

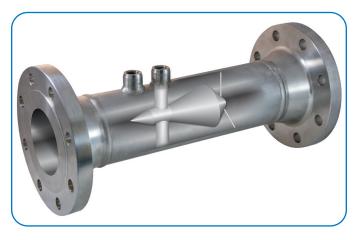
Differential Pressure Meter

DESCRIPTION

The Preso Cone Differential Pressure Flow Meter has a cone-shaped element which shapes the flow profile ahead of the differential pressure (DP) measurement port without impacting the flow against a sharp surface, creating an extremely stable signal for measurement with minimal wear on the cone edge.

BENEFITS

- Precise accuracy and repeatability
- Cost effective
- Wide variety of fluids
- Little or no straight run piping requirements
- No additional flow conditioning devices needed
- Low maintenance and long life
- No moving parts
- Wide flow range
- Low head loss



OPERATING PRINCIPLE

The Preso Cone differential pressure meter utilizes the center element to straighten the flow and create an ideal dynamic which allows differential pressure technology to be used in a unique way providing extensive flexibility in a wide variety of applications.

SPECIFICATIONS

Applications	Liquids, steam, air and industrial	gases				
	Wafer	14 in. (25102 mm)				
Dine Sizes	Threaded and Socket Weld	1/22 in. (1251 mm)				
Pipe Sizes	Flanged Mount	124 in. (25609 mm)				
	Butt Weld	1/224 in. (12609 mm)				
Repeatability	± 0.1% or better					
Flow Range	10:1 and greater					
Accuracy	\pm 0.5% of actual flow					
Standard Beta Ratio	0.400.80 (special betas availab	le)				
Permanent Pressure Loss	Varies with beta ratio and DP					
Installation Piping Requirements	Typically 03 diameters upstrea in the adjacent pipeline	m and 01 diameters downstream of the cone are required, depending on fittings or valves				
Construction Materials	304/304L, 316/316L stainless stee	el, A106 carbon steel, other materials on request				
End Fittings	Threaded (NPT), flange, wafer, so other end connections on reque					
Approvals	CRN					



Product Data Sheet

PART NUMBER CONSTRUCTION

Flanged – 316/316L

FLANGED	1						Next Page
<u>PIPE SIZE</u>							
1 in.	С						
1-1/4 in.	D						
1-1/2 in.	E						
2 in. 2-1/2 in.	F G						
3 in.	H						
4 in.	1						
5 in.	J						
6 in.	К						
8 in.	L						
10 in.	M N						
12 in. 14 in.	0						
16 in.	P						
Other	X						
PIPE SCHEDULE		4					
Standard**		Α					
10		В					
20		C					
30 40		D E					
60		F					
80		G					
100		н					
120		J					
140		K					
160		L					
XH XXH		M N					
55		0					
40S		P					
80S		Q					
Other		Х					
BODY / ELEMENT MATERIAL			2				
316/316L body-316/316L element Other			2 X				
PROCESS CONNECTION			Λ	1			
RF flange 150#				А			
RF flange 300#				В			
RF flange 600#				С			
RF flange 900#				D			
Other				Х			
INSTRUMENT CONNECTION					-		
2 in. RF flange 150# (2 in. and up)					А		
2 in. RF flange 300# (2 in. and up)					В		
2 in. RF flange 600# (2 in. and up)					С		
3 in. RF flange 150# (3 in. and up)					D		
3 in. RF flange 300# (3 in. and up)					E		
3 in. RF flange 600# (3 in. and up)					F		
3 in. RF flange 600# (3 in. and up) 3 in. RF flange 900# (3 in. and up)					G		
					н		
1/4 in. NPT (13 in. NPS)					1		
1/2 in. NPT (3 in. and up)							
1/2 in. socket weld					J		
Other					Х	J	
<u>BETA RATIO</u>							
0.4						4	
0.5						5	
0.6						6	
0.7						7	
0.8						8	
Other						х	1

