MEC/KMEC

8" Flow Element 1IP-FE3002 (IP Steam Outlet - Venturi)

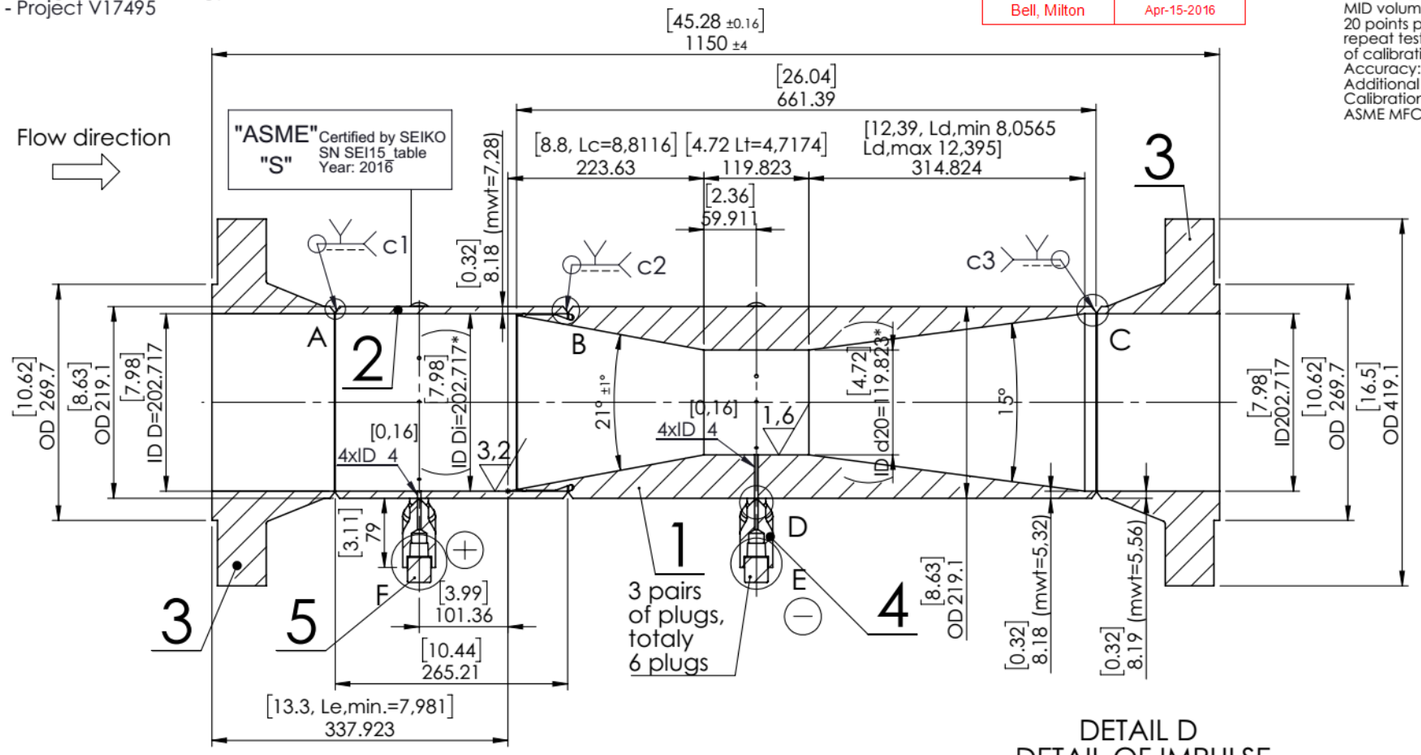
Middletown Energy Center CCPP 475MW
- Project V17494
& Kings Moutain Energy Center
- Project V17495

VOGT POWER INTERNATIONAL	
Released, Work May Proceed	
Bell, Milton	Apr-15-2016

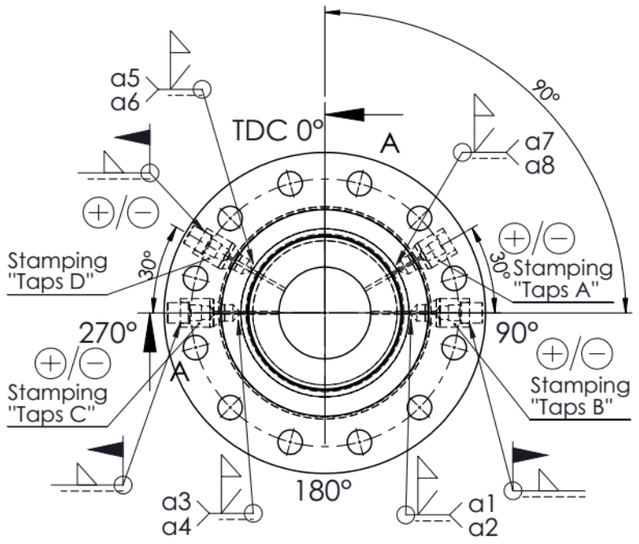
Calibration-VCS

ReD: 3,4 E6
MID volumetric procedure /
20 points per tap set, including repeat test points at 25%, 50%, and 75% of calibration range.
Accuracy: ±1/4%
Additional uncertainties: 0,50%
Calibration code:
ASME MFC - 3M - 2004 addendum

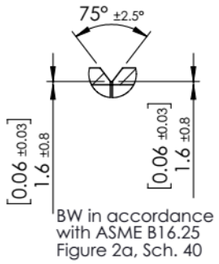
A-A
1 : 7



Ansicht in Durchflussrichtung!
View in flow-direction!

