



Instruments and Valves

QTY	Instrumentation	Part	Manufacturer
	Slug Section Level Control		
1	Liquid Sight Level Gauge	R100 FT15 35.25" C-C sch 160	Inferno
2	Level Switch Hi/Lo Control, Pneumatic Floats	P120-91-10	Pathway
1	3/2 Shuttle Valve, Primary Control	BSP-3308	Versa
1	2" 600# Globe Isolation Valve RF	FORUM P/N 101118	DSI
1	2" 600# Ball Isolation Valves RF	2F-F63 NRF	Balon
2	1/2" 3000 psig Ball Isolation Valves NPT	LM-05361	Balon
	Slug Dump System		
1	2" 600# RF Dump Valve	EGP 2-FMT-600RF-PO-3/8-IV-CB	Kimray
3	2" 600# Ball Isolation Valves RF	2F-F63 NRF	Balon
2	1/2" 3000 psig Ball Isolation Valves NPT	LM-05361	Balon
1	2" 600# Globe Isolation Valve RF	FORUM P/N 101118	DSI
1	Level Switch Hi-Hi, P-trap Electric Float	E200-21-15 (110)	Pathway
3	2" 600# Ball Isolation Valves RF, P-trap	2F-F63 NRF	Balon
-	Helical Section Level Control		
-	None	-	-
-	Helical Dump System		
-	None	-	-
-	Clean Gas Chamber Instruments & Valves		
-	None	-	-
	Accessories		
1	2" PSV, thermal at MAWP	83S1M88-6	Pentair
1	2" 600# Ball Isolation Valves RF	2F-F63 NRF	Balon
1	1-1/2" PSV Bleed Ring	AITKEN 1.5-600#	Crosby
1	1/2" 3000 psig Ball Isolation Valves NPT	LM-05361	Balon
1	0-25 psid, 3000 psig, 4.5" Diff Press Gauge	140-AG-00-LO	Mid-West
2	1/4" 3000 psig NPT ball valve, Diff Press	LM-02362	Balon

NOTE: Can upgrade to WKM trunnion ball valves and Fisher dump valve for an adder of \$6,300.

MUELLER ENVIRONMENTAL DESIGN, INC. 31150 FM 529 Brookshire, TX 77423				KLS Pressure Vessel for 1				21-Apr-17 pg. 1		
Customer Reference: MED Q217131 R1				Customer:		Energy Transfer Partners				
Taylor Compressor Station				Contact:		Daniel Boodo				
Description:		Inlet Gas Separator		MUELLER MODEL#			21 KLS-1B		36"	
TAG #		TBD	QTY	2	MATERIALS OF CONSTRUCTION					
DESIGN CONDITIONS					Shell		SA-516-70N			
Pressure MAWP/Design		1440 psig	1450 psig		Heads		SA-516-70N			
Temp. (Max/MDMT)		120 °F	-20 °F MDMT		flanges		SA-105			
Corrosion Allowance		1/8	inches		Pipe		SA-106B			
Code		ASME §VIII, Div. 1			Couplings		SA-105			
NACE MR-0175		NO			Weld Fittings		SA-234-WPB			
Lethal Service		NO			Forgings		SA-105			
OPERATING CONDITIONS					Tubesheet		SA-516-70N			
					External Bolts/Nuts		SA-193-B7/SA-194-2H			
Max ACFM		1,619.69			Gaskets		SPIRAL WND. 304SS			
Pressure @ Max ACFM		1,000.00			Attachments		NONE			
Temp. @ Max ACFM		120.00			Forged Large Connections		Yes			
Gas		natural								
Specific Gravity		0.6			SCHEDULE OF OPENINGS					
Flow @ Max ACFM		160.0	MMSCFD		Rating	600#	Item #	Qty	Size	RF Flange
Viscosity		0.01	cP		INLET		N01	1	16"	600# FORGED
Liquid		HC Condensate, Glycol & Water			GAS OUT		N02	1	16"	600# FORGED
Specific Gravity		1.0			N/A		N03	0	"	
Dump Rate		100	gpm		N/A		N04	0	"	
Viscosity			cP		DUMP MAN CLEAN		N05	1	1"	6000# TOL
Solid		0			TSV / MAN VENT		N06	1	2"	600# LWN
Density			lb/ft³		BRIDLE SLUG H		N07	1	2"	600# LWN
Wind		115	mph		BRIDLE SLUG L		N08	1	4"	600# FORGED
Seismic Design Category					SPARE		N09	1	2"	600# LWN
Flow Rate			lb/hr		DOWNCOMER HI		N10	1	4"	600# FORGED
VESSEL DIMENSIONS (approximate)					INJECTION		N11	1	1"	6000# TOL
Shell ID		36	inches		DP INLET		N12	1	3/4"	6000# TOL
Shell Length (S/S)		120	inches		SPARE		N13	1	3/4"	6000# TOL
Shell Thickness		1.50	inches		PI CLEAN		N14	1	3/4"	6000# TOL
Approx. Weight (empty)		12,500	lb		DP CLEAN		N15	1	3/4"	6000# TOL
TESTING					TI CLEAN		N16	1	3/4"	6000# TOL
Hydrotest		YES, 1.5 x MAWP			N/A		N17	0	"	
Radiograph/Type		Phased Array			INSP HEL DECK		N18	1	6.0"	600# FORGED
Ultrasonic		YES			INSP HEL SUMP		N19	1	6.0"	600# FORGED
Mag. Particle		YES			INSP SLUG		N20	2	6.0"	600# FORGED
Dye Penetrant		(note 1)			DOWNCOMER LO		N21	1	2"	600# LWN
PWHT/Type		(note 1)								
Hardness - Brinell		(note 1)								
Impact Test		(note 1)			PAINTING SPECIFICATIONS					
PERFORMANCE					Internal			NO		
No. Helical Elements		21			External			MED STD / PER CUST.		
Design ΔP		1.95	psid		EXTERNALS					
					Supports			Skirt		
Efficiency 99.9% 0.3 micron and larger.					Lifting Lugs			YES		
RFQ Date:		04/17/17	Due:		Insulation			NO		
REV	DATE	DESCRIPTION			REV	DATE	DESCRIPTION			
1	04/21/17	Revised price			4					
2					5					
3					6					

