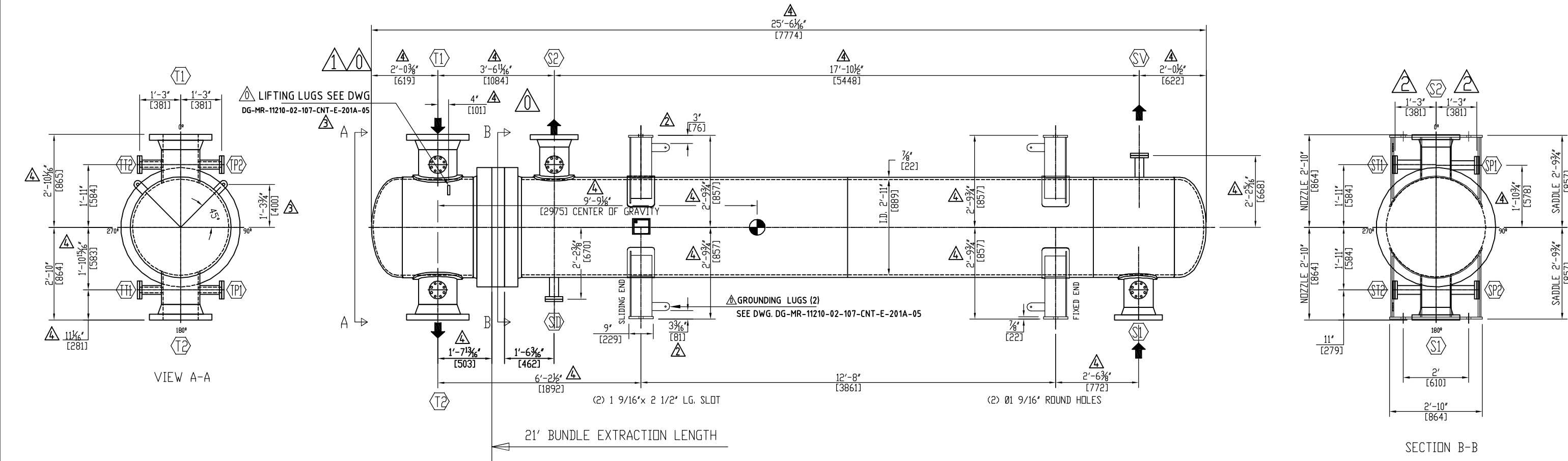


Δ MARK	NOZZLE SIZE NPS	FORCES lbf			MOMENTS ft-lbf		
		P	V _L	V _C	M _L	M _V	M _C
T1	14	5000	5000	5000	7000	8000	7500
T2	14	5000	5000	5000	7000	8000	7500
S1	10	4000	3000	3000	6000	6000	5000
S2	10	4000	3000	3000	6000	6000	5000
NOZZLE SCHEDULE							
MK	QT	DESCRIPTION	FLANGE	NECK	PROCESS		
S1	1	10" 300 # WNRF SCH 80	Δ SA105	SA-333 6	SS INLET		
S2	1	10" 300 # WNRF SCH 80	Δ SA105	SA-333 6	SS OUTLET		
T1	1	14" 300 # WNRF SCH 60	Δ SA105 + 304L SS	SA-333 6+304L SS	TS INLET		
T2	1	14" 300 # WNRF SCH 60	Δ SA105 + 304L SS	SA-333 6+304L	TS OUTLET		
SP1	1	2" 300 # LWNRF	Δ SA105		PRESSURE GAUGE	W/BLIND	
SP2	1	2" 300 # LWNRF	Δ SA105		PRESSURE GAUGE	W/BLIND	
ST1	1	2" 300 # LWNRF	Δ SA105		THERMOWELL	W/BLIND	
ST2	1	2" 300 # LWNRF	Δ SA105		THERMOWELL	W/BLIND	
TP1	1	2" 300 # LWNRF	Δ SA105 + 304L SS		PRESSURE GAUGE	W/BLIND	
TP2	1	2" 300 # LWNRF	Δ SA105 + 304L SS		PRESSURE GAUGE	W/BLIND	
TT1	1	2" 300 # LWNRF	Δ SA105 + 304L SS		THERMOWELL	W/BLIND	
TT2	1	2" 300 # LWNRF	Δ SA105 + 304L SS		THERMOWELL	W/BLIND	
SV	1	2" 300 # LWNRF	Δ SA105		VENT	W/BLIND	
SD	1	2" 300 # LWNRF	Δ SA105		DRAIN	W/BLIND	

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AS BUILT

GENERAL NOTES		
Δ	1.	ALL BOLT HOLES TO STRADDLE NATURAL CENTER LINES.
Δ	2.	INSULATION IS REQUIRED ON SHELL SIDE AND TUBE SIDE, 2.5 THK
Δ	3.	FLANGE FACING ROUGHNESS: 125-250 AARH
Δ	4.	THIS UNIT IS STACKED ON BOTTOM, AND UNITS 107-CNT-E-201B IS ON TOP
Δ	5.	PAIN T SPECIFICATION:
		TUBE SIDE: PAINT SYSTEM 3 - ACC DOC. 000-SP-MU-10-0017 SURFACE PREPARATION:SSPC SP10 1.0-2.0 MILS PRIMER: IO ZINC 2.5-3.0 MILS INTERMEDIATE: HIGH HEAT SILICONE 1.0-1.5 MILS FINISH: HIGH HEAT SILICONE 1.0-1.5 MILS
		SHELL SIDE: PAINT SYSTEM 3 - ACC DOC. 000-SP-MU-10-0017 SURFACE PREPARATION:SSPC SP10 1.0-2.0 MILS PRIMER: IO ZINC 2.5-3.0 MILS INTERMEDIATE: HB EPOXY 4.0-6.0 MILS FINISH: URETHANE 1.5-2.5 MILS
Δ	6.	NON-DESTRUCTIVE EXAMINATION ACCORDING TO API 660, CLAUSE 10
Δ	7.	THESE UNITS NEED PWHT, DO NOT WELD OR BURNED AFTER PWHT.
Δ	8.	THESE UNITS ARE PROVIDED WITH N2 PURGE.
Δ	9.	BOTH SIDES MAY BE STEAMED OUT. STEAM-OUT CONDITIONS ARE 366 °F, 0 PSIG.
Δ	10.	SOLUTION ANNEAL U-BENDS PLUS 1 FT OF STRAIGHT LENGTH
Δ	11.	THE WORDS 'DO NOT WELD' SHALL BE STENCILLED (IN AT LEAST TWO PLACES 180° APART) ON THE CHANNEL SIDE. THE ITEM NUMBER, SHIPPING MASS, CENTER OF GRAVITY AND PURCHASER'S ORDER NUMBER SHALL BE PAINTED ON THE HEAT EXCHANGER.
Δ	27-03-12	AS-BUILT REVISION
Δ	09-11-11	AS-BUILT REVISION
Δ	26-10-11	AS-BUILT REVISION
Δ	08-09-11	AS-BUILT
Δ	23-11-10	INCLUDE CB&I COMMENTS
Δ	10-11-10	INCLUDE CB&I COMMENTS
Δ	17-09-10	INCLUDE CB&I COMMENTS
Δ	21-05-10	INCLUDE CB&I COMMENTS
Δ	18-02-10	ISSUE FOR REVISION
NO.	DATE	REVISIONS

