



# Sliding Stem Valve Specification

Customer: <b>UOP RUSSELL LLC</b>	Vinson Process Controls	
Contact: <b>JAKE GASKINS</b>	Contact: <b>Ron Berte</b>	
Customer Reference: <b>JOB 488 SC6 RSV PLANT</b>	Sales Office Reference:	Lead Time: <b>10 WKS</b>
Item: <b>9</b>	Rev:                      Qty: <b>1</b>	Quote: <b>027D-RCB-171013-0211425</b>
Tags: <b>FCV-101</b>	Date Last Modified: <b>10/13/2017</b>	Rev: <b>A</b>
Description: <b>NPS 3 ET 657 Size 45i DVC6200 TopWorx Switches Factory Mtgs DVC6200/DVC2000</b>		
Price Each:	Total Price:	
Service Description:		

Service: Size and Type: <b>NPS 3 ET</b> Body Style: <b>Globe</b> Design Temp: <b>250 deg F</b> Design Press: <b>500 psig</b> End Connect/In/Out: <b>CL300/RF Flg/RF Flg</b> Material: <b>WCC Steel</b> Ports: <b>1</b> Flow Direction: <b>Down</b> Trim Number: <b>1</b> Cage Matl: <b>CB7Cu-1 SST</b> Retainer Matl: Bushing Matl: Seat Ring Matl: <b>S41600 SST</b> VALVE PLUG Material: <b>S41600 SST</b> Guiding: <b>Cage</b> Balance: <b>Balanced</b> Shutoff Class: <b>ANSI CL IV</b> Port Size: <b>3 7/16 Inch</b> Characteristic: <b>Linear</b> Stem Material: <b>S31600 SST</b> Stem Size: <b>1/2 Inch</b> Bonnet Style: <b>Plain</b> Boss Size: <b>2 13/16</b> Packing: <b>Single PTFE</b> Access: <b>No</b> Bolt, Bonnet: <b>SA-193-B7 Studs/2H Nuts NCF2</b> PackFlg/Bltg: <b>SST Pkg Flg, SST Studs &amp; Nuts</b> Actuator: <b>Spring &amp; Diaphragm</b> Type/Size: <b>657/45i</b> Travel: <b>1 1/2 Inch</b> Bench Set: <b>6-22 psi</b> Push Down To: <b>PDTC</b> Supply: <b>Air</b> To Actuator: <b>0 to 33 psig</b> Fails Valve: <b>Open</b> Handwheel: <b>None</b>	Positioner Type: <b>DVC6200,HART Communicating-HC</b> Input Signal: <b>4 to 20 mA dc</b> Access: <b>67CFR Filter/Regulator</b> Gauges: <b>0-60 psig/0-4 bar</b> Action: <b>Direct</b> Certification: <b>Explosion Proof/Intrinsic Safe/Nonincendive,FM</b> Controller Type: Action: Measure Element: Range: Output: Mounting: Airset: Mounting: Transducer: Input Signal: Output Signal: Action: Mounting: Airset: Certifications: Line In: <b>3 in, SCH STD</b> Line Out: <b>3 in, SCH STD</b> Insulation: Service Cond: <b>THROTTLING</b> Process Fluid: <b>NATURAL GAS (0.65 SG)</b> Critical Pressure: <b>669.000 psia</b> Shutoff Drop: <b>257 psi</b> Max Rated Cv: <b>148.0</b>
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Variable Name	Unit	Minimum	Normal	Maximum	
Mass Flow Rate Gas (w)	lb/h	16815.000	42037.000	49455.000	
Inlet Pressure (P1)	psig	257.000	257.000	257.000	
Pressure Change (dP)	psi	72.000	72.000	72.000	
Inlet Temperature (T1)	deg F	157.000	157.000	157.000	
M / Gg	SG	0.650	0.650	0.650	
Specific heats ratio (gamma)		1.280	1.280	1.280	
Dynamic Viscosity (Mu)	cP	0.010	0.010	0.010	
Sizing Coefficient (Cv)		40.808	101.498	119.990	
% Open		24	58	71	
Valve LpA(LpAeValve1m)	dB(A)	88	94	95	

NOTES:  
 1. SST TUBING & FITTINGS  
 2. INCLUDES TOPWORX DXP-MX1GN4B STEM POSITION TRANSMITTER & SWITCHES.



## Sliding Stem Valve Specification

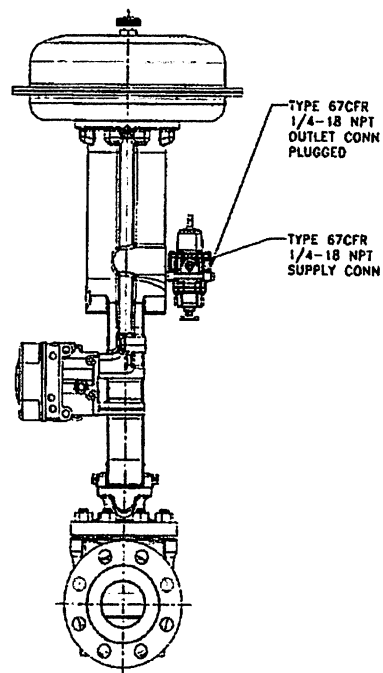
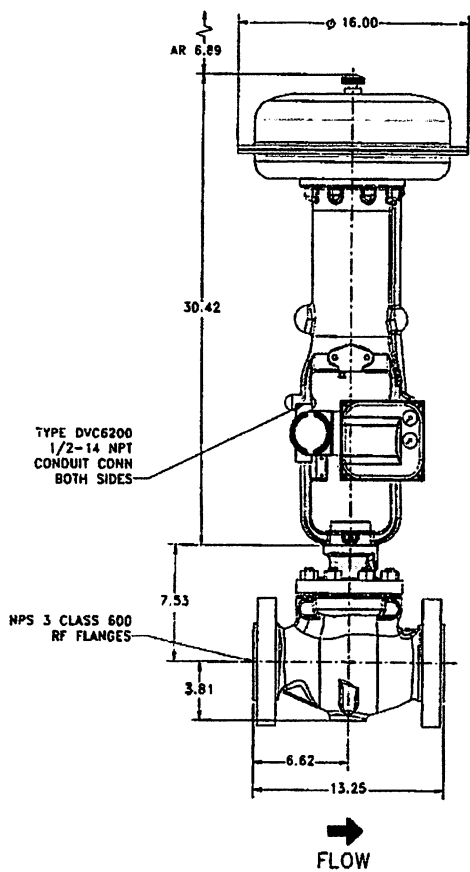
Customer: UOP RUSSELL LLC	Vinson Process Controls	
Contact: Donnis Paden	Contact: Ron Berte	
Customer Reference: UOP RUSSELL, SC6	Sales Office Reference: VVES	Lead Time: 10 WKS
<b>STD PLANT</b>		
Item 3	Rev	Qty: 1
Tags: FCV-141	Date Last Modified: 11/08/2016	Rev A
Description: NPS 3 ET 667 Size 451 DVC6200		

<b>Service Description:</b> Service Size and Type: NPS 3 ET Body Style: Globe Design Temp: 160 deg F Design Press: 1100 psig End Connect/In/Out: CL800/RF Fig/RF Fig Material: WCC Steel Ports: 1 Flow Direction: Down Trim Number: 1 Cage Mat: CB7Cu-1 SST Retainer Mat: Bushing Mat: Seat Ring Mat: S41600 SST <b>VALVE PLUG</b> Material: S41600 SST Guiding: Cage Balance: Balanced Shutoff Class: ANSI CL IV Port Size: 2 5/16 inch Characteristic: Equal Percent Stem Material: S31600 SST Stem Size: 1/2 inch Bonnet Style: Plain Boss Size: 2 13/16 Packing: Single PTFE Access: No Bolt, Bonnet: SA-193-B7 Studs/2H Nuts Pack/Flg/Bllg: SST Pkg Flg, SST Studs & Nuts <b>Actuator:</b> Type/Size: Spring & Diaphragm 667/451 Travel: 1 1/8 inch Bench Set: 10-30 psi Push Down To: PDTC Supply: Air To Actuator: 0 to 33 psig Fails Valve: Close Handwheel: None	<b>Positioner Type:</b> DVC6200, HART Communicating-HC Input Signal: 4 to 20 mA dc Access: 67CFR Filter/Regulator Gauges: 0-80 psig/0-4 bar Action: Direct Certification: FM, Explosion Proof/Intrinsic Safe/Nonincendive <b>Controller Type:</b> Action: Measure Element: Range: Output: Mounting: Airset: Mounting: <b>Transducer:</b> Input Signal: Output Signal: Action: Mounting: Airset: Certifications: Line In: 4 in, SCH XS Line Out: 4 in, SCH XS Insulation: Service Cond: THROTTLING Process Fluid: NATURAL GAS (0.66 SG) Max Rated Cv: 70.7
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Variable Name	Unit	Minimum	Normal	Maximum	
Mass Flow Rate Gas (w)	lb/h	7516.000	18790.000	20878.000	
Inlet Pressure (P1)	psig	924.000	924.000	924.000	
Pressure Change (dP)	psi	49.000	49.000	49.000	
Inlet Temperature (T1)	deg F	80.000	80.000	80.000	
M / Gg	SG	0.650	0.650	0.650	
Specific heats ratio (gamma)		1.280	1.280	1.280	
Dynamic Viscosity (Mu)	cP	0.010	0.010	0.010	
Sizing Coefficient (Cv)		9.226	23.316	25.913	
% Open		46	66	68	
Valve LpA(LpAValve1m)	dB(A)	56	63	64	

**NOTES:**  
 1. SST TUBING & FITTINGS

FEATURES PICTORIALLY TYPICAL ORIENTATION MAY DIFFER



FACE TO FACE TOLERANCE IS +/- 0.06 inch  
AR = ACTUATOR REMOVAL CLEARANCE

DIMENSIONS CERTIFIED CORRECT BY FISHER CONTROLS		ETS:45.57		© Fisher Controls Inc. LLC 2016	
CUST: UOP RUSSELL LLC			ET VALVE BODY SIZE 3		
CUST REF NO.: JOB 447, UOP RUSSELL, SC6 STD PLANT			667 ACTUATOR SIZE 451		
FISHER REF NO.: 0270-RCB-161121-0190534					
TAG NO.: FCV-141					
PROJECT NAME:					
CUST ITEM: 0003				S.NO.:	
TOTAL CALCULATED WT +/- 10%			SCALE: NONE		
TOTAL WEIGHT: 228.9 lb			SPE NO		
UNLESS OTHERWISE SPECIFIED			EMERSON		
UNIT OF MEASURE: INCH			SHEET 1 OF 1		
GENERAL ARRANGEMENT			A		



# Sliding Stem Valve Specification

Customer: <b>UOP RUSSELL LLC</b>	Vinson Process Controls	
Contact: <b>JAKE GASKINS</b>	Contact: <b>Ron Berte</b>	
Customer Reference: <b>JOB 488 SC6 RSV PLANT</b>	Sales Office Reference:	Lead Time: <b>19 WKS</b>
Item: <b>12</b>	Rev:                      Qty: <b>1</b>	Quote: <b>027D-RCB-171013-0211425</b>
Tags: <b>FCV-402A</b>	Date Last Modified: <b>10/13/2017</b>	Rev: <b>A</b>
Description: <b>NPS 1 1/2 ET 667 Size 34i DVC6200 ASCO Factory Mtgs DVC6200/DVC2000</b>		
Price Each:	Total Price:	
Service Description:		

Service:	Positioner Type:	<b>DVC6200,HART Communicating-HC</b>
Size and Type: <b>NPS 1 1/2 ET</b>	Input Signal:	<b>4 to 20 mA dc</b>
Body Style: <b>Globe</b>	Access:	<b>67CFR Filter/Regulator</b>
Design Temp: <b>-59 TO +150 F</b>	Gauges:	<b>0-60 psig/0-4 bar</b>
Design Press: <b>1100 psig</b>	Action:	<b>Direct</b>
End Connect/In/Out: <b>CL600/RF Fig/RF Fig</b>	Certification:	<b>FM,Explosion Proof/Intrinsic Safe/Nonincendive</b>
Material: <b>CF8M SST</b>	Controller Type:	
Ports: <b>1</b>	Action:	
Flow Direction: <b>Down</b>	Measure Element:	
Trim Number: <b>27</b>	Range:	
Cage Matl: <b>S31600 SST/ENC</b>	Output:	
Retainer Matl:	Mounting:	
Bushing Matl:	Airset:	
Seat Ring Matl: <b>CoCr-A Seat</b>	Mounting:	
VALVE PLUG	Transducer:	
Material: <b>S31600 SST/CoCr-A Seat/Guide</b>	Input Signal:	
Guiding: <b>Cage</b>	Output Signal:	
Balance: <b>Balanced</b>	Action:	
Shutoff Class: <b>ANSI CL IV</b>	Mounting:	
Port Size: <b>1 7/8 Inch</b>	Airset:	
Characteristic: <b>Equal Percent</b>	Certifications:	
Stem Material: <b>S31600 SST</b>	Line In:	<b>2 in, SCH XS</b>
Stem Size: <b>3/8 Inch</b>	Line Out:	<b>2 in, SCH XS</b>
Bonnet Style: <b>Style 2 Extension</b>	Insulation:	
Boss Size: <b>2 1/8</b>	Service Cond:	<b>THROTTLING</b>
Packing: <b>Single PTFE</b>	Process Fluid:	<b>HC LIQ</b>
Access: <b>No</b>	Critical Pressure:	<b>1095.000 psia</b>
Bolt, Bonnet: <b>SA-193-B8M Str Hd Studs/8M Nuts</b>	Shutoff Drop:	<b>909 psi</b>
PackFlg/Bltg: <b>SST Pkg Flg, SST Studs &amp; Nuts</b>		
Actuator: <b>Spring &amp; Diaphragm</b>		
Type/Size: <b>667/34i</b>		
Travel: <b>3/4 Inch</b>		
Bench Set: <b>10-30 psi</b>		
Push Down To: <b>PDTC</b>		
Supply: <b>Air</b>		
To Actuator: <b>0 to 33 psig</b>		
Fails Valve: <b>Close</b>		
Handwheel: <b>None</b>		
	Max Rated Cv:	<b>35.8</b>

Variable Name	Unit	Minimum	Normal	Maximum
Mass Flow Rate Liquid (wl)	lb/h	3351.000	8377.000	9855.000
Inlet Pressure (P1)	psig	909.000	909.000	909.000
Pressure Change (dP)	psi	5.000	5.000	5.000
Inlet Temperature (T1)	deg F	-83.000	-83.000	-83.000
SG		0.420	0.420	0.420
Dynamic Viscosity (Mu)	cP	0.073	0.073	0.073
Vapor Pressure (Pv)	psia	15.000	15.000	15.000
Sizing Coefficient (Cv)		4.626	11.598	13.664
% Open		35	61	64
Valve Lpa (LpAe1m)	dB(A)	< 50	< 50	< 50

NOTES:

1. SST TUBING & FITTINGS
2. INCLUDED ASCO MODEL EF8320G200 24VDC SOL VVE DE-ENG TO VENT.
3. SPRING LOADED SEAL RING



# Sliding Stem Valve Specification

Customer: **UOP RUSSELL LLC** Vinson Process Controls  
 Contact: **JAKE GASKINS** Contact: **Ron Berte**  
 Customer Reference: **JOB 488 SC6 RSV PLANT** Sales Office Reference:  
 Item: **8** Rev: Qty: **1** Quote: **027D-RCB-171013-0211425** Lead Time: **14 WKS**  
 Tags: **FCV-501** Date Last Modified: **10/13/2017** Rev: **A**  
 Description: **NPS 2 EZ-C 667 Size 45i DVC6200 ASCO Factory Mtgs DVC6200/DVC2000**  
 Price Each: Total Price:  
 Service Description:

Service:	Positioner Type:	<b>DVC6200,HART Communicating-HC</b>
Size and Type: <b>NPS 2 EZ-C</b>	Input Signal:	<b>4 to 20 mA dc</b>
Body Style: <b>Globe</b>	Access:	<b>67CFR Filter/Regulator</b>
Design Temp: <b>-132 TO +150 F</b>	Gauges:	<b>0-60 psig/0-4 bar</b>
Design Press: <b>1100 psig</b>	Action:	<b>Direct</b>
End Connect/In/Out: <b>CL600/RF Fig/RF Fig</b>	Certification:	<b>FM,Explosion Proof/Intrinsic Safe/Nonincendive</b>
Material: <b>CF8M SST</b>	Controller Type:	
Ports: <b>1</b>	Action:	
Flow Direction: <b>Up</b>	Measure Element:	
Trim Number: <b>327</b>	Range:	
Cage Matl:	Output:	
Retainer Matl: <b>CF8M SST</b>	Mounting:	
Bushing Matl: <b>R30006 Cobalt Alloy</b>	Airset:	
Seat Ring Matl: <b>S31600 SST</b>	Mounting:	
VALVE PLUG	Transducer:	
Material: <b>S31600 SST/CoCr-A Seat/Guide</b>	Input Signal:	
Guiding: <b>Post</b>	Output Signal:	
Balance: <b>Unbalanced</b>	Action:	
Shutoff Class: <b>ANSI CL IV</b>	Mounting:	
Port Size: <b>1 Inch</b>	Airset:	
Characteristic: <b>Equal Percentage</b>	Certifications:	
Stem Material: <b>S20910 SST</b>	Line In:	<b>4 in, SCH 40S</b>
Stem Size: <b>1/2 Inch</b>	Line Out:	<b>4 in, SCH 40S</b>
Bonnet Style: <b>Style 3 Fabricated Extension</b>	Insulation:	
Boss Size: <b>2 13/16</b>	Service Cond:	<b>THROTTLING</b>
Packing: <b>Single PTFE</b>	Process Fluid:	<b>HC LIQ</b>
Access:	Critical Pressure:	<b>1095.000 psia</b>
Bolt, Bonnet: <b>SA-193-B8M Str Hd Studs/8M Nuts</b>	Shutoff Drop:	<b>904 psi</b>
PackFlg/Bltg: <b>SST Pkg Flg, SST Studs &amp; Nuts</b>		
Actuator: <b>Spring &amp; Diaphragm</b>		
Type/Size: <b>667/45i</b>		
Travel: <b>3/4 Inch</b>		
Bench Set: <b>14-30 psi</b>		
Push Down To: <b>PDTC</b>		
Supply: <b>Air</b>		
To Actuator: <b>0 to 33 psig</b>		
Fails Valve: <b>Close</b>		
Handwheel: <b>None</b>		
	Max Rated Cv:	<b>15.9</b>

Variable Name	Unit	Minimum	Normal	Maximum
Mass Flow Rate Liquid (wl)	lb/h	10986.000	27466.000	30518.000
Inlet Pressure (P1)	psig	904.000	904.000	904.000
Pressure Change (dP)	psi	704.000	704.000	704.000
Inlet Temperature (T1)	deg F	-83.000	-83.000	-83.000
SG		0.360	0.360	0.360
Dynamic Viscosity (Mu)	cP	0.052	0.052	0.052
Vapor Pressure (Pv)	psia	545.000	545.000	545.000
Sizing Coefficient (Cv)		1.774	4.438	4.932
% Open		25	53	56
Valve Lpa (LpAe1m)	dB(A)	< 85	< 85	< 85

NOTES:  
 1. SST TUBING & FITTINGS  
 2. INCLUDED ASCO MODEL EF8320G200 24VDC SOL VVE DE-ENG TO VENT.

# UOP RUSSELL, TULSA, OKLAHOMA

**PROJECT:** Std 60mmscfd Cryo - SC6  
**CUSTOMER:** UOP Russell  
**CUSTOMER JOB NO:** J488  
**PLANT:**  
**LOCATION:** Unknown

ANNUBAR FLOW METER				SHEET 1 OF 1
				SPEC. NO.
NO.	BY	DATE	REVISION	REV.
0	JKG	9/26/17		1
1	DP	1-10-19	Rebuy	
				DATE 1-10-19
				FLOW SHEET 233
				BY JKG
				CHK'D DP
				APPR
				REQ. P.O.

## ANNUBAR FLOW METER (PAK-LOK TYPE)

- CONCENTRIC \_\_\_\_\_ OTHER \_\_\_\_\_
- ISA STANDARD \_\_\_\_\_ OTHER \_\_\_\_\_
- BORE: MAXIMUM RATE \_\_\_\_\_ NEAREST 1/8 IN. \_\_\_\_\_
- MATERIAL: 304SS \_\_\_\_\_ 316SS \_\_\_\_\_ OTHER \_\_\_\_\_
- RING MATERIAL & TYPE \_\_\_\_\_
- MFR & MODEL NO. Rosemount Model #  
3051SFADG100CCHPS2T100052AA1A2E5M5

- TAPS: FLANGE \_\_\_\_\_ VENA CONTRACTA \_\_\_\_\_ PIPE \_\_\_\_\_ OTHER \_\_\_\_\_
- TAP SIZE: 1/2 IN. \_\_\_\_\_ OTHER \_\_\_\_\_
- TYPE: WELD NECK \_\_\_\_\_ SLIP ON \_\_\_\_\_ THREADED \_\_\_\_\_
- MATERIAL: STEEL \_\_\_\_\_ OTHER \_\_\_\_\_
- FLANGES INCLUDED \_\_\_\_\_ BY OTHERS \_\_\_\_\_
- FLANGE RATING \_\_\_\_\_

F L U I D  D A T A	13	TAG NO.	FE-101					
	14	SERVICE	EC-101 Exp / Compressor					
	15	LINE NO.	179-B1-CS-10"					
	16/ 17	FLUID	FLUID STATE	HC Vapor	Vapor			
	18/ 19	FLOW MAX	NORMAL FLOW	98,909 #/hr	84,073 #/hr			
	20/ 21	PRESSURE	TEMP.	185 psig	104F			
	22	SPECIFIC GRAVITY AT BASE						
	23	OPER. SP. GR.		.64				
	24	SUPERCOMP. FACTOR						
	25	MOL. WEIGHT	CP/CV	18.4				
	26	OPER. VICS.		.012 CP				
	27	QUALITY % OR SUPERHEAT						
	28	BASE PRESS.	BASE TEMP.	14.7 psia	60F			
	M E T E R		ASSEMBLY MTL.	CS				
		SENSOR MTL. AND SIZE	316SS / SIZE 2					
		PIPING ORIENTATION	Horizontal					
		MOUNTING TYPE	Compression / Threaded					
		OUTPUT	4-20Ma - HART					
		ENCLOSURE	FM - Explosion Proof					
		BLANK 7						
29		TYPE OF METER		Flow				
30		DIFF. RANGE - DRY		0 - 250" WC				
31		LCD DISPLAY		Yes				
32	STATIC PRESS. RANGE							
33	CHART OR SCALE RANGE							
34	CHART MULTIPLIER							
P L A T E  / F L A N G E		TAG NO.	FT-101					
		BLANK 9						
	35	BETA=D/D						
	36	ORIFICE BORE DIAMETER		NA				
	37	LINE I.D.		10.020				
38	FLANGE RATING		300#					
39	VENT OR DRAIN HOLE		NA					
40	PLATE THICKNESS		NA					
	OPTIONS		5-VALVE MANIFOLD					

NOTES: Stamp nameplate or metal tag with tag number



**UOP RUSSELL, TULSA, OKLAHOMA**

**PROJECT:** Std 60mmscfd Cryo - SC6  
**CUSTOMER:** UOP Russell  
**CUSTOMER JOB NO:** J488  
**PLANT:**  
**LOCATION:** Unknown

ORIFICE PLATES  
WITH FLANGES

SHEET 1 OF 1  
 SPEC. NO.  
 REV. 2  
 DATE 1-10-19  
 FLOW SHEET  
 BY JKG  
 CHK'D DP  
 APPR  
 REQ. P.O.

NO.	BY	DATE	REVISION
0	JKG	9/27/2017	
1	DP	10-9-18	FE-402A to 6"
			Transferred from J492
2	DP	1-10-19	Rebuy all FE's

ORIFICE PLATES

- CONCENTRIC  OTHER \_\_\_\_\_
- ISA STANDARD  OTHER \_\_\_\_\_
- BORE: MAXIMUM RATE \_\_\_\_\_ NEAREST 1/8 IN.
- MATERIAL: 304SS  316SS \_\_\_\_\_ OTHER \_\_\_\_\_
- RING MATERIAL & TYPE 520
- MFR & MODEL NO. Quality Products & Sales

ORIFICE FLANGES

- TAPS: FLANGE  VENA CONTRACTA \_\_\_\_\_ PIPE \_\_\_\_\_ OTHER \_\_\_\_\_
- TAP SIZE: 1/2 IN.  OTHER \_\_\_\_\_
- TYPE: WELD NECK  SLIP ON \_\_\_\_\_ THREADED \_\_\_\_\_
- MATERIAL: STEEL \_\_\_\_\_ OTHER A350-LF2
- FLANGES INCLUDED  BY OTHERS \_\_\_\_\_
- FLANGE RATING See Below

		FE-402 (233)		FE-501 (233)		FE-402A (234)		FE-402B (234)		
13	TAG NO. / (P&ID)									
14	SERVICE	Cold Separator		From V-402 to E-206		Cold Separator		Cold Separator		
15	LINE NO.	158-D1-LT-8"		159-D1-LT-6"		170-D1-LT-6"		172-D1-LT-2"		
16/17	FLUID	FLUID STATE	HC Vapor	Vapor	HC Vapor	Vapor	HC Liquid	Liquid	HC Liquid	Liquid
18/19	FLOW MAX	NORMAL FLOW	104,795 #/hr	94,316 #/hr	26,199 #/hr	23,579 #/hr	508 gpm	458 gpm	18 gpm	16 gpm
20/21	PRESSURE	TEMP.	850 psig	0F	850 psig	0F	850 psig	-28F	850 psig	-28F
22	SPECIFIC GRAVITY AT BASE									
23	OPER. SP. GR.	.70		.70		.42		.42		
24	SUPERCOMP. FACTOR									
25	MOL. WEIGHT	CP/CV	20.1		20.1		30.2		30.2	
26	OPER. VICS.	.013 CP		.013 CP		.073 CP		.073 CP		
27	QUALITY % OR SUPERHEAT									
28	BASE PRESS.	BASE TEMP.	14.7 PSIA	60F	14.7 PSIA	60F	14.7 PSIA	60F	14.7 PSIA	60F
FLUID DATA										
METER										
29	TYPE OF METER	DRY		DRY		DRY		DRY		
30	DIFF. RANGE - DRY	0 - 100" WC		0 - 100" WC		0 - 100" WC		0 - 100" WC		
31	SEAL SP. GR. AT 60 F									
32	STATIC PRESS. RANGE									
33	CHART OR SCALE RANGE									
34	CHART MULTIPLIER									
	BLANK 8									
	BLANK 9									
PLATE / FLANGE										
35	BETA=D/D	.5869		.3995		.5049		.3021		
36	ORIFICE BORE DIAMETER	4.4748		2.3014		2.909		.5858		
37	LINE I.D.	7.6250 (XH)		5.7610 (XH)		5.761 (XH)		1.9390 (XH)		
38	FLANGE RATING	600# ANSI RF		600# ANSI RF		600# ANSI RF		600# ANSI RF		
39	VENT OR DRAIN HOLE	NA		NA		NA		NA		
40	PLATE THICKNESS	1/8"		1/8"		1/8"		1/8"		
	FLANGE MATERIAL	A350-LF2		A350-LF2		A350-LF2		A350-LF2		

NOTES: Stamp plate handle and flanges with tag number  
 Flange process bolts / nuts supplied by UOPR

# UOP RUSSELL, TULSA, OKLAHOMA

**PROJECT:** Std 60mmscfd Cryo  
**CUSTOMER:** UOP Russell  
**CUSTOMER JOB NO:** 447  
**PLANT:**  
**LOCATION:** Unknown

## ORIFICE PLATES WITH FLANGES

SHEET 1 OF 1

SPEC. NO.

NO.	BY	DATE	REVISION
0	DP	11-28-16	

**REV.**  
**DATE** 11-28-16  
**FLOW SHEET**  
**BY** DP  
**CHK'D** DP  
**APPR**  
**REQ. P.O.**

### ORIFICE PLATES

- CONCENTRIC  OTHER \_\_\_\_\_
- ISA STANDARD  OTHER \_\_\_\_\_
- BORE: MAXIMUM RATE \_\_\_\_\_ NEAREST 1/8 IN.
- MATERIAL: 304SS  316SS \_\_\_\_\_ OTHER \_\_\_\_\_
- RING MATERIAL & TYPE 520
- MFR & MODEL NO. Quality Products & Sales

### ORIFICE FLANGES

- TAPS: FLANGE  VENA CONTRACTA \_\_\_\_\_ PIPE \_\_\_\_\_ OTHER \_\_\_\_\_
- TAP SIZE: 1/2 IN.  OTHER \_\_\_\_\_
- TYPE: WELD NECK  SLIP ON \_\_\_\_\_ THREADED \_\_\_\_\_
- MATERIAL: STEEL SA-105 OTHER \_\_\_\_\_
- FLANGES INCLUDED  BY OTHERS \_\_\_\_\_
- FLANGE RATING See Below

F L U I D  D A T A	13	TAG NO. / (P&ID)	FE-481 (296)					
	14	SERVICE	Fuel Gas Scrubber					
	15	LINE NO.	700-B1-CS-3"					
	16/ 17	FLUID	FLUID STATE	Fuel Gas	Vapor			
	18/ 19	FLOW MAX	NORMAL FLOW	2,052 #/hr	1,847 #/hr			
	20/ 21	PRESSURE	TEMP.	160 psig	73F			
	22	SPECIFIC GRAVITY AT BASE						
	23	OPER. SP. GR.		.52				
	24	SUPERCOMP. FACTOR						
	25	MOL. WEIGHT	CP/CV	18.4				
	26	OPER. VICS.		.012 CP				
	27	QUALITY % OR SUPERHEAT						
28	BASE PRESS.	BASE TEMP.	14.7 PSIA	60F				
M E T E R	29	TYPE OF METER		DRY				
	30	DIFF. RANGE - DRY		0 - 100" WC				
	31	SEAL SP. GR. AT 60 F						
	32	STATIC PRESS. RANGE						
	33	CHART OR SCALE RANGE						
	34	CHART MULTIPLIER						
P L A T E  / F L A N G E		BLANK 8						
		BLANK 9						
	35	BETA=D/D		.3816				
	36	ORIFICE BORE DIAMETER		1.1708				
	37	LINE I.D.		3.068 (STD)				
	38	FLANGE RATING		300# ANSI RF				
39	VENT OR DRAIN HOLE		NA					
40	PLATE THICKNESS		1/8"					
	FLANGE MATERIAL		A105					

**NOTES:** Stamp plate handle and flanges with tag number  
 Flange process bolts, nuts and gaskets supplied by TRCO



<b>UOP RUSSELL, TULSA, OKLAHOMA</b> <b>PROJECT:</b> Std 60mmscfd Cryo - SC6 <b>CUSTOMER:</b> UOP Russell <b>CUSTOMER JOB NO:</b> 447 <b>PLANT:</b> <b>LOCATION:</b> Unknown		DIFFERENTIAL PRESSURE			SHEET 1 OF 1	
		INSTRUMENTS			SPEC. NO.	
		NO.	BY	DATE	REVISION	REV.
		0	DP	11/28/2016		DATE 11/28/2016
						FLOW SHT 221
				BY DP		
				CHK'D DP		
				APPR.		
				REQ. P.O.		