MUELLER ENVIRONMENTAL DESIGN, INC. 31150 FM 529 Brookshire, TX 77423			KLS Pressure Vessel for 1		21-Apr-17 pg. 2
Customer Reference: MED Q217131 R1			Customer:	Energy Transfer Partners	
Taylor Compressor Station			Contact:	Daniel Boodo	
Description: Inlet Gas Separator			MUELLER MODEL# 21 KLS-1B 36"		
INSTRUMENTS & VALVES:			Special Notes:		
Level Gauge Type:		Pneumatic Basic	1 AS NEEDED		
Dump Valve Manufacturer:					
Liquid Injection System?		No			
Optional Accessories:					
QTY	Instrumentation	Part		Manufacturer	
	Slug Section Level Control				
1	Liquid Sight Level Gauge	R100 FT15 35.25" C-C sch 160		Inferno	
2	Level Switch Hi/Lo Control, Pneumatic Floats	P120-91-10		Pathway	
1	3/2 Shuttle Valve, Primary Control	BSP-3308		Versa	
1	2" 600# Globe Isolation Valve RF	FORUM P/N 101118		DSI	
1	2" 600# Ball Isolation Valves RF	2F-F63 NRF		Balon	
2	1/2" 3000 psig Ball Isolation Valves NPT	LM-05361		Balon	
	Slug Dump System				
1	2" 600# RF Dump Valve	EGP 2-FMT-600RF-PO-3/8-IV-CB		Kimray	
3	2" 600# Ball Isolation Valves RF	2F-F63 NRF		Balon	
2	1/2" 3000 psig Ball Isolation Valves NPT	LM-05361		Balon	
1	2" 600# Globe Isolation Valve RF	FORUM P/N 101118		DSI	
1	Level Switch Hi-Hi, P-trap Electric Float	E200-21-15 (110)		Pathway	
3	2" 600# Ball Isolation Valves RF, P-trap	2F-F63 NRF		Balon	
-	Helical Section Level Control				
-	None	-		-	
-	Helical Dump System				
-	None	-		-	
-	Clean Gas Chamber Instruments & Valves				
-	None	-		-	
	Accessories				
1	2" PSV, thermal at MAWP	83S1M88-6		Pentair	
1	2" 600# Ball Isolation Valves RF	2F-F63 NRF		Balon	
1	1-1/2" PSV Bleed Ring	AITKEN 1.5-600#		Crosby	
1	1/2" 3000 psig Ball Isolation Valves NPT	LM-05361		Balon	
1	0-25 psid, 3000 psig, 4.5" Diff Press Gauge	140-AG-00-LO		Mid-West	
2	1/4" 3000 psig NPT ball valve, Diff Press	LM-02362		Balon	
REV	DATE	DESCRIPTION	REV	DATE	DESCRIPTION
1	04/21/17	Revised price	4		
2			5		
3			6		