DESIGN DATA		
TYPE		
TEMA "BEU"		
ASME CODE SECT. VIII DIV.1, 2007 EDD. ADD. 09 (STAMP YES)		
TEMA CLASS R and API-660 APPLIES		
WIND AND SEISMIC CODE: UBC 1997		
CB&I SPECIFICATIONS		
SIDE	SHELL	TUBE
FLUID	CDHDS COLUMN FEED	CDHDS COLUMN OVERHEAD
INT DESIGN PRESSURE	550 PSI	425 PSI
Δ MAX DESIGN TEMPERAT.	550 °F	650 °F
EXT. DESIGN PRESSURE	NOTE 9	FV @ 650°F (NOTE 9)
CORROSION ALLOWANCE	0,125"	NONE ON CS
RADIOGRAPHY	RT3	RT3
LONGITUDINAL	SPOT	SPOT
Δ CIRCUMFERENTIAL	SPOT	SPOT PER UW 11(a)(5)(b) & UW 11(b)
JOINT EFFICIENCY	0,85	0,85
CHARPY IMPACT TEST	N.A	N.A
PWHT	NO	YES
Δ MAWP	550 psi @ 550 °F	498 psi @ 650 °F
Δ MDMT	4 °F @ 550 psi	4 °F @ 498 psi
HYDROSTATIC TEST PRESSURE	715 psi at 70 °F	648 psi at 70 °F
No OF PASSES	1	2
TUBES	(245 U) 1" O.D. x 0,083" (MW) x 216" L.G.	
TUBE PITCH	1 1/4" SQUARE (90°)	
SURFACE	2.309 ft2	

Δ ESTIMATED WEIGHTS Lbs.		
Δ DRY:	53.548 lb	Δ
BUNDLE:	10.350 lb	
WET:	62.925 lb	Δ
WEIGHT AT LEFT SADDLE:	44.817 lb (Oper), 45.873 lb (Test)	
WEIGHT AT RIGHT SADDLE:	14.880 lb (Oper), 16.539 lb (Test)	
WEIGHT OF SADDLE PAIR:	534 lb	

Δ MATERIAL	
CHANNEL:	SA-516 60 N CLAD W/ 304L SS
Δ SHELL:	SA-516 70
TUBESHEETS:	SA-266 2 N + 304L SS WOL
BAFFLES:	SA-36
TUBES:	SA-213 TP304L Seamless tube
TUBE SIDE FLANGE:	SA-266 2 N WOL W/ 304L SS
SHELL SIDE FLANGE:	SA-266 2 N
BOLTING:	SA-193 B7
SHELL COVER:	SA-516 60 N

GASKETS Δ	
SHELLSIDE :	METAL DBL JkTD 304 SS-GRAPHITE FILLED
TUBESIDE :	METAL DBL JkTD 304 SS- GRAPHITE FILLED
BLINDED NOZZLES :	FLEXITALLIC SPIRAL WOUND CG 304 SS

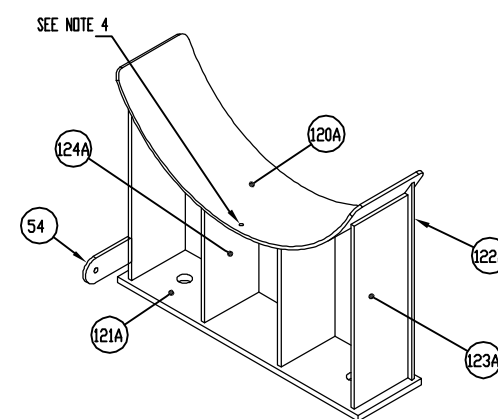
REFERENCE DOCUMENTS		
DESCRIPTION	DOCUMENTS No. Δ	REV.
MECHANICAL CALCULATIONS	MC-MR-11210-01-107-CNT-E-201A	9
GENERAL ARRANGEMENT AND ORIENTATION	DG-MR-11210-01-107-CNT-E-201A-01	7
CHANNEL, SHEEL, WELDS DETAILS	DG-MR-11210-01-107-CNT-E-201A-02	6
BODY FLANGES, BODY GASKETS, SADDLES	DG-MR-11210-01-107-CNT-E-201A-03	3
TUBE BUNDLE, TUBESHEET LAYOUT, U-TUBES, BAFFLES	DG-MR-11210-01-107-CNT-E-201A-04	4
NAME PLATE, LUGS, PLUGS	DG-MR-11210-01-107-CNT-E-201A-05	8
BILL OF MATERIALS (B.O.M)	DG-MR-11210-01-107-CNT-E-201A-06	8
STACKING	DG-MR-11210-01-107-CNT-E-201AB-07	3
CLIP DETAILS	DG-MR-11210-01-107-CNT-E-201AB-08	2
WELD MAP	WM-MR-11210-02-107-CNT-E-201AB	7

INTERCOL S.A.		
INTERCAMBIADORES DE CALOR		
CALCULO, DISEÑO, FABRICACION, REPARACION Y MANTENIMIENTO		
 Refinería de Cartagena S.A.	Cartagena Refinery Expansion Project Cartagena, Colombia	
	JOB NO.: OTI-100281 (ITEM 35) P.O. NO.: 42166001-PO-0001121001	
SERVICE:	CSHDS FEED / CDHDS OVERHEAD EXCHANGER	
TAG:	107-CNT-E-201A	
QTY. / SIZE:	1 / 35" X 216"	
	TEMA TYPE: BEU	
DWN BY JC. RUEDA	SCALE ---	
CHKD BY L. MERA	DWG 1 OF 8	
APPVD BY A. VARELA	DWG. NO. DG-MR-11210-02-107-CNT-E-201A-01	REV. Δ



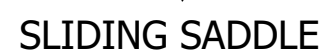
NOTES:

- 1) MACHINE GASKET FACES TO BE 125 AARH.
- 2) ALL BOLT HOLES TO STRADDLE NATURAL CENTER LINES.
- 3) USE ANTI-SEIZE COMPOUND IN EXTERNAL STUDS AND NUTS TO PREVENT GALLING