1	TAG NO. <b>FT-141</b>	SERVICE C-141 Regen Gas Compressor - Line 123-D1-CS-4"
2	FUNCTION	RECORD _____ INDICATE _____ CONTROL _____ BLIND _____ TRANS. <u>X</u> INTEG _____ OTHER _____
3	CASE	MFR STD <u>X</u> NOM SIZE _____ COLOR: MFR STD _____ OTHER _____
4	MOUNTING	FLUSH _____ SURFACE _____ YOKE _____ OTHER 304SS Angle Bracket
5	ENCLOSURE CLASS	GENERAL PURPOSE _____ WEATHER PROOF _____ EXPLOSION PROOF <u>X</u> CLASS <u>1</u>
6	POWER SUPPLY	FOR USE IN INTRINSICALLY SAFE SYSTEM _____ OTHER <u>FM Approved</u>
7	CHART	117V 60 HZ _____ OTHER AC _____ DC <u>24</u> VOLTS _____
8	CHART DRIVE	12 IN. CIRC _____ OTHER AC _____ RANGE _____ NO. _____
9	SCALE	24 HR OTHER _____ ELEC. _____ SPRING _____ OTHER _____
10	TRANSMITTER OUTPUT	TYPE _____ RANGE _____ 1 _____ 2 _____ 3 _____
11	CONTROL MODES	4-20 MA <u>X</u> 10-50 MA _____ 21-103KPA (3-15 PSIG) _____ OTHER <u>HART</u>
12	ACTION	FOR RECEIVER, SEE SPEC. SHEET _____
13	AUTO-MAN SWITCH	P=PROP (GAIN), I=INTEGRAL (AUTO RESET), D=DERIVATIVE (RATE)
14	SET POINT ADJ.	SUB: S=SLOW, F=FAST, IF _____ DF _____ P _____ PI _____ PD _____ PID _____ IS _____ DS _____
15	MANUAL REG.	OTHER _____
16	OUTPUT	ON MEAS. INCREASE OUTPUT: INCREASES _____ DECREASES _____
17	SERVICE	NONE _____ MFR STD _____ OTHER _____
18	ELEMENT TYPE	MANUAL _____ EXTERNAL _____ REMOTE _____ OTHER _____
19	MATERIAL	NONE _____ MFR STD _____ OTHER _____
20	RATING	4-20 MA _____ 10-50 MA _____ 21-103 KPA (3-15 PSIG) _____ OTHER _____
21	DIFF. RANGE	FLOW <u>X</u> LEVEL _____ DIFF. PRESS _____ OTHER _____
22	PROCESS DATA	DIAPHRAM <u>X</u> BELLOWS _____ MERCURY _____ OTHER _____
23	PROCESS CONN.	BODY _____ ELEMENT _____
24	ALARM SWITCHES	OVERRANGE _____ BODY RATING _____ PSIG _____
25	FUNCTION	FIXED _____ ADJ. RANGE <u>-400 - +400" WC</u> SET AT <u>100" WC</u>
26	OPTIONS	ELEVATION _____ SUPPRESSION _____
27	ALARM SWITCHES	FLUID _____ MAX. TEMP. _____ MAX. PRESS _____
28	FUNCTION	1/2 IN. NPT _____ OTHER _____
29	OPTIONS	QUANTITY _____ FORM _____ RATING _____
30	FUNCTION	MEAS. VAR. _____ DEVIATION _____ CONTACTS TO _____ ON INC. MEAS. _____
31	OPTIONS	PRESSURE ELEMENT _____ RANGE _____ MATL. _____
32	FUNCTION	TEMP. ELEMENT _____ RANGE _____ TYPE _____
33	OPTIONS	FILT REG. _____ SUP. GAGE _____ OUTPUT GAGE _____ CHARTS _____
34	FUNCTION	VALVE MANIFOLD _____
35	OPTIONS	COND. POTS _____ ADJ. DAMP _____ INTGRAL SQ. RT. EXT. _____
36	FUNCTION	INTEGRATOR _____
37	OPTIONS	OTHER <u>Digital Meter</u>
38	MFR & MODEL NO.	Honeywell Model # STD720-E1AS4AS-1-A-AHB-11C-A-21A0-00-0000

NOTES: With PGI 3-Valve stainless steel manifold # M-650SCT-VSH assembled to transmitter flange by 1/2" NPT

<b>UOP RUSSELL, TULSA, OKLAHOMA</b> <b>PROJECT:</b> Std 60mmscfd Cryo - SC6 <b>CUSTOMER:</b> UOP Russell <b>CUSTOMER JOB NO:</b> 447 <b>PLANT:</b> <b>LOCATION:</b> Unknown		DIFFERENTIAL PRESSURE			SHEET 1 OF 1	
		INSTRUMENTS			SPEC. NO.	
		NO.	BY	DATE	REVISION	REV.
		0	DP	11/28/2016		DATE 11/28/2016
						FLOW SHT 221
				BY DP		
				CHK'D DP		
				APPR.		
				REQ. P.O.		

1	TAG NO. <b>FT-141A</b>	SERVICE C-141 Regen Gas Compressor - Line 123-D1-CS-4"
2	FUNCTION	RECORD <input type="checkbox"/> INDICATE <input type="checkbox"/> CONTROL <input type="checkbox"/> BLIND <input type="checkbox"/> TRANS. <input checked="" type="checkbox"/> INTEG <input type="checkbox"/> OTHER <input type="checkbox"/>
3	CASE	MFR STD <input checked="" type="checkbox"/> NOM SIZE <input type="checkbox"/> COLOR: MFR STD <input type="checkbox"/> OTHER <input type="checkbox"/>
4	MOUNTING	FLUSH <input type="checkbox"/> SURFACE <input type="checkbox"/> YOKE <input type="checkbox"/> OTHER 304SS Angle Bracket
5	ENCLOSURE CLASS	GENERAL PURPOSE <input type="checkbox"/> WEATHER PROOF <input type="checkbox"/> EXPLOSION PROOF <input checked="" type="checkbox"/> CLASS 1
6	POWER SUPPLY	FOR USE IN INTRINSICALLY SAFE SYSTEM <input type="checkbox"/> OTHER FM Approved
7	CHART	117V 60 HZ <input type="checkbox"/> OTHER AC <input type="checkbox"/> DC 24 VOLTS
8	CHART DRIVE	12 IN. CIRC <input type="checkbox"/> OTHER AC <input type="checkbox"/> RANGE <input type="checkbox"/> NO. <input type="checkbox"/>
9	SCALE	24 HR OTHER <input type="checkbox"/> ELEC. <input type="checkbox"/> SPRING <input type="checkbox"/> OTHER <input type="checkbox"/>
10	TRANSMITTER OUTPUT	TYPE <input type="checkbox"/> RANGE 1 <input type="checkbox"/> 2 <input type="checkbox"/> 3 <input type="checkbox"/>
11	CONTROL MODES	4-20 MA <input checked="" type="checkbox"/> 10-50 MA <input type="checkbox"/> 21-103KPA (3-15 PSIG) <input type="checkbox"/> OTHER HART
12	ACTION	FOR RECEIVER, SEE SPEC. SHEET
13	AUTO-MAN SWITCH	P=PROP (GAIN), I=INTEGRAL (AUTO RESET), D=DERIVATIVE (RATE)
14	SET POINT ADJ.	SUB: S=SLOW, F=FAST, IF <input type="checkbox"/> DF <input type="checkbox"/> P <input type="checkbox"/> PI <input type="checkbox"/> PD <input type="checkbox"/> PID <input type="checkbox"/> IS <input type="checkbox"/> DS <input type="checkbox"/>
15	MANUAL REG.	OTHER <input type="checkbox"/>
16	OUTPUT	ON MEAS. INCREASE OUTPUT: INCREASES <input type="checkbox"/> DECREASES <input type="checkbox"/>
17	SERVICE ELEMENT TYPE	NONE <input type="checkbox"/> MFR STD <input type="checkbox"/> OTHER <input type="checkbox"/>
18	MATERIAL	MANUAL <input type="checkbox"/> EXTERNAL <input type="checkbox"/> REMOTE <input type="checkbox"/> OTHER <input type="checkbox"/>
19	RATING	NONE <input type="checkbox"/> MFR STD <input type="checkbox"/> OTHER <input type="checkbox"/>
20	DIFF. RANGE	4-20 MA <input type="checkbox"/> 10-50 MA <input type="checkbox"/> 21-103 KPA (3-15 PSIG) <input type="checkbox"/> OTHER <input type="checkbox"/>
21	PROCESS DATA	FLOW <input checked="" type="checkbox"/> LEVEL <input type="checkbox"/> DIFF. PRESS <input type="checkbox"/> OTHER <input type="checkbox"/>
22	PROCESS CONN.	DIAPHRAM <input checked="" type="checkbox"/> BELLOWS <input type="checkbox"/> MERCURY <input type="checkbox"/> OTHER <input type="checkbox"/>
23	ALARM SWITCHES	BODY <input type="checkbox"/> ELEMENT <input type="checkbox"/>
24	FUNCTION	OVERRANGE <input type="checkbox"/> BODY RATING <input type="checkbox"/> PSIG <input type="checkbox"/>
25	OPTIONS	FIXED <input type="checkbox"/> ADJ. RANGE -400 - +400" WC SET AT 100" WC
26		ELEVATION <input type="checkbox"/> SUPPRESSION <input type="checkbox"/>
27		FLUID <input type="checkbox"/> MAX. TEMP. <input type="checkbox"/> MAX. PRESS <input type="checkbox"/>
28		1/2 IN. NPT <input type="checkbox"/> OTHER <input type="checkbox"/>
29		QUANTITY <input type="checkbox"/> FORM <input type="checkbox"/> RATING <input type="checkbox"/>
30		MEAS. VAR. <input type="checkbox"/> DEVIATION <input type="checkbox"/> CONTACTS TO <input type="checkbox"/> ON INC. MEAS. <input type="checkbox"/>
31		PRESSURE ELEMENT <input type="checkbox"/> RANGE <input type="checkbox"/> MATL. <input type="checkbox"/>
32		TEMP. ELEMENT <input type="checkbox"/> RANGE <input type="checkbox"/> TYPE <input type="checkbox"/>
33		FILT REG. <input type="checkbox"/> SUP. GAGE <input type="checkbox"/> OUTPUT GAGE <input type="checkbox"/> CHARTS <input type="checkbox"/>
34		VALVE MANIFOLD <input type="checkbox"/>
35		COND. POTS <input type="checkbox"/> ADJ. DAMP <input type="checkbox"/> INTGRAL SQ. RT. EXT. <input type="checkbox"/>
36		INTEGRATOR <input type="checkbox"/>
37		OTHER Digital Meter
38	MFR & MODEL NO.	Honeywell Model # STD720-E1AS4AS-1-A-AHB-11C-A-21A0-00-0000

NOTES: With PGI 3-Valve stainless steel manifold # M-650SCT-VSH assembled to transmitter flange by 1/2" NPT

**UOP RUSSELL, TULSA, OKLAHOMA**

**PROJECT:** Std 60mmscd Cryo - SC6  
**CUSTOMER:** UOP Russell  
**CUSTOMER JOB NO:** 488  
**PLANT:**  
**LOCATION:** Unknown

DIFFERENTIAL PRESSURE  
INSTRUMENTS

SHEET 1 OF 1

SPEC. NO.

NO.	BY	DATE	REVISION	REV.	
0	JKG	10/2/2017		0	
				DATE	10/2/2017
				FLOW SHT	233
				BY	JKG
				CHK'D	DP
				APPR.	
				REQ. P.O.	

1	TAG NO. <b>FT-402</b>	SERVICE HC Vapor Line 158-D1-LT-8" from V-402
2	FUNCTION	RECORD <input type="checkbox"/> INDICATE <input type="checkbox"/> CONTROL <input type="checkbox"/> BLIND <input type="checkbox"/> TRANS. <input checked="" type="checkbox"/> INTEG <input type="checkbox"/> OTHER <input type="checkbox"/>
3	CASE	MFR STD <input checked="" type="checkbox"/> NOM SIZE <input type="checkbox"/> COLOR: MFR STD <input type="checkbox"/> OTHER <input type="checkbox"/>
4	MOUNTING	FLUSH <input type="checkbox"/> SURFACE <input type="checkbox"/> YOKE <input type="checkbox"/> OTHER 304SS Angle Bracket
5	ENCLOSURE CLASS	GENERAL PURPOSE <input type="checkbox"/> WEATHER PROOF <input type="checkbox"/> EXPLOSION PROOF <input checked="" type="checkbox"/> CLASS 1
6	POWER SUPPLY	FOR USE IN INTRINSICALLY SAFE SYSTEM <input type="checkbox"/> OTHER FM Approved
7	CHART	117V 60 HZ <input type="checkbox"/> OTHER AC <input type="checkbox"/> DC 24 VOLTS
8	CHART DRIVE	12 IN. CIRC <input type="checkbox"/> OTHER AC <input type="checkbox"/> RANGE <input type="checkbox"/> NO. <input type="checkbox"/>
9	SCALE	24 HR OTHER <input type="checkbox"/> ELEC. <input type="checkbox"/> SPRING <input type="checkbox"/> OTHER <input type="checkbox"/>
10	TRANSMITTER OUTPUT	TYPE <input type="checkbox"/> RANGE <input type="checkbox"/> 1 <input type="checkbox"/> 2 <input type="checkbox"/> 3
11	CONTROL MODES	4-20 MA <input checked="" type="checkbox"/> 10-50 MA <input type="checkbox"/> 21-103KPA (3-15 PSIG) <input type="checkbox"/> OTHER HART
12	ACTION	FOR RECEIVER, SEE SPEC. SHEET
13	AUTO-MAN SWITCH	P=PROP (GAIN), I=INTEGRAL (AUTO RESET), D=DERIVATIVE (RATE)
14	SET POINT ADJ.	SUB: S=SLOW, F=FAST, IF <input type="checkbox"/> DF <input type="checkbox"/> P <input type="checkbox"/> PI <input type="checkbox"/> PD <input type="checkbox"/> PID <input type="checkbox"/> IS <input type="checkbox"/> DS <input type="checkbox"/>
15	MANUAL REG.	OTHER <input type="checkbox"/>
16	OUTPUT	ON MEAS. INCREASE OUTPUT: INCREASES <input type="checkbox"/> DECREASES <input type="checkbox"/>
17	SERVICE ELEMENT TYPE	NONE <input type="checkbox"/> MFR STD <input type="checkbox"/> OTHER <input type="checkbox"/>
18	MATERIAL	MANUAL <input type="checkbox"/> EXTERNAL <input type="checkbox"/> REMOTE <input type="checkbox"/> OTHER <input type="checkbox"/>
19	RATING	NONE <input type="checkbox"/> MFR STD <input type="checkbox"/> OTHER <input type="checkbox"/>
20	DIFF. RANGE	4-20 MA <input type="checkbox"/> 10-50 MA <input type="checkbox"/> 21-103 KPA (3-15 PSIG) <input type="checkbox"/> OTHER <input type="checkbox"/>
21	ELEVATION	FLOW <input checked="" type="checkbox"/> LEVEL <input type="checkbox"/> DIFF. PRESS <input type="checkbox"/> OTHER <input type="checkbox"/>
22	PROCESS DATA	DIAPHRAM <input checked="" type="checkbox"/> BELLOWS <input type="checkbox"/> MERCURY <input type="checkbox"/> OTHER <input type="checkbox"/>
23	PROCESS CONN.	BODY <input type="checkbox"/> ELEMENT <input type="checkbox"/>
24	ALARM SWITCHES	OVERRANGE <input type="checkbox"/> BODY RATING <input type="checkbox"/> PSIG
25	FUNCTION	FIXED <input type="checkbox"/> ADJ. RANGE -400 - +400" WC SET AT 100" WC
26	OPTIONS	ELEVATION <input type="checkbox"/> SUPPRESSION <input type="checkbox"/>
27	MFR & MODEL NO.	FLUID <input type="checkbox"/> MAX. TEMP. <input type="checkbox"/> MAX. PRESS <input type="checkbox"/>
28		1/2 IN. NPT <input type="checkbox"/> OTHER <input type="checkbox"/>
29		QUANTITY <input type="checkbox"/> FORM <input type="checkbox"/> RATING <input type="checkbox"/>
30		MEAS. VAR. <input type="checkbox"/> DEVIATION <input type="checkbox"/> CONTACTS TO <input type="checkbox"/> ON INC. MEAS. <input type="checkbox"/>
31		PRESSURE ELEMENT <input type="checkbox"/> RANGE <input type="checkbox"/> MATL. <input type="checkbox"/>
32		TEMP. ELEMENT <input type="checkbox"/> RANGE <input type="checkbox"/> TYPE <input type="checkbox"/>
33		FILT REG. <input type="checkbox"/> SUP. GAGE <input type="checkbox"/> OUTPUT GAGE <input type="checkbox"/> CHARTS <input type="checkbox"/>
34		VALVE MANIFOLD <input type="checkbox"/>
35		COND. POTS <input type="checkbox"/> ADJ. DAMP <input type="checkbox"/> INTGRAL SQ. RT. EXT. <input type="checkbox"/>
36		INTEGRATOR <input type="checkbox"/>
37		OTHER Digital Meter <input type="checkbox"/>
38		Honeywell Model # STD720-E1AS4AS-1-A-AHB-11C-A-21A0-00-0000

NOTES: With PGI 3-Valve stainless steel manifold # M-650SCT-VSH assembled to transmitter flange by 1/2" NPT

**UOP RUSSELL, TULSA, OKLAHOMA**

**PROJECT:** Std 60mmscd Cryo - SC6  
**CUSTOMER:** UOP Russell  
**CUSTOMER JOB NO:** 488  
**PLANT:**  
**LOCATION:** Unknown

DIFFERENTIAL PRESSURE  
INSTRUMENTS

SHEET	1	OF	1
SPEC. NO.			
REV.	0		
DATE	10/2/2017		
FLOW SHT	234		
BY	JKG		
CHK'D	DP		
APPR.			
REQ. P.O.			

NO.	BY	DATE	REVISION
0	JKG	10/2/2017	

1	TAG NO. <b>FT-402A</b>	SERVICE V-402 Cold Sepapator - Bottom Discharge Line 170-D1-LT-6"
2	FUNCTION	RECORD <input type="checkbox"/> INDICATE <input type="checkbox"/> CONTROL <input type="checkbox"/> BLIND <input type="checkbox"/> TRANS. <input checked="" type="checkbox"/> INTEG <input type="checkbox"/> OTHER <input type="checkbox"/>
3	CASE	MFR STD <input checked="" type="checkbox"/> NOM SIZE <input type="checkbox"/> COLOR: MFR STD <input type="checkbox"/> OTHER <input type="checkbox"/>
4	MOUNTING	FLUSH <input type="checkbox"/> SURFACE <input type="checkbox"/> YOKE <input type="checkbox"/> OTHER 304SS Angle Bracket
5	ENCLOSURE CLASS	GENERAL PURPOSE <input type="checkbox"/> WEATHER PROOF <input type="checkbox"/> EXPLOSION PROOF <input checked="" type="checkbox"/> CLASS 1
6	POWER SUPPLY	FOR USE IN INTRINSICALLY SAFE SYSTEM <input type="checkbox"/> OTHER FM Approved
7	CHART	117V 60 HZ <input type="checkbox"/> OTHER AC <input type="checkbox"/> DC 24 VOLTS
8	CHART DRIVE	12 IN. CIRC <input type="checkbox"/> OTHER AC <input type="checkbox"/> RANGE <input type="checkbox"/> NO. <input type="checkbox"/>
9	SCALE	24 HR OTHER <input type="checkbox"/> ELEC. <input type="checkbox"/> SPRING <input type="checkbox"/> OTHER <input type="checkbox"/>
10	TRANSMITTER OUTPUT	TYPE <input type="checkbox"/> RANGE <input type="checkbox"/> 1 <input type="checkbox"/> 2 <input type="checkbox"/> 3
11	CONTROL MODES	4-20 MA <input checked="" type="checkbox"/> 10-50 MA <input type="checkbox"/> 21-103KPA (3-15 PSIG) <input type="checkbox"/> OTHER HART
12	ACTION	FOR RECEIVER, SEE SPEC. SHEET
13	AUTO-MAN SWITCH	P=PROP (GAIN), I=INTEGRAL (AUTO RESET), D=DERIVATIVE (RATE)
14	SET POINT ADJ.	SUB: S=SLOW, F=FAST, IF <input type="checkbox"/> DF <input type="checkbox"/> P <input type="checkbox"/> PI <input type="checkbox"/> PD <input type="checkbox"/> PID <input type="checkbox"/> IS <input type="checkbox"/> DS <input type="checkbox"/>
15	MANUAL REG.	OTHER <input type="checkbox"/>
16	OUTPUT	ON MEAS. INCREASE OUTPUT: INCREASES <input type="checkbox"/> DECREASES <input type="checkbox"/>
17	SERVICE	NONE <input type="checkbox"/> MFR STD <input type="checkbox"/> OTHER <input type="checkbox"/>
18	ELEMENT TYPE	MANUAL <input type="checkbox"/> EXTERNAL <input type="checkbox"/> REMOTE <input type="checkbox"/> OTHER <input type="checkbox"/>
19	MATERIAL	NONE <input type="checkbox"/> MFR STD <input type="checkbox"/> OTHER <input type="checkbox"/>
20	RATING	4-20 MA <input type="checkbox"/> 10-50 MA <input type="checkbox"/> 21-103 KPA (3-15 PSIG) <input type="checkbox"/> OTHER <input type="checkbox"/>
21	DIFF. RANGE	
22	ELEVATION	
23	PROCESS DATA	
24	PROCESS CONN.	
25	ALARM SWITCHES	FLOW <input checked="" type="checkbox"/> LEVEL <input type="checkbox"/> DIFF. PRESS <input type="checkbox"/> OTHER <input type="checkbox"/>
26	FUNCTION	DIAPHRAM <input checked="" type="checkbox"/> BELLOWS <input type="checkbox"/> MERCURY <input type="checkbox"/> OTHER <input type="checkbox"/>
27	OPTIONS	BODY <input type="checkbox"/> ELEMENT <input type="checkbox"/>
		OVERRANGE <input type="checkbox"/> BODY RATING <input type="checkbox"/> PSIG
		FIXED <input type="checkbox"/> ADJ. RANGE -400 - +400" WC SET AT 100" WC
		ELEVATION <input type="checkbox"/> SUPPRESION <input type="checkbox"/>
		FLUID <input type="checkbox"/> MAX. TEMP. <input type="checkbox"/> MAX. PRESS <input type="checkbox"/>
		1/2 IN. NPT <input type="checkbox"/> OTHER <input type="checkbox"/>
25	ALARM SWITCHES	QUANTITY <input type="checkbox"/> FORM <input type="checkbox"/> RATING <input type="checkbox"/>
26	FUNCTION	MEAS. VAR. <input type="checkbox"/> DEVIATION <input type="checkbox"/> CONTACTS TO <input type="checkbox"/> ON INC. MEAS.
27	OPTIONS	PRESSURE ELEMENT <input type="checkbox"/> RANGE <input type="checkbox"/> MATL. <input type="checkbox"/>
		TEMP. ELEMENT <input type="checkbox"/> RANGE <input type="checkbox"/> TYPE <input type="checkbox"/>
		FILT REG. <input type="checkbox"/> SUP. GAGE <input type="checkbox"/> OUTPUT GAGE <input type="checkbox"/> CHARTS <input type="checkbox"/>
		VALVE MANIFOLD <input type="checkbox"/>
		COND. POTS <input type="checkbox"/> ADJ. DAMP <input type="checkbox"/> INTGRAL SQ. RT. EXT. <input type="checkbox"/>
		INTEGRATOR <input type="checkbox"/>
		OTHER Digital Meter
28	MFR & MODEL NO.	Honeywell Model # STD720-E1AS4AS-1-A-AHB-11C-A-21A0-00-0000

NOTES: With PGI 3-Valve stainless steel manifold # M-650SCT-VSH assembled to transmitter flange by 1/2" NPT

<b>UOP RUSSELL, TULSA, OKLAHOMA</b> <b>PROJECT:</b> Std 60mmscfd Cryo - SC6 <b>CUSTOMER:</b> UOP Russell <b>CUSTOMER JOB NO:</b> 488 <b>PLANT:</b> <b>LOCATION:</b> Unknown	DIFFERENTIAL PRESSURE INSTRUMENTS			SHEET 1 OF 1
				SPEC. NO.
	NO.	BY	DATE	REVISION
	0	JKG	10/2/2017	
				REV. 0
				DATE 10/2/2017
				FLOW SHT 234
				BY JKG
				CHK'D DP
				APPR.
				REQ. P.O.

1	TAG NO. <b>FT-402B</b>	SERVICE V-402 Cold Sepapator - HC liquid Line 172-D1-LT-2"
2	FUNCTION	RECORD <input type="checkbox"/> INDICATE <input type="checkbox"/> CONTROL <input type="checkbox"/> BLIND <input type="checkbox"/> TRANS. <input checked="" type="checkbox"/> INTEG <input type="checkbox"/> OTHER <input type="checkbox"/>
3	CASE	MFR STD <input checked="" type="checkbox"/> NOM SIZE <input type="checkbox"/> COLOR: MFR STD <input type="checkbox"/> OTHER <input type="checkbox"/>
4	MOUNTING	FLUSH <input type="checkbox"/> SURFACE <input type="checkbox"/> YOKE <input type="checkbox"/> OTHER 304SS Angle Bracket
5	ENCLOSURE CLASS	GENERAL PURPOSE <input type="checkbox"/> WEATHER PROOF <input type="checkbox"/> EXPLOSION PROOF <input checked="" type="checkbox"/> CLASS 1
6	POWER SUPPLY	FOR USE IN INTRINSICALLY SAFE SYSTEM <input type="checkbox"/> OTHER FM Approved
7	CHART	117V 60 HZ <input type="checkbox"/> OTHER AC <input type="checkbox"/> DC 24 VOLTS <input type="checkbox"/>
8	CHART DRIVE	12 IN. CIRC <input type="checkbox"/> OTHER AC <input type="checkbox"/> RANGE <input type="checkbox"/> NO. <input type="checkbox"/>
9	SCALE	24 HR OTHER <input type="checkbox"/> ELEC. <input type="checkbox"/> SPRING <input type="checkbox"/> OTHER <input type="checkbox"/>
10	TRANSMITTER OUTPUT	TYPE <input type="checkbox"/> RANGE <input type="checkbox"/> 1 <input type="checkbox"/> 2 <input type="checkbox"/> 3
11	CONTROL MODES	4-20 MA <input checked="" type="checkbox"/> 10-50 MA <input type="checkbox"/> 21-103KPA (3-15 PSIG) <input type="checkbox"/> OTHER HART
12	ACTION	FOR RECEIVER, SEE SPEC. SHEET
13	AUTO-MAN SWITCH	P=PROP (GAIN), I=INTEGRAL (AUTO RESET), D=DERIVATIVE (RATE)
14	SET POINT ADJ.	SUB: S=SLOW, F=FAST, IF <input type="checkbox"/> DF <input type="checkbox"/> PI <input type="checkbox"/> PD <input type="checkbox"/> PID <input type="checkbox"/> IS <input type="checkbox"/> DS <input type="checkbox"/>
15	MANUAL REG.	OTHER <input type="checkbox"/>
16	OUTPUT	ON MEAS. INCREASE OUTPUT: INCREASES <input type="checkbox"/> DECREASES <input type="checkbox"/>
17	SERVICE	NONE <input type="checkbox"/> MFR STD <input type="checkbox"/> OTHER <input type="checkbox"/>
18	ELEMENT TYPE	MANUAL <input type="checkbox"/> EXTERNAL <input type="checkbox"/> REMOTE <input type="checkbox"/> OTHER <input type="checkbox"/>
19	MATERIAL	NONE <input type="checkbox"/> MFR STD <input type="checkbox"/> OTHER <input type="checkbox"/>
20	RATING	4-20 MA <input type="checkbox"/> 10-50 MA <input type="checkbox"/> 21-103 KPA (3-15 PSIG) <input type="checkbox"/> OTHER <input type="checkbox"/>
21	DIFF. RANGE	
22	PROCESS DATA	
23	PROCESS CONN.	
24	ALARM SWITCHES	FLOW <input checked="" type="checkbox"/> LEVEL <input type="checkbox"/> DIFF. PRESS <input type="checkbox"/> OTHER <input type="checkbox"/>
25	FUNCTION	DIAPHRAM <input checked="" type="checkbox"/> BELLOWS <input type="checkbox"/> MERCURY <input type="checkbox"/> OTHER <input type="checkbox"/>
26	OPTIONS	BODY <input type="checkbox"/> ELEMENT <input type="checkbox"/>
27		OVERRANGE <input type="checkbox"/> BODY RATING <input type="checkbox"/> PSIG <input type="checkbox"/>
28		FIXED <input type="checkbox"/> ADJ. RANGE -400 - +400" WC SET AT 100" WC
29		ELEVATION <input type="checkbox"/> SUPPRESSION <input type="checkbox"/>
30		FLUID <input type="checkbox"/> MAX. TEMP. <input type="checkbox"/> MAX. PRESS <input type="checkbox"/>
31		1/2 IN. NPT <input type="checkbox"/> OTHER <input type="checkbox"/>
32		QUANTITY <input type="checkbox"/> FORM <input type="checkbox"/> RATING <input type="checkbox"/>
33		MEAS. VAR. <input type="checkbox"/> DEVIATION <input type="checkbox"/> CONTACTS TO <input type="checkbox"/> ON INC. MEAS. <input type="checkbox"/>
34		PRESSURE ELEMENT <input type="checkbox"/> RANGE <input type="checkbox"/> MATL. <input type="checkbox"/>
35		TEMP. ELEMENT <input type="checkbox"/> RANGE <input type="checkbox"/> TYPE <input type="checkbox"/>
36		FILT REG. <input type="checkbox"/> SUP. GAGE <input type="checkbox"/> OUTPUT GAGE <input type="checkbox"/> CHARTS <input type="checkbox"/>
37		VALVE MANIFOLD <input type="checkbox"/>
38		COND. POTS <input type="checkbox"/> ADJ. DAMP <input type="checkbox"/> INTGRAL SQ. RT. EXT. <input type="checkbox"/>
39		INTEGRATOR <input type="checkbox"/>
40		OTHER Digital Meter
41	MFR & MODEL NO.	Honeywell Model # STD720-E1AS4AS-1-A-AHB-11C-A-21A0-00-0000

NOTES: With PGI 3-Valve stainless steel manifold # M-650SCT-VSH assembled to transmitter flange by 1/2" NPT

<b>UOP RUSSELL, TULSA, OKLAHOMA</b> <b>PROJECT:</b> Std 60mmscfd Cryo - SC6 <b>CUSTOMER:</b> UOP Russell <b>CUSTOMER JOB NO:</b> 447 <b>PLANT:</b> <b>LOCATION:</b> Unknown		DIFFERENTIAL PRESSURE			SHEET 1 OF 1	
		INSTRUMENTS			SPEC. NO.	
		NO.	BY	DATE	REVISION	REV.
		0	DP	11/28/2016		DATE 11/28/2016
						FLOW SHT 296
				BY DP		
				CHK'D DP		
				APPR.		
				REQ. P.O.		