1. ALL BOLT HOLES TO STRADDLE NORMAL VESSEL CENTER LINES UNLESS OTHERWISE NOTED.
2. SHELL & HEAD MATERIALS SHALL BE UT EXAMINED PER ANS/ASTM A435-(LATEST REV) AFTER FORMING.
3. NATIONAL BOARD NUMBER TO BE ISSUED AT TIME OF HYDROSTATIC TESTING.
4. NOZZLES SHALL BE PAINTED ON THE FLANGE EDGES, INSIDE BOLT HOLES AND UP TO THE GASKET SEATING SURFACE. DO NOT PAINT THE GASKET SEATING SURFACE AFTER PAINTING. GASKET SEATING SURFACES SHALL BE CLEANED IN A MANNER TO PROTECT THE INTEGRITY OF THE SEATING SURFACE.
5. REINFORCING PADS ARE TO BE FORMED TO THE CONTOUR OF HEAD OR SHELL TO WHICH IT IS BEING ATTACHED AND SHALL HAVE A $\frac{1}{4}$ "IN MAX TELL TALE HOLE.

6. SHIPPING
- PRIOR TO SHIPPING, VESSEL SHALL BE CLEAN & DRY ON THE INTERIOR.
- PROTECT ALL MACHINED SURFACES WITH HEAVY GREASE
- NOZZLES WITHOUT BLIND FLANGED/DAVIT ARM ASSEMBLY SHALL HAVE A PLASTIC OR PLYWOOD COVER ATTACHED TO PROTECT THE FLANGE FACE AND COVER THE NOZZLE OPENING. A QUANTITY OF (4) BOLTS WILL BE USED TO SECURE THE COVER.
- NOZZLES CONTAINING A BLIND FLANGE/DAVIT ARM ASSEMBLY WILL HAVE A TEMPORARY PROTECTIVE BARRIER PLACED BETWEEN MATING SURFACES. A QUANTITY OF (4) STUD BOLTS WILL BE USED TO SECURE THE BLIND FLANGE TO THE NOZZLE.
- BRIDLES & LEVEL CONTROLLERS WILL BE SHIPPED LOOSE.
- IT IS THE CUSTOMERS RESPONSIBILITY TO INSERT SERVICE GASKET AND TORQUE STUDS AFTER RECEIPT OF VESSEL.

7. BOLTING

- PROPER TORQUEING OF ALL HARDWARE SHOULD BE DONE IN ACCORDANCE WITH ASME STANDARD B18.16.1. IMPROPER TORQUEING OR PROCEDURE MAY RESULT IN FLANGE SEAL FAILURE/DAMAGE GASKETS AND OR HARDWARE.

MUELLER ENVIRONMENTAL DESIGNS IS NOT RESPONSIBLE FOR THIS PROCEDURE.