TOP SADDLE

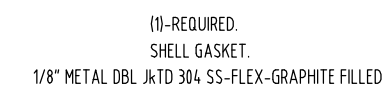
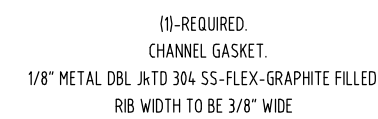
QYT: 2
-1 WITH SLOTS
-1 WITH HOLES



NOTES:

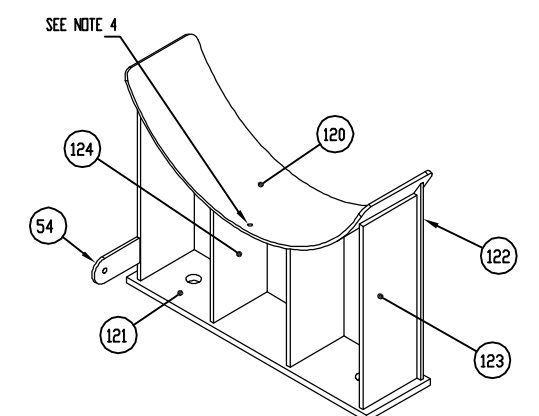
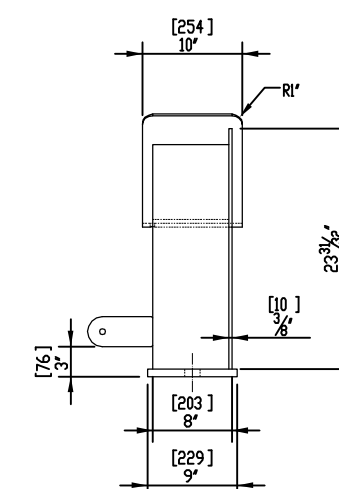
1. TOLERANCES NOT SHOWN ARE $\pm 1/32"$
2. ALL WELDING SHALL BE OF CONTINUOUS FILLET TYPE WITH DIMENSION $\frac{1}{4}"$ - UNLESS OTHERWISE SHOWN
3. SADDLE BEARING PLATE IS THE SAME MATERIAL AS SHELL
4. $\phi 1/4"$ NPT WEEP HOLE PASS (MK No. 120) AT VERTICAL CENTER LINE FOR VENTING, PLUG WITH HEAVY GREASE

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AS BUILT



40 GASKET DETAILS

- 1) SET TO BE BOXED, MARKED WITH
O.T.I. 100281 & ITEM NO. 107-CNT-E-201 A/B & SHIPPED WITH EXCHANGER.
- 2) ALL RADIUS TO BE 1/4"
- 3) ALL JACKETED GASKETS TO HAVE LAP OF GASKET NEAR SIDE.
- 4) TWO ADDITIONAL SETS OF SPARE GASKETS ARE REQUIRED



