

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

G-G
1 : 3

Calibration-VCS

20 points per tap set / incl. repeat test points
at 25%, 50% and 75% of calibrated range /
"MID" volumetric procedure / ReDmax: 0,5 E6
Accuracy: $\pm 1/4\%$
Additional uncertainties: min. 0,50%
Calibration code: ASME PTC-19.5-2004

VOGT POWER INTERNATIONAL

Released, Work May Proceed

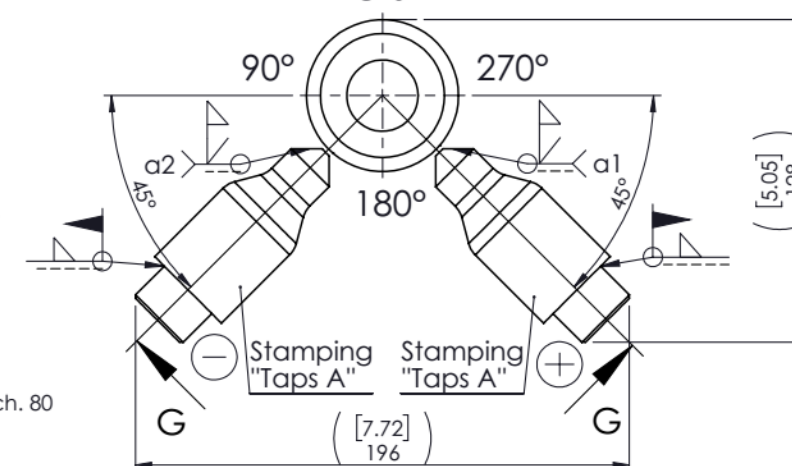
Bell, Milton

Apr-26-2016

Ansicht in Durchflussrichtung!
View in flow-direction!

SCALE 1 : 3

TDC 0°

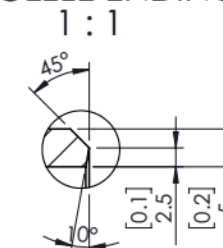


DETAIL A
1 : 2

Sharp edge for
SW connection

SW in accordance
with ASME B16.11, sch. 80

DETAIL E
- NOZZLE ENDING
1 : 1



DETAIL Y



MEC/KMEC
2" Flow Element 1HR-FE3001 (HP Attemp - Flow Nozzle)

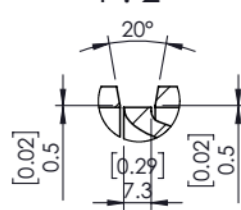
Untolerierte Maße nach/
Untolerate Dimensions acc.
DIN 7168-mittel

bis/to	6	$\pm 0,1$
über/over	6	$\pm 0,2$
bis/to	30	$\pm 0,3$
über/over	30	$\pm 0,5$
bis/to	100	$\pm 0,8$
über/over	100	$\pm 1,2$
bis/to	300	$\pm 1,2$
über/over	300	$\pm 1,2$

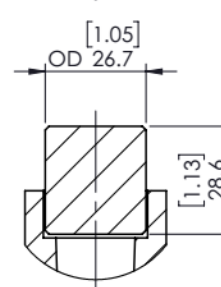
Untolerierte Maße nach/
Untolerate Dimensions acc.
EN ISO 13920- class/Klasse B

über/over	2	± 1
bis/to	30	± 2
über/over	30	± 2
bis/to	120	± 2
über/over	120	± 2
bis/to	400	± 3
über/over	400	± 3
bis/to	1000	± 4
über/over	1000	± 4
bis/to	2000	± 6
über/over	2000	± 6
bis/to	4000	± 8
über/over	4000	± 8
bis/to	8000	± 10
über/over	8000	± 10
bis/to	12000	± 12
über/over	12000	± 12
bis/to	16000	± 14
über/over	16000	± 14
bis/to	20000	± 16
über/over	20000	± 16

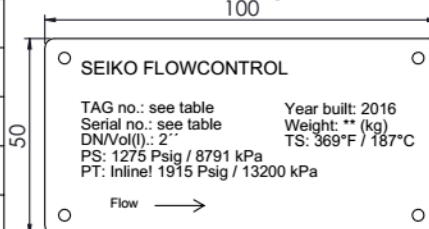
DETAIL B
- NOZZLE DETAIL
1 : 2



DETAIL C
- PLUGGED TAP
1 : 2



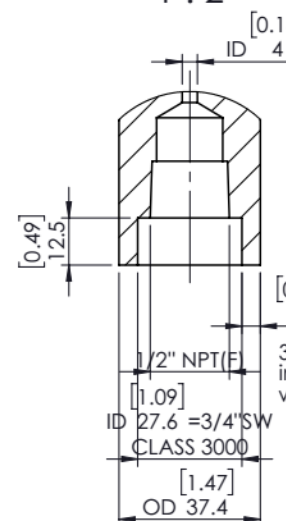
Pos. 6 TAG-Plate
mounted with lacing cord
100



