



DESIGN DATA				INSPECTION AND TESTING				MATERIALS				NOZZLE SCHEDULE			
SERVICE TAG NO. C-4411 - ACID REDUCTION COLUMN #2				INSPECTION BY CLIENT AND/OR CLIENT'S REPRESENTATIVE				SHELL SA-240 GR.304				CONN QTY SIZE CLASS/FLG. FACE SERVICE			
CONTENTS DESIGN AND CONSTRUCTION CODE ASME SECTION VIII, DIVISION 1, 2004 ED., 2006 ADD.				HYDROSTATIC TEST PRESSURE HORIZONTAL 67.87 PSIG (AT HIGH POINT)				HEADS SA-240 GR.304				SCH. 20 2'-0" 3/8"x24"x1.0x28" O.D.			
CODE STAMP YES [NAT'L. BOARD REGISTRATION] YES [LETHAL SERVICE] NO				TEST PRESSURE VERTICAL 65 PSIG (AT TOP)				SUPPORTS (SKIRT) (UPPER) SA-240 GR.304 (LOWER) SA-516 GR.70				SCH. 20 2'-0" 3/8"x24"x1.0x28" O.C.			
MAXIMUM DESIGN TEMP. 250°F INTERNAL DESIGN PRESS. 50 PSIG				PAINT EXT. UNINSULATED CARBON STEEL SURFACES ONLY				SKIRT FITTINGS SA-53 GR.B OR SA-516 GR.70				SCH. 40 SEE DWG. NOT REQUIRED			
MINIMUM DESIGN TEMP. -20°F EXTERNAL DESIGN PRESS. -15 PSIG				MISCELLANEOUS				FITTINGS SA-234 WP304				SCH. 40 2'-0" NOT REQUIRED			
NORMAL OPERATING TEMP. 140°F NORMAL OPERATING PRESS. -9.0 PSIG				INSULATION 3" THK. FIBERGLASS OR MINERAL WOOL (BY OTHERS)				FORGINGS				SCH. 40 2'-0" NOT REQUIRED			
MAXIMUM OPERATING TEMP. - - - - - MAXIMUM OPERATING PRESS. - - - - -				REFERENCE STANDARDS				FLANGES <=12"; SA-182 F304, >12"; SA-105				SCH. 40 2'-0" NOT REQUIRED			
MINIMUM OPERATING TEMP. - - - - -				REFERENCE SPECIFICATIONS				NECKS SA-312 TP304				SCH. 40 2'-0" NOT REQUIRED			
NORMAL OPERATING STATIC HD. - - - - - SPECIFIC GRAVITY PRODUCT 0.75				HT/DcR: VERT. VESSEL BASE RING & LUG DETS. VS-4001 SHTS. 1 THRU 3				REIN. SA-240 GR.304				SCH. 40 2'-0" NOT REQUIRED			
DESIGN STATIC HEAD 7'-11" ABOVE HD. TO SHELL SEAM (DATUM ELEV. 0'-0")				HT/DcR: SKIRT CONSTRUCTION DETAILS VS-4002 SHT. 1 OF 1				MANHOLES AND/OR HANDHOLES				SCH. 40 2'-0" NOT REQUIRED			
TEST STATIC HD. FULL TO SHELL SEAM (DATUM ELEV. 0'-0")				HT/DcR: MANWAY COVER DAVIT DETAILS VS-4004 SHT. 1 OF 7				COVERS SA-105				SCH. 40 2'-0" NOT REQUIRED			
EXTENT OF RADIOGRAPHY NONE POST WELD HEAT TREATMENT NO				HT/DcR: VERTICAL VESSEL LIFTING LUG DETAILS VS-4007 SHT. 1 OF 2				REIN. SA-240 GR.304				SCH. 40 2'-0" NOT REQUIRED			
LONGITUDINAL JOINT EFF'Y. 70% CIRCUMFERENTIAL JOINT EFF'Y. 70%				HT/DcR: VESSEL CONSTRUCTION TOLERANCES VS-4018 SHTS. 1 THRU 3				NOZZLES 1/2" THK. GARLOCK 3000 (PTFE) ASME B16.5 RING GASKET				SCH. 20 2'-0" 3/8"x12 1/2" I.D. x15" O.D.			
WIND DESIGN PER IBC-2003 EDITION FOR A BASIC WIND SPEED OF 90 MPH, WIND EXPOSURE TYPE "C", "I" = 1.00, "Cf" = 0.7, "Kd" = 1.0 & "Kzt" = 1.0				HT/DcR: GROUNDING LUG DETAIL VS-4025 SHT. 1 OF 1				MANHOLES 1/2" THK. GARLOCK 3000 (PTFE) ASME B16.5 RING GASKET				SCH. 40 2'-0" NOT REQUIRED			
SEISMIC DESIGN PER IBC-2003 EDITION FOR SEISMIC USE GROUP "I" SITE CLASS = "D", "Ss" = 0.14, "S1" = 0.043 AND "R" = 3.0				GENERAL NOTES				INTERNAL GASKETS				SCH. 40 2'-0" NOT REQUIRED			
CORROSION ALLOWANCE SHELL NONE SUPPORTS NONE				1. NOZZLE BOLT HOLES SHALL STRADDLE NATURAL NORTH/SOUTH VESSEL CENTERLINES OR THEIR PARALLELS UNLESS OTHERWISE NOTED.				INTERNAL BOLTING				SCH. 40 2'-0" NOT REQUIRED			
TOP HEAD NONE BOTTOM HEAD NONE				2. ALL NOZZLE PROJECTIONS ARE TO THE FACE OF THE STEEL FLANGE.				EXTERNAL BOLTING				SCH. 40 2'-0" NOT REQUIRED			
NOZZLES NONE MANWAYS NONE				3. SHELL NOZZLE PROJECTIONS ARE MEASURED FROM CENTER OF VESSEL TO FLANGE FACE.				INTERNAL PIPE				SCH. 40 2'-0" NOT REQUIRED			
FIXED INTERNALS NONE REMOVABLE INTERNALS NONE				4. HEAD NOZZLE PROJECTIONS ARE MEASURED FROM THE HEAD TO SHELL SEAM TO THE FLANGE FACE.				INTERNAL PLATE				SCH. 40 2'-0" NOT REQUIRED			
ANCHOR BOLTS NONE				5. ALL REMOVABLE INTERNALS SHALL BE PROVIDED AND INSTALLED BY OTHERS.				INTERNAL STRUCTURALS				SCH. 40 2'-0" NOT REQUIRED			
CAPACITIES MAXIMUM 1684 GALS.				6. KOCH-GLITSCH INTERNALS REFERENCE DRAWINGS AS FOLLOWS:				EXTERNAL PLATE				SCH. 40 2'-0" NOT REQUIRED			
OPERATING (MAX.) 611 GALS.				965376-D000 REV. 1, 965376-D001 10F2 REV. 0, 965376-D001 20F2 REV. 0, 965376-D002 REV. 0, 965376-D003 REV. 0.				EXTERNAL STRUCTURALS				SCH. 40 2'-0" NOT REQUIRED			
WEIGHTS FABRICATED 8480 LBS.				DRAWING HISTORY				LIFTING LUGS SA-240 GR.304				SCH. 40 2'-0" NOT REQUIRED			
OPERATING (MAX. OPER. FLUID PLUS ATTACHMENTS) 21,550 LBS.				REV. A ISSUED FOR APPROVAL				GROUNDING LUG SA-516 GR.70				SCH. 40 2'-0" NOT REQUIRED			
FULL OF WATER (FABRICATED WEIGHT PLUS WATER) 22,535 LBS.				BY DATE ENGINEER P.W.				GENERAL NOTES				SCH. 40 2'-0" NOT REQUIRED			
MAX. OVERTURNING MOMENT AT BASE 63,445 FT. LBS.				DESIGNED BY F. PIRILLO				1. NOZZLE BOLT HOLES SHALL STRADDLE NATURAL NORTH/SOUTH VESSEL CENTERLINES OR THEIR PARALLELS UNLESS OTHERWISE NOTED.				SCH. 40 2'-0" NOT REQUIRED			
MAXIMUM SHEAR AT BASE 1755 LBS.				DRAWN BY J. RHODIG				2. ALL NOZZLE PROJECTIONS ARE TO THE FACE OF THE STEEL FLANGE.				SCH. 40 2'-0" NOT REQUIRED			
				DRFTG. SUPR. P. WHITE				3. SHELL NOZZLE PROJECTIONS ARE MEASURED FROM CENTER OF VESSEL TO FLANGE FACE.				SCH. 40 2'-0" NOT REQUIRED			
								4. HEAD NOZZLE PROJECTIONS ARE MEASURED FROM THE HEAD TO SHELL SEAM TO THE FLANGE FACE.				SCH. 40 2'-0" NOT REQUIRED			
								5. ALL REMOVABLE INTERNALS SHALL BE PROVIDED AND INSTALLED BY OTHERS.				SCH. 40 2'-0" NOT REQUIRED			
								6. KOCH-GLITSCH INTERNALS REFERENCE DRAWINGS AS FOLLOWS:				SCH. 40 2'-0" NOT REQUIRED			
								965376-D000 REV. 1, 965376-D001 10F2 REV. 0, 965376-D001 20F2 REV. 0, 965376-D002 REV. 0, 965376-D003 REV. 0.				SCH. 40 2'-0" NOT REQUIRED			