BOTTOM SADDLE

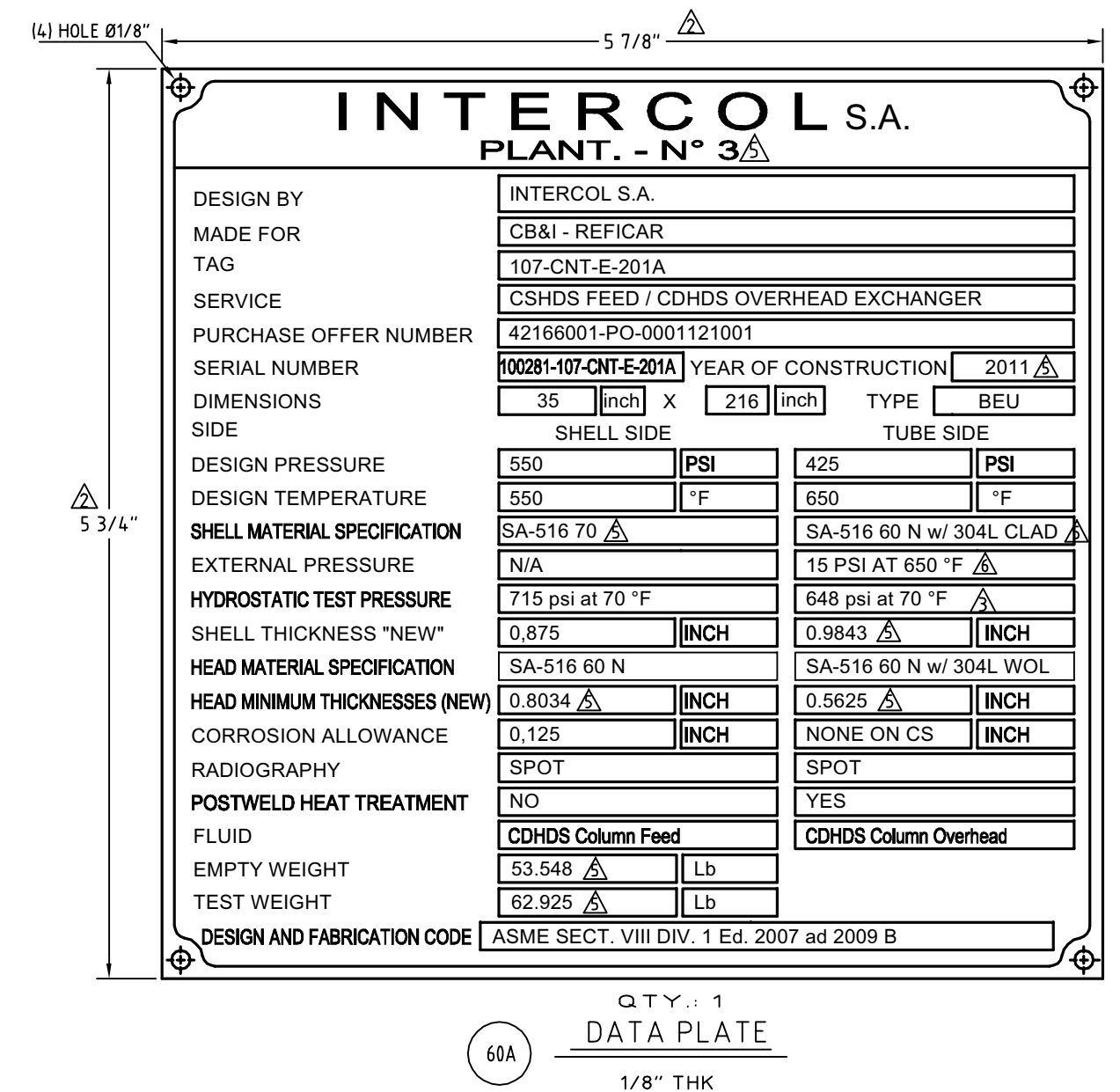
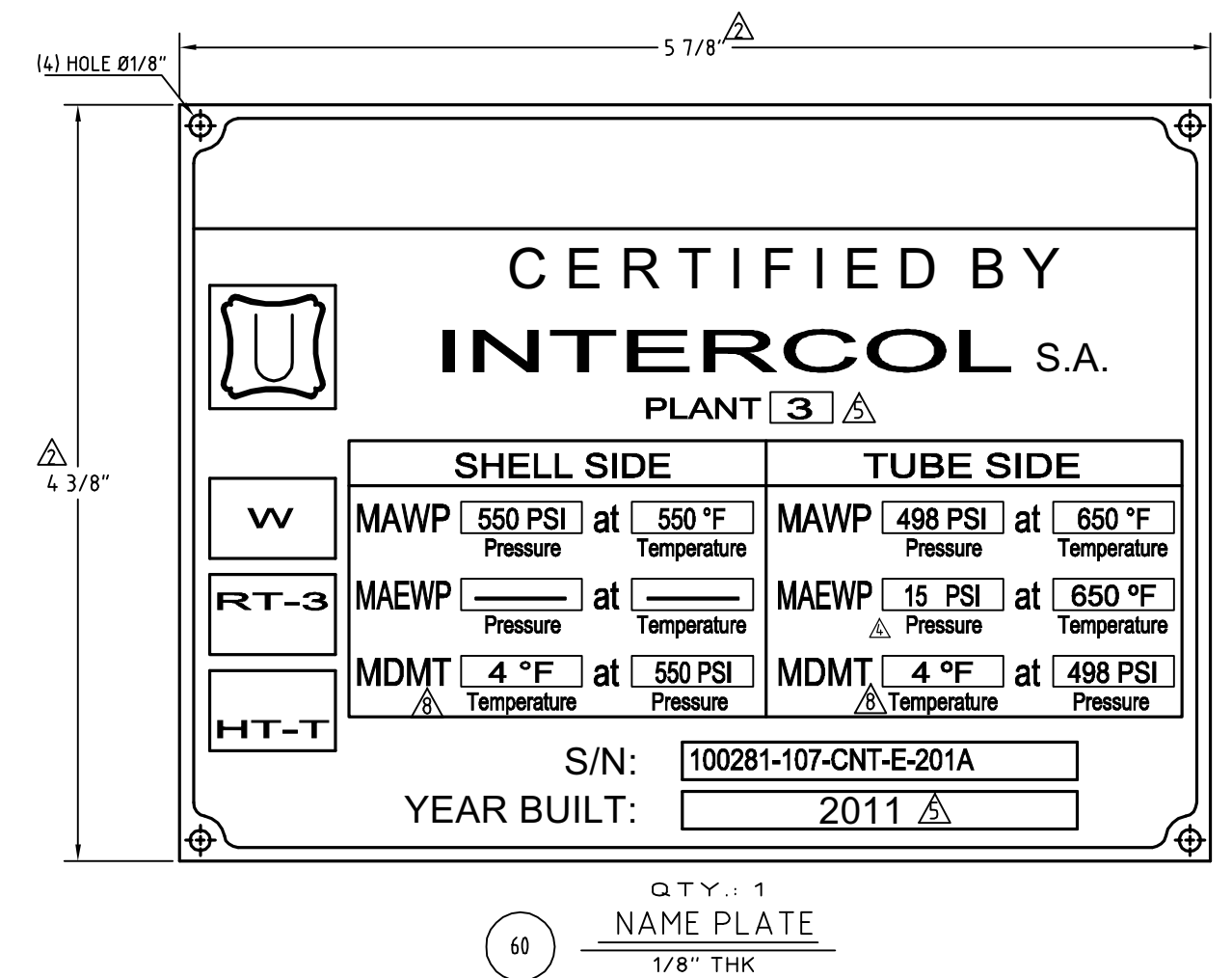
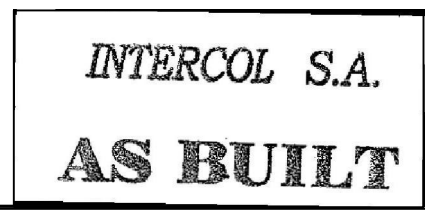
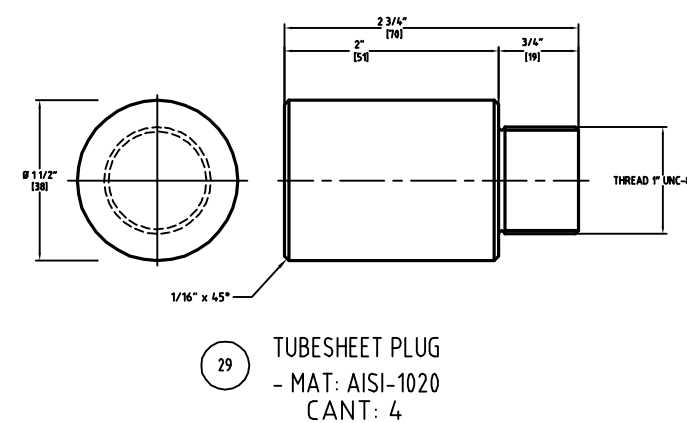
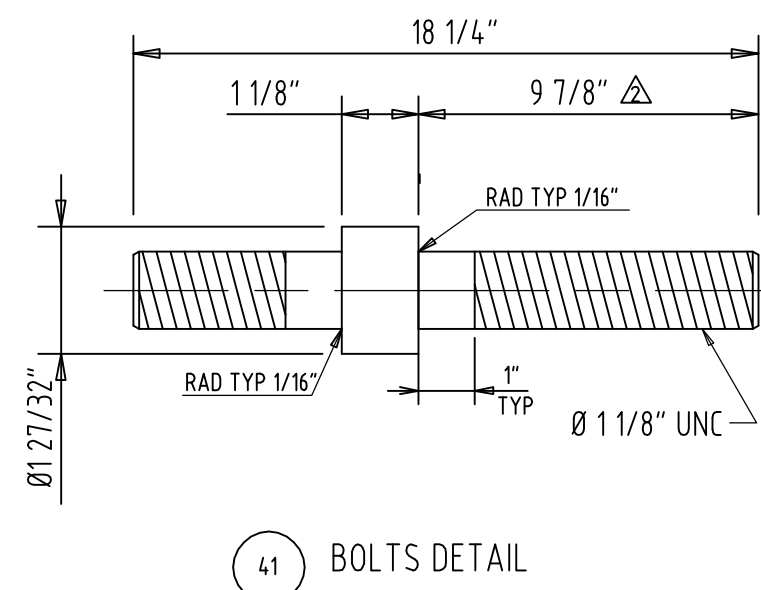
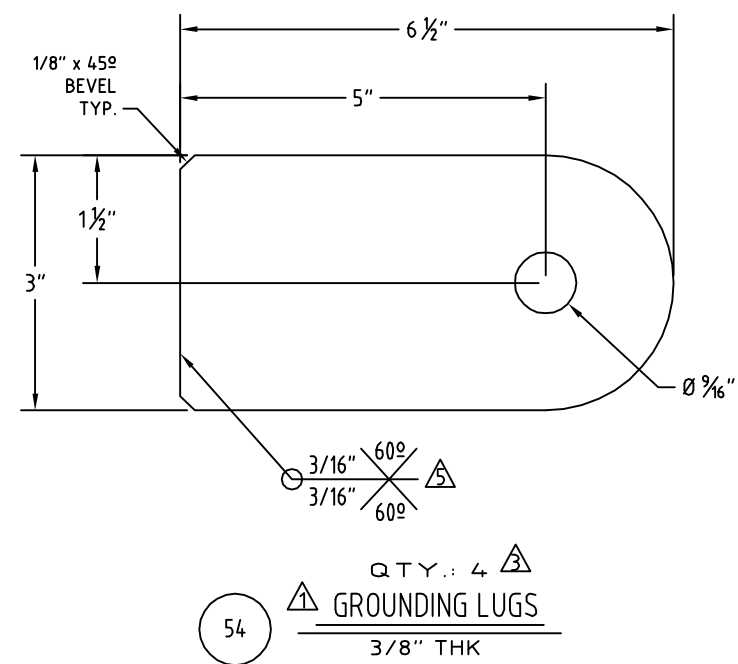
QYT: 2
-1 WITH SLOTS
-1 WITH HOLES