1	TAG NO. <b>FT-481</b>	SERVICE <b>V-481 Fuel Gas Scrubber - Line 700-B1-CS-3"</b>
2	FUNCTION	RECORD <u>      </u> INDICATE <u>      </u> CONTROL <u>      </u> BLIND <u>      </u> TRANS. <u>X</u> INTEG <u>      </u> OTHER <u>      </u>
3	CASE	MFR STD <u>X</u> NOM SIZE <u>      </u> COLOR: MFR STD <u>      </u> OTHER <u>      </u>
4	MOUNTING	FLUSH <u>      </u> SURFACE <u>      </u> YOKE <u>      </u> OTHER <u>304SS Angle Bracket</u>
5	ENCLOSURE CLASS	GENERAL PURPOSE <u>      </u> WEATHER PROOF <u>      </u> EXPLOSION PROOF <u>X</u> CLASS <u>1</u>
6	POWER SUPPLY	FOR USE IN INTRINSICALLY SAFE SYSTEM <u>      </u> OTHER <u>FM Approved</u>
7	CHART	117V 60 HZ <u>      </u> OTHER AC <u>      </u> DC <u>24</u> VOLTS <u>      </u>
8	CHART DRIVE	12 IN. CIRC <u>      </u> OTHER AC <u>      </u> RANGE <u>      </u> NO. <u>      </u>
9	SCALE	24 HR OTHER <u>      </u> ELEC. <u>      </u> SPRING <u>      </u> OTHER <u>      </u>
10	TRANSMITTER OUTPUT	TYPE <u>      </u> RANGE <u>1</u> <u>2</u> <u>3</u>
11	CONTROL MODES	4-20 MA <u>X</u> 10-50 MA <u>      </u> 21-103KPA (3-15 PSIG) <u>      </u> OTHER <u>HART</u>
12	ACTION	FOR RECEIVER, SEE SPEC. SHEET <u>      </u>
13	AUTO-MAN SWITCH	P=PROP (GAIN), I=INTEGRAL (AUTO RESET), D=DERIVATIVE (RATE)
14	SET POINT ADJ.	SUB: S=SLOW, F=FAST, IF <u>      </u> DF <u>      </u> P <u>      </u> PI <u>      </u> PD <u>      </u> PID <u>      </u> IS <u>      </u> DS <u>      </u>
15	MANUAL REG.	OTHER <u>      </u>
16	OUTPUT	ON MEAS. INCREASE OUTPUT: INCREASES <u>      </u> DECREASES <u>      </u>
17	SERVICE ELEMENT TYPE	NONE <u>      </u> MFR STD <u>      </u> OTHER <u>      </u>
18	MATERIAL	MANUAL <u>      </u> EXTERNAL <u>      </u> REMOTE <u>      </u> OTHER <u>      </u>
19	RATING	NONE <u>      </u> MFR STD <u>      </u> OTHER <u>      </u>
20	DIFF. RANGE	4-20 MA <u>      </u> 10-50 MA <u>      </u> 21-103 KPA (3-15 PSIG) <u>      </u> OTHER <u>      </u>
21	PROCESS DATA	FLOW <u>X</u> LEVEL <u>      </u> DIFF. PRESS <u>      </u> OTHER <u>      </u>
22	PROCESS CONN.	DIAPHRAM <u>X</u> BELLWOS <u>      </u> MERCURY <u>      </u> OTHER <u>      </u>
23	ALARM SWITCHES	BODY <u>      </u> ELEMENT <u>      </u>
24	FUNCTION	OVERRANGE <u>      </u> BODY RATING <u>      </u> PSIG <u>      </u>
25	OPTIONS	FIXED <u>      </u> ADJ. RANGE <u>-400 - +400" WC</u> SET AT <u>100" WC</u>
26	MFR & MODEL NO.	ELEVATION <u>      </u> SUPPRESION <u>      </u>
27		FLUID <u>      </u> MAX. TEMP. <u>      </u> MAX. PRESS <u>      </u>
28		1/2 IN. NPT <u>      </u> OTHER <u>      </u>

QUANTITY        FORM        RATING       

MEAS. VAR.        DEVIATION        CONTACTS TO        ON INC. MEAS.       

PRESSURE ELEMENT        RANGE        MATL.       

TEMP. ELEMENT        RANGE        TYPE       

FILT REG.        SUP. GAGE        OUTPUT GAGE        CHARTS       

VALVE MANIFOLD       

COND. POTS        ADJ. DAMP        INTGRAL SQ. RT. EXT.       

INTEGRATOR       

OTHER Digital Meter

Honeywell Model # STD720-E1AS4AS-1-A-AHB-11C-A-21A0-00-0000

NOTES: With PGI 3-Valve stainless steel manifold # M-650SCT-VSH assembled to transmitter flange by 1/2" NPT

# UOP RUSSELL, TULSA, OKLAHOMA

**PROJECT:** Std 60mmscd Cryo - SC6  
**CUSTOMER:** UOP Russell  
**CUSTOMER JOB NO:** 488  
**PLANT:**  
**LOCATION:** Unknown

## DIFFERENTIAL PRESSURE INSTRUMENTS

SHEET 1 OF 1

SPEC. NO.

NO.	BY	DATE	REVISION	REV.
0	DP	12/13/2016		DATE 12/13/2016
				FLOW SHT 233
				BY DP
				CHK'D DP
				APPR.
				REQ. P.O.

1	TAG NO. <b>FT-501</b>	SERVICE Line 159-D1-LT-6"
2	FUNCTION	RECORD <input type="checkbox"/> INDICATE <input type="checkbox"/> CONTROL <input type="checkbox"/> BLIND <input type="checkbox"/> TRANS. <input checked="" type="checkbox"/> INTEG <input type="checkbox"/> OTHER <input type="checkbox"/>
3	CASE	MFR STD <input checked="" type="checkbox"/> NOM SIZE <input type="checkbox"/> COLOR: MFR STD <input type="checkbox"/> OTHER <input type="checkbox"/>
4	MOUNTING	FLUSH <input type="checkbox"/> SURFACE <input type="checkbox"/> YOKE <input type="checkbox"/> OTHER 304SS Angle Bracket
5	ENCLOSURE CLASS	GENERAL PURPOSE <input type="checkbox"/> WEATHER PROOF <input type="checkbox"/> EXPLOSION PROOF <input checked="" type="checkbox"/> CLASS 1
6	POWER SUPPLY	FOR USE IN INTRINSICALLY SAFE SYSTEM <input type="checkbox"/> OTHER FM Approved
7	CHART	117V 60 HZ <input type="checkbox"/> OTHER AC <input type="checkbox"/> DC 24 VOLTS
8	CHART DRIVE	12 IN. CIRC <input type="checkbox"/> OTHER AC <input type="checkbox"/> RANGE <input type="checkbox"/> NO. <input type="checkbox"/>
9	SCALE	24 HR OTHER <input type="checkbox"/> ELEC. <input type="checkbox"/> SPRING <input type="checkbox"/> OTHER <input type="checkbox"/>
10	TRANSMITTER OUTPUT	TYPE <input type="checkbox"/> RANGE <input type="checkbox"/> 1 <input type="checkbox"/> 2 <input type="checkbox"/> 3
11	CONTROL MODES	4-20 MA <input checked="" type="checkbox"/> 10-50 MA <input type="checkbox"/> 21-103KPA (3-15 PSIG) <input type="checkbox"/> OTHER HART
12	ACTION	FOR RECEIVER, SEE SPEC. SHEET
13	AUTO-MAN SWITCH	P=PROP (GAIN), I=INTEGRAL (AUTO RESET), D=DERIVATIVE (RATE)
14	SET POINT ADJ.	SUB: S=SLOW, F=FAST, IF <input type="checkbox"/> DF <input type="checkbox"/> P <input type="checkbox"/> PI <input type="checkbox"/> PD <input type="checkbox"/> PID <input type="checkbox"/> IS <input type="checkbox"/> DS <input type="checkbox"/>
15	MANUAL REG.	OTHER <input type="checkbox"/>
16	OUTPUT	ON MEAS. INCREASE OUTPUT: INCREASES <input type="checkbox"/> DECREASES <input type="checkbox"/>
17	SERVICE ELEMENT TYPE	NONE <input type="checkbox"/> MFR STD <input type="checkbox"/> OTHER <input type="checkbox"/>
18	MATERIAL	MANUAL <input type="checkbox"/> EXTERNAL <input type="checkbox"/> REMOTE <input type="checkbox"/> OTHER <input type="checkbox"/>
19	RATING	NONE <input type="checkbox"/> MFR STD <input type="checkbox"/> OTHER <input type="checkbox"/>
20	DIFF. RANGE	4-20 MA <input type="checkbox"/> 10-50 MA <input type="checkbox"/> 21-103 KPA (3-15 PSIG) <input type="checkbox"/> OTHER <input type="checkbox"/>
21	ELEVATION	FLOW <input checked="" type="checkbox"/> LEVEL <input type="checkbox"/> DIFF. PRESS <input type="checkbox"/> OTHER <input type="checkbox"/>
22	PROCESS DATA	DIAPHRAM <input checked="" type="checkbox"/> BELLOWS <input type="checkbox"/> MERCURY <input type="checkbox"/> OTHER <input type="checkbox"/>
23	PROCESS CONN.	BODY <input type="checkbox"/> ELEMENT <input type="checkbox"/>
24	ALARM SWITCHES	OVERRANGE <input type="checkbox"/> BODY RATING <input type="checkbox"/> PSIG
25	FUNCTION	FIXED <input type="checkbox"/> ADJ. RANGE -400 - +400" WC SET AT 100" WC
26	OPTIONS	ELEVATION <input type="checkbox"/> SUPPRESSION <input type="checkbox"/>
27	MFR & MODEL NO.	FLUID <input type="checkbox"/> MAX. TEMP. <input type="checkbox"/> MAX. PRESS <input type="checkbox"/>
28		1/2 IN. NPT <input type="checkbox"/> OTHER <input type="checkbox"/>
29		QUANTITY <input type="checkbox"/> FORM <input type="checkbox"/> RATING <input type="checkbox"/>
30		MEAS. VAR. <input type="checkbox"/> DEVIATION <input type="checkbox"/> CONTACTS TO <input type="checkbox"/> ON INC. MEAS.
31		PRESSURE ELEMENT <input type="checkbox"/> RANGE <input type="checkbox"/> MATL. <input type="checkbox"/>
32		TEMP. ELEMENT <input type="checkbox"/> RANGE <input type="checkbox"/> TYPE <input type="checkbox"/>
33		FILT REG. <input type="checkbox"/> SUP. GAGE <input type="checkbox"/> OUTPUT GAGE <input type="checkbox"/> CHARTS <input type="checkbox"/>
34		VALVE MANIFOLD <input type="checkbox"/>
35		COND. POTS <input type="checkbox"/> ADJ. DAMP <input type="checkbox"/> INTGRAL SQ. RT. EXT. <input type="checkbox"/>
36		INTEGRATOR <input type="checkbox"/>
37		OTHER Digital Meter
38		Honeywell Model STD720-E1AS4AS-1-A-AHB-11C-A-21A0-00-0000

NOTES: With PGI 3-Valve stainless steel manifold # M-650SCT-VSH assembled to transmitter flange by 1/2" NPT

<b>UOP RUSSELL, TULSA, OKLAHOMA</b> <b>PROJECT:</b> Std 60mmscfd Cryo - SC6 <b>CUSTOMER:</b> UOP Russell <b>CUSTOMER JOB NO:</b> 447 <b>PLANT:</b> <b>LOCATION:</b> Unknown		DIFFERENTIAL PRESSURE			SHEET 1 OF 1	
		INSTRUMENTS			SPEC. NO.	
		NO.	BY	DATE	REVISION	REV.
		0	DP	11/28/2016		DATE 11/28/2016
						FLOW SHT 236
				BY DP		
				CHK'D DP		
				APPR.		
				REQ. P.O.		

1	TAG NO. <b>FT-602</b>	SERVICE Discharge Line 215-E1-CS-4" from Product Booster Pumps
2	FUNCTION	RECORD _____ INDICATE _____ CONTROL _____ BLIND _____ TRANS. <u>X</u> INTEG _____ OTHER _____
3	CASE	MFR STD <u>X</u> NOM SIZE _____ COLOR: MFR STD _____ OTHER _____
4	MOUNTING	FLUSH _____ SURFACE _____ YOKE _____ OTHER 304SS Angle Bracket
5	ENCLOSURE CLASS	GENERAL PURPOSE _____ WEATHER PROOF _____ EXPLOSION PROOF <u>X</u> CLASS 1
6	POWER SUPPLY	FOR USE IN INTRINSICALLY SAFE SYSTEM _____ OTHER FM Approved
7	CHART	117V 60 HZ _____ OTHER AC _____ DC 24 VOLTS
8	CHART DRIVE	12 IN. CIRC _____ OTHER AC _____ RANGE _____ NO. _____
9	SCALE	24 HR OTHER _____ ELEC. _____ SPRING _____ OTHER _____
10	TRANSMITTER OUTPUT	TYPE _____ RANGE _____ 1 _____ 2 _____ 3 _____
11	CONTROL MODES	4-20 MA <u>X</u> 10-50 MA _____ 21-103KPA (3-15 PSIG) _____ OTHER HART
12	ACTION	FOR RECEIVER, SEE SPEC. SHEET _____
13	AUTO-MAN SWITCH	P=PROP (GAIN), I=INTEGRAL (AUTO RESET), D=DERIVATIVE (RATE)
14	SET POINT ADJ.	SUB: S=SLOW, F=FAST, IF _____ DF _____ P _____ PI _____ PD _____ PID _____ IS _____ DS _____
15	MANUAL REG.	OTHER _____
16	OUTPUT	ON MEAS. INCREASE OUTPUT: INCREASES _____ DECREASES _____
17	SERVICE ELEMENT TYPE	NONE _____ MFR STD _____ OTHER _____
18	MATERIAL	MANUAL _____ EXTERNAL _____ REMOTE _____ OTHER _____
19	RATING	NONE _____ MFR STD _____ OTHER _____
20	DIFF. RANGE	4-20 MA _____ 10-50 MA _____ 21-103 KPA (3-15 PSIG) _____ OTHER _____
21	PROCESS DATA	FLOW <u>X</u> LEVEL _____ DIFF. PRESS _____ OTHER _____
22	PROCESS CONN.	DIAPHRAM <u>X</u> BELLWOS _____ MERCURY _____ OTHER _____
23	ALARM SWITCHES	BODY _____ ELEMENT _____
24	FUNCTION	OVERRANGE _____ BODY RATING _____ PSIG
25	OPTIONS	FIXED _____ ADJ. RANGE -400 - +400" WC SET AT 100" WC
26	MFR & MODEL NO.	ELEVATION _____ SUPPRESION _____
27		FLUID _____ MAX. TEMP. _____ MAX. PRESS _____
28		1/2 IN. NPT _____ OTHER _____
29		QUANTITY _____ FORM _____ RATING _____
30		MEAS. VAR. _____ DEVIATION _____ CONTACTS TO _____ ON INC. MEAS. _____
31		PRESSURE ELEMENT _____ RANGE _____ MATL. _____
32		TEMP. ELEMENT _____ RANGE _____ TYPE _____
33		FILT REG. _____ SUP. GAGE _____ OUTPUT GAGE _____ CHARTS _____
34		VALVE MANIFOLD _____
35		COND. POTS _____ ADJ. DAMP _____ INTGRAL SQ. RT. EXT. _____
36		INTEGRATOR _____
37		OTHER <u>Digital Meter</u>
38		Honeywell Model # STD720-E1AS4AS-1-A-AHB-11C-A-21A0-00-0000

NOTES: With PGI 3-Valve stainless steel manifold # M-650SCT-VSH assembled to transmitter flange by 1/2" NPT

**UOP RUSSELL, TULSA, OKLAHOMA**

**PROJECT:** Std 60mmscd Cryo - SC6  
**CUSTOMER:** UOP Russell  
**CUSTOMER JOB NO:** 488  
**PLANT:**  
**LOCATION:** Unknown

DIFFERENTIAL PRESSURE  
INSTRUMENTS

SHEET 1 OF 1

SPEC. NO.

NO.	BY	DATE	REVISION	REV.	
0	JKG	10/2/2017		0	
				DATE	10/2/2017
				FLOW SHT	291
				BY	JKG
				CHK'D	DP
				APPR.	
				REQ. P.O.	

1	TAG NO. <b>FT-781</b>	SERVICE H-781 HMO Heater - Discharge Line 611-A1-CS-6" to E-207
2	FUNCTION	RECORD _____ INDICATE _____ CONTROL _____ BLIND _____ TRANS. <input checked="" type="checkbox"/> INTEG _____ OTHER _____
3	CASE	MFR STD <input checked="" type="checkbox"/> NOM SIZE _____ COLOR: MFR STD _____ OTHER _____
4	MOUNTING	FLUSH _____ SURFACE _____ YOKE _____ OTHER 304SS Angle Bracket
5	ENCLOSURE CLASS	GENERAL PURPOSE _____ WEATHER PROOF _____ EXPLOSION PROOF <input checked="" type="checkbox"/> CLASS 1
6	POWER SUPPLY	FOR USE IN INTRINSICALLY SAFE SYSTEM _____ OTHER FM Approved
7	CHART	117V 60 HZ _____ OTHER AC _____ DC 24 _____ VOLTS _____
8	CHART DRIVE	12 IN. CIRC _____ OTHER AC _____ RANGE _____ NO. _____
9	SCALE	24 HR OTHER _____ ELEC. _____ SPRING _____ OTHER _____
10	TRANSMITTER OUTPUT	TYPE _____ RANGE _____ 1 _____ 2 _____ 3 _____
11	CONTROL MODES	4-20 MA <input checked="" type="checkbox"/> 10-50 MA _____ 21-103KPA (3-15 PSIG) _____ OTHER HART
12	ACTION	FOR RECEIVER, SEE SPEC. SHEET _____
13	AUTO-MAN SWITCH	P=PROP (GAIN), I=INTEGRAL (AUTO RESET), D=DERIVATIVE (RATE)
14	SET POINT ADJ.	SUB: S=SLOW, F=FAST, IF _____ DF _____ P _____ PI _____ PD _____ PID _____ IS _____ DS _____
15	MANUAL REG.	OTHER _____
16	OUTPUT	ON MEAS. INCREASE OUTPUT: INCREASES _____ DECREASES _____
17	SERVICE ELEMENT TYPE	NONE _____ MFR STD _____ OTHER _____
18	MATERIAL	MANUAL _____ EXTERNAL _____ REMOTE _____ OTHER _____
19	RATING	NONE _____ MFR STD _____ OTHER _____
20	DIFF. RANGE	4-20 MA _____ 10-50 MA _____ 21-103 KPA (3-15 PSIG) _____ OTHER _____
21	ELEVATION	FLOW <input checked="" type="checkbox"/> LEVEL _____ DIFF. PRESS _____ OTHER _____
22	PROCESS DATA	DIAPHRAM <input checked="" type="checkbox"/> BELLOWS _____ MERCURY _____ OTHER _____
23	PROCESS CONN.	BODY _____ ELEMENT _____
24	ALARM SWITCHES	OVERRANGE _____ BODY RATING _____ PSIG _____
25	FUNCTION	FIXED _____ ADJ. RANGE -400 - +400" WC SET AT 100" WC
26	OPTIONS	ELEVATION _____ SUPPRESSION _____
27	MFR & MODEL NO.	FLUID _____ MAX. TEMP. _____ MAX. PRESS _____
28		1/2 IN. NPT _____ OTHER _____
		QUANTITY _____ FORM _____ RATING _____
		MEAS. VAR. _____ DEVIATION _____ CONTACTS TO _____ ON INC. MEAS.
		PRESSURE ELEMENT _____ RANGE _____ MATL. _____
		TEMP. ELEMENT _____ RANGE _____ TYPE _____
		FILT REG. _____ SUP. GAGE _____ OUTPUT GAGE _____ CHARTS _____
		VALVE MANIFOLD _____
		COND. POTS _____ ADJ. DAMP _____ INTGRAL SQ. RT. EXT. _____
		INTEGRATOR _____
		OTHER Digital Meter
28	MFR & MODEL NO.	Honeywell Model # STD720-E1AS4AS-1-A-11C-A-21A0-00-0000

NOTES: With PGI 3-Valve stainless steel manifold # M-650SCT-VSH assembled to transmitter flange by 1/2" NPT





# Sliding Stem Valve Specification

Customer: <b>UOP RUSSELL LLC</b>	Vinson Process Controls	
Contact: <b>JAKE GASKINS</b>	Contact: <b>Ron Berte</b>	
Customer Reference: <b>JOB 488 SC6 RSV PLANT</b>	Sales Office Reference:	Lead Time: <b>14 WKS</b>
Item: <b>18</b>	Rev:                      Qty: <b>1</b>	Quote: <b>027D-RCB-171013-0211425</b>
Tags: <b>LCV-402</b>	Date Last Modified: <b>10/13/2017</b>	Rev: <b>A</b>
Description: <b>NPS 3 ET 667 Size 45i DVC6200 ASCO Factory Mtgs DVC6200/DVC2000</b>		
Price Each:	Total Price:	
Service Description:		

Service: Size and Type: <b>NPS 3 ET</b> Body Style: <b>Globe</b> Design Temp: <b>-88 TO +150 F</b> Design Press: <b>1100 psig</b> End Connect/In/Out: <b>CL600/RF Flg/RF Flg</b> Material: <b>CF8M SST</b> Ports: <b>1</b> Flow Direction: <b>Down</b> Trim Number: <b>27</b> Cage Matl: <b>S31600 SST/ENC</b> Retainer Matl: Bushing Matl: Seat Ring Matl: <b>CoCr-A Seat</b> VALVE PLUG Material: <b>S31600 SST/CoCr-A Seat/Guide</b> Guiding: <b>Cage</b> Balance: <b>Balanced</b> Shutoff Class: <b>ANSI CL IV</b> Port Size: <b>2 5/16 Inch</b> Characteristic: <b>Equal Percent</b> Stem Material: <b>S31600 SST</b> Stem Size: <b>1/2 Inch</b> Bonnet Style: <b>Style 2 Extension</b> Boss Size: <b>2 13/16</b> Packing: <b>Single PTFE</b> Access: <b>No</b> Bolt, Bonnet: <b>SA-193-B8M Str Hd Studs/8M Nuts</b> PackFlg/Bltg: <b>SST Pkg Flg, SST Studs &amp; Nuts</b> Actuator: <b>Spring &amp; Diaphragm</b> Type/Size: <b>667/45i</b> Travel: <b>1 1/8 Inch</b> Bench Set: <b>10-30 psi</b> Push Down To: <b>PDTC</b> Supply: <b>Air</b> To Actuator: <b>0 to 33 psig</b> Fails Valve: <b>Close</b> Handwheel: <b>None</b>	Positioner Type: <b>DVC6200,HART Communicating-HC</b> Input Signal: <b>4 to 20 mA dc</b> Access: <b>67CFR Filter/Regulator</b> Gauges: <b>0-60 psig/0-4 bar</b> Action: <b>Direct</b> Certification: <b>Explosion Proof/Intrinsic Safe/Nonincendive,FM</b> Controller Type: Action: Measure Element: Range: Output: Mounting: Airset: Mounting: Transducer: Input Signal: Output Signal: Action: Mounting: Airset: Certifications: Line In: <b>6 in, SCH XS</b> Line Out: <b>6 in, SCH XS</b> Insulation: Service Cond: <b>THROTTLING</b> Process Fluid: <b>HC LIQ</b> Critical Pressure: <b>1339.000 psia</b> Shutoff Drop: <b>785 psi</b> Max Rated Cv: <b>70.7</b>
--	---

Variable Name	Unit	Minimum	Normal	Maximum	
Volumetric Flow Rate Liquid (Ql)	<b>gpm(US)</b>	<b>172.000</b>	<b>430.000</b>	<b>477.000</b>	
Inlet Pressure (P1)	<b>psig</b>	<b>785.000</b>	<b>785.000</b>	<b>785.000</b>	
Pressure Change (dP)	<b>psi</b>	<b>575.000</b>	<b>575.000</b>	<b>575.000</b>	
Inlet Temperature (T1)	<b>deg F</b>	<b>-30.000</b>	<b>-30.000</b>	<b>-30.000</b>	
SG		<b>0.410</b>	<b>0.410</b>	<b>0.410</b>	
Dynamic Viscosity (Mu)	<b>cP</b>	<b>0.073</b>	<b>0.073</b>	<b>0.073</b>	
Vapor Pressure (Pv)	<b>psia</b>	<b>8.000</b>	<b>8.000</b>	<b>8.000</b>	
Sizing Coefficient (Cv)		<b>4.593</b>	<b>11.491</b>	<b>12.749</b>	
% Open		<b>29</b>	<b>51</b>	<b>53</b>	
Valve Lpa (LpAe1m)	<b>dB(A)</b>	<b>78</b>	<b>82</b>	<b>83</b>	

NOTES:  
 1. SST TUBING & FITTINGS  
 2. INCLUDED ASCO MODEL EF8320G200 24VDC SOL VVE DE-ENG TO VENT.