Continued from Previous Page				
		1		
INSTRUMENT VALVE				
1/4 in. Needle valve CS A		Í		
1/2 in. Needle valve CS B		Í		
1/4 in. Needle valve SS C		Í		
1/2 in. Needle valve SS D 1/2 in. Gate w/cross CS (steam) E		Í		
		Í		
		Í		
-		Í		
Not Required Z CALIBRATION				
Factory Calibration 1		Í		
Special Calibration* 2		Í		
Not Required Z		Í		
TRANSMITTER MOUNTING				
None Z		Í		
Remote Mount 1		Í		
Mounting Bracket 2				
Three Valve Manifold 3				
Five Valve Manifold 4		Í		
Other X		Í		
CERTIFICATIONS	1	Í		
None	Z	Í		
Tracable Material Certifications	1	Í		
NACE MR0-103	2	Í		
NACE MR0-175	3	Í		
Items 1 and 2	4	Í		
Items 1 and 3	5	Í		
Other	Х	Í		
STANDARD NDE TESTING				
None		Ζ		
Hydrostatic Test Only (1/212 in. NPS 150# to 900# flange Others CF)		1		
5% Radiography of Butt Welds		2		
100% Radiography of Butt Welds		3		
5% Magnetic particle/dye penetrant		4		
100% magnetic particle/dye penetrant		5		
Items 2 and 4 (1/212 in. NPSOthers CF)		6		
Items 3 and 4 (1/212 in. NPSOthers CF)		7		
Items 3 and 5 (1/212 in. NPSOthers CF)		8		
Other		Х		
Note: Items 2-8 also include hydrostatic testing				
Other NDE Testing				
None			Z	
100% visual inspection with report			1	
PMI			2	
Post-Weld Hardness testing			3	
Items 1 and 2			4	
Items 1 and 3			5	
Other			Х	
Note on Item 1: 100% visual inspection occurs on all product.				
This is a request for the report.				J
Hardcoating				Z
None Tungsten Carbide (WC) on wedge				2 1
Tungsten Carbide (WC) on wedge				
Tungsten Carbide (WC) on center 1/3 of meter				2 3
Chromium Carbodo (CrC) on wodza				
Chromium Carbode (CrC) on wedge				
Chromium Carbode (CrC) on wedge Chromium Carbode (CrC) on center 1/3 of meter Other				4 X

Flanged – Carbon Steel

ĺ	PGF -			1				Continued o
Carbon Steel								Next Page
FLANGED								
PIPE SIZE								
1 in.		С						
1-1/4 in.		D						
1-1/2 in.		E						
2 in.		F						
2-1/2 in.		G						
3 in.		н						
4 in.		I						
5 in.		J						
6 in.		K						
8 in.		L						
10 in.		М						
12 in.		N						
14 in.		Ö						
		P						
16 in.								
Other		Х	J					
PIPE SCHEDULE						1		
Standard**			Α			1		
10			В					
20			С					
30			D					
40			Е					
60			F					
80			G					
			H					
100								
120			J					
140			K					
160			L					
XH			М					
XXH			Ν					
5S			0					
40S			Р					
80S			Q					
Other			x					
BODY / ELEMENT MATERIAL			~					
CS body-316/316L element				1				
				X				
Other				X	l			
PROCESS CONNECTION								
RF flange 150#					А			
RF flange 300#					В	1		
RF flange 600#					С			
RF flange 900#					D	1		
Other					Х			
INSTRUMENT CONNECTION						-		
2 in. RF flange 150# (2 in. a	nd up)					Α		
2 in. RF flange 300# (2 in. a						В		
2 in. RF flange 600# (2 in. a						Ċ		
3 in. RF flange 150# (3 in. a						D		
3 in. RF flange 300# (3 in. a						E		
3 in. RF flange 600# (3 in. a						F		
						г G		
3 in. RF flange 900# (3 in. a	na up)							
1/4 in. NPT (13 in. NPS)						н		
1/2 in. NPT (3 in. and up)						I		
1/2 in. socket weld						J		
Other						Х		
<u>BETA RATIO</u>								
0.4							4	
0.5							5	
0.6							6	
0.7							7	
0.8							8	
Other							Х	

	Continued from Previous Page							
		_						
INSTRUMENT VALVE								
1/4 in. Needle valve CS		А						
1/2 in. Needle valve CS		В						
1/4 in. Needle valve SS		С						
1/2 in. Needle valve SS		D						
1/2 in. Gate w/cross CS (steam)		E						
1/2 in. Gate w/cross SS (steam)		F						
Other		Х						
Not Required		Z						
<u>CALIBRATION</u>								
Factory Calibration			1					
Special Calibration*			2					
Not Required			Z	l				
TRANSMITTER MOUNTING								
None				Z				
Remote Mount				1				
Mounting Bracket				2				
Three Valve Manifold				3				
Five Valve Manifold				4				
Other				Х	l			
CERTIFICATIONS					_			
None					Z			
Tracable Material Certificatio	ns				1			
NACE MR0-103					2			
NACE MR0-175					3			
Items 1 and 2					4			
Items 1 and 3					5			
Other					Х			
STANDARD NDE TESTING						7		
None		man Oth	ore CI	-\		Z		
Hydrostatic Test Only (1/21		ingeOth	iers Cr	-)		1 2		
5% Radiography of Butt Weld								
100% Radiography of Butt We						3		
5% Magnetic particle/dye per						4 5		
100% magnetic particle/dye p	Denetrant							
Items 2 and 4 Items 3 and 4						6 7		
Items 3 and 5						8 X		
Other Note: Items 2-8 also include	hydrostatic testing					^		
	nyurostatic testing						J	
<u>Other NDE Testing</u> None							Z	
100% visual inspection with r	enort						1	
PMI (stainless steel only)	-port						2	
Post-Weld Hardness testing (Carbon Steel Only)						2	
Items 1 and 2	Sarbon Steer Only						2	
Other							X	
Hardcoating							Λ	1
None								7
Tungsten Carbide (WC) on we	døe							1
								2
	nter 1/3 of motor							
Tungsten Carbide (WC) on ce								
	vedge							3