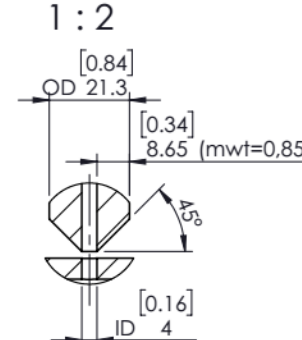
*dimension will be change

ASME PTC 19.5-2004				
Target	49.251	mm \pm	0.148	mm
ID Di:	1.939	in \pm	0.006	in
Target	28.347	mm \pm	0.014	mm
ID d20:	1.116	in \pm	0.0006	in

DETAIL D
- TAP DETAIL
1 : 2





DETAIL G
- DETAIL OF IMPULSE
CONNECTION
1 : 2



VOGT POWER INTERNATIONAL
V17494-CIXD-6008-03
12-Apr-2016

6	TAG plate 100 x 50 x min.1.5) [3,94x1,97xmin.0,06in]	1	SA-240 304	-		
5	Plug OD26,7x28,6 [OD1,05x1,13in]	2	SA-105	3.1		
4	Pressure tap OD37,4x80 [OD1,47x3,15in]	4	SA-105	3.1		
3	Downstream pipe OD60,3x5,54x191,7 [OD2,375x0,218x7,55in]	1	SA-106 Gr. B	3.1		
2	Upstream pipe OD60,3x5,54x299 [OD2,375x0,218x11,77in]	1	SA-106 Gr. B	3.1		
1	Nozzle OD49,3x42,1 [OD1,94x1,66in]	1	SA-105	3.1		
Pos. Part	Benennung/Denomination Abmessung/Dimension	MA/ pcs	Werkst. Nr./ Material	Zeugnis/ EN10204 certificate	Norm / Standard	Schmelze Nr. / Charge

max. misalignment acc. Fig. 127.3 max. 2mm
max. thickness of reinforcement acc. Table 127.4. 4mm



Construction Code: ASME Section I, Ed. 2013 Classification: NBEP Supporting Code: ASME B31.1 Edition 2014 + 2012		No SILICA used on pressure parts.			
Stamping:	N.A. (not required by customer)	C	Modification of diameter d20.	13.04.16	LB
NB Registration:	N.A. (not required by customer)	B	Implementation of customer comments	03.02.16	LB
appl. Code cases:	None	A	For release	17.12.15	LB
Medium:	water	Index rev.	Änderungshinweis / Details of revision	Datum Date	Name
PWHT:	NO	Revisions			
Baujahr/Year built:	2016	Inspector:		SEIKO	
Gew./Weight: (kg)	~10 lb / 4,5 kg	Einbaulage/mounting pos.:		horizontal	
Abmessungen./Dimensions: (mm) L: 500 mm W: 196 mm H: 128 mm 19,69 in 7,72 in 5,05 in		Druckentnahmestutzen/taps:		1 pair	
PS (max. Pressure): 1275Psig/ 8791kPa /88 bar(g)		Corrosion protection:		Remosi	
TS (max. Temp.): 369°F/ 187 °C		Oberflächenbeh./Surface treatment:		SA2.5	
PT (Testpressure):Inline!1915Psig/ 13200kPa/ 132bar(g)		KKS-Nr./TAG-No.:		Fabr. Nr./Serial No.:	
Isolierstärke/ Insulation thickness 0 mm		1HR-FE3001		SEI15_2823	
Corrosion allowance: 0 mm					
Kunde/Customer:		Benennung/Title: 2" Sch. 80			
 Projekt/Project.: V17494 - Middletown Energy Center & V17495 -Kings Mountain Energy Center		Flow device with lolg radius nozzle Cl. 3000			
		HR Attempator Spraywater Flow Element			
		Zeichnungs-Nr./Drawing-No.:		Type:	
		Seiko: A16020088-150712/09		HVLD	
PO: V0009647 Item #9		HO: A16020088-150712		Kunde: Vogt Power International (VPI)	
				1/2	