# Valve/Regulator Sizing Calculation

Customer: **UOP RUSSELL LLC**      Vinson Process Controls  
 Contact: **JAKE GASKINS**      Contact: **Ron Berte**  
 Customer Reference: **JOB 488 SC6 RSV PLANT**      Sales Office Reference:  
 Item: **13**      Rev:      Qty: **1**      Quote: **027D-RCB-171013-0211425/(No Name Assigned)**      Lead Time: **12 WKS**  
 Date Last Modified: **10/13/2017**      Rev: **A**  
 Tags: **LCV-404**  
 Description: **NPS 2 HPS 667 Size 45i DVC6200 ASCO Factory Mtgs DVC6200/DVC2000**  
 Price Each:  
 Service Description:  
**MAKE THIS ORDER TO FISHER**  
 Total Price:

Sizing Type: Liquid	Flow is Turbulent	Solving for: Cv	Noise is Hydrodynamic	Flow is Mass
Variable Name	Units	Minimum	Normal	Maximum
<b>SERVICE &amp; SIZING</b>				
Liquid		HC LIQ	HC LIQ	HC LIQ
Specific Gravity (SG)		0.460	0.460	0.460
Inlet Pressure (P1)	psig	545.000	545.000	545.000
Pressure Change (dP)	psi	325.000	325.000	325.000
Inlet Temperature (T1)	deg F	154.0000	154.0000	154.0000
Mass Flow Rate Liquid (wl)	lb/h	9870.000	24674.000	27416.000
Pressure Recovery Factor (FI)		0.930	0.930	0.930
Valve style modifier (Fd)		0.350	0.350	0.350
Cavitation coefficient (Kc)		0.860	0.860	0.860
Dynamic Viscosity (Mu)	cP	0.079	0.079	0.079
Vapor Pressure (Pv)	psia	140.000	140.000	140.000
Critical Pressure (Pc)	psia	1375.000	1375.000	1375.000
Atmospheric Pressure	psi	14.69	14.69	14.69
Pipe Size Up	in	3	3	3
Pipe Schedule Up		XS	XS	XS
Pipe Size Down	in	3	3	3
Pipe Schedule Down		XS	XS	XS
Nominal Valve Diameter (dv)	in	2.000	2.000	2.000
Sizing Coefficient (Cv)		1.614	4.035	4.484
% Open		42	66	69
Application Ratio (Ar)		0.774	0.774	0.774
dP Cavitation	psi	360.909	360.780	360.744
dP Choked	psi	378.626	378.489	378.451
Fp		1.000	1.000	1.000
<b>NOISE CALCULATION</b>				
Hydrodynamic Trim		Standard Trim	Standard Trim	Standard Trim
Valve Lpa (LpAe1m)	dB(A)	62	66	66
<b>VELOCITY OUTPUTS</b>				
V1 Pipe	ft/s	2.083	5.207	5.785
V2 Pipe	ft/s	2.083	5.207	5.785
Item Notes:				

Skid 2 relocated from UOPP Job 488 to 447



## Sliding Stem Valve Specification

Customer: <b>UOP RUSSELL LLC</b>	Vinson Process Controls	
Contact: <b>Dennis Paden</b>	Contact: <b>Ron Berte</b>	
Customer Reference: <b>UOP RUSSELL, SC6</b>	Sales Office Reference <b>VVES</b>	Lead Time: <b>10 WKS</b>
<b>STD PLANT</b>		
Item: <b>2</b>	Rev:	Qty: <b>1</b>
Tags: <b>LCV-441B</b>	Date Last Modified: <b>11/08/2016</b>	Rev: <b>A</b>
Description <b>NPS 1 D4 846</b>		

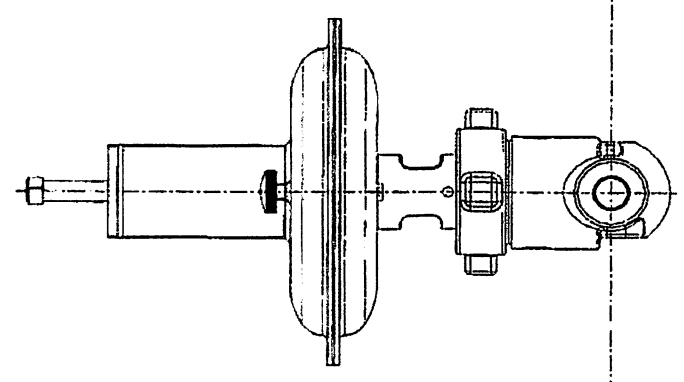
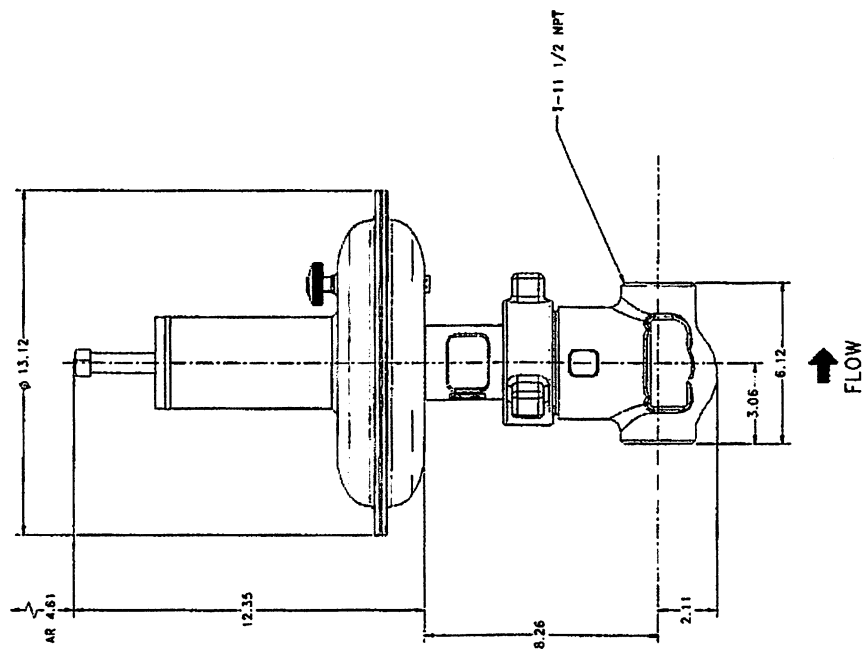
**Service Description:**

<b>Service</b> Size and Type: <b>NPS 1 D4</b> Body Style: <b>Globe</b> Design Temp: <b>150 F</b> Design Press: <b>1100 psig</b> End Connect/In/Out: <b>4250 psi @ 100 Deg F/NPT/NPT</b> Material: <b>LCC Steel 20B101</b> Ports: <b>1</b> Flow Direction: <b>Up</b>	<b>Positioner Type:</b> Input Signal: Access: <b>None</b> Gauges: Action: Certification: <b>Controller Type:</b> Action: Measure Element: Range: Output: Mounting: Airset: Mounting:
Trim Number: <b>S17400 SST H1150 Tungsten Carbide</b> Cage Mat: Retainer Mat: Bushing Mat: Seat Ring Mat: <b>S17400 SST DBL H1150/ST Carbide</b> <b>VALVE PLUG</b> Material: <b>S17400 SST DBL H1150/ST Carbide</b> Guiding: <b>Post</b> Balance: Shutoff Class: <b>ANSI CL IV</b> Port Size: <b>1/4 inch</b> Characteristic: <b>Micro-Form (Eq Pct)</b> Stem Material: <b>S20910 SST</b> Stem Size:	Transducer: <b>846</b> Input Signal: <b>4 to 20 mA dc</b> Output Signal: <b>0.6 to 33 psig</b> Action: <b>Direct</b> Mounting: <b>Casing</b> Airset: <b>67CFR Filter/Regulator</b> Certifications: <b>FM and CSA,Exp. Proof/Intrinsically Safe/Non-Incendive/Dust Ignition</b>
Bonnet Style: <b>Standard</b> Boss Size: Packing: <b>Live Loaded PTFE</b> Access: Bolt, Bonnet: PackFlg/Blfg:	Line In: <b>1 in, SCH 160</b> Line Out: <b>1 in, SCH 160</b> Insulation: Service Cond: <b>ON-OFF</b> Process Fluid: <b>WASTE</b>
Actuator: <b>DIAPH</b> Type/Size: <b>D440</b> Travel: <b>3/4 inch</b> Bench Set: Push Down To: <b>PDTC</b> Supply: <b>AIR</b> To Actuator: <b>0-30, 0-33, 0-35, 0-50 or 6-30 psig</b> Falls Valve: <b>CLOSED</b> Handwheel: <b>None</b>	Max Rated Cv: <b>1.76</b>

Variable Name	Unit	Minimum	Normal	Maximum	
Volumetric Flow Rate Liquid (Ql)	gpm(US)	2.000	5.000	10.000	
Inlet Pressure (P1)	psig	900.000	900.000	900.000	
Pressure Change (dP)	psi	880.000	880.000	880.000	
SG		0.990	0.990	0.990	
Dynamic Viscosity (Mu)	cP	0.530	0.530	0.530	
Sizing Coefficient (Cv)		0.069	0.172	0.345	
% Open		5	31	52	

**NOTES:**  
 1. SST TUBING & FITTINGS

FEATURES PICTORIALLY TYPICAL ORIENTATION MAY DIFFER



DIMENSIONS CERTIFIED CORRECT BY FISHER CONTROLS		FISHER		© Fisher Controls Inc. 11/22/2018	
CUST: UOP RUSSELL LLC		64 VALVE BODY SIZE 1		ACTUATOR SIZE 40	
CUST REF NO.: JOB 447, UOP RUSSELL, SC6 STD PLANT		CUST ITEM: 0002		S. NO.	
FISHER REF NO.: 0270-FCB-161121-0190534		SCALE: NONE		REV	
TAG NO.: LCV-441B		REV NO		A	
PROJECT NAME:		EMERSON		Process Management	
TOTAL CALCULATED WT +/- 10%		GENERAL ARRANGEMENT		SHEET 1 OF 1	
TOTAL WEIGHT: 66.7 lb		UNIT OF MEASURE: INCH			
UNLESS OTHERWISE SPECIFIED					

FACE TO FACE TOLERANCE IS +/- 0.08 INCH  
 AR = ACTUATOR REMOVAL CLEARANCE



## Sliding Stem Valve Specification

Customer: UOP RUSSELL LLC Contact: Dennis Paden Customer Reference: UOP RUSSELL, SC6 STD PLANT Item: 4 Tags: LCV-447 Description: NPS 1 D4 846	Vinson Process Controls Contact: Ron Berte Sales Office Reference: VVES Rev:            Qty: 1 Date Last Modified: 11/08/2016	Lead Time: 10 WKS Rev: A
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**Service Description:**

<b>Service:</b> <b>Size and Type:</b> NPS 1 D4 <b>Body Style:</b> Globe <b>Design Temp:</b> 150 F <b>Design Press:</b> 1100 psig <b>End Connect/In/Out:</b> 4250 psi @ 100 Deg FNPT/NPT <b>Material:</b> LCC Steel 20B101 <b>Ports:</b> 1 <b>Flow Direction:</b> Up <b>Trim Number:</b> S17400 SST H1160 Tungsten Carbide <b>Cage Mat:</b> <b>Retainer Mat:</b> <b>Bushing Mat:</b> <b>Seat Ring Mat:</b> S17400 SST DBL H1160/ST Carbide <b>VALVE PLUG</b> <b>Material:</b> S17400 SST DBL H1160/ST Carbide <b>Guiding:</b> Post <b>Balance:</b> <b>Shutoff Class:</b> ANSI CL IV <b>Port Size:</b> 1/4 inch <b>Characteristic:</b> Micro-Form (Eq Pct) <b>Stem Material:</b> S20910 SST <b>Stem Size:</b> <b>Bonnet Style:</b> Standard <b>Boss Size:</b> <b>Packing:</b> Live Loaded PTFE <b>Access:</b> <b>Bolt, Bonnet:</b> <b>PackFig/Blig:</b> <b>Actuator:</b> DIAPH <b>Type/Size:</b> D4/40 <b>Travel:</b> 3/4 inch <b>Bench Set:</b> <b>Push Down To:</b> PDTC <b>Supply:</b> AIR <b>To Actuator:</b> 0-30, 0-33, 0-35, 0-50 or 6-30 psig <b>Fails Valve:</b> CLOSED <b>Handwheel:</b> None	<b>Positioner Type:</b> <b>Input Signal:</b> <b>Access:</b> None <b>Gauges</b> <b>Action:</b> <b>Certification:</b> <b>Controller Type:</b> <b>Action:</b> <b>Measure Element:</b> <b>Range:</b> <b>Output:</b> <b>Mounting:</b> <b>Airset:</b> <b>Mounting:</b> <b>Transducer:</b> 846 <b>Input Signal:</b> 4 to 20 mA dc <b>Output Signal:</b> 0.5 to 33 psig <b>Action:</b> Direct <b>Mounting:</b> Casing <b>Airset:</b> 67CFR Filter/Regulator <b>Certifications:</b> FM and CSA, Exp. Proof/Intrinsically Safe/Non-Incendive/Dust Ignition <b>Line In:</b> 1 in, SCH 160 <b>Line Out:</b> 1 in, SCH 160 <b>Insulation:</b> <b>Service Cond:</b> ON-OFF <b>Process Fluid:</b> WASTE <b>Max Rated Cv:</b> 1.75
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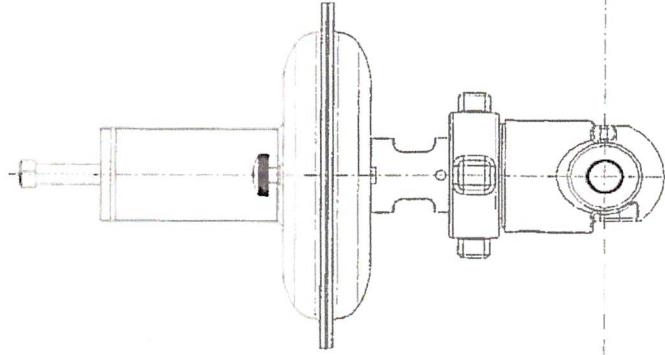
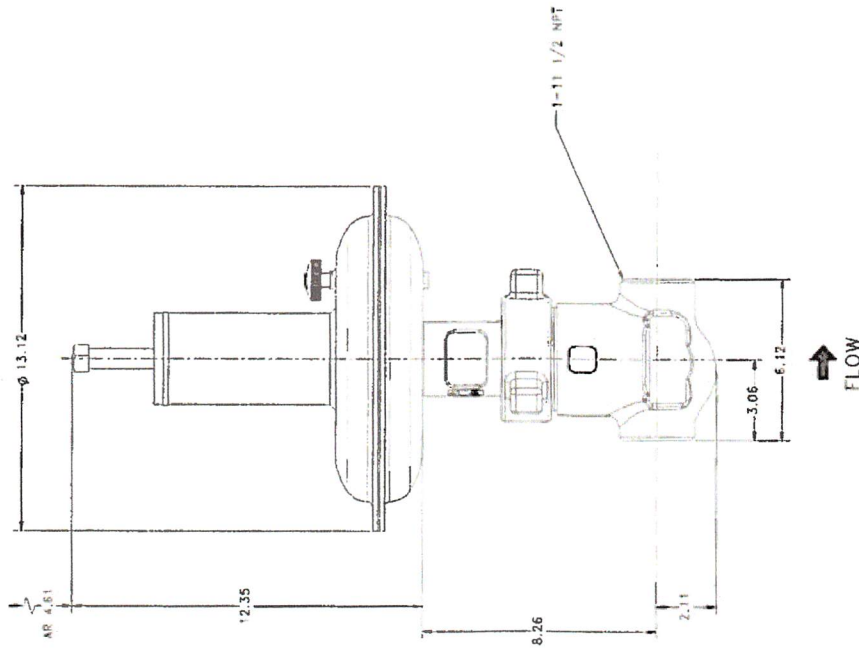
Variable Name	Unit	Minimum	Normal	Maximum	
Volumetric Flow Rate Liquid (Ql)	gpm(US)	2.000	5.000	10.000	
Inlet Pressure (P1)	psig	900.000	900.000	900.000	
Pressure Change (dP)	psi	880.000	880.000	880.000	
SG		0.990	0.990	0.990	
Dynamic Viscosity (Mu)	cP	0.530	0.530	0.530	
Sizing Coefficient (Cv)		0.069	0.172	0.348	
% Open		5	31	82	

**NOTES:**

1. SST TUBING & FITTINGS

FEATURES PICTORIALY TYPICAL

ORIENTATION MAY DIFFER



DIMENSIONS CERTIFIED CORRECT BY FISHER CONTROLS		© Fisher Controls Inc. 2018	
CUST: UOP RUSSELL LLC		04 VALVE BODY SIZE 1	
CUST REF NO.: JOB 447, UOP RUSSELL, \$66 STD PLANT		ACTUATOR SIZE 40	
FISHER REF NO.: 0270-RE6-161121-0190534			
SAGIND: 0270-RE6-161121-0190534			
PROJECT NAME:			
CUST ITEM: 0004		S. NO.	
TOTAL CALCULATED WT +/- 10%		SCALE: NONE	
TOTAL WEIGHT: 86.7 LB		REV. NO.	
UNLESS OTHERWISE SPECIFIED		SHEET 1 OF 1	
UNIT OF MEASURE: INCH		GENERAL ARRANGEMENT	
EMERSON		A	

FACE TO FACE TOLERANCE IS +/- 0.06 INCH  
AR = ACTUATOR REMOVAL CLEARANCE







UOP RUSSELL, TULSA, OKLAHOMA			LEVEL INSTRUMENTS (DISPLACER OR FLOAT)				SHEET 1 OF 1	
			NO	BY	DATE	REVISION	SPEC. NO.	
PROJECT: Std 60mmscfd Cryo - SC6							REV.	
CUSTOMER: UOP Russell							DATE 11/28/2016	
CUSTOMER JOB NO: 447							P&ID 235	
PLANT:							BY DP	
LOCATION: Unknown							CHK'D DP	
							APPR.	
							REQ. P.O.	
1 TAG NO.			<b>LI-404</b>					
2 SERVICE			Product Surge Tank					
3 LINE NO./VESSEL NO.			V-404					
4 BODY OR CAGE MATERIAL			304SS					
5 RATING			300# ANSI					
5 CONN. SIZE			3"					
6 CONN. SIZE UPPER TYPE			300# ANSI RFWN					
6 CONN. SIZE & LOC. LOWER			3"					
7 CONN. SIZE LOWER TYPE			300# ANSI RFWN					
7 CASE MOUNTING								
8 CASE MOUNTING TYPE								
8 ROTATABLE HEAD								
9 CHAMBER MOUNTING TYPE			C					
10 ORIENTATION								
11 COOLING EXTENSION								
12								
13 MIN. SPECIFIC GRAVITY								
14 INTERFACE			NA					
15 DISPLACER EXTENSION								
16 DISP. OR FLOAT MATERIAL			SS					
17 DISPLACER SPRING/TUBE MTL								
18 EXTERNAL CHAMBER								
19 PROCESS CONNECTIONS								
20 FUNCTION								
21 OUTPUT			4-20mA					
22 CONTROL MODES								
23 DIFFERENTIAL								
24 OUTPUT ACTION: LEVEL RISE								
25 MOUNTING			<b>BOTTOM OF CHAMBER</b>					
26 ENCLOSURE CLASS			EXPL. PROOF CL.1 DIV. 1					
27 ELEC. POWER OR AIR SUPPLY			24 VDC					
28								
29 UPPER LIQUID								
30 LOWER LIQUID			NGL					
31 SP.GR. UPPER			SP.GR. LOWER		0.43			
32 PRES. MAX			PRES. NORMAL		400 psig			
33 TEMP. MAX.			TEMP. NORM		200F			
34 MAXIMUM SPECIFIC GRAVITY			0.5					
35								
36 AIRSET			SUPPLY GAGE					
37 GAGE GLASS CONNECTIONS								
38 GAGE GLASS MODEL NO.								
39 CONTACTS:NUM			CONTACTS:FORM		1 SPDT			
40 CONTACT RATING			10 AMP					
41 ACTION OF CONTACTS			High / Low Levels					
42 POINT LEVEL SWITCHES			(2) MGS-700EX					
43 HART TRANSMITTER			(1) MG-2523-109"-BML-ALE-6S-200					
44								
45								
46 MANUFACTURER			PLT					
47 MODEL NUMBER			See Below					
48								
NOTES Model # MG-4S-C-3"-03-0.43-400-200F-109"-WFWN (109" Visible) ( flange face-to-face = 129" )								



UOP RUSSELL, TULSA, OKLAHOMA		LEVEL INSTRUMENTS (DISPLACER OR FLOAT)				SHEET 1 OF 1	
		PROJECT: Std 60mmscfd Cryo - SC6				SPEC. NO.	
		CUSTOMER: UOP Russell				REV.	
CUSTOMER JOB NO: 447		NO	BY	DATE	REVISION	DATE 11/28/2016	
PLANT:						FLOW SHT	
LOCATION: Unknown						BY DP	
						CHK'D DP	
						APPR.	
						REQ. P.O.	
B O D Y / C A G E	1	TAG NO. / (P&ID)		LSHH-441A (221)	LSHH-447 (223)	LSHH-402 (234)	
	2	SERVICE		Inlet Filter / Coalescer	Regen Gas Scrubber	Cold Separator	
	3	LINE NO./VESSEL NO.		F-441	V-447	V-402	
	4	BODY OR CAGE MATERIAL		CS	CS	SS	
	5	RATING		1480 psig @ 100F	1480 psig @ 100F	1480 psig @ 100F	
	6	CONN. SIZE		1" SIDE	1" SIDE	1" SIDE	
	7	CONN. SIZE UPPER TYPE		NPT	NPT	NPT	
	8	CONN. SIZE & LOC. LOWER		1" SIDE	1" SIDE	1" SIDE	
	9	CONN. SIZE LOWER TYPE		NPT	NPT	NPT	
	10	PROCESS C-C		14"	14"	14"	
	11	CASE MOUNTING TYPE					
	12	ROTATABLE HEAD		Yes	Yes	Yes	
D I S P L A C E R	13	BLANK 1					
	14	ORIENTATION		Verticle	Verticle	Verticle	
	15	COOLING EXTENSION		No	No	No	
	16	MIN. SPECIFIC GRAVITY					
	17	INTERFACE		No	No	No	
	18	DISPLACER EXTENSION					
	19	DISP. OR FLOAT MATERIAL		316SS	316SS	316SS	
	20	DISPLACER SPRING/TUBE MTL		416SS	416SS	416SS	
	21	LEVEL SWITCH					
	22	PROCESS CONNECTIONS					
X M T T R	23	FUNCTION		Shutdown	Shutdown	Shutdown	
	24	OUTPUT					
	25	CONTROL MODES		ON / OFF	ON / OFF	ON / OFF	
	26	DIFFERENTIAL					
	27	OUTPUT ACTION: LEVEL RISE		Open	Open	Open	
	28	MOUNTING					
	29	ENCLOSURE CLASS		NEMA 4	NEMA 4	NEMA 4	
	30	ELEC. POWER OR AIR SUPPLY		24 VDC	24 VDC	24 VDC	
S E R V I C E	31	BLANK 5					
	32	UPPER LIQUID					
	33	LOWER LIQUID		Waste	Waste	HC Liquid	
	34	SP.GR. UPPER	SP.GR. LOWER	0.45	0.45	0.42	
	35	PRES. MAX	PRES. NORMAL	1100 psig	1100 psig	1100 psig	
	36	TEMP. MAX.	TEMP. NORM	150F	150F	150F	
	37	DESIGN TEMPERATURE				-50F	
O P T I O N S	38	MAXIMUM SPECIFIC GRAVITY		0.99	0.99		
	39	AIRSET	SUPPLY GAGE				
	40	GAGE GLASS CONNECTIONS					
	41	GAGE GLASS MODEL NO.					
	42	CONTACTS:NUM	CONTACTS:FORM	1 C	1 C	1 C	
	43	CONTACT RATING		5 AMP	5 AMP	5 AMP	
	44	ACTION OF CONTACTS		NC	NC	NC	
	45	BLANK 8					
	46	BLANK 9					
	47	BLANK 10					
	48	BLANK 11					
49	MANUFACTURER		S.O.R.	S.O.R.	S.O.R.		
50	MODEL NUMBER		740A-C1A-B-L1-N4-TT	740A-C1A-B-L1-N4-TT	740C-C1A-C-F1-N4-TTX		
51	BLANK 12						

NOTES:

Stamp tag number on nameplate or metal tag

UOP RUSSELL, TULSA, OKLAHOMA		LEVEL INSTRUMENTS (DISPLACER OR FLOAT)				SHEET 1 OF 1	
		PROJECT: Std 60mmscfd Cryo - SC6		NO		SPEC. NO.	
				BY		REV.	
CUSTOMER: UOP Russell		DATE		11/28/2016		DATE 11/28/2016	
CUSTOMER JOB NO: 447		FLOW SHT		BY		DP	
PLANT:		CHK'D		DP		APPR.	
LOCATION: Unknown		REQ. P.O.					
1 TAG NO. / (P&ID)		LSHH-492 (298)		LSHH-441B (221)			
2 SERVICE		Cold Drain Tank		Inlet Filter / Coalescer			
3 LINE NO./VESSEL NO.		V-492		F-441			
4 BODY OR CAGE MATERIAL		SS		CS			
5 RATING		1480 psig @ 100F		1480 psig @ 100F			
6 CONN. SIZE		1" SIDE		1" SIDE			
7 CONN. SIZE UPPER TYPE		NPT		NPT			
8 CONN. SIZE & LOC. LOWER		1" SIDE		1" SIDE			
9 CONN. SIZE LOWER TYPE		NPT		NPT			
10 PROCESS C-C		14"		14"			
11 CASE MOUNTING TYPE							
12 ROTATABLE HEAD		Yes		Yes			
13 BLANK 1							
14 ORIENTATION		Verticle		Verticle			
15 COOLING EXTENSION		No		No			
16 BLANK 2							
17 MIN. SPECIFIC GRAVITY							
18 INTERFACE		No		No			
19 DISPLACER EXTENSION							
20 DISP. OR FLOAT MATERIAL		316SS		316SS			
21 DISPLACER SPRING/TUBE MTL		416SS		416SS			
22 LEVEL SWITCH							
23 PROCESS CONNECTIONS							
24 FUNCTION		Shutdown		Shutdown			
25 OUTPUT							
26 CONTROL MODES		ON / OFF		ON / OFF			
27 DIFFERENTIAL							
28 OUTPUT ACTION: LEVEL RISE		Open		Open			
29 MOUNTING							
30 ENCLOSURE CLASS		NEMA 4		NEMA 4			
31 ELEC. POWER OR AIR SUPPLY		24 VDC		24 VDC			
32 BLANK 5							
33 UPPER LIQUID							
34 LOWER LIQUID		Waste		Waste			
35 SP.GR. UPPER		SP.GR. LOWER		0.42		0.45	
36 PRES. MAX		PRES. NORMAL		150 psig		1100 psig	
37 TEMP. MAX.		TEMP. NORM		150F		150F	
38 DESIGN TEMPERATURE		-200F					
39 MAXIMUM SPECIFIC GRAVITY		0.5		0.99			
40 AIRSET		SUPPLY GAGE					
41 GAGE GLASS CONNECTIONS							
42 GAGE GLASS MODEL NO.							
43 CONTACTS:NUM		CONTACTS:FORM		1		C	
44 CONTACT RATING		5 AMP		5 AMP			
45 ACTION OF CONTACTS		NC		NC			
46 BLANK 8							
47 BLANK 9							
48 BLANK 10							
49 BLANK 11							
50 MANUFACTURER		S.O.R.		S.O.R.			
51 MODEL NUMBER		740C-C1A-C-F1-N4-TTX		740A-C1A-B-L1-N4-TT			
52 BLANK 12							
NOTES:							
Stamp tag number on nameplate or metal tag							

UOP RUSSELL, TULSA, OKLAHOMA		LEVEL INSTRUMENTS (DISPLACER OR FLOAT)				SHEET 1 OF 1	
		NO	BY	DATE	REVISION	SPEC. NO.	
PROJECT: Std 60mmscfd Cryo - SC6		0	JKG	9/26/2017		REV. 0	
CUSTOMER: UOP Russell						DATE 9/26/2017	
CUSTOMER JOB NO: J488						FLOW SHT	
PLANT:						BY JKG	
LOCATION: Unknown						CHK'D DP	
						APPR.	
						REQ. P.O.	
B O D Y / C A G E	1	TAG NO. / (P&ID)				LSHH-481 (296)	
	2	SERVICE				Fuel Gas Scrubber	
	3	LINE NO./VESSEL NO.				V-481	
	4	BODY OR CAGE MATERIAL				CS	
		RATING				1480 psig @ 100F	
	5	CONN. SIZE				1" SIDE	
		CONN. SIZE UPPER TYPE				NPT	
	6	CONN. SIZE & LOC. LOWER				1" SIDE	
		CONN. SIZE LOWER TYPE				NPT	
	7	PROCESS C-C				14"	
		CASE MOUNTING TYPE					
	8	ROTATABLE HEAD				Yes	
9	BLANK 1						
10	ORIENTATION				Verticle		
11	COOLING EXTENSION				No		
12	BLANK 2						
D I S P L A C E R	13	MIN. SPECIFIC GRAVITY					
	14	INTERFACE				No	
	15	DISPLACER EXTENSION					
	16	DISP. OR FLOAT MATERIAL				316SS	
	17	DISPLACER SPRING/TUBE MTL				416SS	
	18	LEVEL SWITCH					
	19	PROCESS CONNECTIONS					
X M T R	20	FUNCTION				Shutdown	
	21	OUTPUT					
	22	CONTROL MODES				ON / OFF	
	23	DIFFERENTIAL					
	24	OUTPUT ACTION: LEVEL RISE				Open	
	25	MOUNTING					
	26	ENCLOSURE CLASS				NEMA 4/4X	
	27	ELEC. POWER OR AIR SUPPLY				24 VDC	
	28					Hermetically Sealed	
S E R V I C E	29	UPPER LIQUID					
	30	LOWER LIQUID				HC Liquid	
	31	SP.GR. UPPER	SP.GR. LOWER			0.45	
	32	PRES. MAX	PRES. NORMAL			150 psig	
	33	TEMP. MAX.	TEMP. NORM			150F	
	34	DESIGN TEMPERATURE					
35	MAXIMUM SPECIFIC GRAVITY				0.54		
O P T I O N S	36	AIRSET	SUPPLY GAGE				
	37	GAGE GLASS CONNECTIONS					
	38	GAGE GLASS MODEL NO.					
	39	CONTACTS:NUM	CONTACTS:FORM			1 C	
	40	CONTACT RATING				5 AMP	
	41	ACTION OF CONTACTS				NC	
	42	BLANK 8					
	43	BLANK 9					
	44	BLANK 10					
	45	BLANK 11					
	46	MANUFACTURER				S.O.R.	
	47	MODEL NUMBER				740A-C1A-B-L1-N4-TT	
48	BLANK 12						
NOTES: Stamp tag number on nameplate or metal tag							

<b>UOP RUSSELL, TULSA, OKLAHOMA</b>		<u>Differential Pressure</u>			Sheet	1	of	1	
<b>Client</b>	UOP Russell	<u>Transmitter</u>			Date	11/28/2016	Rev.		
<b>Project</b>	Std 60mmscf Cryo - SC6	<u>w/ Remote Seal</u>			Contract	447	SPEC #		
<b>Area</b>	Unknown	<u>Specification</u>			Req.		BY	DP	
<b>Unit</b>					CHK'D	DP	PO		
<b>GENERAL</b>	1	Tag No.	<b>LT-402</b>						
	2	Description of Service	V-402 Cold Separator						
	3	P&ID No.	234						
<b>SERVICE CONDITIONS</b>			Minimum	Normal	Maximum	Unit			
	4	Pressure	0		1100 psig				
	5	Process Temperature	-50F		150F				
	6	Ambient Temperature	0	75F	100F				
<b>TRANSMITTER</b>	7	Manufacturer	Honeywell						
	8	Transmitter Model No.	YSTR73D-21CS(Y)B0-KJGBCDNT-A-AHB-11C-A-21A0-0000						
	9	Pressure Transmitter Type	DIFFERENTIAL PRESSURE						
	10	Calibrated Span	UOP RUSSELL - LATER						
	11	Adjustable Range	0 - 1000" WC						
	12	Output Signal	4-20mA; HART PROTOCOL; SMART						
	13	Wetted O-ring							
	14	Housing							
	15	Bolts							
	16	Mounting Brackets	304SS Angle Bracket						
	17	Conduit Entry Size							
	18	Isolating Diaphragm							
	19	Fill Fluid							
	20	Cert/Approval Type	FACTORY MUTUAL (FM) EXPLOSION PROOF						
	21	Meter	Digital Meter						
	22	Zero and Span Adjust							
	23	Transient Protection							
	24	Custom Configuration							
			<b>High Side Remote Seal</b>			<b>Low Side Remote Seal</b>			
	<b>REMOTE SEAL</b>	25	Remote Seal Model No.						
		26	Connection Type						
		27	Connection Standard	Same	THREADED REMOTE SEAL				
		28	Connection Size	Same	1/2-14 NPT				
		29	Connection Rating	Same	1250 PSI MAXIMUM WORKING PRESSURE				
30		Upper Housing Material	Same	316SS					
31		Diaphragm Material	Same	316LSS					
32		Gasket Material	Same	Teflon for lower housing					
33		Flushing Connections	Same	316SS					
34		Capillary Length	<b>5 FEET</b>	<b>10 FEET</b>					
35		Capillary Inner Diameter	Same	.03"					
36		Capillary Armour Material	Same	316SS					
37		Diaphragm Seal Fill Fluid	Same	Syltherm XLT					
<b>NOTES</b>	38	SUPPLY 1/2" NPT SS FLANGE ADAPTERS							
	39	304SS BOLTS AT SEAL(S)							
	40	TWO 1/4" FLUSHING CONNECTIONS. SS DRAIN / VENT IN FLUSHING CONNECTION							
	41	TEFLON GASKET (FOR USE WITH FLUSHING CONNECTION RING)							

This report is provided according to the terms and conditions of the Instrument Toolkit(TM) End-Use Customer License Agreement.