Flanged – 304/304L

304/304L Body - 316/316L Element	PGF -			3				Continued Next Page
FLANGED		J			I			
PIPE SIZE								
1 in.		С						
1-1/4 in.		D						
1-1/2 in.		Е						
2 in.		F						
2-1/2 in.		G						
3 in.		н						
4 in.		I						
5 in.		J						
6 in.		K						
8 in.		L						
10 in.		М						
12 in.		Ν						
14 in.		0						
16 in.		P						
Other		X						
		~						
<u>PIPE SCHEDULE</u>								
Standard**			A					
10			В					
20			С					
30			D					
40			Е					
60			F					
80			G					
100			H					
120			J					
140			Κ					
160			L					
XH			М					
XXH			Ν					
5S			0					
40S			Ρ					
80S			Q					
Other			x					
BODY / ELEMENT MATERIAL			Λ					
304L/304L body - 316/316L element				3				
Other				x				
PROCESS CONNECTION				~	1			
RF flange 150#					А			
RF flange 300#					B			
RF flange 600#					C			
					_			
RF flange 900# Other					D			
Other					Х	T		
<u>INSTRUMENT CONNECTION</u> 2 in. RF flange 150# (2 in. and up)								
						A		
2 in. RF flange 300# (2 in. and up)						B		
2 in. RF flange 600# (2 in. and up)						С		
3 in. RF flange 150# (3 in. and up)						D		
3 in. RF flange 300# (3 in. and up)						E		
3 in. RF flange 600# (3 in. and up)						F		
3 in. RF flange 900# (3 in. and up)						G		
1/4 in. NPT (13 in. NPS)						Н		
1/2 in. NPT (3 in. and up)						I		
1/2 in. socket weld						J		
Other						Х		
BETA RATIO							-	
0.4							4	
0.5							5	
0.6							6	
0.7							7	
0.8							8	
Other							x	

Continued from							
Previous Page						·	
	l I						
INSTRUMENT VALVE							
1/4 in. Needle valve CS	A						
1/2 in. Needle valve CS	В						
1/4 in. Needle valve SS	č						
1/2 in. Needle valve SS	D						
1/2 in. Gate w/cross CS (steam)	E						
1/2 in. Gate w/cross SS (steam)	F						
Other	X						
Not Required	z						
CALIBRATION							
Factory Calibration		1					
Special Calibration*		2					
Not Required		Ζ					
TRANSMITTER MOUNTING			•				
None			0				
Remote Mount			1				
Mounting Bracket			2				
Three Valve Manifold			3				
Five Valve Manifold			4				
Other			Х				
CERTIFICATIONS				_			
None				0			
Tracable Material Certifications				1			
NACE MR0-103				2			
NACE MR0-175				3			
Items 1 and 2				4			
Items 1 and 3				5			
Other				Х			
STANDARD NDE TESTING					0		
None					0		
Hydrostatic Test Only					1 2		
5% Radiography of Butt Welds							
100% Radiography of Butt Welds					3 4		
5% Magnetic particle/dye penetrant							
100% magnetic particle/dye penetrant Items 2 and 4					5 6		
Items 3 and 4					0 7		
					8		
Items 3 and 5 Other					× X		
Note: Items 2-8 also include hydrosta	tic tost	ina			~		
Other NDE Testing	tic test	ыıя				l	
None						0	
100% visual inspection with report						1	
PMI (stainless steel only)						2	
Post-Weld Hardness testing (Carbon St	teel On	lv)				2	
Items 1 and 2		• • • •				3	
Other						X	
Note on Item 1: 100% visual inspection	n occur	s on a	all pro	duct		~	
This is a request for the report.		5 511 0					
Hardcoating							•
None							0
Tungsten Carbide (WC) on wedge							1
Tungsten Carbide (WC) on center 1/3 d	of mete	er					2
Chromium Carbode (CrC) on wedge							3
Chromium Carbode (CrC) on center 1/3	3 of me	eter					4
Other	_						X

*Standard calibration is performed at Badger Meter with five data points (0.5 percent accuracy) ** Pipe schedule "Standard" is schedule 40 up to 10" and 3.75" wall at 12" and larger.