NOTES:

1. TOLERANCES NOT SHOWN ARE $\pm 1/32"$
2. WELDS NOT SHOWN SHALL BE CONTINUOUS ALL AROUND BETWEEN PLATES OF $\frac{1}{4}"$
3. THE MATERIAL OF PAD IS DIFFERENT FROM OTHER ELEMENTS
4. HOLE ϕ $1/4"$ NPT PASS ON PAD (MK 120) AT VERTICAL CENTER LINE FOR VENTING, PLUG WITH HEAVY GREASE

 INTERCOL SA. INTERCAMBIADORES DE CALOR CALCULO, DISEÑO, FABRICACION, REPARACION Y MANTENIMIENTO			
 reficar Refinería de Cartagena S.A.		Cartagena Refinery Expansion Project Cartagena, Colombia JOB NO.: OTI-100281 (ITEM 35) P.O. NO.: 42166001-PO-0001121001	
SERVICE: CSHDS FEED / CDHDS OVERHEAD EXCHANGER TAG: 107-CNT-E-201A QTY. / SIZE: 1 / 35" X 216"		TEMA TYPE: BEU	
DWN. BY: JC RUEDA CHKD. BY: L. MERA		SCALE - DWG 3 OF 8 	
APPVD. BY: A. VARELA		DWG NO. DG-MR-11210-02-107-CNT-E-201A-03	
			REV



	27-03-12	AS-BUILT REVISION
	09-11-11	AS-BUILT REVISION
	26-10-11	AS-BUILT REVISION
	08-09-11	AS-BUILT
	12-01-11	INCLUDE CB&I COMMENTS
	23-11-10	INCLUDE CB&I COMMENTS
	10-11-10	INCLUDE CB&I COMMENTS
	16-09-10	INCLUDE CB&I COMMENTS
	29-06-10	ISSUE FOR REVISION
NO.	DATE	REVISIONS

07 CNT E 201A

MK.NO.	QUAN.	MATERIAL DESCRIPTION	MATERIAL
21	245	U TUBES 1" O.D.X 0.0830 (MW) PER BEND SCHEDULE X 216 LG.	SA-213 TP304L
		FORGED RING MATERIAL	
3	1	FLG 43 3/4" O.D. X 35 1/4" I.D. X 6 3/4" THK (f)	SA-266 2N w/ 304L WOL
7	1	FLG 43 3/4" O.D. X 35" I.D. X 6 3/16" THK (f)	SA-266-2N
		TUBESHEETS & COVERS	
19	1	TUBESHEET 43 3/4" O.D. X 5" THK NORMALIZED AND FINE GRAIN SIZE (f)	SA-266 2 w/ 304L WOL
		BAFFLES	
22	14	BAFFLES 34 13/16" O.D. X 5/16" THK	SA-36
22A	1	SUPT PL. 34 13/16" O.D. X 5/16" THK	SA-36
		HEADS	
1	1	ELLIP HD. 35 1/4" I.D. X 9/16" THK(min) W/2" SF	SA-516 60 N w/304L WOL
18	1	ELLIP HD. 35" I.D.X 51/64" THK(min) W/2" SF	SA-516-60N
		CYLINDERS	
9	1	R&W CYL 35" I.D. X 7/8" THK X 9'-11 5/8" LG.	SA-516-70
9A	1	R&W CYL 35" I.D. X 7/8" THK X 7'-6 3/32" LG.	SA-516-70
9B	1	R&W CYL 35" I.D. X 7/8" THK X 2'-5 17/32" LG.	SA-516-70
4	1	R&W CYL 35 1/4" I.D.X 7/8" THK X 2'-1 5/16" LG.	SA-516 60 N w/304L CLAD

