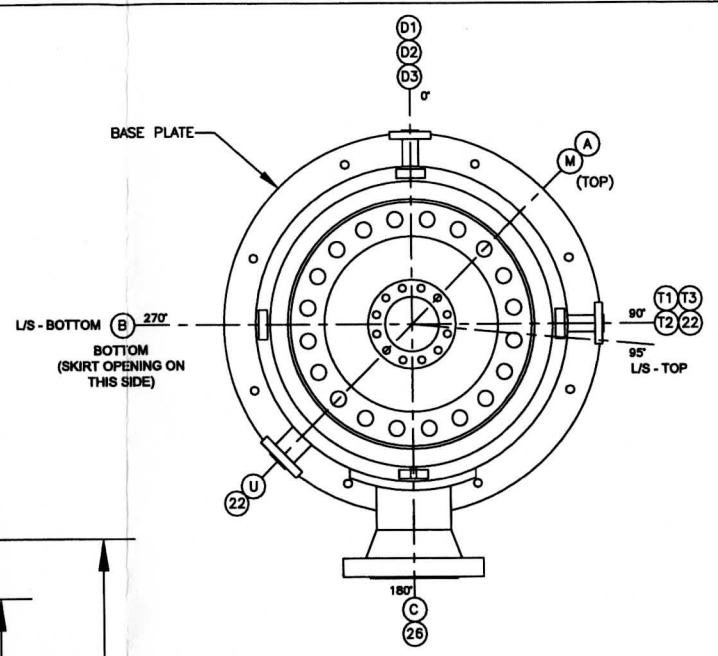


ELEVATION VIEW
* - SEE NOTE 4



PLAN VIEW

CERTIFIED

NB TBD

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W
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CERTIFIED BY
PRECISION PIPE & VESSEL, LLC
6535 NORTH WASHINGTON STREET
DENVER, COLORADO

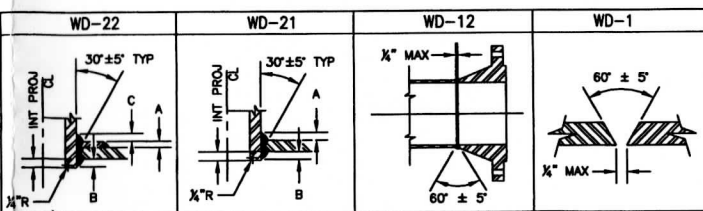
MAWP 1650 PSI AT 550 °F
MDMT 20 °F AT 1650 PSI
SERIAL NO. CV-0891
YEAR BUILT 2009

PART NO. 41-V-196
D-1509

- NOTES:**
1. ALL BOLT HOLES TO STRADDLE NATURAL CENTERLINES OF VESSEL.
 2. ANTI-SIZE TO BE APPLIED TO ALL BOLTING PRIOR TO TIGHTENING.
 3. ALL WELD JOINTS AND T* ON EITHER SIDE TO BE CLEANED PRIOR TO WELDING.
 4. ALL INTERNAL PACKING TO BE SUPPLIED AND INSTALLED BY OTHERS.
 5. NOZZLE "A" IS OUTSIDE OF ASME BOUNDARY.
 6. X* WEEP HOLE REQUIRED FOR ALL REPAIRS.

NOTICE

THIS DOCUMENT CONTAINS PROPRIETARY INFORMATION AND IT SHALL NOT BE USED OR REPRODUCED OR ITS CONTENTS DISCLOSED IN WHOLE OR IN PART WITHOUT THE PRIOR WRITTEN CONSENT OF PRECISION PIPE & VESSEL, LLC 303-287-5001



SCHEDULE OF OPENINGS & WELD MAP

MARK	SIZE	QTY	RATING	TYPE	DESCRIPTION	OS PROJ	INT PROJ	WD	A	B	C
A	6"	1	900#	RTJ	VAPOR FEED	11.75"	36.25"	21	3/4"	3/4"	
B	6"	1	900#	LRTJ	VAPOR OUT	6"	FLUSH	21	1/2"	-	
C	12"	1	900#	RTJ	CATALYST DISCHARGE	14.75"	1 1/4"	22	1 1/4"	1 1/4"	1"
D1	1 1/2"	1	900#	LRTJ	SAMPLE POINT	6"	1"	21	1/2"	1"	
D2	1 1/2"	1	900#	LRTJ	SAMPLE POINT	6"	1"	21	1/2"	1"	
D3	1 1/2"	1	900#	LRTJ	SAMPLE POINT	6"	1"	21	1/2"	1"	
M	24"	1	900#	RTJ	MANWAY	21.75"	FLUSH	22	1/2"	-	1/2"
T1	1 1/2"	1	900#	LRTJ	TEMPERATURE	6"	1"	21	1/2"	1"	
T2	1 1/2"	1	900#	LRTJ	TEMPERATURE	6"	1"	21	1/2"	1"	
T3	1 1/2"	1	900#	LRTJ	TEMPERATURE	6"	1"	21	1/2"	1"	
U	2"	1	900#	LRTJ	STEAM OUT	6"	1"	21	1/2"	3/4"	
AO	18"	1	S10	PIPE	SHORT ACCESS	1/2"	1/2"	21	1/4"	1/4"	
NO	14"	1	S10	PIPE	PIPE SLEEVE	1/2"	1/2"	21	1/4"	1/4"	
VO	2"	4	S40	PIPE	VENT OUTLET	1/2"	1/2"	21	1/4"	1/4"	