Wafer Mount

	V310L Eler	nent	PGW -							Next Page
16/316L Body - 316 /AFER MOUNT						. <u> </u>	1			Next Page
PIPE SIZE				_						
1 in.	С	150#	1	С	1					
1 in.	c	300#		c	2					
1 in.	c	600#		c	3					
1 in.	c	900/1500#		c	4					
					4 1					
1-1/4 in.	D	150#		D						
1-1/4 in.	D	300#		D	2					
1-1/4 in.	D	600#		D	3					
1-1/4 in.	D	900/1500#		D	4					
1-1/2 in.	E	150#		E	1					
1-1/2 in.	Е	300#		E	2					
1-1/2 in.	E	600#		E	3					
1-1/2 in.	E	900/1500#		E	4					
2 in.	F	150#		F	1					
2 in.	F	300#		F	2					
2 in.	F	600#		F	3					
2 in.	F	900/1500#		F	4					
2-1/2 in.	G	150#		G	1					
2-1/2 in.	G	300#		G	2					
2-1/2 in.	G	600#		G	3					
2-1/2 in.	G	900/1500#		G	4					
3 in.	н	150#		н	1					
3 in.	н	300#		н	2					
3 in.	н	600#		н	3					
3 in.	н	900#		н	4					
3 in.	н	1500#		н	5					
4 in.	1	150#		1	1					
4 in.	i	300#		i	2					
4 in.	i	600#		i	3					
4 in.	i	900#		i	4					
4 in.	i	1500#		i	5					
Other	<u> </u>	10001		x	x					
SCHEDULE				Λ	~	1				
Standard**						А				
10						В				
20						C				
30						D				
40						E				
120						J				
160						L				
XH										
XH XXH						M				
5S						N O				
40S 80S						P				
						Q				
Other	T 1/ / T					Х	l			
BODY / ELEMEN							4			
CS body-316/3							1			
316/316L body							2			
304L/304L bo	dy - 316/3 <i>°</i>	16L element					3			
Other							Х	l		
NSTRUMENT CO								. /		
1/4 in. NPT (1								Н		
1/2 in. NPT (3)						I		
1/2 in. socket	weld							J		
Other								Х		
<u>BETA RATIO</u>										
0.4									4	
0.5									5	
0.6									6	
0.7									7	
0.8									8	
									Х	

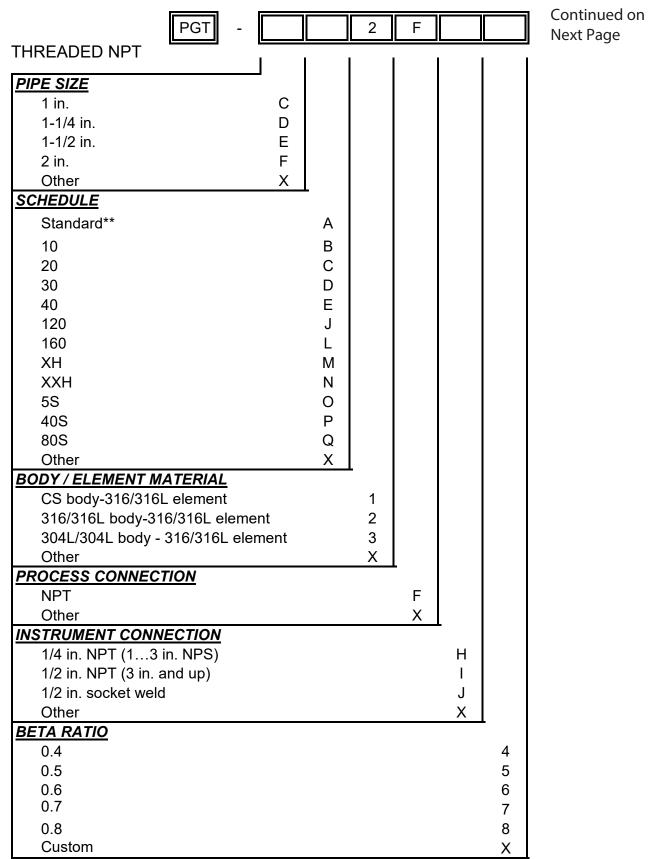
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	1	1	1
INSTRUMENT VALVE			
1/4 in. Needle valve CS A 1/2 in. Needle valve CS B			
1/4 in. Needle valve CS C			
1/2 in. Needle valve SS D			
1/2 in. Gate w/cross CS (steam) E			
1/2 in. Gate w/cross SS (steam) F			
Other X			
Not Required Z			
CALIBRATION			
Factory Calibration 1			
Special Calibration* 2			
Not Required Z			
TRANSMITTER MOUNTING			
None Z			
Remote Mount 1			
Mounting Bracket 2 Three Valve Manifold 3			
Five Valve Manifold 4 Other X			
CERTIFICATIONS			
None Z			
Tracable Material Certifications			
NACE MR0-103 2			
NACE MR0-175 3			
Items 1 and 2 4			
Items 1 and 3 5			
Other X			
STANDARD NDE TESTING	-		
None	Z		
Hydrostatic Test Only	1		
5% Radiography of Butt Welds	2		
100% Radiography of Butt Welds	3		
5% Magnetic particle/dye penetrant	4		
100% magnetic particle/dye penetrant	5		
Items 2 and 4 Items 3 and 4	6		
Items 3 and 4	7 8		
Other	o X		
Note: Items 2-8 also include hydrostatic testing	^		
Other NDE Testing		1	
None		Z	
100% visual inspection with report		1	
PMI (stainless steel only)		2	
Post-Weld Hardness testing (Carbon Steel Only)		2	
Items 1 and 2		3	
Other		Х	
Hardcoating			-
None			Ζ
Tungsten Carbide (WC) on wedge			1
Tungsten Carbide (WC) on center 1/3 of meter			2
Chromium Carbode (CrC) on wedge			3
Chromium Carbode (CrC) on center 1/3 of meter			4
Other			Х