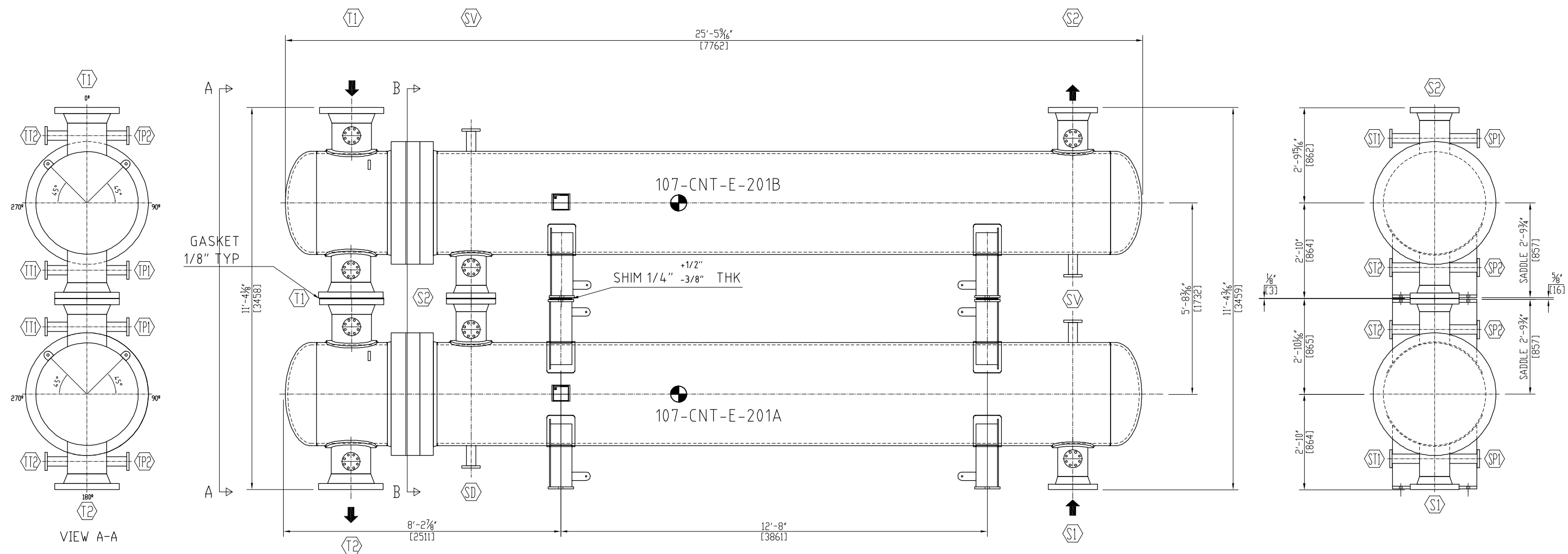
MK.NO.	QUAN.	MATERIAL DESCRIPTION	MATERIAL
		ASME FLANGES	
71	1	ASME 10" - 300 # RF WN W/ (Sch80 BORE)	SA-105
72	1	ASME 10" - 300 # RF WN W/ (Sch80 BORE)	SA-105
81	1	ASME 14" - 300 # RF WN W/ (Sch60 BORE)	SA-105 +304L SS
82	1	ASME 14" - 300 # RF WN W/ (Sch60 BORE)	SA-105 +304L SS
73	1	ASME 2" - 300 # RF LWN X 9 3/4" LG(2,000"BORE)	SA-105
74	1	ASME 2" - 300 # RF LWN X 9 3/4" LG(2,000"BORE)	SA-105
71A	1	SMPPIPE 10 3/4" OD X (0.5940" Sch80) X 1'-1 1/4" LG.	SA-333-6 N
72A	1	SMPPIPE 10 3/4" OD X (0.5940" Sch80) X 1'-1 1/4" LG.	SA-333-6 N
81A	1	SMPPIPE 14" OD X (0.5940" Sch60) X 1'-0 3/4" LG.	SA-333-6 N-304L SS
82A	1	SMPPIPE 14" OD X (0.5940" Sch60) X 1'-0 3/4" LG.	SA-333-6 N-304L SS
71B	1	WELD PAD 14 3/4" O.D. X 10 7/8" I.D. X 7/8" THK	SA-516-60N
72B	1	WELD PAD 14 3/4" O.D. X 10 7/8" I.D. X 7/8" THK	SA-516-60N
81B	1	WELD PAD 18" O.D. X 14 1/8" I.D. X 7/8" THK	SA-516-60N
82B	1	WELD PAD 18" O.D. X 14 1/8" I.D. X 7/8" THK	SA-516-60N
73A	1	ASME 2" - 300 # RF BLIND	SA-105
74A	1	ASME 2" - 300 # RF BLIND	SA-105
84	10+20	GASKET Flexitallc Spiral Wound CG 304SS. FOR AUXILIARY CONNECTIONS 2" 300W (20 SPARE GASKETS)	
85	80+8	5/8 in dia. stud x 3 3/4 in long with 2 nuts FOR AUXILIARY CONNECTIONS	SA-193B7/SA-192 2H
		AUXILIARY NOZZLES	
93	4	ASME 2" - 300 # RF LWN X 11 13/16" LG (2,000"BORE)	SA-105
94	4	ASME 2" - 300 # RF LWN X 9 3/4" LG (2,000"BORE)	SA-105 + 304L SS
93A	4	ASME 2" - 300 # RF BLIND	SA-105
94A	4	ASME 2" - 300 # RF BLIND	SA-105 + 304L SS

MK.NO.	QUAN.	MATERIAL DESCRIPTION	MATERIAL
		BOLTING & GASKETS	
40	1	LOT OF GASKETS PER DWG. DG-MR-11210-02-107-CNT-E-201A-03 + 2 SET OF SPARE GASKETS	
41	44+4	1 1/8" ROUND X 8-THREAD STUDS X 18 1/4" LG. 3&7 - SEE DWG DG-MR-11210-02-107-CNT-E-201A-05	SA-193B7
42	88+8	1 1/8" HEX NUTS 8-THREAD	SA-194-2H
54	4	GROUNDING LUGS 3" X 3/8" THK X 6 1/2" LG.	SA-36
		MISC. MATERIAL	
60	1	STD. NAME PLATE	STN. STL. 304
60A	1	STD. DATA PLATE	STN. STL. 304
61	1	STD. NAME PL BRKT	SA-516 60N
62	2	STD. LIFTING LUGS 5 1/2" X 3 3/4" X 3/4"	SA-516 60N
23	8	1/2" O.D. TIE RODS X 16'-9 1/4" LG	AISI-1020
23B	16+2	1/2" HEAVY HEX TIE ROD NUTS	SA-1942H
23A	92	3/4" O.D. SPACER TUBING (SEE DWG DG-MR-11210-02-107-CNT-E-201A-04)	SA-213TP304L
22I	1	11 1/2" O.D. X 1/4" THK IMP. PLATE	SA-36
22S	4	SEAL STRIPS 1 3/32" X 5/16" THK X 13'-7 9/16" LG.	SA-36
22T	2	SLIDING BAR 1/2" O.D. X 14'- 8 13/16" LG	AISI-1020
22R	1	14" O.D. X 3/8" THK DEFLECTOR PLATE	SA-516 60N
22U	2	STRIP 3" X 9" X 3/8" THK DEFLECTOR PLATE	SA-516 60N
29	2	TUBESHEET PLUG Ø1 1/2" x 2 3/4" LG. 1"-8 UNC	AISI 1020
50	1	PASS PLATES 34 3/4" X 0.472" THK X 42 3/8" LG.	SA-240-304L
		SUPPORT MATERIAL (TOP SUPPORT)	
120A	1	PLATE 10" X 3/8" THK X 42 3/4" LG.	SA-516 60 N
121A	1	PLATE 34" X 3/4" THK X 9" LG.	SA-36
122A	1	PLATE 33" X 3/8" THK X 24 3/32" LG.	SA-36
123A	2	PLATE 7 5/8" X 1/2" THK X 22 7/16" LG.	SA-36
124A	2	PLATE 7 5/8" X 1/2" THK X 14 31/32" LG.	SA-36
		SUPPORT MATERIAL (BOTTOM SUPPORT)	
120	1	PLATE 10" X 3/8" THK X 42 3/4" LG.	SA-516 60 N
121	1	PLATE 34" X 7/8" THK X 9" LG.	SA-36
122	1	PLATE 33" X 3/8" THK X 23 31/32" LG.	SA-36
123	2	PLATE 7 5/8" X 1/2" THK X 22 5/16" LG.	SA-36
124	2	PLATE 7 5/8" X 1/2" THK X 14 27/32" LG.	SA-36
130	2	INSULATION BARS 3/8" DIA. X 19'-9 1/4" LG.	AISI-1020
130A	2	INSULATION BARS 3/8" DIA. X 1'-11 5/16" LG.	AISI-1020
130B	1	INSULATION BAR 3/8" DIA. X 10'-7 1/4" LG.	AISI-1020
130C	1	INSULATION BAR 3/8" DIA. X 10'-8" LG.	AISI-1020
131	48	PLATE 1 1/2" X 3/8" THK X 2 3/4" LG.	SA-516 70