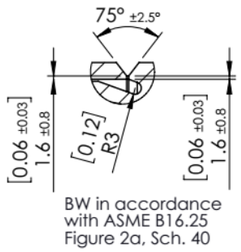


DETAIL A
- BW ENDING OF PIPE
1 : 3



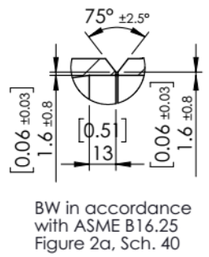
BW in accordance with ASME B16.25 Figure 2a, Sch. 40

DETAIL B
- BW ENDING
1 : 3



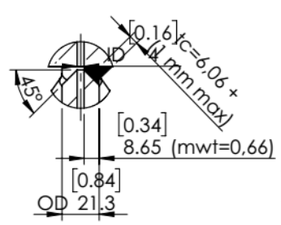
BW in accordance with ASME B16.25 Figure 2a, Sch. 40

DETAIL C
- BW ENDING
1 : 3

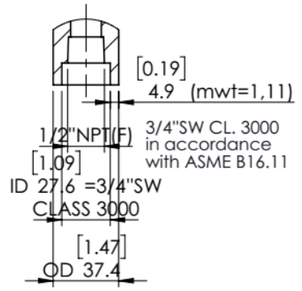


BW in accordance with ASME B16.25 Figure 2a, Sch. 40

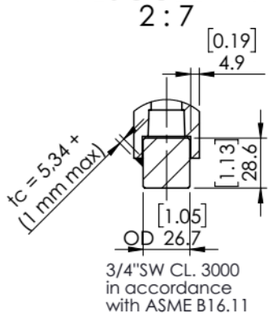
DETAIL D
- DETAIL OF IMPULSE CONNECTION
2 : 7



DETAIL F
- TAP DETAIL
2 : 7



DETAIL E
- PLUGGED TAP
2 : 7



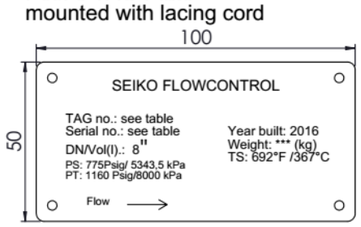
3/4"SW CL. 3000
in accordance
with ASME B16.11

No SILICA used on pressure parts.

Untolerierte Maße nach/ Untolarate Dimensions acc. DIN 7168-mittel		
bis/to	6	±0,1
über/over bis/to	6 30	±0,2
über/over bis/to	30 100	±0,3
über/over bis/to	100 300	±0,5
über/over bis/to	300 1000	±0,8
über/over bis/to	1000 2000	±1,2

Untolerierte Maße nach/ Untolarate Dimensions acc. EN ISO 13920- class/Klasse B		
über/over bis/to	2 30	±1
über/over bis/to	30 120	±2
über/over bis/to	120 400	±2
über/over bis/to	400 1000	±3
über/over bis/to	1000 2000	±4
über/over bis/to	2000 4000	±6
über/over bis/to	4000 8000	±8
über/over bis/to	8000 12000	±10
über/over bis/to	12000 16000	±12
über/over bis/to	16000 20000	±14
über/over	20000	±16

Pos. 6 TAG-Plate
mounted with lacing cord



*Note: Dimosin will be changed

ASME MFC - 3M 2004 addendum						
Target	202.717	mm	±	0.811	mm	
ØD:	7.981	in	±	0.032	in	
Target	119.823	mm	±	0.120	mm	
Ød:	4.717	in	±	0.0047	in	

VOGT POWER INTERNATIONAL
V17494-CIXD-6003-02
08-Apr-2016

Pos. Part	Benennung/Denomination Abmessung/Dimension	MA/ pcs	Werkst. Nr./ Material	Zeugnis/ EN10204 certificate	Norm / Standard	Schmelze Nr. / Charge
6	TAG Plate 100x50x1,5 [3,94x1,97x0,06]	1	SS			
5	Plug OD 26,7x28,6 [OD1,05x1,13 in]	6	SA-105	3.1		
4	Pressure tap OD37,4x80 [OD1,47x3,15in]	8	SA-105	3.1		
3	WN Flange 8"600# RF ASME B16.5-2009, Sch. 40 (remachined WN 600 RF 8" sch. XS)	2	SA-105N	3.1		
2	Upstreampipe OD219,1x8,18x211,5 [OD8,63x0,32x8,33in]	1	SA-106 Gr. B	3.1		
1	Throat OD219,1x661,4 [OD8,63x26,04in]	1	SA-105	3.1		