Socket Weld Mount

PIPE SIZE 1 in. C 1-1/4 in. D 1-1/2 in. E 2 in. F Other X SCHEDULE A Standard** A 10 B 20 C 30 D 40 E 120 J 160 L XH M XSS O 40S P 80S Q Other X BODY / ELEMENT MATERIAL 1 CS body-316/316L element 1 304L304L body-316/316L element 2 304L304L body-316/316L element 3 Other X PROCESS CONNECTION K Socket Weld G Other X I/2 in. NPT (3 in. and up) 1 1/2 in. socket weld J Other X BETA RATIO X 0.4 4 0.5 5 0.6	SOCKET WELD MOUNT			2	G			Continued on Next Page
1 in. C 1-1/4 in. D 1-1/2 in. E 2 in. F Other X SCHEDULE Standard** Standard** A 10 B 20 C 30 D 40 E 120 J 160 L XH M XXH N 5S O 403 P 800S Q Other X BODY / ELEMENT MATERIAL 1 CS body-316/316L element 1 316/316L body-316/316L element 2 304L/304L body-316/316L element 3 Other X PROCESS CONNECTION K Socket Weld G Other X I/1/in.NPT (13 in. NPS) H 1/2 in. socket weld J Other X BETA RATIO X 0.4 4 0.5 5		·	1		1	1		Hextruge
1 in. C 1-1/4 in. D 1-1/2 in. E 2 in. F Other X SCHEDULE Standard** Standard** A 10 B 20 C 30 D 40 E 120 J 160 L XH M XXH N 5S O 403 P 800S Q Other X BODY / ELEMENT MATERIAL 1 CS body-316/316L element 1 316/316L body-316/316L element 2 304L/304L body-316/316L element 3 Other X PROCESS CONNECTION K Socket Weld G Other X I/1/in.NPT (13 in. NPS) H 1/2 in. socket weld J Other X BETA RATIO X 0.4 4 0.5 5								
1-1/4 in. D 1-1/2 in. E 2 in. F Other X SCHEDULE X Standard** A 10 B 20 C 30 D 40 E 120 J 160 L XH M XXH N 5S O 40S P 80S Q Other X BODY / ELEMENT MATERIAL C CS body-316/316L element 1 316/316L body-316/316L element 2 304L/304L body - 316/316L element 3 Other X PROCESS CONNECTION H Socket Weld G Other X I/2 in. NPT (3 in. and up) I 1/2 in. socket weld J Other X BETA RATIO 4 0.4 6 0.7 7 0.8 8		C						
1-1/2 in. E 2 in. F Other X ScHEDULE Standard** Standard** A 10 B 20 C 30 C 40 E 120 J 160 L XH M XXH N 5S O 40S P 80S Q Other X BODY/ELEMENT MATERIAL C CS body-316/316L element 1 316/316L body-316/316L element 2 304L/304L body-316/316L element 3 Other X PROCESS CONNECTION G Other X INSTRUMENT CONNECTION H 1/2 in. NPT (3 in. and up) I 1/2 in. NPT (3 in. and up) I 1/2 in. socket weld J 0.4 4 0.5 5 0.6 6 0.7 7 0.8 8								
2 in. F Other X SCHEDULE								
Other X SCHEDULE								
SCHEDULE Standard** A 10 B 20 C 30 D 40 E 120 J 160 L XH M XXH N 5S O 40S P 80S Q Other X BODY/ELEMENT MATERIAL 1 CS body-316/316L element 1 316/316L body-316/316L element 2 304L/304L body - 316/316L element 3 Other X PROCESS CONNECTION G Socket Weld G Other X INSTRUMENT CONNECTION I 1/2 in. NPT (13 in. NPS) H 1/2 in. socket weld J Other X BETA RATIO J 0.4 4 0.5 6 0.7 7 0.8 8								
Standard** A 10 B 20 C 30 D 40 E 120 J 160 L XH M XH M XXH N 5S O 40S P 80S Q Other X BODY/ELEMENT MATERIAL CS body-316/316L element CS body-316/316L element 1 316/316L body-316/316L element 2 304L/304L body - 316/316L element 3 Other X PROCESS CONNECTION H Socket Weld G Other X I/X in. NPT (13 in. NPS) H 1/2 in. socket weld J Other X BETA RATIO J 0.4 4 0.5 5 0.6 6 0.7 7 0.8 8		Λ	J					
20 C			А					
20 C	10		В					
30 D 40 E 120 J 160 L XH M XXH N 5S O 40S P 80S Q Other X BODY / ELEMENT MATERIAL 1 CS body-316/316L element 1 316/316L body-316/316L element 2 304L/304L body - 316/316L element 3 Other X PROCESS CONNECTION G Socket Weld G Other X I/4 in. NPT (13 in. NPS) H 1/2 in. socket weld J Other X BETA RATIO J 0.4 4 0.5 5 0.6 6 0.7 7 0.8 8								
120 J 160 L XH M XXH N SS O 40S P 80S Q Other X BODY / ELEMENT MATERIAL 1 CS body-316/316L element 1 316/316L body-316/316L element 2 304L/304L body-316/316L element 3 Other X PROCESS CONNECTION K Socket Weld G Other X INSTRUMENT CONNECTION H 1/2 in. NPT (3 in. and up) I 1/2 in. socket weld J Other X BETA RATIO 4 0.4 4 0.5 5 0.6 6 0.7 7 0.8 8								
160 L XH M XXH N SS O 40S P 80S Q Other X BODY / ELEMENT MATERIAL 1 CS body-316/316L element 1 316/316L body-316/316L element 2 304L/304L body - 316/316L element 3 Other X PROCESS CONNECTION G Socket Weld G Other X INSTRUMENT CONNECTION H 1/2 in. NPT (13 in. NPS) H 1/2 in. socket weld J Other X BETA RATIO 4 0.5 5 0.6 6 0.7 7 0.8 8			Е					
XH M M XXH N N 5S O 40S P 80S Q Other X BODY / ELEMENT MATERIAL I CS body-316/316L element 1 316/316L body-316/316L element 2 304L/304L body - 316/316L element 3 Other X PROCESS CONNECTION G Socket Weld G Other X INSTRUMENT CONNECTION H 1/4 in. NPT (13 in. NPS) H 1/2 in. socket weld J Other X BETA RATIO J 0.4 4 0.5 5 0.6 6 0.7 7 0.8 8	120		J					