UOP RUSSELL, TULSA, OKLAHOMA		LEVEL INSTRUMENTS (DISPLACER OR FLOAT)				SHEET 1 OF 1	
		NO	BY	DATE	REVISION	SPEC. NO.	
PROJECT: Std 60mmscfd Cryo - SC6		0	DP	11/21/2016		REV.	
CUSTOMER: UOP Russell						DATE 11/21/2016	
CUSTOMER JOB NO: 447						FLOW SHT	
PLANT:						BY	DP
LOCATION: Unknown						CHK'D	DP
						APPR.	
						REQ. P.O.	
B O D Y / C A G E	1 TAG NO. / (P&ID)	LT-441A (221)		LT-441B (221)		LT-447 (223)	
	2 SERVICE	Inlet Filter / Coalescer		Inlet Filter / Coalescer		Regen Gas Scrubber	
	3 LINE NO./VESSEL NO.	F-441		F-441		V-447	
	4 BODY OR CAGE MATERIAL	CS		CS		CS	
	5 RATING	1480 psig @ 100F		1480 psig @ 100F		1480 psig @ 100F	
	6 CONN. SIZE	1-1/2" SIDE		1-1/2" SIDE		1-1/2" SIDE	
	7 CONN. SIZE UPPER TYPE	FNPT		FNPT		FNPT	
	8 CONN. SIZE & LOC. LOWER	1-1/2" SIDE		1-1/2" SIDE		1-1/2" SIDE	
	9 CONN. SIZE LOWER TYPE	FNPT		FNPT		FNPT	
	10 PROCESS FLG. CENTER-TO-CENTER	14"		14"		14"	
	11 CASE MOUNTING TYPE						
	12 ROTATABLE HEAD	Yes		Yes		Yes	
13 BLANK 1							
14 ORIENTATION Right Hand - # 1 - S3							
15 COOLING EXTENSION							
16 BLANK 2							
D I S P L A C E R	17 DIMENSIONS						
	18 INTERFACE	No		No		No	
	19 DISPLACER EXTENSION						
	20 DISP. OR FLOAT MATERIAL SS						
	21 DISPLACER SPRING/TUBE MTL SS						
22 LEVEL SWITCH							
23 PROCESS CONNECTIONS							
X M T R	24 FUNCTION Transmit						
	25 OUTPUT 4-20mA						
	26 CONTROL MODES						
	27 DIFFERENTIAL						
	28 OUTPUT ACTION: LEVEL RISE						
	29 MOUNTING						
	30 ENCLOSURE CLASS Expl. Proof						
31 ELEC. POWER OR AIR SUPPLY 24VDC							
32 OPTION HART Protocol							
S E R V I C E	33 UPPER LIQUID						
	34 LOWER LIQUID Waste						
	35 SP.GR. UPPER	SP.GR. LOWER	0.45	0.45	0.45	0.45	
	36 PRES. MAX	PRES. NORMAL	1100 psig	1100 psig	1100 psig		
	37 TEMP. MAX.	TEMP. NORM	150F	150F	150F		
38 MAXIMUM SPECIFIC GRAVITY 0.99							
39 BLANK 7							
O P T I O N S	40 AIRSET	SUPPLY GAGE					
	41 GAGE GLASS CONNECTIONS						
	42 GAGE GLASS MODEL NO.						
	43 CONTACTS:NUM	CONTACTS:FORM					
	44 CONTACT RATING						
	45 ACTION OF CONTACTS						
	46 BLANK 8						
	47 BLANK 9						
	48 BLANK 10						
	49 BLANK 11						
	50 MANUFACTURER FISHER						
51 MODEL NUMBER DLC3010-249B							
52 BLANK 12							
NOTES: Stamp tag number on nameplate or metal tag							

<b>UOP RUSSELL, LLC</b>					MOISTURE ANALYZER		SHEET 1 OF 1
							P&ID # 221
PROJECT:	Std 60mmscfd Cryo - SC6	<b>NO</b>	<b>BY</b>	<b>DATE</b>	<b>REVISION</b>	REV.	
CUSTOMER	UOP Russell	0	DP	11-28-16		DATE	11-28-16
CUSTOMER JOB NO:	447					FLOW SHEET	
PLANT:						BY	DP
LOCATION:	Unknown					CHK'D	DP
						APPR.	
						REQ. P.O.	
<b>METAL TAG: ME-446</b>							

QTY:	DESCRIPTION:	PhyMetrix, Inc.
1	On-Line Continuous Trace Moisture Analyzer Model ExMa-A-P, LCD Display, Expl. Proof, NEMA 4X/IP67 Enclosure	
1	Moisture Sensor good to design of 1100 psig (Operating at +/- 900 psig)	
1	Sample Conditioning System Model PSS-CH4, SST Enclosure, Inlet Shutoff Valve, Headline Model 170 Coalescer Filter, Drain Valve, Brooks Type Ar-Mite Armored Flowmeter, Exhaust Metering Valve	
<u>Process Conditions:</u>		
Operating Pressure;	875 psig	
Operating Temperature;	125F	
Fluid;	Natural Gas	
Analyzer:		
Range;	-166F/+68F Dewpoint (-110C / +20C)	
Oper. Range;	-148F/ 0F	
Output;	4-20 mADC in -148F / 0F Dewpoint	
Supply;	100-240 VAC 50/60 Hz.	
Analyzer: Class 1, Div. 1, Grps A,B,C,D		

NOTES:

<b>UOP RUSSELL, TULSA, OKLAHOMA</b> <b>PROJECT:</b> Std 60mmscfd Cryo - SC6 <b>CUSTOMER:</b> UOP Russell <b>CUSTOMER JOB NO:</b> 447 <b>PLANT:</b> <b>LOCATION:</b> Unknown			PRESSURE CONTROL VALVES				SHEET 1 OF 1		
			PILOTS AND REGULATORS						
			NO	BY	DATE	REVISION	SPEC. NO.		
			0	DP	11/21/2016		REV.		
							DATE 11/21/2016		
							BY DP		
							CHK'D DP		
							APPR		
							REQ. P.O.		
GENERAL	1	TAG NO. / (P&ID)	<b>PCV-741 (223)</b>		<b>PCV-101 (233)</b>		<b>PCV-781 (291)</b>		
	2	SERVICE	Regen Gas Heater		Expander / Compressor		HMO Heater		
	3	LINE NO. / VESSEL NO.	741-A1-CS-2" / H-741		198-D1-CS-1" / EC-101		781-A1-CS-2" / H-781		
	4	LINE SIZE / SCHED. NO.	2"		1"		2"		
	5	FUNCTION	Pressure Reducing		Pressure Reducing		Pressure Reducing		
BODY	6	TYPE OF BODY	Globe		Globe		Globe		
	7	BODY SIZE	PORT SIZE	2"	1/2"	1"	3/8"	1"	1/2"
	8	GUIDING	NO OF PORTS	One		One		One	
	9	END CONN. & RATING	2" NPT		1" NPT		1" NPT		
	10	BODY MATERIAL	Iron		WCC Steel		Iron		
	11	DIAPHRAGM MATERIAL	Nitrile		Neoprene		Nitrile		
	12	LUBRICATOR	ISOLAT. VALVE						
	13	SEAL TYPE							
	14	TRIM FORM							
	15	TRIM MATERIAL	SS		SS		SS		
	16	SEAT MATERIAL	Nitrile		Nylon		Nitrile		
	17	REQUIRED SEAT TIGHTNESS							
	18	MAX. ALLOW SOUND LEV. DBA							
	ACTUATOR / PILOT	19	TYPE OF ACTUATOR						
		20	PILOT						
		21	SUPPLY TO PILOT						
		22	SELF CONT.	EXT. CONN.					
		23	DIAPHRAGM MATERIAL						
24		DIAPHRAGM RATING							
25		SPRING RANGE							
26		SET POINT							
27		BLANK 1							
ACCESSORIES		28	FILT REG	SUPPLY GAGE					
	29	LINE STRAINER							
	30	HOUSING VENT							
	31	INTERNAL RELIEF							
	32	BLANK 2							
	33	BLANK 3							
SERVICE	34	a. FLOW UNITS LIQUID							
		b. FLOW UNITS STEAM							
		c. FLOW UNITS GAS							
	35	FLUID	Fuel Gas		Seal Gas		Fuel Gas		
	36	QUANT. MAX	MAX CV						
	37	QUANT. OPER	OPER CV						
	38	VALVE CV	VALVE FL						
	39	NORM IN. PRES	SET PRESSURE	85 psig	15 psig	500 psig	85 psig	10 psig	
	40	MAX. INLET PRESS.	150 PSIG		1000 psig		150 psig		
	41	MAX. SHUT OFF	MAX. DELTA P						
	42	TEMP. MAX	OPERATING	150F	75F	350F	75F	150F	75F
	43	OPER SP GR.	MOL. WEIGHT						
	44	OPER. VISC.	% FLASH						
	45	% SUPERHEAT	% SOLIDS						
	46	VAPOR PRESS	CRIT PRESS						
	47	SPRING RANGE	5 - 20 psig		240 - 500 psig		5 - 20 psig		
48	MANUFACTURER	FISHER		FISHER		FISHER			
49	MODEL NUMBER	627		627H		627			

NOTES: Stamp tag number on nameplate or metal tag

**UOP RUSSELL, TULSA, OKLAHOMA**

**PROJECT:** Std 60mmscfd Cryo - SC6  
**CUSTOMER:** UOP Russell  
**CUSTOMER JOB NO:** J488  
**PLANT:**  
**LOCATION:** Unknown

PRESSURE CONTROL VALVES  
PILOTS AND REGULATORS

SHEET 1 OF 1

NO	BY	DATE	REVISION	SPEC. NO.
0	JKG	9/26/2017		REV. 2
1	JMM	1/10/2018	Add "A" Suffix	DATE 1/9/2019
2	DP	1/9/2019	Rebuy 101A	BY JKG
				CHK'D DP
				APPR
				REQ. P.O.

GENERAL	1	TAG NO. / P&ID #		<b>PCV-101A (233)</b>			
	2	SERVICE		Expander / Compressor			
	3	LINE NO. / VESSEL NO.		198-D1-CS-1" / EC-101			
	4	LINE SIZE / SCHED. NO.		1"			
	5	FUNCTION		Pressure Reducing			
BODY	6	TYPE OF BODY		Globe			
	7	BODY SIZE	PORT SIZE	1"	3/8"		
	8	GUIDING	NO OF PORTS		One		
	9	END CONN. & RATING		1" NPT			
	10	BODY MATERIAL		WCC Steel			
	11	DIAPHRAGM MATERIAL		Neoprene			
	12	LUBRICATOR	ISOLAT. VALVE				
	13	SEAL TYPE					
	14	TRIM FORM					
	15	TRIM MATERIAL		SS			
	16	SEAT MATERIAL		Nylon			
	17	REQUIRED SEAT TIGHTNESS					
	18	MAX. ALLOW SOUND LEV. DBA					
	ACTUATOR / PILOT	19	TYPE OF ACTUATOR				
		20	PILOT				
		21	SUPPLY TO PILOT				
		22	SELF CONT.	EXT. CONN.			
		23	DIAPHRAGM MATERIAL				
24		DIAPHRAGM RATING					
25		SPRING RANGE					
ACCESSORIES	26	SET POINT					
	27	BLANK 1					
	28	FILT REG	SUPPLY GAGE				
	29	LINE STRAINER					
	30	HOUSING VENT					
	31	INTERNAL RELIEF					
	32	BLANK 2					
	33	BLANK 3					
SERVICE	34	a. FLOW UNITS LIQUID					
		b. FLOW UNITS STEAM					
		c. FLOW UNITS GAS					
	35	FLUID		Seal Gas			
	36	QUANT. MAX	MAX CV				
	37	QUANT. OPER	OPER CV				
	38	VALVE CV	VALVE FL				
	39	NORM IN. PRES	SET PRESSURE		500 psig		
	40	MAX. INLET PRESS.			1000 psig		
	41	MAX. SHUT OFF	MAX. DELTA P				
	42	TEMP. MAX	OPERATING	350F	75F		
	43	OPER SP GR.	MOL. WEIGHT				
	44	OPER. VISC.	% FLASH				
	45	% SUPERHEAT	% SOLIDS				
46	VAPOR PRESS	CRIT PRESS					
47	SPRING RANGE		240 - 500 psig				
48	MANUFACTURER		FISHER				
49	MODEL NUMBER		627H				

Skid 2 relocated from UOPR Job 488 to 447

NOTES: Stamp tag number on nameplate or metal tag



# Sliding Stem Valve Specification

Customer: **UOP RUSSELL LLC** Vinson Process Controls  
 Contact: **JAKE GASKINS** Contact: **Ron Berte**  
 Customer Reference: **JOB 488 SC6 RSV PLANT** Sales Office Reference:  
 Item: **10** Rev: Qty: **1** Quote: **027D-RCB-171013-0211425** Lead Time: **20 WKS**  
 Tags: **PCV-402B** Date Last Modified: **10/13/2017** Rev: **A**  
 Description: **NPS 4 ET 667 Size 45i DVC6200 TopWorx Switches ASCO Factory Mtgs DVC6200/DVC2000**  
 Price Each: Total Price:  
 Service Description:

Service:	Positioner Type:	<b>DVC6200,HART Communicating-HC</b>
Size and Type: <b>NPS 4 ET</b>	Input Signal:	<b>4 to 20 mA dc</b>
Body Style: <b>Globe</b>	Access:	<b>67CFR Filter/Regulator</b>
Design Temp: <b>-67 TO +150F</b>	Gauges:	<b>0-60 psig/0-4 bar</b>
Design Press: <b>1100 psig</b>	Action:	<b>Direct</b>
End Connect/In/Out: <b>CL600/RF Fig/RF Fig</b>	Certification:	<b>Explosion Proof/Intrinsic Safe/Nonincendive,FM</b>
Material: <b>CF8M SST</b>	Controller Type:	
Ports: <b>1</b>	Action:	
Flow Direction: <b>Up</b>	Measure Element:	
Trim Number: <b>312G</b>	Range:	
Cage Matl: <b>S31600 SST/ENC</b>	Output:	
Retainer Matl:	Mounting:	
Bushing Matl:	Airset:	
Seat Ring Matl: <b>R30006 Cobalt Alloy</b>	Mounting:	
VALVE PLUG	Transducer:	
Material: <b>S31600 SST/CoCr-A Seat/Guide</b>	Input Signal:	
Guiding: <b>Cage</b>	Output Signal:	
Balance: <b>Balanced</b>	Action:	
Shutoff Class: <b>ANSI CL IV</b>	Mounting:	
Port Size: <b>4 3/8 Inch</b>	Airset:	
Characteristic: <b>Whisper III (Linear)</b>	Certifications:	
Stem Material: <b>S20910 SST</b>	Line In:	<b>8 in, SCH 80</b>
Stem Size: <b>1/2 Inch</b>	Line Out:	<b>8 in, SCH 80</b>
Bonnet Style: <b>Style 2 Extension</b>	Insulation:	
Boss Size: <b>2 13/16</b>	Service Cond: <b>THROTTLING</b>	
Packing: <b>Single PTFE</b>	Process Fluid: <b>HC VAPOR</b>	
Access: <b>No</b>	Critical Pressure: <b>669.000 psia</b>	
Bolt, Bonnet: <b>SA-193-B8M Str Hd Studs/8M Nuts</b>	Shutoff Drop: <b>909 psi</b>	
PackFlg/Bltg: <b>SST Pkg Flg, SST Studs &amp; Nuts</b>		
Actuator: <b>Spring &amp; Diaphragm</b>		
Type/Size: <b>667/45i</b>		
Travel: <b>2 Inch</b>		
Bench Set: <b>11-31 psi</b>		
Push Down To: <b>PDTC</b>		
Supply: <b>Air</b>		
To Actuator: <b>0 to 33 psig</b>		
Fails Valve: <b>Close</b>		
Handwheel: <b>None</b>		
	Max Rated Cv:	<b>57 CV</b>

Variable Name	Unit	NEW MIN	NEW NORM	NEW MAX 1/2" TR	4
Mass Flow Rate Gas (w)	lb/h	34772.000	65200.000	112800.000	113954.819
Inlet Pressure (P1)	psig	909.000	909.000	909.000	909.000
Pressure Change (dP)	psi	709.000	709.000	709.000	709.000
Inlet Temperature (T1)	deg F	20.000	20.000	20.000	20.000
M / Gg	SG	0.700	0.700	0.700	0.700
Specific heats ratio (gamma)		1.280	1.280	1.280	1.280
Dynamic Viscosity (Mu)	cP	0.010	0.010	0.010	0.010
Sizing Coefficient (Cv)		17.326	32.519	56.417	57.000
% Open		74	89	99	100
Valve LpA(LpAeValve1m)	dB(A)	83	88	91	91

NOTES:  
 1. SST TUBING & FITTINGS  
 2. INCLUDES TOPWORX DXP-MX1GN4B STEM POSITION TRANSMITTER & SWITCHES.  
 3. INCLUDES ASCO EF8320G200 24VDC SOL VVE DE-ENG TO VENT.  
 4. SPRING LOADED SEAL RING



# Sliding Stem Valve Specification

Customer: <b>UOP RUSSELL LLC</b>	Vinson Process Controls	
Contact: <b>JAKE GASKINS</b>	Contact: <b>Ron Berte</b>	
Customer Reference: <b>JOB 488 SC6 RSV PLANT</b>	Sales Office Reference:	Lead Time: <b>10 WKS</b>
Item: <b>16</b>	Rev:                      Qty: <b>1</b>	Quote: <b>027D-RCB-171013-0211425</b>
Tags: <b>PCV-481A</b>	Date Last Modified: <b>10/13/2017</b>	Rev: <b>A</b>
Description: <b>NPS 1 1/2 EZ 667 Size 34i DVC6200 ASCO Factory Mtgs DVC6200/DVC2000</b>	Total Price:	
Price Each:		
Service Description:		

Service:	Positioner Type:	<b>DVC6200,HART Communicating-HC</b>
Size and Type: <b>NPS 1 1/2 EZ</b>	Input Signal:	<b>4 to 20 mA dc</b>
Body Style: <b>Globe</b>	Access:	<b>67CFR Filter/Regulator</b>
Design Temp: <b>150 deg F</b>	Gauges:	<b>0-60 psig/0-4 bar</b>
Design Press: <b>400 psig</b>	Action:	<b>Direct</b>
End Connect/In/Out: <b>CL600/NPT/NPT</b>	Certification:	<b>Explosion Proof/Intrinsic Safe/Nonincendive,FM</b>
Material: <b>WCC Steel</b>	Controller Type:	
Ports: <b>1</b>	Action:	
Flow Direction: <b>Up</b>	Measure Element:	
Trim Number: <b>101</b>	Range:	
Cage Matl:	Output:	
Retainer Matl: <b>CB7Cu-1 SST</b>	Mounting:	
Bushing Matl: <b>S17400 SST</b>	Airset:	
Seat Ring Matl: <b>S41600 SST</b>	Mounting:	
VALVE PLUG	Transducer:	
Material: <b>S41600 SST</b>	Input Signal:	
Guiding: <b>Post</b>	Output Signal:	
Balance: <b>Unbalanced</b>	Action:	
Shutoff Class: <b>ANSI CL IV</b>	Mounting:	
Port Size: <b>3/4 Inch</b>	Airset:	
Characteristic: <b>Micro-Form (Eq Pct)</b>	Certifications:	
Stem Material: <b>S31600 SST</b>	Line In:	<b>3 in, SCH STD</b>
Stem Size: <b>3/8 Inch</b>	Line Out:	<b>3 in, SCH STD</b>
Bonnet Style: <b>Plain</b>	Insulation:	
Boss Size: <b>2 1/8</b>	Service Cond:	<b>THROTTLING</b>
Packing: <b>Single PTFE</b>	Process Fluid:	<b>NATURAL GAS (0.65 SG)</b>
Access: <b>No</b>	Critical Pressure:	<b>669.000 psia</b>
Bolt, Bonnet: <b>SA-193-B7 Studs/2H Nuts NCF2</b>	Shutoff Drop:	<b>185 psi</b>
PackFlg/Bltg: <b>SST Pkg Flg, SST Studs &amp; Nuts</b>		
Actuator: <b>Spring &amp; Diaphragm</b>		
Type/Size: <b>667/34i</b>		
Travel: <b>3/4 Inch</b>		
Bench Set: <b>10-30 psi</b>		
Push Down To: <b>PDTC</b>		
Supply: <b>Air</b>		
To Actuator: <b>0 to 33 psig</b>		
Fails Valve: <b>Close</b>		
Handwheel: <b>None</b>		
	Max Rated Cv:	<b>10.2</b>

Variable Name	Unit	Minimum	Normal	Maximum	4
Mass Flow Rate Gas (w)	lb/h	339.633	853.552	934.345	2757.477
Inlet Pressure (P1)	psig	185.000	185.000	185.000	185.000
Pressure Change (dP)	psi	100.000	100.000	100.000	35.000
Inlet Temperature (T1)	deg F	104.000	104.000	104.000	104.000
M / Gg	SG	0.640	0.640	0.640	0.640
Specific heats ratio (gamma)		1.280	1.280	1.280	1.280
Dynamic Viscosity (Mu)	cP	0.010	0.010	0.010	0.010
Sizing Coefficient (Cv)		0.950	2.474	2.697	10.200
% Open		28	53	55	100
Valve LpA(LpAeValve1m)	dB(A)	61	71	72	72

NOTES:  
1. SST TUBING & FITTINGS  
2. INCLUDED ASCO MODEL EF8320G200 24VDC SOL VVE DE-ENG TO VENT.



# Sliding Stem Valve Specification

Customer: <b>UOP RUSSELL LLC</b>	Vinson Process Controls	
Contact: <b>JAKE GASKINS</b>	Contact: <b>Ron Berte</b>	
Customer Reference: <b>JOB 488 SC6 RSV PLANT</b>	Sales Office Reference:	Lead Time: <b>20 WKS</b>
Item: <b>11</b>	Rev:                      Qty: <b>1</b>	Quote: <b>027D-RCB-171013-0211425</b>
Tags: <b>PCV-501B</b>	Date Last Modified: <b>10/13/2017</b>	Rev: <b>A</b>
Description: <b>NPS 6 ET 657 Size 70i DVC6200 Factory Mtgs DVC6200/DVC2000</b>		
Price Each:		Total Price:
Service Description:		

Service: Size and Type: <b>NPS 6 ET</b> Body Style: <b>Globe</b> Design Temp: <b>-7 TO + 150 F</b> Design Press: <b>1100 psig</b> End Connect/In/Out: <b>CL600/RF Flg/RF Flg</b> Material: <b>WCC Steel</b> Ports: <b>1</b> Flow Direction: <b>Down</b> Trim Number: <b>27</b> Cage Matl: <b>S31600 SST/ENC</b> Retainer Matl: Bushing Matl: Seat Ring Matl: <b>CoCr-A Seat</b> VALVE PLUG Material: <b>S31600 SST/CoCr-A Seat/Guide</b> Guiding: <b>Cage</b> Balance: <b>Balanced</b> Shutoff Class: <b>ANSI CL IV</b> Port Size: <b>7 Inch</b> Characteristic: <b>Equal Percent</b> Stem Material: <b>S31600 SST</b> Stem Size: <b>3/4 Inch</b> Bonnet Style: <b>Style 1 Extension</b> Boss Size: <b>3 9/16</b> Packing: <b>Single PTFE</b> Access: <b>No</b> Bolt, Bonnet: <b>SA-193-B7 Studs/2H Nuts NCF2</b> PackFlg/Bltg: <b>SST Pkg Flg, SST Studs &amp; Nuts</b> Actuator: <b>Spring &amp; Diaphragm</b> Type/Size: <b>657/70i</b> Travel: <b>2 Inch</b> Bench Set: <b>6-17 psi</b> Push Down To: <b>PDTC</b> Supply: <b>Air</b> To Actuator: <b>0 to 33 psig</b> Fails Valve: <b>Open</b> Handwheel: <b>None</b>	Positioner Type: <b>DVC6200,HART Communicating-HC</b> Input Signal: <b>4 to 20 mA dc</b> Access: <b>67CFR Filter/Regulator</b> Gauges: <b>0-60 psig/0-4 bar</b> Action: <b>Direct</b> Certification: <b>Explosion Proof/Intrinsic Safe/Nonincendive,FM</b> Controller Type: Action: Measure Element: Range: Output: Mounting: Airset: Mounting: Transducer: Input Signal: Output Signal: Action: Mounting: Airset: Certifications: Line In: <b>6 in, SCH XS</b> Line Out: <b>6 in, SCH XS</b> Insulation: Service Cond: <b>THROTTLING</b> Process Fluid: <b>HC GAS/LIQUID</b> Critical Pressure: Shutoff Drop: <b>909 psi</b> Max Rated Cv: <b>394.0</b>
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Variable Name	Unit	Minimum	Normal	Maximum	
Mass Flow Rate Gas (w)	lb/h	10977.000	27441.000	34490.000	
Inlet Pressure (P1)	psig	909.000	909.000	909.000	
Pressure Change (dP)	psi	5.000	5.000	5.000	
Inlet Temperature (T1)	deg F	-10.0000	-10.0000	-10.0000	
M / Gg	M	19.6	19.6	19.6	
Specific heats ratio (gamma)		1.300	1.300	1.300	
Dynamic Viscosity (Mu)	cP	0.012	0.012	0.012	
Sizing Coefficient (Cv)		40.199	100.485	126.293	
% Open		28	49	54	
Valve LpA(LpAeValve1m)	dB(A)	< 50	< 50	< 50	

NOTES:  
 1. SST TUBING & FITTINGS  
 2. SPRING LOADED SEAL RING



# Sliding Stem Valve Specification

Customer: <b>UOP RUSSELL LLC</b>	Vinson Process Controls	
Contact: <b>JAKE GASKINS</b>	Contact: <b>Ron Berte</b>	
Customer Reference: <b>JOB 488 SC6 RSV PLANT</b>	Sales Office Reference:	Lead Time: <b>10 WKS</b>
Item: <b>6</b>	Rev:                      Qty: <b>1</b>	Quote: <b>027D-RCB-171013-0211425</b>
Tags: <b>PCV-501C</b>	Date Last Modified: <b>10/13/2017</b>	Rev: <b>A</b>
Description: <b>NPS 3 ET 667 Size 45i DVC6200 Factory Mtgs DVC6200/DVC2000</b>		
Price Each:                      Total Price:		
Service Description:		

Service: Size and Type: <b>NPS 3 ET</b> Body Style: <b>Globe</b> Design Temp: <b>150 deg F</b> Design Press: <b>400 psig</b> End Connect/In/Out: <b>CL300/RF Flg/RF Flg</b> Material: <b>WCC Steel</b> Ports: <b>1</b> Flow Direction: <b>Down</b> Trim Number: <b>1</b> Cage Matl: <b>CB7Cu-1 SST</b> Retainer Matl: Bushing Matl: Seat Ring Matl: <b>S41600 SST</b> VALVE PLUG Material: <b>S41600 SST</b> Guiding: <b>Cage</b> Balance: <b>Balanced</b> Shutoff Class: <b>ANSI CL IV</b> Port Size: <b>3 7/16 Inch</b> Characteristic: <b>Equal Percent</b> Stem Material: <b>S31600 SST</b> Stem Size: <b>1/2 Inch</b> Bonnet Style: <b>Plain</b> Boss Size: <b>2 13/16</b> Packing: <b>Single PTFE</b> Access: <b>No</b> Bolt, Bonnet: <b>SA-193-B7 Studs/2H Nuts NCF2</b> PackFlg/Bltg: <b>SST Pkg Flg, SST Studs &amp; Nuts</b> Actuator: <b>Spring &amp; Diaphragm</b> Type/Size: <b>667/45i</b> Travel: <b>1 1/2 Inch</b> Bench Set: <b>10-30 psi</b> Push Down To: <b>PDTC</b> Supply: <b>Air</b> To Actuator: <b>0 to 33 psig</b> Fails Valve: <b>Close</b> Handwheel: <b>None</b>	Positioner Type: <b>DVC6200,HART Communicating-HC</b> Input Signal: <b>4 to 20 mA dc</b> Access: <b>67CFR Filter/Regulator</b> Gauges: <b>0-60 psig/0-4 bar</b> Action: <b>Direct</b> Certification: <b>FM,Explosion Proof/Intrinsic Safe/Nonincendive</b> Controller Type: Action: Measure Element: Range: Output: Mounting: Airset: Mounting: Transducer: Input Signal: Output Signal: Action: Mounting: Airset: Certifications: Line In: <b>4 in, SCH STD</b> Line Out: <b>4 in, SCH STD</b> Insulation: Service Cond: <b>THROTTLING</b> Process Fluid: <b>RESIDUE GAS</b> Critical Pressure: <b>669.000 psia</b> Shutoff Drop: <b>185 psi</b> Max Rated Cv: <b>136.0</b>
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Variable Name	Unit	Minimum	Normal	Maximum	
Mass Flow Rate Gas (w)	lb/h	6794.000	16984.000	17878.000	
Inlet Pressure (P1)	psig	185.000	185.000	185.000	
Pressure Change (dP)	psi	155.000	155.000	155.000	
Inlet Temperature (T1)	deg F	104.000	104.000	104.000	
M / Gg	SG	0.640	0.640	0.640	
Specific heats ratio (gamma)		1.280	1.280	1.280	
Dynamic Viscosity (Mu)	cP	0.010	0.010	0.010	
Sizing Coefficient (Cv)		18.934	48.260	50.585	
% Open		42	62	63	
Valve LpA(LpAeValve1m)	dB(A)	95	101	101	

NOTES:  
 1. SST TUBING & FITTINGS



<b>UOP RUSSELL, TULSA, OKLAHOMA</b> <b>PROJECT:</b> Std 60mmscfd Cryo - SC6 <b>CUSTOMER:</b> UOP Russell <b>CUSTOMER JOB NO:</b> 488 <b>PLANT:</b> <b>LOCATION:</b> Unknown	DIFFERENTIAL PRESSURE INSTRUMENTS			SHEET 1 OF 1
				SPEC. NO.
	NO.	BY	DATE	REVISION
	0	JKG	10/3/2017	
				REV. 0
				DATE 10/3/2017
			FLOW SHT 233	
			BY JKG	
			CHK'D DP	
			APPR.	
			REQ. P.O.	