"IF BLIND IS REQUIRED SEE MATERIAL LIST FOR STUD AND GASKET



MARK	SERVICE	SIZE	FLANGE		NOZZLE				ATTACHMENT WELDS				REPAD	BLIND (SEE**)	REMARKS
			TYPE	RATING	FACE	SCH/THK	O.S. PROJ.	I.S. PROJ.	TYPE	A	B	C			
N1	GAS INLET	16"	HB	600#	RF	2.69"	12"	2" SQ.	J	-	-	-	-	NO	-
N2	GAS OUTLET	16"	HB	600#	RF	2.69"	12"	2" SQ.	J	-	-	-	-	NO	-
N5	CLEAN CHAMBER DRAIN	1"	TOL	6000#	-	-	1 9/16"	-	F	-	-	-	-	NO	W/ PLUG
N6	TRV/VENT/HEL. DECK INSPECT	6"	HB	600#	RF	1.94"	22"	Gr. Flush	C	-	-	-	-	NO	-
N7	SLUG BRIDLE UPPER	2"	LWN	600#	RF	0.655"	8"	Gr. Flush	C	-	-	-	-	NO	-
N8	SLUG BRIDLE LOWER	4"	FORGING	600#	RF	SCH. 160	SEE ELEV.	Gr. Flush	C	-	-	-	-	NO	-
N9	HELICAL BRIDLE UPPER	2"	LWN	600#	RF	0.655"	8"	Gr. Flush	C	-	-	-	-	NO	-
N10	HELICAL BRIDLE LOWER	4"	HB	600#	RF	1.53"	8"	Gr. Flush	C	-	-	-	-	NO	-
N11	INLET INJECTION	1"	TOL	6000#	-	-	1 9/16"	-	F	-	-	-	-	NO	W/ PLUG
N12	INLET DIFFERENTIAL PRESS.	3/4"	TOL	6000#	-	-	1 7/16"	-	F	-	-	-	-	NO	W/ PLUG
N13	SPARE	3/4"	TOL	6000#	-	-	1 7/16"	-	F	-	-	-	-	NO	W/ PLUG
N14	PRESSURE INDICATION	3/4"	TOL	6000#	-	-	1 7/16"	-	F	-	-	-	-	NO	W/ PLUG
N15	OUTLET DIFFERENTIAL PRESS.	3/4"	TOL	6000#	-	-	1 7/16"	-	F	-	-	-	-	NO	W/ PLUG
N16	TEMPERATURE INDICATION	3/4"	TOL	6000#	-	-	1 7/16"	-	F	-	-	-	-	NO	W/ PLUG
N18	HELICAL DECK INSPECT	6"	HB	600#	RF	1.94"	SEE ELEV.	Gr. Flush	C	-	-	-	-	YES	-
N19A	HELICAL SECT. INSPECT #1	6"	HB	600#	RF	1.94"	8"	Gr. Flush	C	-	-	-	-	YES	-
N20A/B	SLUG SECTION INSPECT	6"	HB	600#	RF	1.94"	8"	1" SQ.	J	-	-	-	-	YES	W/ DAVIT
DO	DRAIN OPENING	8"	-	-	-	SCH. 40	1"	1"	A	-	-	-	-	NO	-
SV1/2	SKIRT VENT	2"	-	-	-	SCH. 40	1"	GR. FLUSH	A	-	-	-	-	NO	-
SO1	SKIRT OPENING #1	8"	-	-	-	SCH. 40	1"	1"	A	-	-	-	-	NO	-
SO2	SKIRT OPENING #2	0"	-	-	-	SCH. 80	1"	1"	A	-	-	-	-	NO	-

M						MUELLER ENVIRONMENTAL DESIGNS, INC. <i>"PROVEN UNDER PRESSURE"</i> 31150 FM 529 PH 713.465.0995 BROOKSHIRE, TX 77423 FAX 713.465.0997 WWW.MUELLERENVIRONMENTAL.COM	CUSTOMER
L							ENERGY TRANSFER
K							
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C							
B							
A	FOR REFERENCE ONLY			SSC	04/21/17		
REV.	DESCRIPTION			DRAWN	DATE		

FABRICATION TOLERANCE		TITLE	
ALL FABRICATED PARTS MUST COMPLY WITH MUELLER ENVIRONMENTAL DESIGNS SPECIFICATION: MED-PV-SPEC-001 REV 0		MED MODEL 21 KLS-1B INLET GAS SEPARATOR 36" I.D. X 120" S/S NOZZLE LOCATION/DESIGN DATA	
FABRICATION STANDARDS		SIGNATURE	
ALL WELDED SEAMS ARE PER ASME SEC. VIII DIV 1 & SEC. IX UNLESS OTHERWISE SPECIFIED.		DATE	
ANY DEVIATION FROM THESE CONSTRUCTION DOCUMENTS BY ANY SUBCONTRACTOR WILL NOT BE ACCEPTABLE UNLESS APPROVED BY A MUELLER INSPECTOR.		DRAWN BY:	D<DATE>
		CHECKED BY:	
		IN HOUSE APPD.:	

CUSTOMER ORDER No.
QUOTE No.
Q217131
S/N No.
DRAWING No.
21-Q217131-01