XXH N N 5S O P 40S P Image: Constraint of the system of the syste	160		L					
5S O P 40S P 80S Q Other X BODY/ELEMENT MATERIAL 1 CS body-316/316L element 1 316/316L body-316/316L element 2 304L/304L body - 316/316L element 3 Other X PROCESS CONNECTION G Socket Weld G Other X INSTRUMENT CONNECTION H 1/2 in. NPT (13 in. NPS) H 1/2 in. socket weld J Other X BETA RATIO 4 0.4 4 0.5 5 0.6 6 0.7 7 0.8 8	ХН		Μ					
40S P 80S Q Other X BODY / ELEMENT MATERIAL 1 CS body-316/316L element 1 316/316L body-316/316L element 2 304L/304L body - 316/316L element 3 Other X PROCESS CONNECTION G Socket Weld G Other X INSTRUMENT CONNECTION H 1/2 in. NPT (13 in. NPS) H 1/2 in. socket weld J Other X BETA RATIO 4 0.4 4 0.5 5 0.6 6 0.7 7 0.8 8	ХХН		Ν					
80S Q Other X BODY / ELEMENT MATERIAL 1 CS body-316/316L element 1 316/316L body - 316/316L element 2 304L/304L body - 316/316L element 3 Other X PROCESS CONNECTION G Socket Weld G Other X INSTRUMENT CONNECTION H 1/2 in. NPT (13 in. NPS) H 1/2 in. socket weld J Other X BETA RATIO 4 0.5 5 0.6 6 0.7 7 0.8 8	5S		0					
Other X BODY / ELEMENT MATERIAL CS body-316/316L element 1 316/316L body-316/316L element 2 304L/304L body - 316/316L element 3 Other X PROCESS CONNECTION Socket Weld G Other X INSTRUMENT CONNECTION 1/4 in. NPT (13 in. NPS) H 1/2 in. Socket weld J Other X BETA RATIO 4 0.4 4 0.5 5 0.6 6 0.7 7 0.8 8	40S		Р					
BODY / ELEMENT MATERIAL 1 CS body-316/316L element 1 316/316L body-316/316L element 2 304L/304L body - 316/316L element 3 Other X PROCESS CONNECTION G Socket Weld G Other X INSTRUMENT CONNECTION H 1/2 in. NPT (13 in. NPS) H 1/2 in. socket weld J Other X BETA RATIO 4 0.5 6 0.7 7 0.8 8	80S		Q					
CS body-316/316L element 1 316/316L body-316/316L element 2 304L/304L body - 316/316L element 3 Other X PROCESS CONNECTION G Socket Weld G Other X INSTRUMENT CONNECTION H 1/4 in. NPT (13 in. NPS) H 1/2 in. NPT (3 in. and up) I 1/2 in. socket weld J Other X BETA RATIO 4 0.5 5 0.6 6 0.7 7 0.8 8	Other		Х					
316/316L body-316/316L element 2 304L/304L body - 316/316L element 3 Other X PROCESS CONNECTION G Socket Weld G Other X INSTRUMENT CONNECTION H 1/4 in. NPT (13 in. NPS) H 1/2 in. NPT (3 in. and up) I 1/2 in. socket weld J Other X BETA RATIO 4 0.4 4 0.5 5 0.6 6 0.7 7 0.8 8	BODY / ELEMENT MATERIAL							
304L/304L body - 316/316L element 3 Other X PROCESS CONNECTION G Socket Weld G Other X INSTRUMENT CONNECTION H 1/4 in. NPT (13 in. NPS) H 1/2 in. NPT (3 in. and up) I 1/2 in. socket weld J Other X BETA RATIO 4 0.4 4 0.5 5 0.6 6 0.7 7 0.8 8	CS body-316/316L element			1				
OtherXPROCESS CONNECTION Socket WeldGSocket WeldGOtherXINSTRUMENT CONNECTION 1/4 in. NPT (13 in. NPS)H1/2 in. NPT (3 in. and up)I1/2 in. NPT (3 in. and up)I1/2 in. socket weldJOtherXBETA RATIO40.440.550.660.770.88	316/316L body-316/316L element			2				
PROCESS CONNECTION Socket Weld G Other X INSTRUMENT CONNECTION H 1/4 in. NPT (13 in. NPS) H 1/2 in. NPT (3 in. and up) I 1/2 in. socket weld J Other X BETA RATIO 4 0.4 4 0.5 5 0.6 6 0.7 7 0.8 8	304L/304L body - 316/316L element			3				
Socket Weld G Other X INSTRUMENT CONNECTION H 1/4 in. NPT (13 in. NPS) H 1/2 in. NPT (3 in. and up) I 1/2 in. socket weld J Other X BETA RATIO 4 0.4 4 0.5 5 0.6 6 0.7 7 0.8 8	Other			Х				
Other X INSTRUMENT CONNECTION H 1/4 in. NPT (13 in. NPS) H 1/2 in. NPT (3 in. and up) I 1/2 in. socket weld J Other X BETA RATIO 4 0.4 4 0.5 5 0.6 6 0.7 7 0.8 8	PROCESS CONNECTION				_			
INSTRUMENT CONNECTION 1/4 in. NPT (13 in. NPS) H 1/2 in. NPT (3 in. and up) I 1/2 in. socket weld J Other X BETA RATIO 4 0.4 4 0.5 5 0.6 6 0.7 7 0.8 8	Socket Weld				G			
1/4 in. NPT (13 in. NPS) H 1/2 in. NPT (3 in. and up) I 1/2 in. socket weld J Other X BETA RATIO 4 0.4 4 0.5 5 0.6 6 0.7 7 0.8 8	Other				Х			
1/2 in. NPT (3 in. and up) I 1/2 in. socket weld J Other X BETA RATIO 4 0.4 4 0.5 5 0.6 6 0.7 7 0.8 8	INSTRUMENT CONNECTION							
1/2 in. socket weld J Other X BETA RATIO 4 0.4 4 0.5 5 0.6 6 0.7 7 0.8 8	1/4 in. NPT (1…3 in. NPS)					Н		
1/2 in. socket weld J Other X BETA RATIO 4 0.4 4 0.5 5 0.6 6 0.7 7 0.8 8	1/2 in. NPT (3 in. and up)					I		
BETA RATIO 0.4 4 0.5 5 0.6 6 0.7 7 0.8 8						J		
0.4 4 0.5 5 0.6 6 0.7 7 0.8 8	Other					Х		
0.4 4 0.5 5 0.6 6 0.7 7 0.8 8	BETA RATIO						•	
0.6 0.7 0.8 6 7 8							4	
0.7 7 0.8 8	0.5						5	
0.7 7 0.8 8	0.6						6	
	0.8						8	
							X	