1	TAG NO. <b>PDT-101B</b>	SERVICE EC-101 Expander / Compressor - Line 162-D1-LT-6" @ Filter
2	FUNCTION	RECORD <u>      </u> INDICATE <u>      </u> CONTROL <u>      </u> BLIND <u>      </u> TRANS. <u>X</u> INTEG <u>      </u> OTHER <u>      </u>
3	CASE	MFR STD <u>X</u> NOM SIZE <u>      </u> COLOR: MFR STD <u>X</u> OTHER <u>      </u>
4	MOUNTING	FLUSH <u>      </u> SURFACE <u>      </u> YOKE <u>      </u> OTHER 304SS Angle Bracket
5	ENCLOSURE CLASS	GENERAL PURPOSE <u>      </u> WEATHER PROOF <u>      </u> EXPLOSION PROOF <u>X</u> CLASS <u>1</u>
6	POWER SUPPLY	FOR USE IN INTRINSICALLY SAFE SYSTEM <u>      </u> OTHER FM Approved
7	CHART	117V 60 HZ <u>      </u> OTHER AC <u>      </u> DC 24 VOLTS <u>      </u>
8	CHART DRIVE	12 IN. CIRC <u>      </u> OTHER AC <u>      </u> RANGE <u>      </u> NO. <u>      </u>
9	SCALE	24 HR OTHER <u>      </u> ELEC. <u>      </u> SPRING <u>      </u> OTHER <u>      </u>
10	TRANSMITTER OUTPUT	TYPE <u>      </u> RANGE <u>      </u> 1 <u>      </u> 2 <u>      </u> 3 <u>      </u>
11	CONTROL MODES	4-20 MA <u>X</u> 10-50 MA <u>      </u> 21-103KPA (3-15 PSIG) <u>      </u> OTHER HART
12	ACTION	FOR RECEIVER, SEE SPEC. SHEET <u>      </u>
13	AUTO-MAN SWITCH	P=PROP (GAIN), I=INTEGRAL (AUTO RESET), D=DERIVATIVE (RATE)
14	SET POINT ADJ.	SUB: S=SLOW, F=FAST, IF <u>      </u> DF <u>      </u> PI <u>      </u> PD <u>      </u> PID <u>      </u> IS <u>      </u> DS <u>      </u>
15	MANUAL REG.	OTHER <u>      </u>
16	OUTPUT	ON MEAS. INCREASE OUTPUT: INCREASES <u>      </u> DECREASES <u>      </u>
17	SERVICE	NONE <u>      </u> MFR STD <u>      </u> OTHER <u>      </u>
18	ELEMENT TYPE	MANUAL <u>      </u> EXTERNAL <u>      </u> REMOTE <u>      </u> OTHER <u>      </u>
19	MATERIAL	NONE <u>      </u> MFR STD <u>      </u> OTHER <u>      </u>
20	RATING	4-20 MA <u>      </u> 10-50 MA <u>      </u> 21-103 KPA (3-15 PSIG) <u>      </u> OTHER <u>      </u>
21	DIFF. RANGE	
22	PROCESS DATA	FLOW <u>      </u> LEVEL <u>      </u> DIFF. PRESS <u>X</u> OTHER <u>      </u>
23	PROCESS CONN.	DIAPHRAM <u>X</u> BELLOWS <u>      </u> MERCURY <u>      </u> OTHER <u>      </u>
24	ALARM SWITCHES	BODY <u>      </u> ELEMENT <u>      </u> SS <u>      </u>
25	FUNCTION	OVERRANGE <u>      </u> BODY RATING <u>      </u> PSIG <u>      </u>
26	OPTIONS	FIXED <u>      </u> ADJ. RANGE <u>      </u> -100 - +3000 psi SET AT <u>      </u>
27		ELEVATION <u>      </u> SUPPRESSION <u>      </u>
28		FLUID <u>      </u> MAX. TEMP. <u>      </u> MAX. PRESS <u>      </u>
29		1/2 IN. NPT <u>      </u> OTHER <u>      </u>
30		QUANTITY <u>      </u> FORM <u>      </u> RATING <u>      </u>
31		MEAS. VAR. <u>      </u> DEVIATION <u>      </u> CONTACTS TO <u>      </u> ON INC. MEAS. <u>      </u>
32		PRESSURE ELEMENT <u>      </u> RANGE <u>      </u> MATL. <u>      </u>
33		TEMP. ELEMENT <u>      </u> RANGE <u>      </u> TYPE <u>      </u>
34		FILT REG. <u>      </u> SUP. GAGE <u>      </u> OUTPUT GAGE <u>      </u> CHARTS <u>      </u>
35		VALVE MANIFOLD <u>      </u>
36		COND. POTS <u>      </u> ADJ. DAMP <u>      </u> INTGRAL SQ. RT. EXT. <u>      </u>
37		INTEGRATOR <u>      </u>
38		OTHER <u>      </u> Digital Meter <u>      </u>
39	MFR & MODEL NO.	Honeywell Model # STD770-E1AS4AS-1-A-AHB-11C-A-21A0-00-0000

NOTES: Stamp tag number on nameplate or metal tag  
 With PGI 3-VALVE STAINLESS STEEL MANIFOLD # M-650SCT-VSH ASSEMBLED TO TRANSMITTER FLANGE BY 1/2" NPT

<b>UOP RUSSELL, TULSA, OKLAHOMA</b> <b>PROJECT:</b> Std 60mmscfd Cryo - SC6 <b>CUSTOMER:</b> UOP Russell <b>CUSTOMER JOB NO:</b> 488 <b>PLANT:</b> <b>LOCATION:</b> Unknown	DIFFERENTIAL PRESSURE INSTRUMENTS			SHEET 1 OF 1
				SPEC. NO.
	NO.	BY	DATE	REVISION
	0	JKG	10/3/2017	
				REV. 0
				DATE 10/3/2017
				FLOW SHT 233
				BY JKG
				CHK'D DP
				APPR.
				REQ. P.O.

1	TAG NO. <b>PDT-501B</b>	SERVICE HC L/V Line 159-D1-LT-6" @ PCV-501B
2	FUNCTION	RECORD _____ INDICATE _____ CONTROL _____ BLIND _____ TRANS. <input checked="" type="checkbox"/> INTEG _____ OTHER _____
3	CASE	MFR STD <input checked="" type="checkbox"/> NOM SIZE _____ COLOR: MFR STD <input checked="" type="checkbox"/> OTHER _____
4	MOUNTING	FLUSH _____ SURFACE _____ YOKE _____ OTHER 304SS Angle Bracket
5	ENCLOSURE CLASS	GENERAL PURPOSE _____ WEATHER PROOF _____ EXPLOSION PROOF <input checked="" type="checkbox"/> CLASS 1
6	POWER SUPPLY	FOR USE IN INTRINSICALLY SAFE SYSTEM _____ OTHER FM Approved
7	CHART	117V 60 HZ _____ OTHER AC _____ DC 24 VOLTS _____
8	CHART DRIVE	12 IN. CIRC _____ OTHER AC _____ RANGE _____ NO. _____
9	SCALE	24 HR OTHER _____ ELEC. _____ SPRING _____ OTHER _____
10	TRANSMITTER OUTPUT	TYPE _____ RANGE _____ 1 _____ 2 _____ 3 _____
11	CONTROL MODES	4-20 MA <input checked="" type="checkbox"/> 10-50 MA _____ 21-103KPA (3-15 PSIG) _____ OTHER HART
12	ACTION	FOR RECEIVER, SEE SPEC. SHEET _____
13	AUTO-MAN SWITCH	P=PROP (GAIN), I=INTEGRAL (AUTO RESET), D=DERIVATIVE (RATE)
14	SET POINT ADJ.	SUB: S=SLOW, F=FAST, IF _____ DF _____ PI _____ PD _____ PID _____ IS _____ DS _____
15	MANUAL REG.	OTHER _____
16	OUTPUT	ON MEAS. INCREASE OUTPUT: INCREASES _____ DECREASES _____
17	SERVICE	NONE _____ MFR STD _____ OTHER _____
18	ELEMENT TYPE	MANUAL _____ EXTERNAL _____ REMOTE _____ OTHER _____
19	MATERIAL	NONE _____ MFR STD _____ OTHER _____
20	RATING	4-20 MA _____ 10-50 MA _____ 21-103 KPA (3-15 PSIG) _____ OTHER _____
21	DIFF. RANGE	
22	PROCESS DATA	FLOW _____ LEVEL _____ DIFF. PRESS <input checked="" type="checkbox"/> OTHER _____
23	PROCESS CONN.	DIAPHRAM <input checked="" type="checkbox"/> BELLOWS _____ MERCURY _____ OTHER _____
24	ALARM SWITCHES	BODY _____ ELEMENT SS _____
25	FUNCTION	OVERRANGE _____ BODY RATING _____ PSIG _____
26	OPTIONS	FIXED _____ ADJ. RANGE -100 - +3000 psi SET AT _____
27		ELEVATION _____ SUPPRESSION _____
28		FLUID _____ MAX. TEMP. _____ MAX. PRESS _____
29		1/2 IN. NPT _____ OTHER _____
30		QUANTITY _____ FORM _____ RATING _____
31		MEAS. VAR. _____ DEVIATION _____ CONTACTS TO _____ ON INC. MEAS. _____
32		PRESSURE ELEMENT _____ RANGE _____ MATL. _____
33		TEMP. ELEMENT _____ RANGE _____ TYPE _____
34		FILT REG. _____ SUP. GAGE _____ OUTPUT GAGE _____ CHARTS _____
35		VALVE MANIFOLD _____
36		COND. POTS _____ ADJ. DAMP _____ INTGRAL SQ. RT. EXT. _____
37		INTEGRATOR _____
38		OTHER Digital Meter
39	MFR & MODEL NO.	Honeywell Model # STD770-E1AS4AS-1-A-AHB-11C-A-21A0-00-0000

NOTES: Stamp tag number on nameplate or metal tag  
 With PGI 3-VALVE STAINLESS STEEL MANIFOLD # M-650SCT-VSH ASSEMBLED TO TRANSMITTER FLANGE BY 1/2" NPT



**UOP RUSSELL, TULSA, OKLAHOMA**

**PROJECT:** Std 60mmscfd Cryo - SC6  
**CUSTOMER:** UOP Russell  
**CUSTOMER JOB NO.:** J488  
**PLANT:**  
**LOCATION:** Unknown

**PRESSURE GAUGES**

SHEET 1 OF 1

NO	BY	DATE	REVISION	SPEC. NO.
0	JKG	9/27/2017		REV. 0
				DATE 9/27/2017
				BY JKG
				CHK'D DP
				APPR.
				REQ. P.O.

- 1. TYPE: DIRECT RDG  3-15 LB RECEIVER  
OTHER \_\_\_\_\_
- 2. MOUNTING: SURFACE \_\_\_\_\_ LOCAL  FLUSH \_\_\_\_\_
- 3. DIAL: DIAMETER 4.5" \_\_\_\_\_ COLOR \_\_\_\_\_
- 4. CASE: CAST IRON \_\_\_\_\_ ALUMINUM \_\_\_\_\_ PHENOL   
OTHER \_\_\_\_\_
- 5. RING: SCREWED  HINGED \_\_\_\_\_ SLIP \_\_\_\_\_ STD \_\_\_\_\_  
OTHER \_\_\_\_\_
- 6. BLOW-OUT PROTECTION: NONE \_\_\_\_\_ BACK  DISC \_\_\_\_\_  
SOLID FRONT \_\_\_\_\_ OTHER \_\_\_\_\_
- 7. LENS: GLASS  PLASTIC \_\_\_\_\_
- 8. OPTIONS: SYLPHON \_\_\_\_\_ MATERIAL \_\_\_\_\_  
SNUBBER \_\_\_\_\_  
PRESSURE LIMIT VALVE \_\_\_\_\_  
MOVEMENT DAMPING \_\_\_\_\_
- 9. NOMINAL ACCURACY REQUIRED 1/2% OF FULL SCALE

- 10. MFR & MODEL NO. **ASHCROFT SERIES 1279SS**
- 11. PRESS. ELEMENT: BOURDON  BELLOWS \_\_\_\_\_  
OTHER \_\_\_\_\_
- 12. ELEMENT MTL: BRONZE \_\_\_\_\_ STEEL \_\_\_\_\_ SS   
OTHER \_\_\_\_\_
- 13. SOCKET MTL: BRONZE \_\_\_\_\_ STEEL \_\_\_\_\_ SS   
OTHER \_\_\_\_\_
- 14. CONNECTION-NPT: 1/4 IN. \_\_\_\_\_ 1/2 IN.  OTHER \_\_\_\_\_  
BOTTOM  BACK \_\_\_\_\_
- 15. MOVEMENT: BRONZE \_\_\_\_\_ SS  NYLON \_\_\_\_\_  
OTHER \_\_\_\_\_
- 16. DIAPHRAGM SEAL \_\_\_\_\_  
MEG \_\_\_\_\_ TYPE \_\_\_\_\_  
WETTED PART MTL. \_\_\_\_\_ OTHER MTL. \_\_\_\_\_  
FILL FLUID \_\_\_\_\_  
PROCESS CONN. \_\_\_\_\_ GAGE CONN. \_\_\_\_\_

TAG NO.	REV	RANGE	OPERATING PRESSURE	SERVICE	P&ID
PI-202	0	0-1500 psig		E-202 Gas / Product Exchanger - Line 216-E1-CS-4"	231
PI-101A	0	0-400 psig		EC-101 Expander / Compressor - Line 179-B1-CS-10"	233
PI-101B	0	0-1500 psig		EC-101 Expander / Compressor - Line 162-D1-LT-6" @ Filter	233

NOTES: Stamp nameplate or metal tag with tag number

<b>UOP RUSSELL, TULSA, OKLAHOMA</b>  <b>PROJECT:</b> Std 60mmscfd Cryo - SC6 <b>CUSTOMER:</b> UOP Russell <b>CUSTOMER JOB NO.:</b> J488 <b>PLANT:</b> <b>LOCATION:</b> Unknown	PRESSURE GAUGES			SHEET 1 OF 1	
	NO	BY	DATE	REVISION	SPEC. NO.
	0	JKG	9/27/2017		REV. 0
					DATE 9/27/2017
					BY JKG
					CHK'D DP
					APPR. REQ. P.O.

1. TYPE: DIRECT RDG  3-15 LB RECEIVER \_\_\_\_\_  
 OTHER \_\_\_\_\_

2. MOUNTING: SURFACE \_\_\_\_\_ LOCAL  FLUSH \_\_\_\_\_

3. DIAL: DIAMETER 4.5" \_\_\_\_\_ COLOR \_\_\_\_\_

4. CASE: CAST IRON \_\_\_\_\_ ALUMINUM \_\_\_\_\_ PHENOL   
 OTHER \_\_\_\_\_

5. RING: SCREWED  HINGED \_\_\_\_\_ SLIP \_\_\_\_\_ STD \_\_\_\_\_  
 OTHER \_\_\_\_\_

6. BLOW-OUT PROTECTION: NONE \_\_\_\_\_ BACK  DISC \_\_\_\_\_  
 SOLID FRONT \_\_\_\_\_ OTHER \_\_\_\_\_

7. LENS: GLASS  PLASTIC \_\_\_\_\_

8. OPTIONS: SYLPHON \_\_\_\_\_ MATERIAL \_\_\_\_\_  
 SNUBBER \_\_\_\_\_  
 PRESSURE LIMIT VALVE \_\_\_\_\_  
 MOVEMENT DAMPING \_\_\_\_\_

9. NOMINAL ACCURACY REQUIRED \_\_\_\_\_ 1/2% OF FULL SCALE \_\_\_\_\_

10. MFR & MODEL NO. **ASHCROFT SERIES 1279SS** \_\_\_\_\_

11. PRESS. ELEMENT: BOURDON  BELLOWS \_\_\_\_\_  
 OTHER \_\_\_\_\_

12. ELEMENT MTL: BRONZE \_\_\_\_\_ STEEL \_\_\_\_\_ SS   
 OTHER \_\_\_\_\_

13. SOCKET MTL: BRONZE \_\_\_\_\_ STEEL \_\_\_\_\_ SS   
 OTHER \_\_\_\_\_

14. CONNECTION: NPT: 1/4 IN. \_\_\_\_\_ 1/2 IN.  OTHER \_\_\_\_\_  
 BOTTOM  BACK \_\_\_\_\_

15. MOVEMENT: BRONZE \_\_\_\_\_ SS  NYLON \_\_\_\_\_  
 OTHER \_\_\_\_\_

16. DIAPHRAGM SEAL  
 MFG \_\_\_\_\_ TYPE \_\_\_\_\_  
 WETTED PART MTL. \_\_\_\_\_ OTHER MTL. \_\_\_\_\_  
 FILL FLUID \_\_\_\_\_  
 PROCESS CONN. \_\_\_\_\_ GAGE CONN. \_\_\_\_\_

TAG NO.	REV	RANGE	OPERATING PRESSURE	SERVICE	P&ID
PI-101C	0	0-400 psig		EC-101 Expander / Compressor - Line 163-D0-304SS-8"	233
PI-101D	0	0-600 psig		EC-101 Expander / Compressor - Line 180-B1-CS-10"	233
PI-101E	0	0-1000 psig		Downstream of PCV-101 Regulator - Line 198-D1-CS-1"	233
PI-481A	0	0-400 psig		V-481 Fuel Gas Scrubber - Upstream of PCV-481A - Line 700-B1-CS-3"	296
PI-481B	0	0-160 psig		V-481 Fuel Gas Scrubber - Downstream of PCV-481A - Line 702-A1-CS-3"	296

NOTES: Stamp nameplate or metal tag with tag number

ISA FORM S20.41a

# UOP RUSSELL, TULSA, OKLAHOMA

PROJECT: Std 60mmscfd Cryo - SC6  
 CUSTOMER: UOP Russell  
 CUSTOMER JOB NO: J488  
 PLANT:  
 LOCATION: Unknown

## PRESSURE RELIEF VALVES

SHEET 1 OF 1

NO	BY	DATE	REVISION	SPEC. NO.
0	JKG	9/27/2017		REV. 1
1	DP	1/9/2019	Re-buy PSV-101A	DATE 1/9/2019
				BY JKG
				CHK'D DP
				APPR.
				REQ. P.O.

GENERAL	PSV-101A (233)		PSV-201 (231)			
	1	TAG NO. / P&ID	Downstream of PCV-101		Warm Gas Exchanger	
2	SERVICE	197-D1-CS-1"		186-E0-304SS-3" / E-201		
3	LINE NO./VESSEL NO.	Relief		Relief		
4	FULL NOZZLE/SEMI NOZZLE	Mod. Pilot		Bellows		
5	SAFETY OR RELIEF	NA		Closed		
6	CONV., BELLOWS, PILOT OP.					
7	BONNET TYPE					
CONNECTION	8	SIZE: INLET	1"	2"	1-1/2"	2"
	9	FLANGE RATING OR SCREWED	600# x 150#		900# x 300#	
	10	TYPE OF FACING	ANSI RF		ANSI RTJ x RF	
MATERIALS	11	BODY AND BONNET	CS		SS	
	12	SEAT AND DISC	SS		SS	
	13	RESILIENT SEAT SEAL	Viton		NA	
	14	GUIDE AND RINGS	SS		SS	
	15	SPRING	SS		SS	
	16	BELLOWS			Inconel Composite	
	17					
OPTIONS	18	CAP: SCREWED OR BOLTED	NA		Screwed	
	19	LEVER: PLAIN OR PACKED				
	20	BACK FLOW PREVENTER	Yes		No	
	21	FIELD TEST CONNECTION				
	22	REMOTE SENSE				
	23					
BASIS	24	CODE	ASME 8		ASME 8	
	25	SERVICE	Failed Control		Fire	
	26					
FLUID DATA	28	FLUID				
		FLUID STATE	Vapor		Vapor	
	29	REQUIRED CAPACITY	1,260 SCFM		3446 #/hr	
	30	MOL. WEIGHT	OPER. SP. GR.	0.6		0.56
	31	OPER. PRESS.	SET PRES.	600 psig	1296 psig	1440 psig
	32	OPER. TEMP.	REL. TEMP.	100F	-150F	100F
	33	BACK PRESSURE: CONSTANT	0		15	
	34	VARIABLE	0		35	
	35	TOTAL	0 psig		50 psig	
	36	% ALLOWABLE OVERPRESSURE	10%		21%	
	37	COLD DIFF. TEST PRESSURE				
	38	COMPRESSIBILITY FACTOR	1		1	
	39	LATENT HEAT OF VAPORIZ.				
	40	RATIO OF SPECIFIC HEATS	1.3		1	
	41	OPER. VISC.				
	42	BAROMETRIC PRESSURE				
	43					
44						
45	CALC. AREA SQ. IN.	0.098		0.042		
46	SELECTED AREA	0.11		0.11		
47	ORIFICE DESIGNATION	D		D		
48	MANUFACTURER	Farris		"		
49	MODEL NUMBER	38DC13-146		26DB14-920/S4		

NOTES: Stamp nameplate with tag number

# UOP RUSSELL, TULSA, OKLAHOMA

PROJECT: Std 60mmscfd Cryo - SC6  
 CUSTOMER: UOP Russell  
 CUSTOMER JOB NO: J488  
 PLANT:  
 LOCATION: Unknown

## PRESSURE RELIEF VALVES

SHEET 1 OF 1

NO	BY	DATE	REVISION	SPEC. NO.
0	JKG	9/27/2017		REV. 3
1	JMM	2/21/2018		DATE 1/9/2019
2	DP	5/1/2018	PSV-202B,207,302	BY JKG
			Revised	CHK'D JMM
3	DP	1/9/2019	Rebuy 202A/B, 207	APPR. DP
				REQ. P.O.

	PSV-202A (231)		PSV-202B (231)		PSV-207 (291)	
	INLET	OUTLET	INLET	OUTLET	INLET	OUTLET
1 TAG NO. / P&ID	PSV-202A (231)		PSV-202B (231)		PSV-207 (291)	
2 SERVICE	Gas/Product Exchanger		Gas/Product Exchanger		Demethanizer Trim Reboiler	
3 LINE NO./VESSEL NO.	E-202		E-202		E-207	
4 FULL NOZZLE/SEMI NOZZLE						
5 SAFETY OR RELIEF	Relief		Relief		Relief	
6 CONV., BELLOWS, PILOT OP.	Mod. Pilot		Mod. Pilot		Mod. Pilot	
7 BONNET TYPE	NA		NA		NA	
8 SIZE: INLET	1"	2"	1"	2"	3"	4"
9 FLANGE RATING OR SCREWED	600# x 150#		900# x 300#		150# x 150#	
10 TYPE OF FACING	ANSI RF		ANSI RTJ x RF		ANSI RF	
11 BODY AND BONNET	CS		CS		CS	
12 SEAT AND DISC	SS		SS		SS	
13 RESILIENT SEAT SEAL	Viton		Viton		Viton	
14 GUIDE AND RINGS	SS		SS		SS	
15 SPRING	SS		SS		SS	
16 BELLOWS						
17						
18 CAP: SCREWED OR BOLTED	NA		NA		NA	
19 LEVER: PLAIN OR PACKED						
20 BACK FLOW PREVENTER	Yes		Yes		Yes	
21						
22						
23						
24 CODE	ASME 8		ASME 8		ASME 8	
25 SERVICE	Tube Rupture		Fire		Tube Rupture	
26						
27						
28 FLUID						
FLUID STATE	Liquid		Vapor		2 Phase (L/V)	
29 REQUIRED CAPACITY	103650 #/hr		19725 #/hr		43459 #/hr	
30 MOL. WEIGHT	OPER. SP. GR.	0.46	38	1.3	44.8	1.54
31 OPER. PRESS.	SET PRES.	990 psig	1100 psig	1846 psig	2035 psig	135 psig
32 OPER. TEMP.	REL. TEMP.	95.89F	95.89F	95.9F	319F	350F
33 BACK PRESSURE: CONSTANT	15		15		15	
34 VARIABLE	35		35		35	
35 TOTAL	50 psig		50 psig		50 psig	
36 % ALLOWABLE OVERPRESSURE	10%		21%		10%	
37 COLD DIFF. TEST PRESSURE						
38 COMPRESSIBILITY FACTOR			1		0.8	
39 LATENT HEAT OF VAPORIZ.						
40 RATIO OF SPECIFIC HEATS			1		1.03	
41 OPER. VISC.	0.081 CP					
42 BAROMETRIC PRESSURE						
43						
44						
45 CALC. AREA SQ. IN.	0.3		0.134		2.82	
46 SELECTED AREA	0.307		0.150		3.17	
47 ORIFICE DESIGNATION	F		D		L	
48 MANUFACTURER	Farris		"		"	
49 MODEL NUMBER	38FC13L-166		38DC14-966		38LC10L-146	

NOTES: Stamp nameplate with tag number

# UOP RUSSELL, TULSA, OKLAHOMA

PROJECT: Std 60mmscfd Cryo - SC6  
 CUSTOMER: UOP Russell  
 CUSTOMER JOB NO: 488  
 PLANT:  
 LOCATION: Unknown

## PRESSURE RELIEF VALVES

SHEET 1 OF 1

NO	BY	DATE	REVISION	SPEC. NO.
0	JKG	9/27/2017		REV. 2
1	DP	4/12/2018	PSV-741 Model #	DATE 6/4/2018
2	DP	6/4/2018	PSV-481 Model #	BY JKG
3	DP	1/9/2019	Re-buy PSV-481	CHK'D DP
				APPR.
				REQ. P.O.

	PSV-408 (235)		PSV-481 (296)	
GENERAL	1 TAG NO. / P&ID			
	2 SERVICE	Residue Gas Filter / Coalescer		Fuel Gas Scrubber
	3 LINE NO./VESSEL NO.	F-408		V-481
	4 FULL NOZZLE/SEMI NOZZLE			
	5 SAFETY OR RELIEF	Relief		Relief
	6 CONV., BELLOWS, PILOT OP.	Mod. Pilot		Mod. Pilot
	7 BONNET TYPE	NA		NA
CONNECTION	8 SIZE: INLET   OUTLET	1"   2"	3"   4"	
	9 FLANGE RATING OR SCREWED	900# x 300#		150# x 150#
	10 TYPE OF FACING	ANSI RTJ x RF		ANSI RF
MATERIALS	11 BODY AND BONNET	CS		CS
	12 SEAT AND DISC	SS		SS
	13 RESILIENT SEAT SEAL	Teflon main / Viton Pilot		Viton
	14 GUIDE AND RINGS	SS		SS
	15 SPRING	SS		SS
	16 BELLOWS			
OPTIONS	18 CAP: SCREWED OR BOLTED	NA		NA
	19 LEVER: PLAIN OR PACKED			
	20 BACK FLOW PREVENTER	Yes		Yes
	21			
	22 REMOTE SENSE			
BASIS	24 CODE	ASME 8		ASME 8
	25 SERVICE	Fire		Failed Control
	26			
FLUID DATA	28 FLUID			
	FLUID STATE	Vapor		Vapor
	29 REQUIRED CAPACITY	7855 #/hr		28259 #/hr
	30 MOL. WEIGHT   OPER. SP. GR.	16.2   0.55	19.1   0.66	
	31 OPER. PRESS.   SET PRES.	1296 psig   1440 psig	239 psig   265 psig	
	32 OPER. TEMP.   REL. TEMP.	90F   90F	50F   72F	
	33 BACK PRESSURE: CONSTANT	15		15
	34 VARIABLE	35		35
	35 TOTAL	50 psig		50 psig
	36 % ALLOWABLE OVERPRESSURE			10%
	37 COLD DIFF. TEST PRESSURE			
	38 COMPRESSIBILITY FACTOR	1		0.93
	39 LATENT HEAT OF VAPORIZ.			
	40 RATIO OF SPECIFIC HEATS	1		1.3
41 OPER. VISC.				
42 BAROMETRIC PRESSURE				
43				
44				
45 CALC. AREA SQ. IN.	0.096		1.556	
46 SELECTED AREA	0.11		1.838	
47 ORIFICE DESIGNATION	D		K	
48 MANUFACTURER	Farris		"	
49 MODEL NUMBER	38DT14-966		38KC10-146	

NOTES: Stamp nameplate with tag number  
 \*Teflon main & Buna N pilot control soft goods. C= Remote Sensing, Reverse Flow Preventer

<b>UOP RUSSELL, TULSA, OKLAHOMA</b> <b>PROJECT:</b> Std 60mmscfd Cryo - SC6 <b>CUSTOMER:</b> UOP Russell <b>CUSTOMER JOB NO:</b> 488 <b>PLANT:</b> <b>LOCATION:</b> Unknown	PRESSURE INSTRUMENTS			SHEET 1 OF 1	
				P&ID 233	
	NO.	BY	DATE	REVISION	SPEC. NO.
	0	JKG	10/2/2017		REV. 0
					DATE 10/2/2017
					BY JKG
				CHK'D DP	
				APPR.	
				REQ. P.O.	