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A	EXCERPT FROM ASME PTC 19.5-2004, TABLE 7-1.2-1 REQUIRED STRAIGHT LENGTHS FOR ORIFICE PLATES AND NOZZLES																						A	
	BETA RATIO	Single 90° bend or tee		Several 90° bends, same plane		Several 90° bends, different planes		Reducer 2D to D over length of 1.5D to 3 D		Expander 0.5D to D over length of D to 2D		Globe Valve Fully Open		Gate Valve Fully Open		Abrupt diameter reduction		Thermometer-pocket, Ø ≤ 0,03 Di		Thermometer-pocket, Ø > 0,03 Di		Downstream (Outlet) section		
	1	2A	2B	3A	3B	4A	4B	5A	5B	6A	6B	7A	7B	8A	8B	9A	9B	10A	10B	11A	11B	12A		12B
	0.576	34.95	17.48	50.49	25.24	93.21	46.61	17.48	9.71	42.72	21.36	50.49	25.24	27.19	13.59	58.26	29.13	9.71	5.83	38.84	19.42	13.59		13.59
	GENERAL NOTES:																							
	(a) Values expressed are expressed in INCHES.																							
	(b) The pipe roughness shall not exceed that of a smooth, commercially available pipe approximately k/D < 10-3.																							
	(c) Column A for each fitting gives lengths corresponding to “zero additional uncertainty” values.																							
	(d) Column B for each fitting gives lengths corresponding to “0.5% additional uncertainty” values.																							
B																							B	
C																							C	
D																							D	
E																							E	
F																							F	

Untolerierte Maße nach/ Untolerate 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/ Untolerate 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 bis/to	20000	±16

Construction Code: ASME Section I, Ed. 2013 Clasification: NBEP Supporting Code: ASME B31.1 Edition 2014 + 2012					
Stamping:	N.A. (not required by customer)	C	Modification of diameter d20.	13.04.16	LB
NB Registration:	N.A. (not required by customer)	B	Implementation of customer comments	03.02.16	LB
appl. Code cases:	None	A	For release	17.12.15	LB
Medium:	water	Index rev.	Änderungshinweis / Details of revision	Datum Date	Name
PWHT:	NO	Revisions			
Baujahr/Year built:	2016	Inspector:		SEIKO	
Gew./Weight: (kg)	~10 lb / 4,5 kg	Einbaulage/mounting pos.:		horizontal	
Abmessungen./Dimensions: (mm) L: 500 mm W: 196 mm H: 128 mm 19,69 in 7,72 in 5,05 in		Druckentnahmestutzen/taps:		1 pair	
		Corrosion protection:		Remosil	
PS (max. Pressure): 1275Psig/ 8791kPa /88 bar(g)		Oberflächenbeh./Surface treatment: SA2,5			
TS (max. Temp.): 369°F/ 187 °C		KKS-Nr./TAG-No.:		Fabr. Nr./Serial No.:	
PT (Testpressure):Inline!1915Psig/ 13200kPa/ 132bar(g)		1HR-FE3001		SEI15_2823	
Isolierstärke/ Insulation thickness 0 mm					
Corrosion allowance: 0 mm					
Kunde/Customer:					
Projekt/Project.: V17494 - Middletown Energy Center & V17495 -Kings Moutain Energy Center		Benennung/Title: 2" Sch. 80 Flow device with Iolg radius nozzle Cl. 3000 HR Attemperator Spraywater Flow Element			
PO: V0009647 Item #9		HO: A16020088-150712		Kunde: Vogt Power International (VPI)	
				2/2	

1	2	3	4	5	6	7	8
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Untolerierte Maße nach/ Untolerate Dimensions acc. DIN 7168-mittel		
bis/to	6	±0,1
über/over	6	±0,2
bis/to	30	±0,2
über/over	30	±0,3
bis/to	100	±0,3
über/over	100	±0,5
bis/to	300	±0,5
über/over	300	±0,8
bis/to	1000	±0,8
über/over	1000	±1,2
bis/to	2000	±1,2
Untolerierte Maße nach/ Untolerate Dimensions acc. EN ISO 13920- class/Klasse B		
über/over	2	±1
bis/to	30	±1
über/over	30	±2
bis/to	120	±2
über/over	120	±2
bis/to	400	±2
über/over	400	±3
bis/to	1000	±3
über/over	1000	±4
bis/to	2000	±4
über/over	2000	±6
bis/to	4000	±6
über/over	4000	±8
bis/to	8000	±8
über/over	8000	±10
bis/to	12000	±10
über/over	12000	±12
bis/to	16000	±12
über/over	16000	±14
bis/to	20000	±14
über/over	20000	±16

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		Corrosion protection:		Remosil	
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TS (max. Temp.): 369°F/ 187 °C		KKS-Nr./TAG-No.:		Fabr. Nr./Serial No.:	
PT (Testpressure):!Inline!1915Psig/ 13200kPa/ 132bar(g)		1 HR-FE3001		SEI15_2823	
Isolierstärke/ Insulation thickness 0 mm					
Corrosion allowance: 0 mm					
Kunde/Customer:	 	Benennung/Title: 2" Sch. 80 Flow device with 10lg radius nozzle Cl. 3000 HR Attenuator Spraywater Flow Element			
Projekt/Project.: V17494 - Middletown Energy Center & V17495 -Kings Mountain Energy Center		Zeichnungs-Nr./Drawing-No.:		Type:	
		Seiko: A16020088-150712/09		HVLD	
PO: V0009647 Item #9	HO: A16020088-150712	Kunde: Vogt Power International (VPI)		2/2	