INTERCOL S.A.
AS BUILT

20-02-12	AS-BUILT REVISION	
09-11-11	AS-BUILT REVISION	
01-11-11	AS-BUILT REVISION	
08-09-11	AS-BUILT	
04-01-11	INTERNAL REVISION	
23-11-10	INCLUDE CB&I COMMENTS	
10-11-10	INCLUDE CB&I COMMENTS	
16-09-10	INCLUDE CB&I COMMENTS	
29-06-10	ISSUE FOR REVISION	
NO.	DATE	REVISIONS

SERVICE:	CSHDS FEED / CDHDS OVERHEAD EXCHANGER	
TAG:	107-CNT-E-201A	
QTY. / SIZE:	1 / 35" X 216"	TEMA TYPE: BEU
DWN. BY	JC. RUEDA	SCALE
CHKD. BY	L. MERA	DWG. 6 OF 8
APPVD. BY	A. VARELA	DWG. NO. DG-MR-11210-02-107-CNT-E-201A-06
REV		



INTERCOL S.A.
AS BUILT

△	08-09-11	AS-BUILT
△	10-11-10	INCLUDE CB&I COMMENTS
△	17-09-10	INCLUDE CB&I COMMENTS
△	21-05-10	INCLUDE CB&I COMMENTS
△	18-02-10	ISSUE FOR REVISION
NO.	DATE	REVISIONS



INTERCAMBIADORES DE CALOR
CALCULO, DISEÑO, FABRICACION, REPARACION Y MANTENIMIENTO



Cartagena Refinery Expansion Project
Cartagena, Colombia
JOB NO.: OTI-100281/82 (ITEM 35)
P.O. NO.: 42166001-PO-0001121001

SERVICE: CSHDS FEED / CDHDS OVERHEAD EXCHANGER
TAG: 107-CNT-E-201AB
QTY. / SIZE: 2 / 35" X 216"