Continued from Previous Page			
		· <u> </u>	
INSTRUMENT VALVE 1/4 in. Needle valve CS A 1/4 in. Needle valve SS C Other X Not Required Z			
CALIBRATION Factory Calibration 1 Special Calibration* 2 Not Required Z TRANSMITTER MOUNTING			
NoneZRemote Mount1Mounting Bracket2Three Valve Manifold3Five Valve Manifold4OtherX			
CERTIFICATIONSNoneZTracable Material Certifications1NACE MR0-1032NACE MR0-1753Items 1 and 24Items 1 and 35OtherX			
STANDARD NDE TESTING None Hydrostatic Test Only 5% Radiography of Butt Welds 100% Radiography of Butt Welds 5% Magnetic particle/dye penetrant 100% magnetic particle/dye penetrant Items 2 and 4 Items 3 and 4 Items 3 and 5 Other Note: Items 2-8 also include hydrostatic testing	Z 1 2 3 4 5 6 7 8 X		
Other NDE TestingNone100% visual inspection with reportPMI (stainless steel only)Post-Weld Hardness testing (Carbon Steel Only)Items 1 and 2Other		Z 1 2 3 X	
Hardcoating None Tungsten Carbide (WC) on wedge Tungsten Carbide (WC) on center 1/3 of meter Chromium Carbode (CrC) on wedge Chromium Carbode (CrC) on center 1/3 of meter Other			Z 1 2 3 4 X