This drawing contains intellectual property of HT/DcR Engineering, Inc. All ideas, designs, arrangements and know-how remain the property of HT/DcR Engineering, Inc. Any use of this information by entities other than the title block named entity is prohibited. Use of this drawing by the title block named entity is limited to the specific title block named project. Use on other projects is strictly prohibited.

Florida Engineering Business  
License No. 26522

REV.	DESCRIPTION	BY	DATE	ENGINEER	P.W.
A	ISSUED FOR APPROVAL	F.T.P.	08-20-07	F. PIRILLO	
0	ISSUED FOR CONSTRUCTION	DGB	09-10-07	J. RHODIG	
1	CERTIFIED AS-BUILT	AGB		P. WHITE	

DWG. NO.	REFERENCE DRAWING	DELTA-T CORPORATION - REFERENCE DATA
LPR100-Q-C4411 REV. B	C-4411 - CLIENT DATA SHT.	CLIENT: ALTRA BIOFUELS LOCATION: CARLETON, NE
7798-MM-C4411-02	C-4411 - ORIENTATION AND MISC. DETAILS	PROJECT NAME: ETHANOL PLANT PROJECT NO.: 64001
7798-MM-C4411-03	C-4411 - MISC. DETAILS	P. O. NUMBER: 64000637030
7798-MM-C4411-04	C-4411 - DETAILS & BILL OF MATERIALS	TAG NAME: ACID REDUCTION COLUMN #2 TAG NO.: C-4411
7798-MM-C4411-05	C-4411 - WELD MAP	
ADDITIONAL REF. DWGS.	SEE GENERAL NOTE "6"	

**HT/DcR Engineering, Inc.**  
2830 PARKWAY STREET  
LAKELAND, FL 33811  
PHONE: 863-904-2880  
FAX: 863-913-1091

ALTRA BIOFUELS  
CARLETON, NEBRASKA  
C-4411-ACID REDUCTION COL.#2- ASSEM.  
MECHANICAL  
DWG. NO. 7798-MM-C4411-01 REV 1