TEMA TYPE: BEU

DWN. BY JC. RUEDA

CHKD. BY L. MERA

APPVD. BY A. VARELA

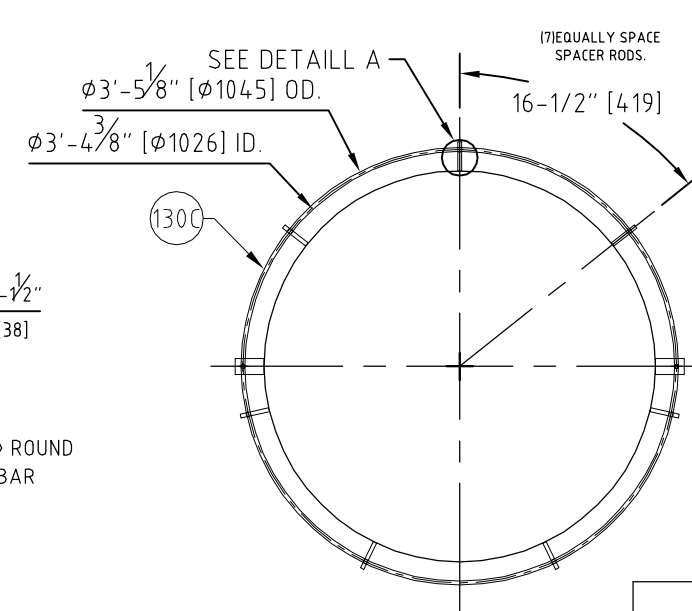
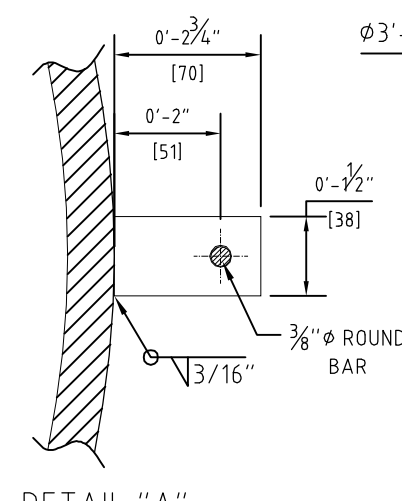
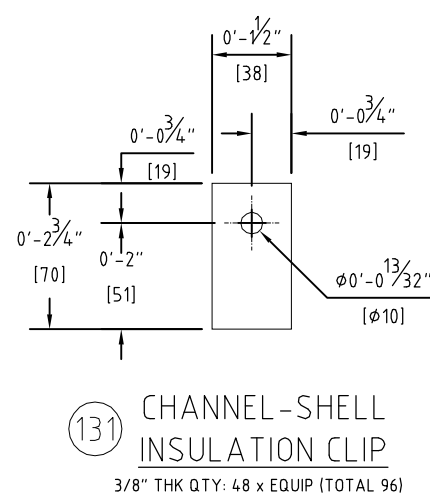
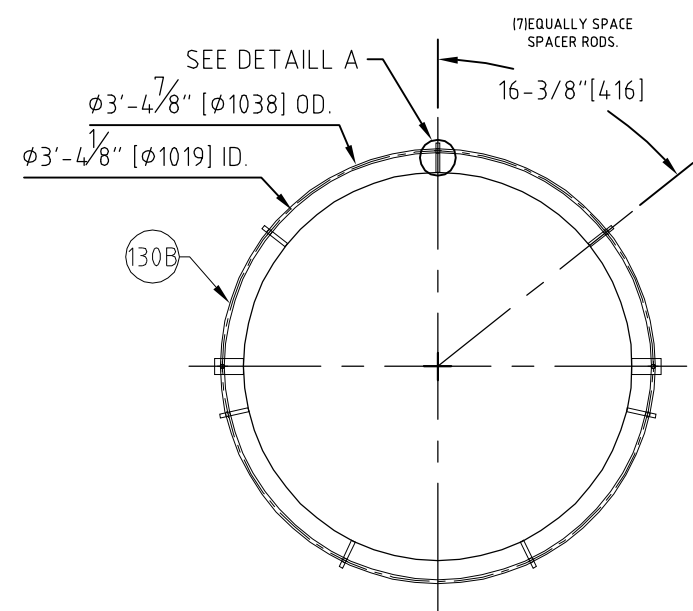
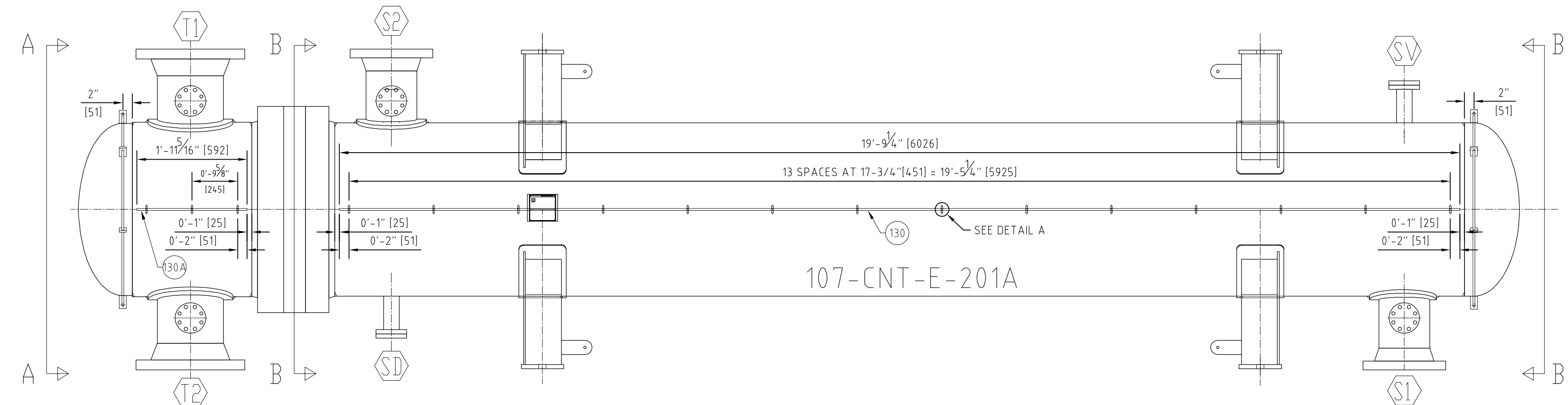
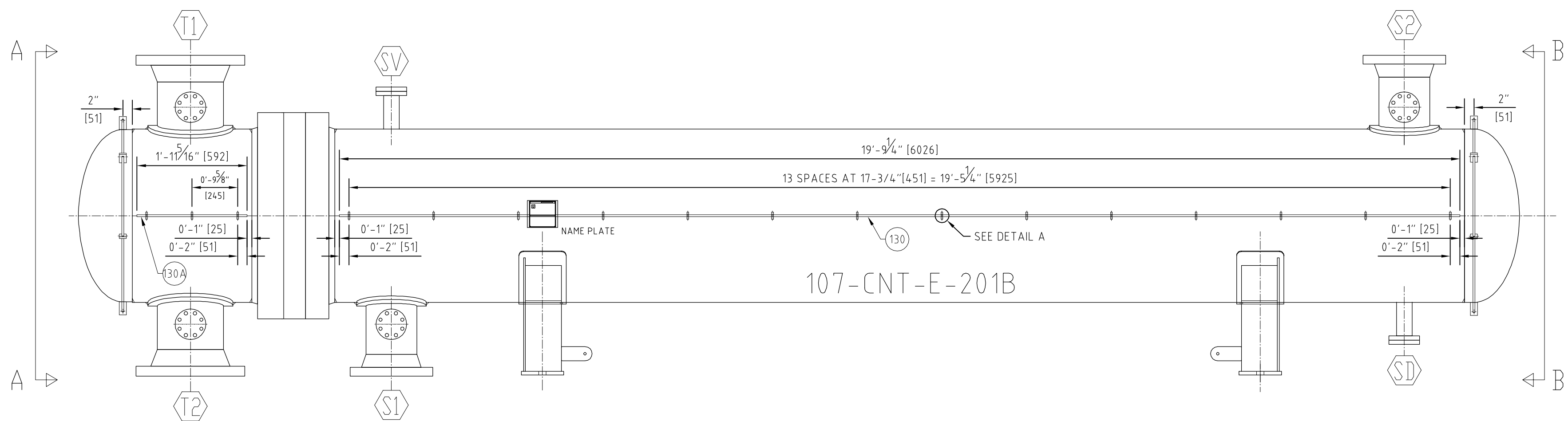
SCALE ---

DWG 7 OF 8

DWG. NO. DG-MR-11210-02-107-CNT-E-201AB-07



REV. △



INTERCOL S.A.
AS BUILT

NO.	DATE	REVISIONS
1	08/09/2011	AS-BUILT
2	29/12/2010	INTERNAL REVISION
3	12/11/2010	ISSUE FOR REVISION

INTERCAMBIADORES DE CALOR
CALCULO, DISEÑO, FABRICACION, REPARACION Y MANTENIMIENTO

Cartagena Refinery Expansion Project
Cartagena, Colombia
JOB NO.: OTI-100281/82 (ITEM 35)
P.O. NO.: 42166001-PO-0001121001

SERVICE: CSHDS FEED / CDHDS OVERHEAD EXCHANGER
TAG: 107-CNT-E-201AB
QTY. / SIZE: 1 / 35" X 216"

TEMA TYPE: BEU

DWN. BY: E.S.RUIZ
CHKD. BY: L. MERA
APPVD. BY: A. VARELA

SCALE: ---
DWG: 8 OF 8
DWG. NO.: DG-MR-11210-02-107-CNT-E-201AB-08

REV. 1