DESIGN DATA

REGISTRATION	NATIONAL BOARD	YEAR BUILT	2009
CONSTRUCTION	ASME SEC VIII, DIV 1; 5141-43 4113	SERIAL NO.	CV-0891
DESIGN PRESSURE	1650 PSI	CAPACITY (VOL)	1530 GALLONS
DESIGN TEMP	550 F	SHIPPING WT (EMPTY)	32112 LBS.
EXTERNAL PRESSURE	N/A	WT. FULL OF WATER	44677 LBS.
OPERATING PRESSURE	1480 PSI	VESSEL SHELL MAT'L	SA-516 GR 70N
OPERATING TEMP	450 F	TOP/LEFT HEAD	SA-516 GR 70N
MIN. DES. METAL TEMP	20 F	BOTTOM/ RIGHT HEAD	SA-516 GR 70N
WIND CRITERIA	IBC 2006, 100 MPH	NOZZLES	SEE BOM
SEISMIC CRITERIA	IBC 2006, SDS=0.181; SD1 = 0.093	GASKETS	RTJ
HYDRO TEST PRESS	2145 PSI	STUDS & NUTS	SA-193 GR.B7 / SA-194 GR.2H
CORROSION ALLOW.	0.125	SURFACE PREP	AS PER PAINT MANUFACTURER
RADIOGRAPHY	RT 1	PRIMER	-
POST WELD HEAT TREAT	1100F FOR 140 MINUTES	FINISH PAINT	DAMPNEY PAINT AS PER RF SPEC
MATERIAL IMPACT TEST	NOT REQUIRED	INSULATION	3" BY OTHERS
MATERIAL HARDNESS	NOT REQUIRED	AUTHORIZED QUALITY CONTROL PROGRAM	

BILL OF MATERIAL

ITEM	QTY	PART	DESCRIPTION	MATERIAL	WT
32					
31					
30					
29					
28					
27	1		ASME NAMEPLATE AND SUPPORT	SA-36/SS	
26	1		TAIL EYE, SEE PAGE 2 OF 2	SA-36	
25	2		INSULATING RING, SEE PAGE 2 OF 2	SA-36	
24	1		GROUNDING LUG, SEE PAGE 2 OF 2	SA-36	
23	1	A	6" 900# WHRTJ FLANGE, S160 BORE	SA-105	
22	4		LIFT EYE, SEE PAGE 2 OF 2	SA-36	
21	1		PIPE FOR INLET GAS DISTRIBUTOR, SEE PAGE 2 OF 2	SA-106 GR B	
20	40		NUT, 2 1/2"D	SA-194 2H	
19	20		STUD, 18"L, 2 1/2"D	SA-193 GR B7	
18	1		BASE RING, SEE PAGE 2 OF 2	-	
17	1		VESSEL SHORT, SEE PAGE 2 OF 2	-	
16	1		INLET GAS DISTRIBUTOR - SEE SHEET 2 OF 2	-	
15	1		OUTLET GAS COLLECTOR, 12"OD X 12'L SS JOHNSON CYLINDRICAL SCREEN	SS	
14	1		HOLD DOWN GRID, HORTON 103 SS OR EQUIV, 12 GA SS MESH	SS	
13	6	D,T	1.5" 900# LWHRTJ FLANGE, 11"	SA-105	
12	1	U	2" 900# LWHRTJ FLANGE, 9"	SA-105	
11	1	C	22" OD X 12.75" ID X 1.5" THICK REPAD, FORMED FOR 52.75" OD SHELL	SA-516 GR 70N	
10	1	C	12" 900# WHRTJ FLANGE, SCH 120 BORE	SA-105	
9	1	C	12" SCH 180 SMLS PIPE, 11.5" L	SA-106 GR B	
8	1	B	6" 900# LWHRTJ FLANGE, 9"	SA-105	
7	1	M	24" 900# RTJ GASKET	SS	
6	1	M	24" 900# BLIND FLANGE	SA-105	
5	1	M	24" 900# WHRTJ FLANGE, SCH 160 BORE	SA-105	
4	1	M	24" SCH 180 SMLS PIPE, 14.25" L	SA-106 GR B	
3	1	M	36" OD X 24" ID X 0.5" THICK REPAD, FORMED FOR 53" OD HEAD	SA-516 GR 70N	
2	2		48" ID X 2.1424" MIN THICK (2.0185" NOMINAL) 2:1 ELLIPSOIDAL HEAD	SA-516 GR 70N	
1	1		48" ID X 172" S/S X 2.2526" MIN THICK (2.5" NOMINAL)	SA-516 GR 70N	

REV	DESCRIPTION	BY	APPD	DATE
2	CHANGED STUD LENGTH TO 18" LONG	DRR	MH	4/8/10
1	RELEASED AS AS-BUILT	MDH	DRR	11/5/09
0	RELEASED AS CERTIFIED	MDH	DRR	8/5/09
B	REVISED PER REDLINE DRAWINGS DATED 7/22/09	MDH	DRR	7/28/09
A	RELEASED FOR REVIEW	MDH	DRR	7/8/09

PRECISION PIPE & VESSEL, LLC
6535 N. WASHINGTON AVE. UNIT A
DENVER, CO 80229

CUSTOMER RANGE FUELS SOPERTON PLANT, LLC				JOB NO: 4372 SOP 10979	
TITLE / PROJECT: CATALYTIC CONVERTER SULFUR GUARD BED, 41-V-196				PAGE NUMBER: 1 OF 2	
DRAWN BY: MDH	CHECKED BY: DRR	APPROVED DRR	DATE: 4/8/10	SCALE: NTS	DRAWING NO: D-1509
					REV: 2