1	TAG NO. <b>PT-101</b>	SERVICE EC-101 Expander / Compressor - Line 179-B1-CS-10"
2	FUNCTION	RECORD _____ INDICATE _____ CONTROL _____ BLIND _____ TRANS. _____ X OTHER _____
3	CASE	MFR STD _____ X _____ NOM SIZE _____ COLOR: MFR STD _____ X _____ OTHER _____
4	MOUNTING	FLUSH _____ SURFACE _____ YOKE _____ OTHER 304SS Angle Bracket
5	ENCLOSURE CLASS	GENERAL PURPOSE _____ WEATHER PROOF _____ EXPLOSION PROOF _____ X _____ CLASS 1 FOR USE IN INTRINSICALLY SAFE SYSTEM _____ OTHER FM Approved
6	POWER SUPPLY	117V 60 HZ _____ OTHER AC _____ DC 24 _____ VOLTS _____
7	CHART	_____ STRIP _____ ROLL _____ FOLD _____ CIRCULAR _____ _____ TIME MARKS _____ RANGE _____ NUMBER _____
8	CHART DRIVE	SPEED _____ POWER _____
9	SCALES	TYPE _____ RANGE 1 _____ 2 _____ 3 _____ 4 _____
10	TRANSMITTER XMTR OUTPUT	4-20 MA _____ X _____ 10-50 MA _____ 21-103KPA (3-15 PSIG) _____ OTHER _____ HART FOR RECEIVER, SEE SPEC. SHEET
11	CONTROL MODES	P=PROP (GAIN), I=INTEGRAL (AUTO RESET), D=DERIVATIVE (RATE) SUB: S=SLOW, F=FAST P _____ PI _____ PD _____ PID _____ IF _____ DF _____ IS _____ DS _____ OTHER _____
12	ACTION	ON MEAS. INCREASE OUTPUT: INCREASES _____ DECREASES _____
13	AUTO-MANUAL SWITCH	NONE _____ MFR STD _____ OTHER _____
14	SET POINT ADJ.	MANUAL _____ EXTERNAL _____ REMOTE _____ OTHER _____
15	MANUAL REG.	NONE _____ MFR STD _____ OTHER _____
16	OUTPUT	4-20 MA _____ 10-50 MA _____ 21-103 KPA (3-15 PSIG) _____ OTHER _____
17	SERVICE	GAGE PRESS. _____ X _____ VACUUM _____ ABSOLUTE _____ COMPOUND _____
18	ELEMENT TYPE	DIAPHRAGM _____ HELIX _____ BOURDON _____ BELLOWS _____ OTHER _____
19	MATERIAL	316 SS _____ BER. COPPER _____ OTHER _____
20	RANGE	FIXED _____ ADJ. RANGE _____ SET AT _____ OVERRANGE PROTECTION TO _____
21	PROCESS DATA	PRESSURE: NORMAL _____ MAX. 400 psig _____ ELEMENT RANGE -14.7 - +500 psig
22	PROCESS CONN.	1/4 IN. NPT _____ 1/2 IN. NPT _____ X _____ OTHER _____ LOCATION: BOTTOM _____ X _____ BACK _____ OTHER _____
23	ALARM SWITCHES	QUANTITY _____ FORM _____ RATING _____
24	FUNCTION	PRESSURE _____ DEVIATION _____ CONTACTS TO _____ ON INC. PRESS
25	OPTIONS	FILT-REG. _____ SUP GAGE _____ OUTPUT GAGE _____ CHARTS _____ DIAPH SEAL _____ TYPE _____ DIAPH _____ BOT BOWL _____ CONN. _____ CAPILLARY: LENGTH _____ MATERIAL _____ OTHER LCD Display
26	MFR & MODEL NO.	Honeywell Model # STG740-E1GS4A-1-A-AHB-11C-A-21A0-00-0000

NOTES: Stamp tag number on nameplate or metal tag

<b>UOP RUSSELL, TULSA, OKLAHOMA</b> <b>PROJECT:</b> Std 60mmscfd Cryo - SC6 <b>CUSTOMER:</b> UOP Russell <b>CUSTOMER JOB NO:</b> 488 <b>PLANT:</b> <b>LOCATION:</b> Unknown	PRESSURE INSTRUMENTS			SHEET 1 OF 1	
				P&ID 233	
	NO.	BY	DATE	REVISION	SPEC. NO.
	0	JKG	10/2/2017		REV. 0
					DATE 10/2/2017
				BY JKG	
				CHK'D DP	
				APPR.	
				REQ. P.O.	

1	TAG NO. <b>PT-101F</b>	SERVICE EC-101 Compressor - Line 180-B1-CS-10"
2	FUNCTION	RECORD _____ INDICATE _____ CONTROL _____ BLIND _____ TRANS. _____ X OTHER _____
3	CASE	MFR STD _____ X _____ NOM SIZE _____ COLOR: MFR STD _____ X _____ OTHER _____
4	MOUNTING	FLUSH _____ SURFACE _____ YOKE _____ OTHER 304SS Angle Bracket
5	ENCLOSURE CLASS	GENERAL PURPOSE _____ WEATHER PROOF _____ EXPLOSION PROOF _____ X _____ CLASS 1 FOR USE IN INTRINSICALLY SAFE SYSTEM _____ OTHER FM Approved
6	POWER SUPPLY	117V 60 HZ _____ OTHER AC _____ DC 24 _____ VOLTS _____
7	CHART	_____ STRIP _____ ROLL _____ FOLD _____ CIRCULAR _____ _____ TIME MARKS _____ RANGE _____ NUMBER _____
8	CHART DRIVE	SPEED _____ POWER _____
9	SCALES	TYPE _____ RANGE 1 _____ 2 _____ 3 _____ 4 _____
10	TRANSMITTER XMTR OUTPUT	4-20 MA _____ X _____ 10-50 MA _____ 21-103KPA (3-15 PSIG) _____ OTHER HART FOR RECEIVER, SEE SPEC. SHEET
11	CONTROL MODES	P=PROP (GAIN), I=INTEGRAL (AUTO RESET), D=DERIVATIVE (RATE) SUB: S=SLOW, F=FAST P _____ PI _____ PD _____ PID _____ IF _____ DF _____ IS _____ DS _____ OTHER _____
12	ACTION	ON MEAS. INCREASE OUTPUT: INCREASES _____ DECREASES _____
13	AUTO-MANUAL SWITCH	NONE _____ MFR STD _____ OTHER _____
14	SET POINT ADJ.	MANUAL _____ EXTERNAL _____ REMOTE _____ OTHER _____
15	MANUAL REG.	NONE _____ MFR STD _____ OTHER _____
16	OUTPUT	4-20 MA _____ 10-50 MA _____ 21-103 KPA (3-15 PSIG) _____ OTHER _____
17	SERVICE	GAGE PRESS. _____ X _____ VACUUM _____ ABSOLUTE _____ COMPOUND _____
18	ELEMENT TYPE	DIAPHRAGM _____ HELIX _____ BOURDON _____ BELLOWS _____ OTHER _____
19	MATERIAL	316 SS _____ BER. COPPER _____ OTHER _____
20	RANGE	FIXED _____ ADJ. RANGE _____ SET AT _____ OVERRANGE PROTECTION TO _____
21	PROCESS DATA	PRESSURE: NORMAL _____ MAX. 500 psig _____ ELEMENT RANGE -14.7 - +500 psig
22	PROCESS CONN.	1/4 IN. NPT _____ 1/2 IN. NPT _____ X _____ OTHER _____ LOCATION: BOTTOM _____ X _____ BACK _____ OTHER _____
23	ALARM SWITCHES	QUANTITY _____ FORM _____ RATING _____
24	FUNCTION	PRESSURE _____ DEVIATION _____ CONTACTS TO _____ ON INC. PRESS
25	OPTIONS	FILT-REG. _____ SUP GAGE _____ OUTPUT GAGE _____ CHARTS _____ DIAPH SEAL _____ TYPE _____ DIAPH _____ BOT BOWL _____ CONN. _____ CAPILLARY: LENGTH _____ MATERIAL _____ OTHER LCD Display
26	MFR & MODEL NO.	Honeywell Model # STG740-E1GS4A-1-A-AHB-11C-A-21A0-00-0000

NOTES: Stamp tag number on nameplate or metal tag

<b>UOP RUSSELL, TULSA, OKLAHOMA</b> <b>PROJECT:</b> Std 60mmscfd Cryo - SC6 <b>CUSTOMER:</b> UOP Russell <b>CUSTOMER JOB NO:</b> 488 <b>PLANT:</b> <b>LOCATION:</b> Unknown	PRESSURE INSTRUMENTS			SHEET 1 OF 1	
				P&ID 231	
	NO.	BY	DATE	REVISION	SPEC. NO.
	0	JKG	10/2/2017		REV. 0
					DATE 10/2/2017
					BY JKG
				CHK'D DP	
				APPR.	
				REQ. P.O.	

1	TAG NO. <b>PT-201C</b>	SERVICE Line 109-D1-CS-8"
2	FUNCTION	RECORD _____ INDICATE _____ CONTROL _____ BLIND _____ TRANS. _____ X OTHER _____
3	CASE	MFR STD _____ X _____ NOM SIZE _____ COLOR: MFR STD _____ X _____ OTHER _____
4	MOUNTING	FLUSH _____ SURFACE _____ YOKE _____ OTHER 304SS Angle Bracket
5	ENCLOSURE CLASS	GENERAL PURPOSE _____ WEATHER PROOF _____ EXPLOSION PROOF _____ X _____ CLASS 1 FOR USE IN INTRINSICALLY SAFE SYSTEM _____ OTHER FM Approved
6	POWER SUPPLY	117V 60 HZ _____ OTHER AC _____ DC 24 _____ VOLTS _____
7	CHART	_____ STRIP _____ ROLL _____ FOLD _____ CIRCULAR _____ _____ TIME MARKS _____ RANGE _____ NUMBER _____
8	CHART DRIVE	SPEED _____ POWER _____
9	SCALES	TYPE _____ RANGE 1 _____ 2 _____ 3 _____ 4 _____
10	TRANSMITTER XMTR OUTPUT	4-20 MA _____ X _____ 10-50 MA _____ 21-103KPA (3-15 PSIG) _____ OTHER _____ HART FOR RECEIVER, SEE SPEC. SHEET
11	CONTROL MODES	P=PROP (GAIN), I=INTEGRAL (AUTO RESET), D=DERIVATIVE (RATE) SUB: S=SLOW, F=FAST P _____ PI _____ PD _____ PID _____ IF _____ DF _____ IS _____ DS _____ OTHER _____
12	ACTION	ON MEAS. INCREASE OUTPUT: INCREASES _____ DECREASES _____
13	AUTO-MANUAL SWITCH	NONE _____ MFR STD _____ OTHER _____
14	SET POINT ADJ.	MANUAL _____ EXTERNAL _____ REMOTE _____ OTHER _____
15	MANUAL REG.	NONE _____ MFR STD _____ OTHER _____
16	OUTPUT	4-20 MA _____ 10-50 MA _____ 21-103 KPA (3-15 PSIG) _____ OTHER _____
17	SERVICE	GAGE PRESS. _____ X _____ VACUUM _____ ABSOLUTE _____ COMPOUND _____
18	ELEMENT TYPE	DIAPHRAGM _____ HELIX _____ BOURDON _____ BELLOWS _____ OTHER _____
19	MATERIAL	316 SS _____ BER. COPPER _____ OTHER _____
20	RANGE	FIXED _____ ADJ. RANGE _____ SET AT _____ OVERRANGE PROTECTION TO _____
21	PROCESS DATA	PRESSURE: NORMAL _____ MAX. 1100 psig _____ ELEMENT RANGE -14.7 - +3000 psig
22	PROCESS CONN.	1/4 IN. NPT _____ 1/2 IN. NPT _____ X _____ OTHER _____ LOCATION: BOTTOM _____ X _____ BACK _____ OTHER _____
23	ALARM SWITCHES	QUANTITY _____ FORM _____ RATING _____
24	FUNCTION	PRESSURE _____ DEVIATION _____ CONTACTS TO _____ ON INC. PRESS
25	OPTIONS	FILT-REG. _____ SUP GAGE _____ OUTPUT GAGE _____ CHARTS _____ DIAPH SEAL _____ TYPE _____ DIAPH _____ BOT BOWL _____ CONN. _____ CAPILLARY: LENGTH _____ MATERIAL _____ OTHER LCD Display
26	MFR & MODEL NO.	Honeywell Model STG770-E1GS4A-1-A-AHB-11C-A-21A0-00-0000

NOTES: Stamp tag number on nameplate or metal tag

<b>UOP RUSSELL, TULSA, OKLAHOMA</b> <b>PROJECT:</b> Std 60mmscfd Cryo - SC6 <b>CUSTOMER:</b> UOP Russell <b>CUSTOMER JOB NO:</b> 488 <b>PLANT:</b> <b>LOCATION:</b> Unknown	PRESSURE INSTRUMENTS			SHEET 1 OF 1	
				P&ID 232	
	NO.	BY	DATE	REVISION	SPEC. NO.
	0	JKG	10/2/2017		REV. 0
					DATE 10/2/2017
					BY JKG
				CHK'D DP	
				APPR.	
				REQ. P.O.	

1	TAG NO. <b>PT-501A</b>	SERVICE T-501 Demethanizer - Line 161-B0-304SS-3" Downstream of FCV-501
2	FUNCTION	RECORD _____ INDICATE _____ CONTROL _____ BLIND _____ TRANS. _____ X OTHER _____
3	CASE	MFR STD _____ X _____ NOM SIZE _____ COLOR: MFR STD _____ X _____ OTHER _____
4	MOUNTING	FLUSH _____ SURFACE _____ YOKE _____ OTHER 304SS Angle Bracket
5	ENCLOSURE CLASS	GENERAL PURPOSE _____ WEATHER PROOF _____ EXPLOSION PROOF _____ X _____ CLASS 1 FOR USE IN INTRINSICALLY SAFE SYSTEM _____ OTHER FM Approved
6	POWER SUPPLY	117V 60 HZ _____ OTHER AC _____ DC 24 _____ VOLTS _____
7	CHART	_____ STRIP _____ ROLL _____ FOLD _____ CIRCULAR _____ _____ TIME MARKS _____ RANGE _____ NUMBER _____
8	CHART DRIVE	SPEED _____ POWER _____
9	SCALES	TYPE _____ RANGE 1 _____ 2 _____ 3 _____ 4 _____
10	TRANSMITTER XMTR OUTPUT	4-20 MA _____ X _____ 10-50 MA _____ 21-103KPA (3-15 PSIG) _____ OTHER _____ HART FOR RECEIVER, SEE SPEC. SHEET
11	CONTROL MODES	P=PROP (GAIN), I=INTEGRAL (AUTO RESET), D=DERIVATIVE (RATE) SUB: S=SLOW, F=FAST P _____ PI _____ PD _____ PID _____ IF _____ DF _____ IS _____ DS _____ OTHER _____
12	ACTION	ON MEAS. INCREASE OUTPUT: INCREASES _____ DECREASES _____
13	AUTO-MANUAL SWITCH	NONE _____ MFR STD _____ OTHER _____
14	SET POINT ADJ.	MANUAL _____ EXTERNAL _____ REMOTE _____ OTHER _____
15	MANUAL REG.	NONE _____ MFR STD _____ OTHER _____
16	OUTPUT	4-20 MA _____ 10-50 MA _____ 21-103 KPA (3-15 PSIG) _____ OTHER _____
17	SERVICE	GAGE PRESS. _____ X _____ VACUUM _____ ABSOLUTE _____ COMPOUND _____
18	ELEMENT TYPE	DIAPHRAGM _____ HELIX _____ BOURDON _____ BELLOWS _____ OTHER _____
19	MATERIAL	316 SS _____ BER. COPPER _____ OTHER _____
20	RANGE	FIXED _____ ADJ. RANGE _____ SET AT _____ OVERRANGE PROTECTION TO _____
21	PROCESS DATA	PRESSURE: NORMAL _____ MAX. 400 psig _____ ELEMENT RANGE -14.7 - +500 psig
22	PROCESS CONN.	1/4 IN. NPT _____ 1/2 IN. NPT _____ X _____ OTHER _____ LOCATION: BOTTOM _____ X _____ BACK _____ OTHER _____
23	ALARM SWITCHES	QUANTITY _____ FORM _____ RATING _____
24	FUNCTION	PRESSURE _____ DEVIATION _____ CONTACTS TO _____ ON INC. PRESS
25	OPTIONS	FILT-REG. _____ SUP GAGE _____ OUTPUT GAGE _____ CHARTS _____ DIAPH SEAL _____ TYPE _____ DIAPH _____ BOT BOWL _____ CONN. _____ CAPILLARY: LENGTH _____ MATERIAL _____ OTHER LCD Display
26	MFR & MODEL NO.	Honeywell Model # STG740-E1GS4A-1-A-AHB-11C-A-21A0-00-0000

NOTES: Stamp tag number on nameplate or metal tag

<b>UOP RUSSELL, TULSA, OKLAHOMA</b> <b>PROJECT:</b> Std 60mmscfd Cryo - SC6 <b>CUSTOMER:</b> UOP Russell <b>CUSTOMER JOB NO:</b> 488 <b>PLANT:</b> <b>LOCATION:</b> Unknown	PRESSURE INSTRUMENTS			SHEET 1 OF 1	
				P&ID 232	
	NO.	BY	DATE	REVISION	SPEC. NO.
	0	JKG	10/2/2017		REV. 0
					DATE 10/2/2017
					BY JKG
				CHK'D DP	
				APPR.	
				REQ. P.O.	

1	TAG NO. <b>PT-501B</b>	SERVICE T-501 Demethanizer - Top Discharge HC Vapor Line 175-B0-304SS-10"
2	FUNCTION	RECORD _____ INDICATE _____ CONTROL _____ BLIND _____ TRANS. _____ X OTHER _____
3	CASE	MFR STD _____ X _____ NOM SIZE _____ COLOR: MFR STD _____ X _____ OTHER _____
4	MOUNTING	FLUSH _____ SURFACE _____ YOKE _____ OTHER _____
5	ENCLOSURE CLASS	GENERAL PURPOSE _____ WEATHER PROOF _____ EXPLOSION PROOF _____ X _____ CLASS 1 FOR USE IN INTRINSICALLY SAFE SYSTEM _____ OTHER _____ FM Approved _____
6	POWER SUPPLY	117V 60 HZ _____ OTHER AC _____ DC _____ 24 _____ VOLTS _____
7	CHART	_____ STRIP _____ ROLL _____ FOLD _____ CIRCULAR _____ _____ TIME MARKS _____ RANGE _____ NUMBER _____
8	CHART DRIVE	SPEED _____ POWER _____
9	SCALES	TYPE _____ RANGE 1 _____ 2 _____ 3 _____ 4 _____
10	TRANSMITTER XMTR OUTPUT	4-20 MA _____ X _____ 10-50 MA _____ 21-103KPA (3-15 PSIG) _____ OTHER _____ HART FOR RECEIVER, SEE SPEC. SHEET
11	CONTROL MODES	P=PROP (GAIN), I=INTEGRAL (AUTO RESET), D=DERIVATIVE (RATE) SUB: S=SLOW, F=FAST P _____ PI _____ PD _____ PID _____ IF _____ DF _____ IS _____ DS _____ OTHER _____
12	ACTION	ON MEAS. INCREASE OUTPUT: INCREASES _____ DECREASES _____
13	AUTO-MANUAL SWITCH	NONE _____ MFR STD _____ OTHER _____
14	SET POINT ADJ.	MANUAL _____ EXTERNAL _____ REMOTE _____ OTHER _____
15	MANUAL REG.	NONE _____ MFR STD _____ OTHER _____
16	OUTPUT	4-20 MA _____ 10-50 MA _____ 21-103 KPA (3-15 PSIG) _____ OTHER _____
17	SERVICE	GAGE PRESS. _____ X _____ VACUUM _____ ABSOLUTE _____ COMPOUND _____
18	ELEMENT TYPE	DIAPHRAGM _____ HELIX _____ BOURDON _____ BELLOWS _____ OTHER _____
19	MATERIAL	316 SS _____ BER. COPPER _____ OTHER _____
20	RANGE	FIXED _____ ADJ. RANGE _____ SET AT _____ OVERRANGE PROTECTION TO _____
21	PROCESS DATA	PRESSURE: NORMAL _____ MAX. 400 psig _____ ELEMENT RANGE _____ -14.7 - +500 psig
22	PROCESS CONN.	1/4 IN. NPT _____ 1/2 IN. NPT _____ X _____ OTHER _____ LOCATION: BOTTOM _____ X _____ BACK _____ OTHER _____
23	ALARM SWITCHES	QUANTITY _____ FORM _____ RATING _____
24	FUNCTION	PRESSURE _____ DEVIATION _____ CONTACTS TO _____ ON INC. PRESS
25	OPTIONS	FILT-REG. _____ SUP GAGE _____ OUTPUT GAGE _____ CHARTS _____ DIAPH SEAL _____ TYPE _____ DIAPH _____ BOT BOWL _____ CONN. _____ CAPILLARY: LENGTH _____ MATERIAL _____ OTHER LCD Display _____
26	MFR & MODEL NO.	Honeywell Model # STG740-E1GS4A-1-A-AHB-11C-A-21A0-00-0000

NOTES: Stamp tag number on nameplate or metal tag

# UOP RUSSELL, TULSA, OKLAHOMA

**PROJECT:** Std 60mmscfd Cryo - SC6  
**CUSTOMER:** UOP Russell  
**CUSTOMER JOB NO:** 488  
**PLANT:**  
**LOCATION:** Unknown

## PRESSURE INSTRUMENTS

SHEET 1 OF 1

P&ID 231

NO.	BY	DATE	REVISION	SPEC. NO.
0	JKG	10/2/2017		REV. 0
				DATE 10/2/2017
				BY JKG
				CHK'D DP
				APPR.
				REQ. P.O.

1	TAG NO. <b>PT-501C</b>	SERVICE Residue Vent Line off 178-B1-CS-10" to PCV-501C
2	FUNCTION	RECORD _____ INDICATE _____ CONTROL _____ BLIND _____ TRANS. <u>X</u> OTHER _____
3	CASE	MFR STD <u>X</u> NOM SIZE _____ COLOR: MFR STD _____ X OTHER _____
4	MOUNTING	FLUSH _____ SURFACE _____ YOKE _____ OTHER 304SS Angle Bracket
5	ENCLOSURE CLASS	GENERAL PURPOSE _____ WEATHER PROOF _____ EXPLOSION PROOF <u>X</u> CLASS <u>1</u> FOR USE IN INTRINSICALLY SAFE SYSTEM _____ OTHER FM Approved
6	POWER SUPPLY	117V 60 HZ _____ OTHER AC _____ DC <u>24</u> VOLTS _____
7	CHART	_____ STRIP _____ ROLL _____ FOLD _____ CIRCULAR _____ _____ TIME MARKS _____ RANGE _____ NUMBER _____
8	CHART DRIVE	SPEED _____ POWER _____
9	SCALES	TYPE _____ RANGE 1 _____ 2 _____ 3 _____ 4 _____
10	TRANSMITTER OUTPUT	4-20 MA <u>X</u> 10-50 MA _____ 21-103KPA (3-15 PSIG) _____ OTHER _____ HART _____ FOR RECEIVER, SEE SPEC. SHEET
11	CONTROL MODES	P=PROP (GAIN), I=INTEGRAL (AUTO RESET), D=DERIVATIVE (RATE) SUB: S=SLOW, F=FAST P _____ PI _____ PD _____ PID _____ IF _____ DF _____ IS _____ DS _____ OTHER _____
12	ACTION	ON MEAS. INCREASE OUTPUT: INCREASES _____ DECREASES _____
13	AUTO-MANUAL SWITCH	NONE _____ MFR STD _____ OTHER _____
14	SET POINT ADJ.	MANUAL _____ EXTERNAL _____ REMOTE _____ OTHER _____
15	MANUAL REG.	NONE _____ MFR STD _____ OTHER _____
16	OUTPUT	4-20 MA _____ 10-50 MA _____ 21-103 KPA (3-15 PSIG) _____ OTHER _____
17	SERVICE	GAGE PRESS. <u>X</u> VACUUM _____ ABSOLUTE _____ COMPOUND _____
18	ELEMENT TYPE	DIAPHRAGM _____ HELIX _____ BOURDON _____ BELLOWS _____ OTHER _____
19	MATERIAL	316 SS _____ BER. COPPER _____ OTHER _____
20	RANGE	FIXED _____ ADJ. RANGE _____ SET AT _____ OVERRANGE PROTECTION TO _____
21	PROCESS DATA	PRESSURE: NORMAL _____ MAX. 400 psig _____ ELEMENT RANGE -14.7 - +500 psig
22	PROCESS CONN.	1/4 IN. NPT _____ 1/2 IN. NPT <u>X</u> _____ OTHER _____ LOCATION: BOTTOM <u>X</u> BACK _____ OTHER _____
23	ALARM SWITCHES	QUANTITY _____ FORM _____ RATING _____
24	FUNCTION	PRESSURE _____ DEVIATION _____ CONTACTS TO _____ ON INC. PRESS _____
25	OPTIONS	FILT-REG. _____ SUP GAGE _____ OUTPUT GAGE _____ CHARTS _____ DIAPH SEAL _____ TYPE _____ DIAPH _____ BOT BOWL _____ CONN. _____ CAPILLARY: LENGTH _____ MATERIAL _____ OTHER LCD Display
26	MFR & MODEL NO.	Honeywell Model # STG740-E1GS4A-1-A-AHB-11C-A-21A0-00-0000

NOTES: Stamp tag number on nameplate or metal tag

**UOP RUSSELL, TULSA, OKLAHOMA**

**PROJECT:** Std 60mmscfd Cryo - SC6  
**CUSTOMER:** UOP Russell  
**CUSTOMER JOB NO:** J488  
**PLANT:**  
**LOCATION:** Unknown

**SHUTDOWN VALVES**

SHEET	1	OF	1
SPEC. NO.			
REV.	1		
DATE	1-10-19		
FLOW SHT	233L		
BY	JKG		
CHK'D	DP		
APPR.			
REQ. P.O.			

NO	BY	DATE	REVISION
0	JKG	9/27/2017	
1	DP	1-10-19	Rebuy SDV-101A/B

	TAG NO.	SDV-101A		SDV-101B	
		Expander / Compressor		Expander / Compressor	
	SERVICE	179-B1-CS-10" / EC-101		162-D1-LT-6" / EC-101	
	LINE NO./VESSEL NO.	One		One	
	QUANTITY	High Performance Butterfly		Triple Offset	
	TYPE	10" - 300# ANSI RF		6" - 600# ANSI RF	
	SIZE	Lug Type		Lug Type	
	MATERIAL - BODY	CS		316SS	
	MATERIAL - SEAT	RTFE		Stellite 21	
	BACK-UP O-RING RING				
	OPERATION DIRECT/PILOT				
	PACKLESS OR TYPE PACKED				
	MANUAL RE-SET	NA		NA	
	MANUAL OPERATOR	NA		NA	
	TRIM				
	OPTION				
	2-WAY VALVE OPENS/CLOSE				
	3-WAY	Versa VSG-3501-D024		Versa VSG-3501-D024	
	VENT PORT OPENS/CLOSE				
	PRESS PORT OPENS/CLOSE	Close		Close	
	4-WAY				
	PRESS TO CYL. 1/CLY. 2				
	SUPPLY PRESSURE	80 psig		70 psig	
	BLANK 3				
	BLANK 4				
	ENCLOSURE	NEMA 4		NEMA 4	
	VOLTAGE/HZ	24VDC		24VDC	
	STYLE OF COIL				
	SINGLE OR DOUBLE COIL	Single		Single	
	FLUID	Residue Vapor		HC Vapor	
	OPERATING PRESSURE	160psig		850 psig	
	DESIGN PRESSURE	400 psig		1100 psig	
	MINIMUM TEMPERATURE			-28F	
	TEMP. NORM.	73F	150F	0F	150F
	TEMP. MAX.				
	OPER. SP. GR.				
	OPER. VISCOSITY				
	REQUIRED CV				
	MW				
	Fisher # 67CFR-239 Filter/Regulator	Yes		Yes	
	LIMIT SWITCHES w/MTG.	Yes - with mtg. hardware		Yes - with mtg. hardware	
	MANUFACTURER	Pratt Industrial		Zwick	
	MODEL NUMBER	Note 1		Note 2, 3	

**NOTES:** STAMP TAG NUMBER ON NAMEPLATE OR METAL TAG  
 Both valves include: Westlock Series 2007-DBY2B2M0200 limit switch, (2) SPDT switches, NEMA 4/7 enclosure, Black/Yellow Dome, with mtg hardware.