Threaded NPT



Continued from		1		
Previous Page				
	I.	1	I .	
INSTRUMENT VALVE				
1/4 in. Needle valve CS A				
1/4 in. Needle valve CS C				
Other X				
Not Required Z CALIBRATION				
Factory Calibration 1				
-				
TRANSMITTER MOUNTING None Z				
Remote Mount 1				
Mounting Bracket 2 Three Value Manifold		1		
Three Valve Manifold 3		1		
Five Valve Manifold 4		1		
Other X				
CERTIFICATIONS	_			
None	Z			
Tracable Material Certifications	1			
NACE MR0-103	2			
NACE MR0-175	3			
Items 1 and 2	4			
Items 1 and 3	5			
Other	Х			
STANDARD NDE TESTING				
None		Z		
Hydrostatic Test Only		1		
5% Radiography of Butt Welds		2		
100% Radiography of Butt Welds		3		
5% Magnetic particle/dye penetrant		4		
100% magnetic particle/dye penetrant		5		
Items 2 and 4		6		
Items 3 and 4		7		
Items 3 and 5		8		
Other		Х		
Note: Items 2-8 also include hydrostatic testi	ng			
Other NDE Testing			•	
None			Ζ	
100% visual inspection with report			1	
PMI (stainless steel only)			2	
Post-Weld Hardness testing (Carbon Steel Only	y)		2	
Items 1 and 2			3	
Other			X	
Hardcoating				
None				Ζ
Tungsten Carbide (WC) on wedge				1
Tungsten Carbide (WC) on center 1/3 of meter	-			2
Chromium Carbode (CrC) on wedge				3
Chromium Carbode (CrC) on center 1/3 of met	ter			4
Other				X
				~

Butt Weld

	PGB	-		2	E			Continued or
BUTT WELD MOUNT						1	1	Next Page
PIPE SIZE								
<u>1 in.</u>		С						
1-1/4 in.		D						
1-1/2 in.		E						
2 in.		F						
2-1/2 in.		G						
3 in.		н						
4 in. 5 in.		l J						
5 m. 6 in.		K						
8 in.		L						
10 in.		M						
12 in.		Ν						
14 in.		0						
16 in.		Р						
Other		Х						
PIPE SCHEDULE Standard**			^					
10			A B					
20			C					
30			D					
40			E					
60			F					
80			G					
100			Н					
120			J					
140			K					
160 XH			L M					
XXH			N					
58			0					
40S			P					
80S			Q					
Other			Х					
BODY / ELEMENT MATE								
CS body-316/316L ele				1				
316/316L body-316/31 304L/304L body - 316	16L element /316L elemen	t		2				
Other				3 X				
PROCESS CONNECTION	N			Λ	1			
Butt Weld	-				Е			
Other					Х			
INSTRUMENT CONNECT						-		
2 in. RF flange 150# (2						А		
2 in. RF flange 300# (2						В		
2 in. RF flange 600# (2						С		
3 in. RF flange 150# (3 3 in. RF flange 300# (3	3 in. and up)					D E		
3 in. RF flange 600# (F		
3 in. RF flange 900# (G		
1/4 in. NPT (13 in. N						Ĥ		
1/2 in. NPT (3 in. and						I		
1/2 in. socket weld						J		
Other						Х		
<u>BETA RATIO</u>								
0.4 0.5							4	
0.6							5 6	
							ю 7	
07							1	I
0.7 0.8							8	

	Continued from	י דייין		·				·
	Previous Page							
	5	i i					1	1
1/2 in. Gate w. Other Not Required CALIBRATION Factory Calibra Special Calibra Not Required TRANSMITTER M None Remote Mou Mounting Br Three Valve M Other CERTIFICATION None	ALVE valve CS valve CS valve SS valve SS /cross CS (steam) /cross SS (steam) /cross	A B C D E F X Z	1 2 Z	Z 1 2 3 4 X	Z 1 2 3 4 5 X			
100% Radiog 5% Magnetic 100% magnet Items 2 and 4 Items 3 and 4 Items 3 and 5 Other Note: Items <i>Other NDE Testin</i> None 100% visual i PMI (stainles Post-Weld H	Test Only phy of Butt Welds graphy of Butt Welds particle/dye pene etic particle/dye pene tic particle/dye pene 4 4 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5	etrant enetrant aydrostat port		-		Z 1 2 3 4 5 6 7 8 X	Z 1 2 2	
Items 1 and 2 Other	2						3 X	
Hardcoating								1
None Tungsten Ca Tungsten Ca Chromium C	rbide (WC) on wec rbide (WC) on cent arbode (CrC) on w arbode (CrC) on ce	ter 1/3 o edge						Z 1 2 3 4 X

Control. Manage. Optimize.

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