 3.125			6)	w/Dbl Support 316/316L SS 30 w/Dbl Support Pipe Size (inches) 2 2-1/2 3 3-1/2 4 5 6 8 10 12 14 16 18 20 24 26 30 32	Allowable Single S Probe 7/8 880 525 396 283 197 153 126 114 100 87 53 53 	w/Alu DP (Inch upport Size 1-1/4 -	uminum H required Image: second sec	r Column) Support Size 1-1/4 960 700 585 450 360 295 270 215 155 	
AR0 AR AR1 AR0 AR0	Probe Leng A 4.188 6.625 6.625 Probe Width C .5 .875	th B 2.250 3.125 3.125			6)	w/Dbl Support 316/316L SS 30 w/Dbl Support Pipe Size (inches) 2 2-1/2 3 3-1/2 4 5 6 8 10 12 14 16 18 20 24 26 30	Allowable Single S Probe 7/8 880 525 396 283 197 153 126 114 100 87 53 53 	w/Alu 2) Not r DP (Inch upport Size 1-1/4 360 240 175 147 113 90 74 68 50 34	uminum H required Image: second sec	r Column) Support Size 1-1/4 960 700 585 450 360 295 270 215 155	



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