Note 1: PN# HP2-300-100-663A High Performance Butterfly Valve with Morin Model # B-100UC-S080 spring return, fail close pneumatic actuator  
 Note 2: PN# A10150Z-YP11SA Triple Offset Valve with Morin Model # C-420UC-S080-HD-OP-LT spring return, fail close pneumatic actuator  
**Note 3: SDV-101B must vent in one second or less and be bubble tight**



# Rotary Valve Specification

Customer: <b>UOP RUSSELL LLC</b>	Vinson Process Controls	
Contact: <b>JAKE GASKINS</b>	Contact: <b>Ron Berte</b>	
Customer Reference: <b>JOB 488 SC6 RSV PLANT</b>	Sales Office Reference:	Lead Time: <b>10 WKS</b>
Item: <b>5</b>	Rev:                      Qty: <b>1</b>	Quote: <b>027D-RCB-171013-0211425</b>
Tags: <b>TCV-201A</b>	Date Last Modified: <b>10/13/2017</b>	Rev: <b>A</b>
Description: <b>NPS 8 V200 2052 Size 3 DVC6200 Factory Mtgs DVC6200/DVC2000</b>		
Price Each:	Total Price:	
Service Description:		

Service: Size and Type: <b>NPS 8 V200</b> Body Style: <b>Ball Flangeless</b> Design Temp: <b>150 deg F</b> Design Press: <b>1100 psig</b> End Connect/In/Out: <b>CL600 RF Flg Compatible RF Flg</b> <b>Compatible</b> Material: <b>WCC Steel</b> Flow Direction: <b>Forward</b>	Positioner Type: <b>DVC6200,HART Communicating-HC</b> Input Signal: <b>4 to 20 mA dc</b> Access: <b>67CFR Filter/Regulator</b> Gauges: <b>0-60 psig/0-4 bar</b> Action: <b>Direct</b> Certification: <b>FM,Explosion Proof/Intrinsic</b> <b>Safe/Nonincendive</b>
Trim Number: Retainer Matl: <b>WCC Steel</b> Bushing/Bearing Matl: <b>PEEK/PTFE</b> Seal/Liner Matl: <b>TCM Plus</b> Disk/Ball Matl: <b>CG8M SST/CRPL</b> Shutoff Class: <b>ANSI CL VI</b> Port Size: <b>Full</b> Characteristic: <b>Modified Equal Percent</b> Stem Material: <b>S20910 SST</b> Stem Size: <b>1 1/4 Inch</b>	Controller Type: Action: Measure Element: Range: Output: Mounting: Airset: Mounting:
Bonnet Style: <b>None</b> Packing: <b>PTFE</b> PackFlg/Bltg: <b>SA-193-B8M Str Hd Studs/8M Nuts</b>	Transducer: Input Signal: Output Signal: Action: Mounting: Airset: Certifications:
Actuator: <b>Spring &amp; Diaphragm</b> Type/Size: <b>2052/3</b> Travel: <b>90 Deg</b> Bench Set: Push Down To: <b>Push Down to Close</b> Supply: <b>Air</b> To Actuator: <b>2.0 barg (29 psig)</b> Fails Valve: <b>Open</b> Mounting: <b>Right Hand,Pos 1</b> Handwheel: <b>None</b>	Line In: <b>8 in, SCH XS</b> Line Out: <b>8 in, SCH XS</b> Insulation: Service Cond: <b>THROTTLING</b> Process Fluid: <b>INLET GAS</b> Critical Pressure: <b>671.000 psia</b> Shutoff Drop: <b>50 psi</b> Max Rated Cv: <b>1750.0</b>

Variable Name	Unit	Minimum	Normal	Maximum	
Mass Flow Rate Gas (w)	lb/h	62577.000	125154.000	131741.000	
Inlet Pressure (P1)	psig	929.000	929.000	929.000	
Pressure Change (dP)	psi	5.000	5.000	5.000	
Inlet Temperature (T1)	deg F	114.000	114.000	114.000	
M / Gg	SG	0.790	0.790	0.790	
Specific heats ratio (gamma)		1.250	1.250	1.250	
Dynamic Viscosity (Mu)	cP	0.010	0.010	0.010	
Sizing Coefficient (Cv)		225.142	450.531	474.272	
Deg. Open		42	59	60	
Valve LpA(LpAeValve1m)	dB(A)	< 50	< 50	< 50	

**NOTES:**

1. SST TUBING & FITTINGS
2. VALVE LIMITED TO MAX DROP OF 650 PSID
3. ACTR INCLUDES ADJUSTABLE TRAVEL STOPS TO BE SET BY END USER.



# Rotary Valve Specification

Customer: <b>UOP RUSSELL LLC</b>	Vinson Process Controls	
Contact: <b>JAKE GASKINS</b>	Contact: <b>Ron Berte</b>	
Customer Reference: <b>JOB 488 SC6 RSV PLANT</b>	Sales Office Reference:	Lead Time: <b>10 WKS</b>
Item: <b>7</b>	Rev:                      Qty: <b>1</b>	Quote: <b>027D-RCB-171013-0211425</b>
Tags: <b>TCV-201B</b>	Date Last Modified: <b>10/13/2017</b>	Rev: <b>A</b>
Description: <b>NPS 6 V200 2052 Size 2 DVC6200 Factory Mtgs DVC6200/DVC2000</b>		
Price Each:	Total Price:	
Service Description:		

Service: Size and Type: <b>NPS 6 V200</b> Body Style: <b>Ball Flangeless</b> Design Temp: <b>150 deg F</b> Design Press: <b>1100 psig</b> End Connect/In/Out: <b>CL600 RF Flg Compatible RF Flg</b> <b>Compatible</b> Material: <b>WCC Steel</b> Flow Direction: <b>Forward</b>	Positioner Type: <b>DVC6200,HART Communicating-HC</b> Input Signal: <b>4 to 20 mA dc</b> Access: <b>67CFR Filter/Regulator</b> Gauges: <b>0-160 psig/0-11 bar</b> Action: <b>Direct</b> Certification: <b>FM,Explosion Proof/Intrinsic</b> <b>Safe/Nonincendive</b>
Trim Number: Retainer Matl: <b>WCC Steel</b> Bushing/Bearing Matl: <b>PEEK/PTFE</b> Seal/Liner Matl: <b>TCM Plus</b> Disk/Ball Matl: <b>CG8M SST/CRPL</b> Shutoff Class: <b>ANSI CL VI</b> Port Size: <b>Full</b> Characteristic: <b>Modified Equal Percent</b> Stem Material: <b>S20910 SST</b> Stem Size: <b>1 Inch</b>	Controller Type: Action: Measure Element: Range: Output: Mounting: Airset: Mounting:
Bonnet Style: <b>None</b> Packing: <b>PTFE</b> PackFlg/Bltg: <b>SA-193-B8M Str Hd Studs/8M Nuts</b>	Transducer: Input Signal: Output Signal: Action: Mounting: Airset: Certifications:
Actuator: <b>Spring &amp; Diaphragm</b> Type/Size: <b>2052/2</b> Travel: <b>90 Deg</b> Bench Set: Push Down To: <b>Push Down to Close</b> Supply: <b>Air</b> To Actuator: <b>4.0 barg (58 psig)</b> Fails Valve: <b>Open</b> Mounting: <b>Right Hand,Pos 1</b> Handwheel: <b>None</b>	Line In: <b>6 in, SCH XS</b> Line Out: <b>6 in, SCH XS</b> Insulation: Service Cond: <b>THROTTLING</b> Process Fluid: <b>INLET GAS</b> Critical Pressure: <b>665.000 psia</b> Shutoff Drop: <b>550 psi</b>  Max Rated Cv: <b>1080.0</b>

Variable Name	Unit	Minimum	Normal	Maximum	
Mass Flow Rate Gas (w)	lb/h	34500.000	86250.000	95833.000	
Inlet Pressure (P1)	psig	805.000	805.000	805.000	
Pressure Change (dP)	psi	50.000	50.000	50.000	
Inlet Temperature (T1)	deg F	85.000	85.000	85.000	
M / Gg	SG	0.749	0.749	0.749	
Specific heats ratio (gamma)		1.250	1.250	1.250	
Dynamic Viscosity (Mu)	cP	0.010	0.010	0.010	
Sizing Coefficient (Cv)		41.508	103.756	115.373	
Deg. Open		20	32	34	
Valve LpA(LpAeValve1m)	dB(A)	73	75	75	

**NOTES:**

1. SST TUBING & FITTINGS
2. VALVE LIMITED TO MAX DROP OF 650 PSID.
3. 2052 ACTR COMES STD WITH ADJUSTABLE STOPS.



# Rotary Valve Specification

Customer: **UOP RUSSELL LLC** Vinson Process Controls  
 Contact: **JAKE GASKINS** Contact: **Ron Berte**  
 Customer Reference: **JOB 488 SC6 RSV PLANT** Sales Office Reference:  
 Item: **14** Rev: Qty: **1** Quote: **027D-RCB-171013-0211425** Lead Time: **10 WKS**  
 Tags: **TCV-501A** Date Last Modified: **10/13/2017** Rev: **A**  
 Description: **NPS 3 V200 2052 Size 1 DVC6200 Factory Mtgs DVC6200/DVC2000**  
 Price Each: Total Price:  
 Service Description:

Service:	Positioner Type:	<b>DVC6200,HART Communicating-HC</b>
Size and Type: <b>NPS 3 V200</b>	Input Signal:	<b>4 to 20 mA dc</b>
Body Style: <b>Ball Flangeless</b>	Access:	<b>67CFR Filter/Regulator</b>
Design Temp: <b>400 deg F</b>	Gauges:	<b>0-160 psig/0-11 bar</b>
Design Press: <b>150 psig</b>	Action:	<b>Direct</b>
End Connect/In/Out: <b>CL150 RF Flg Compatible RF Flg Compatible</b>	Certification:	<b>Explosion Proof/Intrinsic Safe/Nonincendive,FM</b>
Material: <b>WCC Steel</b>	Controller Type:	
Flow Direction: <b>Forward</b>	Action:	
Trim Number:	Measure Element:	
Retainer Matl: <b>WCC Steel</b>	Range:	
Bushing/Bearing Matl: <b>PEEK/PTFE</b>	Output:	
Seal/Liner Matl: <b>CF10SMnN SST</b>	Mounting:	
Disk/Ball Matl: <b>CG8M SST/CRPL</b>	Airset:	
Shutoff Class: <b>ANSI CL IV</b>	Mounting:	
Port Size: <b>Full</b>	Transducer:	
Characteristic: <b>Modified Equal Percent</b>	Input Signal:	
Stem Material: <b>S20910 SST</b>	Output Signal:	
Stem Size: <b>3/4 Inch</b>	Action:	
Bonnet Style: <b>None</b>	Mounting:	
Packing: <b>PTFE</b>	Airset:	
PackFlg/Bltg: <b>SA-193-B8M Str Hd Studs/8M Nuts</b>	Certifications:	
Actuator: <b>Spring &amp; Diaphragm</b>	Line In:	<b>6 in, SCH STD</b>
Type/Size: <b>2052/1</b>	Line Out:	<b>6 in, SCH STD</b>
Travel: <b>90 Deg</b>	Insulation:	
Bench Set:	Service Cond:	<b>THROTTLING</b>
Push Down To: <b>Push Down to Open</b>	Process Fluid:	<b>THERMINOL 55</b>
Supply: <b>Air</b>	Critical Pressure:	<b>135.000 psia</b>
To Actuator: <b>4.0 barg (58 psig)</b>	Shutoff Drop:	<b>35 psi</b>
Fails Valve: <b>Close</b>	Max Rated Cv:	<b>387.0</b>
Mounting: <b>Right Hand,Pos 1</b>		
Handwheel: <b>None</b>		

Variable Name	Unit	Minimum	Normal	Maximum
Mass Flow Rate Liquid (wl)	lb/h	20683.000	51708.000	60833.000
Inlet Pressure (P1)	psig	35.000	35.000	35.000
Pressure Change (dP)	psi	10.000	10.000	10.000
Inlet Temperature (T1)	deg F	200.000	200.000	200.000
SG		0.830	0.830	0.830
Dynamic Viscosity (Mu)	cP	3.310	3.310	3.310
Vapor Pressure (Pv)	psia	20.000	20.000	20.000
Sizing Coefficient (Cv)		14.370	36.159	42.668
Deg. Open		22	34	37
Valve Lpa (LpAe1m)	dB(A)	< 50	< 50	< 50

NOTES:  
 1. SST TUBING & FITTINGS



# Rotary Valve Specification

Customer: **UOP RUSSELL LLC** Vinson Process Controls  
 Contact: **JAKE GASKINS** Contact: **Ron Berte**  
 Customer Reference: **JOB 488 SC6 RSV PLANT** Sales Office Reference:  
 Item: **15** Rev: Qty: **1** Quote: **027D-RCB-171013-0211425** Lead Time: **10 WKS**  
 Tags: **TCV-501B** Date Last Modified: **10/13/2017** Rev: **A**  
 Description: **NPS 2 V200 2052 Size 1 DVC6200 Factory Mtgs DVC6200/DVC2000**  
 Price Each: Total Price:  
 Service Description:

Service:	Positioner Type:	<b>DVC6200,HART Communicating-HC</b>
Size and Type: <b>NPS 2 V200</b>	Input Signal:	<b>4 to 20 mA dc</b>
Body Style: <b>Ball Flangeless</b>	Access:	<b>67CFR Filter/Regulator</b>
Design Temp: <b>400 deg F</b>	Gauges:	<b>0-160 psig/0-11 bar</b>
Design Press: <b>150 psig</b>	Action:	<b>Direct</b>
End Connect/In/Out: <b>CL150/300/600 RF Flg Compatible RF Flg</b>	Certification:	<b>FM,Explosion Proof/Intrinsic Safe/Nonincendive</b>
Material: <b>WCC Steel</b>	Controller Type:	
Flow Direction: <b>Forward</b>	Action:	
Trim Number:	Measure Element:	
Retainer Matl: <b>CG8M SST</b>	Range:	
Bushing/Bearing Matl: <b>PEEK/PTFE</b>	Output:	
Seal/Liner Matl: <b>CF10SMnN SST</b>	Mounting:	
Disk/Ball Matl: <b>CG8M SST/CRPL</b>	Airset:	
Shutoff Class: <b>ANSI CL IV</b>	Mounting:	
Port Size: <b>Full</b>	Transducer:	
Characteristic: <b>Modified Equal Percent</b>	Input Signal:	
Stem Material: <b>S20910 SST</b>	Output Signal:	
Stem Size: <b>5/8 Inch</b>	Action:	
Bonnet Style: <b>None</b>	Mounting:	
Packing: <b>PTFE</b>	Airset:	
PackFlg/Bltg: <b>SA-193-B8M Str Hd Studs/8M Nuts</b>	Certifications:	
Actuator: <b>Spring &amp; Diaphragm</b>	Line In:	<b>4 in, SCH STD</b>
Type/Size: <b>2052/1</b>	Line Out:	<b>4 in, SCH STD</b>
Travel: <b>90 Deg</b>	Insulation:	
Bench Set:	Service Cond:	<b>THROTTLING</b>
Push Down To: <b>Push Down to Close</b>	Process Fluid:	<b>THERMINOL 55</b>
Supply: <b>Air</b>	Critical Pressure:	<b>135.000 psia</b>
To Actuator: <b>4.0 barg (58 psig)</b>	Shutoff Drop:	<b>35 psi</b>
Fails Valve: <b>Open</b>	Max Rated Cv:	<b>122.0</b>
Mounting: <b>Right Hand,Pos 1</b>		
Handwheel: <b>None</b>		

Variable Name	Unit	Minimum	Normal	Maximum
Mass Flow Rate Liquid (wl)	lb/h	10400.000	26000.000	30588.000
Inlet Pressure (P1)	psig	35.000	35.000	35.000
Pressure Change (dP)	psi	10.000	10.000	10.000
Inlet Temperature (T1)	deg F	200.000	200.000	200.000
SG		0.790	0.790	0.790
Dynamic Viscosity (Mu)	cP	1.310	1.310	1.310
Vapor Pressure (Pv)	psia	20.000	20.000	20.000
Sizing Coefficient (Cv)		7.409	18.685	22.071
Deg. Open		31	44	47
Valve Lpa (LpAe1m)	dB(A)	< 50	< 50	< 50

NOTES:  
 1. SST TUBING & FITTINGS

<p><b>UOP RUSSELL, TULSA, OKLAHOMA</b></p> <p>PROJECT: Std 60mmscfd Cryo - SC6</p> <p>CUSTOMER: UOP Russell</p> <p>CUSTOMER JOB NO: J488</p> <p>PLANT:</p> <p>LOCATION: Unknown</p>	RTD with THERMOWELL	SHEET 1 OF 1																																					
	<table border="1" style="width:100%; border-collapse: collapse;"> <thead> <tr> <th style="width:5%;">NO.</th> <th style="width:5%;">BY</th> <th style="width:15%;">DATE</th> <th style="width:75%;">REVISION</th> </tr> </thead> <tbody> <tr> <td>0</td> <td>JKG</td> <td>9/27/2017</td> <td></td> </tr> <tr> <td>1</td> <td>DP</td> <td>5/16/2018</td> <td>TE-204B Line change</td> </tr> <tr> <td> </td> <td> </td> <td> </td> <td> </td> </tr> <tr> <td> </td> <td> </td> <td> </td> <td> </td> </tr> <tr> <td> </td> <td> </td> <td> </td> <td> </td> </tr> </tbody> </table>	NO.	BY	DATE	REVISION	0	JKG	9/27/2017		1	DP	5/16/2018	TE-204B Line change													<table border="1" style="width:100%; border-collapse: collapse;"> <tr> <td style="width:70%;">SPEC. NO.</td> <td></td> </tr> <tr> <td>REV</td> <td style="text-align: right;">1</td> </tr> <tr> <td>DATE</td> <td style="text-align: right;">5/16/2018</td> </tr> <tr> <td>BY</td> <td style="text-align: right;">JKG</td> </tr> <tr> <td>CHK'D</td> <td style="text-align: right;">DP</td> </tr> <tr> <td>APPR.</td> <td></td> </tr> <tr> <td>REQ. P.O.</td> <td></td> </tr> </table>	SPEC. NO.		REV	1	DATE	5/16/2018	BY	JKG	CHK'D	DP	APPR.		REQ. P.O.
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1. COMPLETE ASSEMBLY  OTHER \_\_\_\_\_  
 MFR & MODEL NO. JMS Southeast, Inc. \_\_\_\_\_  
 ELEMENT \_\_\_\_\_  
 MFR & MODEL NO. 3ESBNK\_BSH4PZZYZM1 \_\_\_\_\_

2. ISA TYPE \_\_\_\_\_ WIRE SIZE \_\_\_\_\_

3. SHEATHED:  .250" O.D. MAT'L 316SS \_\_\_\_\_  
 EXPOSED \_\_\_\_\_ GROUNDED \_\_\_\_\_ UNGROUNDED \_\_\_\_\_  
 ENCLOSED  BEADED INSULATORS \_\_\_\_\_ SPRINGLOAD

4. NIPPLE SIZE 1/2" DIMENSION "N" 4" UNION

5. PACKED CONNECTOR \_\_\_\_\_

6. SCREW-CAP & CHAIN  Yes  OTHER \_\_\_\_\_

7. MATERIAL Aluminum CONDUIT CONN. 1/2" \_\_\_\_\_

8. TERMINAL BLOCK: SINGLE  DUPLEX \_\_\_\_\_  
 WELL OR TUBE \_\_\_\_\_

9. MATERIAL 316SS \_\_\_\_\_

10. CONSTRUCTION: TAPERED \_\_\_\_\_ STRAIGHT \_\_\_\_\_  
 STEPPED  BUILTUP \_\_\_\_\_ CLOSED END TUBE \_\_\_\_\_

11. DIMENSIONS: MFR. STD.  O.D. \_\_\_\_\_ I.D. .260" \_\_\_\_\_

12. CONNECTIONS: PROCESS See Below INTERNAL 1/2" \_\_\_\_\_

13. OTHER SPECS.: \_\_\_\_\_

NOTES:



TAG NO.	REV	WELL DIMENSIONS		PROCESS CONNECTION	PROCESS		TYPE	GAGE	SERVICE	NOTES	P&ID
		"U"	"T"		SINGLE	DUPLEX					
TE-201B	0	4-1/2"	0	3/4" NPT	X		RTD		E-201 Gas/Gas Exchanger - Line 178-B1-CS-10"		231
TE-202A	0	2-1/2"	0	3/4" NPT	X		RTD		E-202 Gas /Product Exchanger - Line 216-E1-CS-4"		231
TE-202B	0	4-1/2"	0	3/4" NPT	X		RTD		E-202 Gas /Product Exchanger - Line 153-D1-CS-6"		231
TE-202G	0	2-1/2"	0	3/4" NPT	X		RTD		E-202 Gas /Product Exchanger - Line 215-E1-CS-4"		231
TE-101A	0	4-1/2"	0	3/4" NPT	X		RTD		EC-101 Expander/Compressor - Line 180-B1-CS-10"		233
TE-207C	0	4-1/2"	0	3/4" NPT	X		RTD		E-207 Demeth Trim Reboiler - Line 611-A1-CS-6"		291

NOTES: Supply metal tag with tag number

ISA FORM S20.12a

# UOP RUSSELL, TULSA, OKLAHOMA

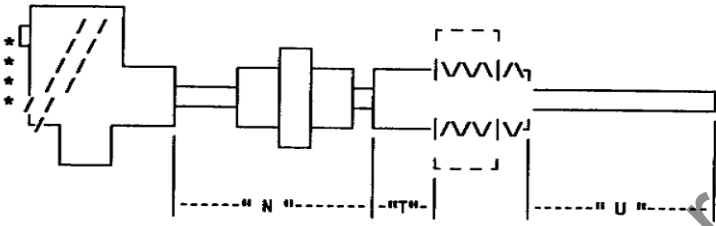
PROJECT: Std 60mmscfd Cryo - SC6  
 CUSTOMER: UOP Russell  
 CUSTOMER JOB NO: J488  
 PLANT:  
 LOCATION: Unknown

RTD with THERMOWELL				SHEET 1 OF 1
NO.	BY	DATE	REVISION	SPEC. NO.
0	JKG	9/27/2017		REV 2
1	JKG			DATE 3/29/2018
2	DP	3/29/2018	Add TE-207D	BY JKG
				CHK'D DP
				APPR.
				REQ. P.O.

- COMPLETE ASSEMBLY  OTHER \_\_\_\_\_  
 MFR & MODEL NO. JMS Southeast, Inc. \_\_\_\_\_  
 ELEMENT \_\_\_\_\_  
 MFR & MODEL NO. 3ESBNK\_BSH4PZZYM1 \_\_\_\_\_
- ISA TYPE \_\_\_\_\_ WIRE SIZE \_\_\_\_\_
- SHEATHED: .250" O.D. MAT'L 316SS  
 EXPOSED \_\_\_\_\_ GROUNDED \_\_\_\_\_ UNGROUNDED \_\_\_\_\_  
 ENCLOSED  BEADED INSULATORS \_\_\_\_\_ SPRINGLOAD
- NIPPLE SIZE 1/2" DIMENSION "N" 4" UNION
- PACKED CONNECTOR \_\_\_\_\_  
 HEAD \_\_\_\_\_
- SCREW-CAP & CHAIN Yes \_\_\_\_\_ OTHER Stainless Steel Nipple

- MATERIAL Aluminum \_\_\_\_\_ CONDUIT CONN. 1/2"
- TERMINAL BLOCK: SINGLE  DUPLEX \_\_\_\_\_  
 WELL OR TUBE \_\_\_\_\_
- MATERIAL 316SS
- CONSTRUCTION: TAPERED \_\_\_\_\_ STRAIGHT \_\_\_\_\_  
 STEPPED  BUILTUP \_\_\_\_\_ CLOSED END TUBE \_\_\_\_\_
- DIMENSIONS: MFR. STD.  O.D. \_\_\_\_\_ I.D. .260"
- CONNECTIONS: PROCESS See Below INTERNAL 1/2"
- OTHER SPECS.: \_\_\_\_\_

NOTES:



Sketch 2 relocated from UOPP Job 488 to 447

TAG NO.	REV	WELL DIMENSIONS		PROCESS CONNECTION	SINGLE	DUPLEX	TYPE	GAGE	SERVICE	NOTES	P&ID
		"U"	"T"								
TE-501F	0	7-1/2"	0	3/4" NPT	X		RTD		T-501 Demethanizer - Line 175-B0-304SS-10"		232
TE-101B	0	4-1/2"	0	3/4" NPT	X		RTD		EC-101 Expander/Compressor-Line 163-D0-304SS-8"		233
TE-101C	0	7-1/2"	0	3/4" NPT	X		RTD		EC-101 Expander/Compressor-Line 166-B0-304SS-10"		233
TE-101E	0	4-1/2"	0	3/4" NPT	X		RTD		EC-101 Expander/Compressor-Line 165-B0-304SS-8"		233
TE-207D	2	4-1/2"	0	3/4" NPT	X		RTD		E-207 Therminol Discharge Line 614-A1-CS-8"		291

NOTES: Supply metal tag with tag number

**UOP RUSSELL, TULSA, OKLAHOMA**

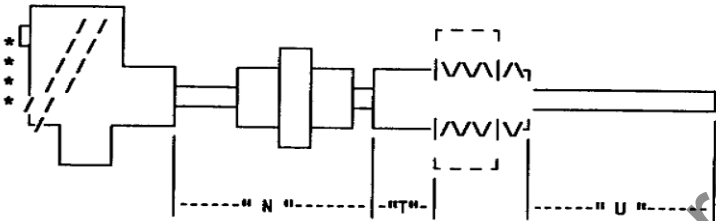
PROJECT: Std 60mmscfd Cryo - SC6 - RSV  
 CUSTOMER: UOP Russell  
 CUSTOMER JOB NO: J488  
 PLANT:  
 LOCATION: Unknown

RTD with THERMOWELL				SHEET 1 OF 1
NO.	BY	DATE	REVISION	SPEC. NO.
0	DP	3/29/2018		REV
				DATE 3/29/2018
				BY DP
				CHK'D DP
				APPR.
				REQ. P.O.

- COMPLETE ASSEMBLY  OTHER \_\_\_\_\_  
 MFR & MODEL NO. JMS Southeast, Inc. \_\_\_\_\_  
 ELEMENT \_\_\_\_\_  
 MFR & MODEL NO. 3ESBNK\_BSH4PZZYM1 \_\_\_\_\_
- ISA TYPE \_\_\_\_\_ WIRE SIZE \_\_\_\_\_
- SHEATHED: .250" O.D. MAT'L 316SS  
 EXPOSED \_\_\_\_\_ GROUNDED \_\_\_\_\_ UNGROUNDED \_\_\_\_\_  
 ENCLOSED  BEADED INSULATORS \_\_\_\_\_ SPRINGLOAD
- NIPPLE SIZE 1/2" DIMENSION "N" 4" UNION
- PACKED CONNECTOR \_\_\_\_\_  
 HEAD \_\_\_\_\_
- SCREW-CAP & CHAIN Yes \_\_\_\_\_ OTHER Stainless Steel Nipple

- MATERIAL Aluminum \_\_\_\_\_ CONDUIT CONN. 1/2" \_\_\_\_\_
- TERMINAL BLOCK: SINGLE  DUPLEX \_\_\_\_\_  
 WELL OR TUBE \_\_\_\_\_
- MATERIAL 316SS \_\_\_\_\_
- CONSTRUCTION: TAPERED \_\_\_\_\_ STRAIGHT \_\_\_\_\_  
 STEPPED  BUILTUP \_\_\_\_\_ CLOSED END TUBE \_\_\_\_\_
- DIMENSIONS: MFR. STD.  O.D. \_\_\_\_\_ I.D. .260" \_\_\_\_\_
- CONNECTIONS: PROCESS See Below \_\_\_\_\_ INTERNAL 1/2" \_\_\_\_\_
- OTHER SPECS.: \_\_\_\_\_

NOTES:



TAG NO.	REV	WELL DIMENSIONS		PROCESS CONNECTION	SINGLE	DUPLEX	TYPE	GAGE	SERVICE	NOTES	P&ID
		"U"	"T"								
TE-201C	0	4-1/2"		3/4" NPT	X		RTD		HC L/V Line 156-D1-CS-8" to E-203		231
TE-202C	0	4-1/2"		3/4" NPT	X		RTD		NGL Inlet Line 215-E1-CS-6" to E-202		231
TE-202D	0	2-1/2"		3/4" NPT	X		RTD		E-202 NGL Discharge Line		231
TE-202E	0	4-1/2"		3/4" NPT	X		RTD		E-202 Inlet Gas Line 151-D1-CS-8"		231

NOTES: Supply metal tag with tag number



# UOP RUSSELL, TULSA, OKLAHOMA

PROJECT: Std 60mmscfd Cryo - SC6  
 CUSTOMER: UOP Russell  
 CUSTOMER JOB NO: J488  
 PLANT:  
 LOCATION: Unknown

## INDUSTRIAL BIMETAL AND GLASS THERMOMETERS

SHEET 1 of 1

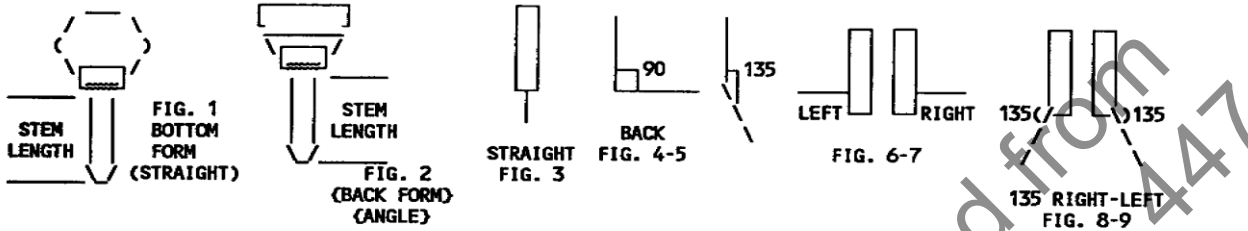
NO.	BY	DATE	REVISION	SPEC. NO.
0	JKG	9/27/2017		REV. 0
				DATE 9/27/2017
				BY JKG
				CHK'D DP
				APPR.
				REQ. P.O.

### THERMOMETER

- STEM: THREADED  PLAIN  UNION   
MATERIAL SS
- STEM OR UNION THREAD: 1/2"  3/4"
- STEM DIAMETER: STD .250"  .375"
- CASE MATERIAL: STD SS OTHER
- DIAL SIZE 5" COLOR WHITE
- SCALE LENGTH  COLOR BLACK
- FORM: FIG. NO. 2 ADJUSTABLE
- EXTERNAL CALIBRATOR  HERM. SEALED CASE
- MFR. & MODEL NO. ASHCROFT SERIES 50EI or 600B as required

### THERMOWELL

- NONE  INCLUDED  BY OTHERS
- MATERIAL: 304SS  316SS   
OTHER
- CONSTRUCTION: DRILLED  BUILT-UP   
OTHER  STRAIGHT WITH .260" or .385" BORE AS REQUIRED
- WELL LENGTH MUST SUIT STEM LENGTH-----



TAG NO.	REV	RANGE F	OPERATING TEMP F	STEM LENGTH	NPT WELL CONN.	U DIM.	LINE #	MODEL #	P&ID
<b>TI-202F</b>	0	0-200F		6"	3/4" NPT	4-1/2"	E-202 Gas/Product Exchanger - Discharge Line 153-D1-CS-6"	50EI60R	231
<b>TI-101D</b>	0	0-300F		6"	3/4" NPT	4-1/2"	EC-101 Expander / Compressor - Discharge Line 180-B1-CS-10"	50EI60R	233
<b>TI-207A</b>	0	50-550F		6"	3/4" NPT	4-1/2"	E-207 Demethanizer Trim Reboiler - Inlet Line 611-A1-CS-6"	"	291
<b>TI-207B</b>	0	50-550F		6"	3/4" NPT	4-1/2"	E-207 Demethanizer Trim Reboiler - Discharge Line 614-A1-CS-6"	"	291
<b>TI-481</b>	0	0-200F		6"	3/4" NPT	4-1/2"	V-481 Fuel Gas Scrubber	"	296

NOTES: Use applicable well P/N 75W\_ST260/385C2 on NPT process connections and 10W\_SF260/385C2R\_ on flanged process connections

Stamp tag number on nameplate or metal tag

