



**ORIENTATION NOTES:**  
A. TANK ORIENTATIONS ARE SHOWN IN RELATION TO EACH OTHER.  
B. PIPE RACK TO BE LOCATED BETWEEN TANK PAIRS.  
(A & C ARE ON THE SAME SIDE OF THE PIPE RACK).

NOZZLE SIZE	NOZZLE ** EXTENSION
1 1/4"-6"	150
8"-24"	200

\*\* - UNLESS OTHERWISE SPECIFIED

**SPECIFICATION - VESSEL**

**GENERAL**  
ITEM NO: TK-401A-D, SERVICE: FERMENTERS  
CODE: ASME SECTION VIII, STAMP: NO, WELDING: ASME  
RADIOGRAPH: SPOT, STRESS RELIEVING: NONE  
DESIGN PRESSURE-PSIG (kPa): (SEE NOTE #2), TEMP.-F (C): 200 (93)  
EST. WT. EMPTY-# (kg): BY FAB., FULL WATER: BY FAB., OPERATING: BY FAB.  
WIND VEL.-MPH (km/HR): (SEE NOTE #12), EARTHQUAKE ZONE: BY OWNER

**PROCESS DATA**  
FLUID: MASH, DESIGN DENSITY-LB/FT<sup>3</sup> (kg/m<sup>3</sup>): 1.07 S.G.  
OPERATING PRESS-PSIA (kPa): ATMOSPHERIC, TEMP.-F (C): 90 (32)  
HOLD-UP TIME: 50 HOURS, APPROX. CAPACITY-GAL (L): 376,300 (1,424M)  
INLET RATE-GPM (m<sup>3</sup>/HR): -, FLASH: -  
NON-CONDENSIBLES: -

**MATERIAL & THICKNESS-IN (mm)**  
SHELL: A516 GR. 60 CARBON STEEL (SEE NOTE #8)  
TOP HEAD: A516 GR. 60 CARBON STEEL (SEE NOTE #8)  
BOT. HEAD: A516 GR. 60 CARBON STEEL (SEE NOTE #8)  
SUPPORTS: CARBON STEEL  
BOLTS: A193 B7 WITH A194 2H HEX NUTS GASKETS: 1/16" (2mm) NON-ASBESTOS  
NOZZLES: IN (mm)-COUPLINGS FOR 1" (25) & UNDER CONNECTIONS (UNLESS NOTED)  
NECK: A106 GR. B CARBON STEEL PIPE  
FLANGE: A105 FORGED STEEL 150# SLIP-ON  
COUPLING: A105 FORGED STEEL 3,000# THREADED FULL  
CORROSION ALLOWANCE: 3/16" (5mm) (SEE NOTE #9)

**NOZZLES**

MARK	SERVICE	IN (mm) SIZE	NOTE
A	CO2 VENT	14"	FLANGED
B1, B2	CLEANERS	10"	FLANGED - (2) REQ'D.
C	CIRCULATION	16"	FLANGED-TANGENTIAL (SCH. 80 PIPE)
D	OUTLET	20"	-
E	MANWAY	20"	FLANGED W/DAVIT
F	MANWAY	30" x 24"	QUICK OPENING-(YOKE & BOLT TYPE)
G	RADAR LEVEL	3"	FLANGED
H	LEVEL SWITCH	1"	COUPLING
J1, J2	ANTIFOAM	3"	FLANGED - (2) REQ'D.
K	RELIEF	12"	SEE PSV-401A-D
L	RELIEF	12"	SEE PSV-401A-D

**MISCELLANEOUS**  
LADDER: FABRICATOR TO PROVIDE LADDERS AND PLATFORMS.  
PAINT: ALL EXTERNAL CARBON STEEL SURFACES TO BE CLEANED AND OTHERWISE PROPERLY PREPARED PRIOR TO APPLICATION OF ONE COAT OF CORROSION PROTECTION PRIMER PER SHOP STANDARD. FINAL PAINTING PER OWNER'S REQUIREMENTS.

**NOTES:**  
1. NOZZLE ORIENTATION TO BE DETERMINED UPON FINAL PIPING DESIGN.  
2. DESIGN PRESSURE: 1 PSIG (7 kPa) PLUS FULL STATIC HEAD OF LIQUID (S.G.=1.07).  
DESIGN VACUUM: -0.5 PSIG (-3.5 kPa) WHEN TANK IS EMPTY.  
3. ALL INTERNAL WELDS TO BE GRIND FREE OF RIDGES, CREVICES AND SLAG WITH NO GREATER SURFACE ROUGHNESS THAN THE BASE METAL PLATES.  
4. VESSEL SUPPORTS BY OTHERS.  
5. VESSEL INTERIOR TO BE FREE OF STRUCTURES, SUPPORTS, AND PROTRUSIONS EXCEPT AS SPECIFIED.  
6. LOCATE TOP PLATFORM AT MANWAY "E".  
7. LOCATE PLATFORM AT MANWAY "F".  
8. VENDOR MAY EVALUATE ALTERNATIVE GRADES OF CARBON STEEL IN ACCORDANCE WITH CODES/REGULATIONS.  
9. CORROSION ALLOWANCE TO BE MADE IN ADDITION TO ALL CALCULATED THICKNESSES.  
10. FINAL LOCATION AND SIZING OF SUPPORT RINGS BY FABRICATOR.  
11. FABRICATOR TO PROVIDE PIPE SUPPORT PADS.  
12. 160 Km/h PER URUGUAYAN NORMATIVES: UNIT 50-84.

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Rev.	Date	Description	Drawn By	Ckd By	Appd By
1	3/1/13	REV. 1 ISSUE	WLB	NJK	NJK
0	12/19/12	REV. 0 ISSUE	RLM	BPG	BPG

<p>ALUR ALCOHOL DEL URUGUAY</p>	<p><b>BIOETANOL PAYSANDÚ</b></p>	<p><b>KATZEN INTERNATIONAL, INC.</b> TECHNOLOGY • ENGINEERING CINCINNATI, OHIO, U.S.A.</p>
<p>Scale: NONE</p>	<p>211,200 LITERS/DAY MOTOR FUEL GRADE ETHANOL PLANT EQUIPMENT SPECIFICATION</p>	<p>RF Plans: 0003-PLN-KAT-62-04-0201 Sheets: 1 Sheet #: 1</p>
<p>Origin: BPG</p>	<p>ITEM: TK-401A-D</p>	<p>Client No: 1132-01 Dwg No: 04-201</p>