Construction Code: ASME Section I, Ed. 2013 Clasification: BEP Supporting Code: ASME B31.1 Edition 2012	max. misalignment acc. Fig. 127.3 max. 2 mm / 0,079 in max. thickness of reinforcement acc. Table 127.4. 4 mm / 0,158 in
Stamping: "S" acc. ASME Sect. I	
appl. Code cases: None	
Medium: Superheated steam	
PWHT: NO	
Baujahr/Year built: 2016	
Gew./Weight: (kg) ~461 lb / 209 kg	
Abmessungen./Dimensions: (mm) L: 1150 mm 45,28 in W: 419,1 mm 16,5 in H: 419,1mm 16,5 in	
PS (max. Pressure): 775Psig/5343,5kPa/53,4 bar(g)	
TS (max. Temp.): 692°F / 367 °C	
PT (Testpressure): 1160Psig/ 8000kPa/ 80 bar(g)	
Isolierstärke/ Insulation thickness --- mm	
Corrosion allowance: 0 mm	

Index rev.	Änderungshinweis / Details of revision	Datum Date	Name
B	Implementation of customer comments. Modification of design.	04.02.16	LB
A	Initial release	22.12.15	LB

Inspector:	SEIKO/IA
Einbaulage/mounting pos.:	horizontal
Druckentnahmestutzen/taps:	4 pairs
Corrosion protection:	Remosil
Oberflächenbeh./Surface treatment:	SA2.5

KKS-Nr./TAG-No.:	Fabr. Nr./Serial No.:
1IP-FE3002	SEI15_2818

Kunde/Customer: Vogt Power International

Projekt/Project.:
V17494 - Middletown Energy Center & V17495 -Kings Moutain Energy Center

SEIKO FLOWCONTROL

PO: V0009647 Item#4 | HO: A16020088-150712

Benennung/Title: 8"/Sch.40 600 #
Venturi tube meterrun with four pairs of taps
Steam outlet flow element

Zeichnungs-Nr./Drawing-No.: Seiko: A16020088-150712/04

Type: HRKVRS_FL

Kunde: Vogt Power International (VPI) 1/2

EXCERPT FROM ASME-MFC-3M-2004, TABLE 4-1 REQUIRED STRAIGHT LENGTHS FOR CLASSICAL VENTURI TUBES														
BETA RATIO	Single 90° bend or tee (NOTE 1)		Several 90° bends, same plane (NOTE 1)		Several 90° bends, different planes (NOTE 1)		Reducer 3D to D over length of 3.5D		Expander 0.75D to D over length of D		Gate Valve Fully Open		Required outlet section	
1	2A	2B	3A	3B	4A	4B	5A	5B	6A	6B	7A	7B	8A	8B
0.591	80.107	24.032	80.107	24.032	80.107	24.032	68.091	20.027	28.038	20.027	36.048	20.027	18.870	18.870

GENERAL NOTES:
(a) Values are expressed in INCHES.
(b) Straight lengths shall be measured from the downstream end of the curved portion of the nearest (or only) bend or the downstream end of the curved or conical portion of the reducer or expander to the upstream pressure tapping plane of the classical Venturi tube.
(c) If temperature pockets or wells are installed upstream of the classical Venturi tube, they shall not exceed 0.13D in diameter and shall be located at least 4D upstream of the upstream tapping plane of the Venturi tube.
(d) For downstream straight lengths, fittings or other disturbances (as indicated in this Table) or densitometer pockets situated at least four throat diameters downstream of the throat pressure tapping plane do not affect the accuracy of the measurement.
(e) Column A for each fitting gives lengths corresponding to “zero additional uncertainty” values.
(f) Column B for each fitting gives lengths corresponding to “0.5% additional uncertainty” values.
ADDITIONAL NOTES:
(1) The radius of curvature of the bend shall be greater than or equal to the pipe diameter.
(2) The straight length in each Column A gives zero additional uncertainty, data are not available for shorter straight lengths that could be used to give the required straight lengths for each Column B.

Untolerierte Maße nach/ Untolarate Dimensions acc. DIN 7168-mittel	
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über/over 6 bis/to 30	±0,2
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über/over 100 bis/to 300	±0,5
über/over 300 bis/to 1000	±0,8
über/over 1000 bis/to 2000	±1,2
Untolerierte Maße nach/ Untolarate Dimensions acc. EN ISO 13920- class/Klasse B	
über/over 2 bis/to 30	±1
über/over 30 bis/to 120	±2
über/over 120 bis/to 400	±2
über/over 400 bis/to 1000	±3
über/over 1000 bis/to 2000	±4
über/over 2000 bis/to 4000	±6
über/over 4000 bis/to 8000	±8
über/over 8000 bis/to 12000	±10
über/over 12000 bis/to 16000	±12
über/over 16000 bis/to 20000	±14
über/over 20000	±16

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Clasification: BEP
Supporting Code: ASME B31.1 Edition 2012

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appl. Code cases:	None
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Isolierstärke/ Insulation thickness	--- mm
Corrosion allowance:	0 mm

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Corrosion protection:	Remosil
Oberflächenbeh./Surface treatment:	SA2.5

KKS-Nr./TAG-No.:	Fabr. Nr./Serial No.:
1IP-FE3002	SEI15_2818

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