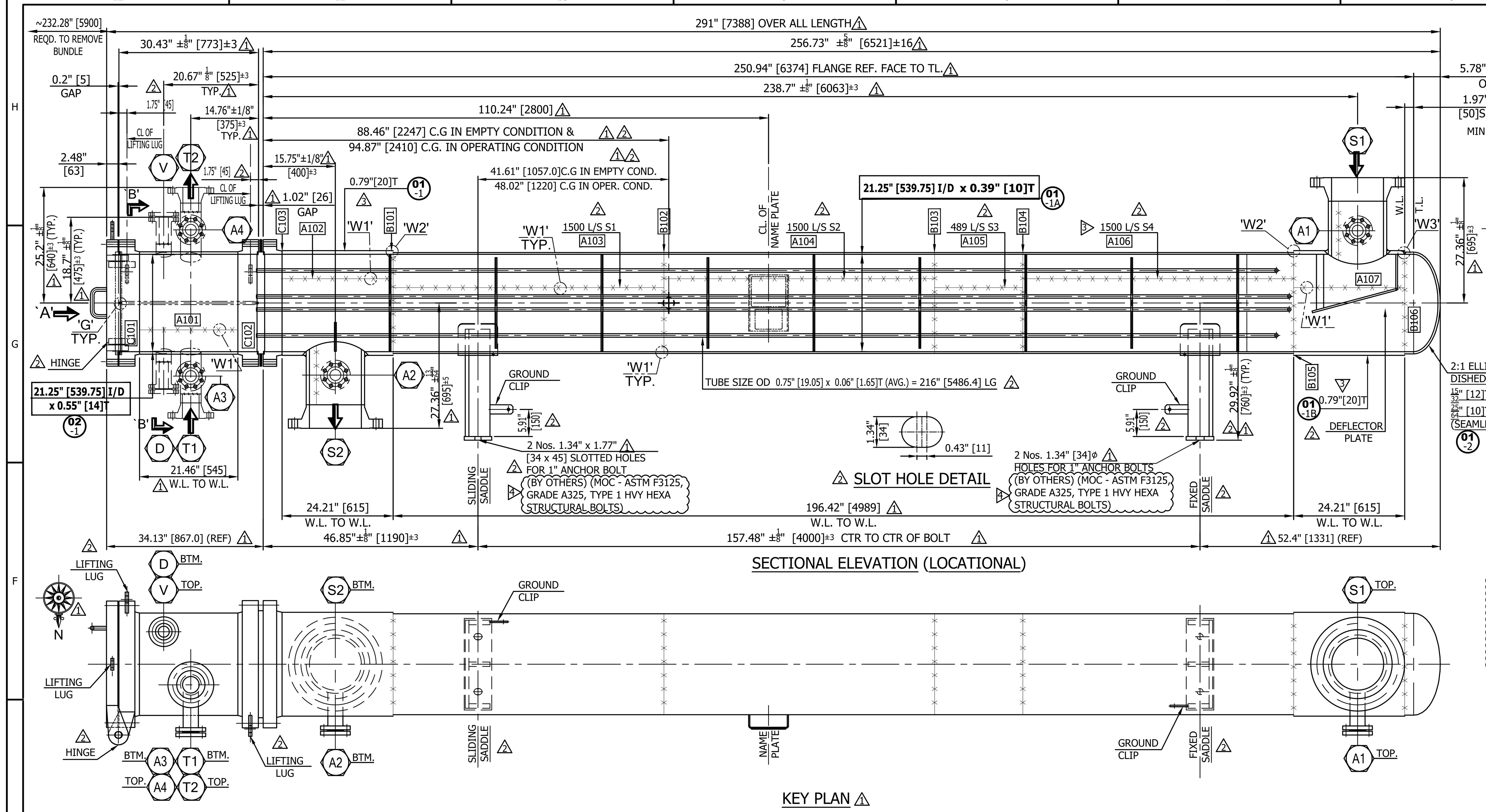
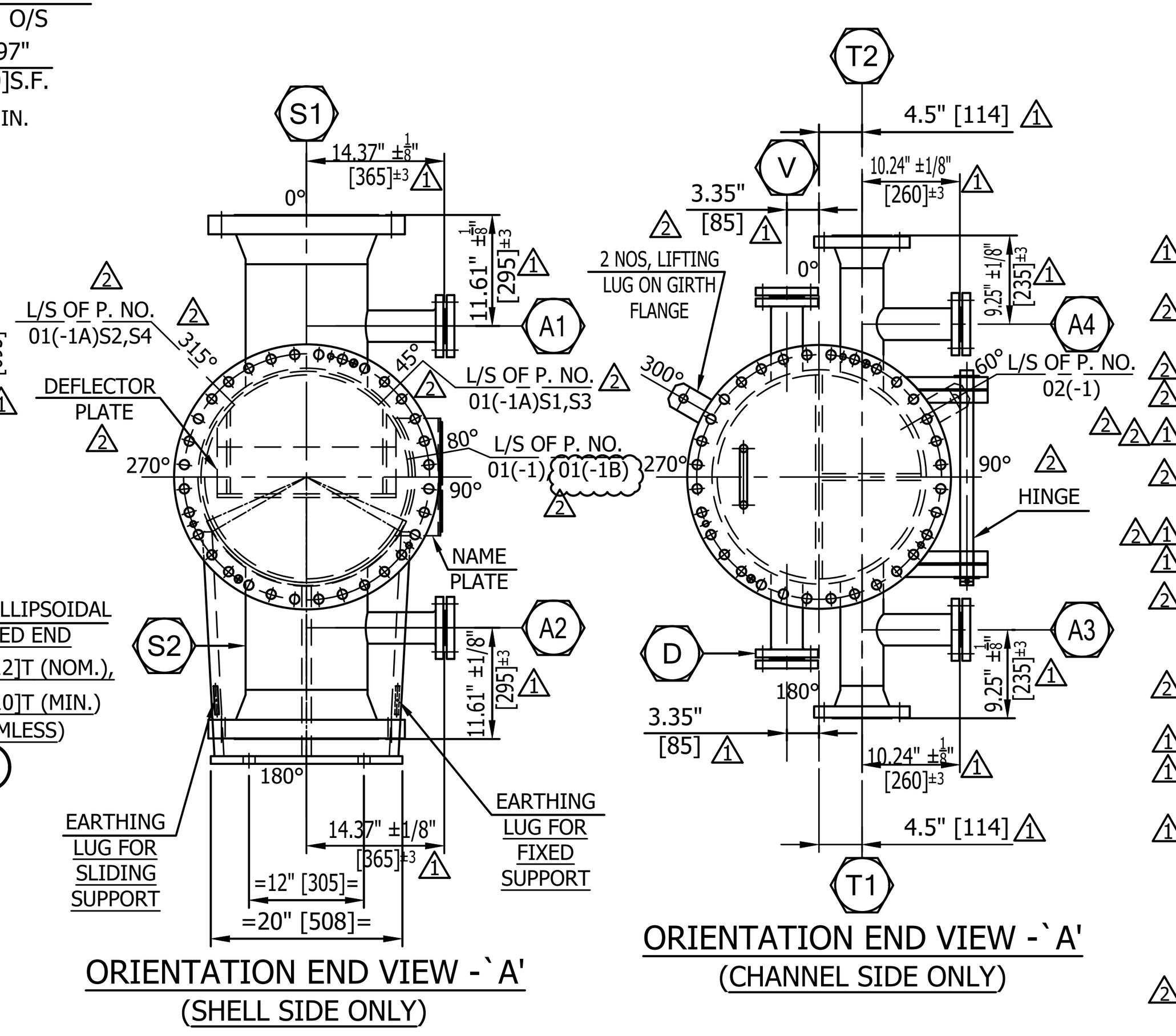


SECTIONAL ELEVATION (LOCATIONAL)

KEY PLAN



ORIENTATION END VIEW - `A' (SHELL SIDE ONLY)

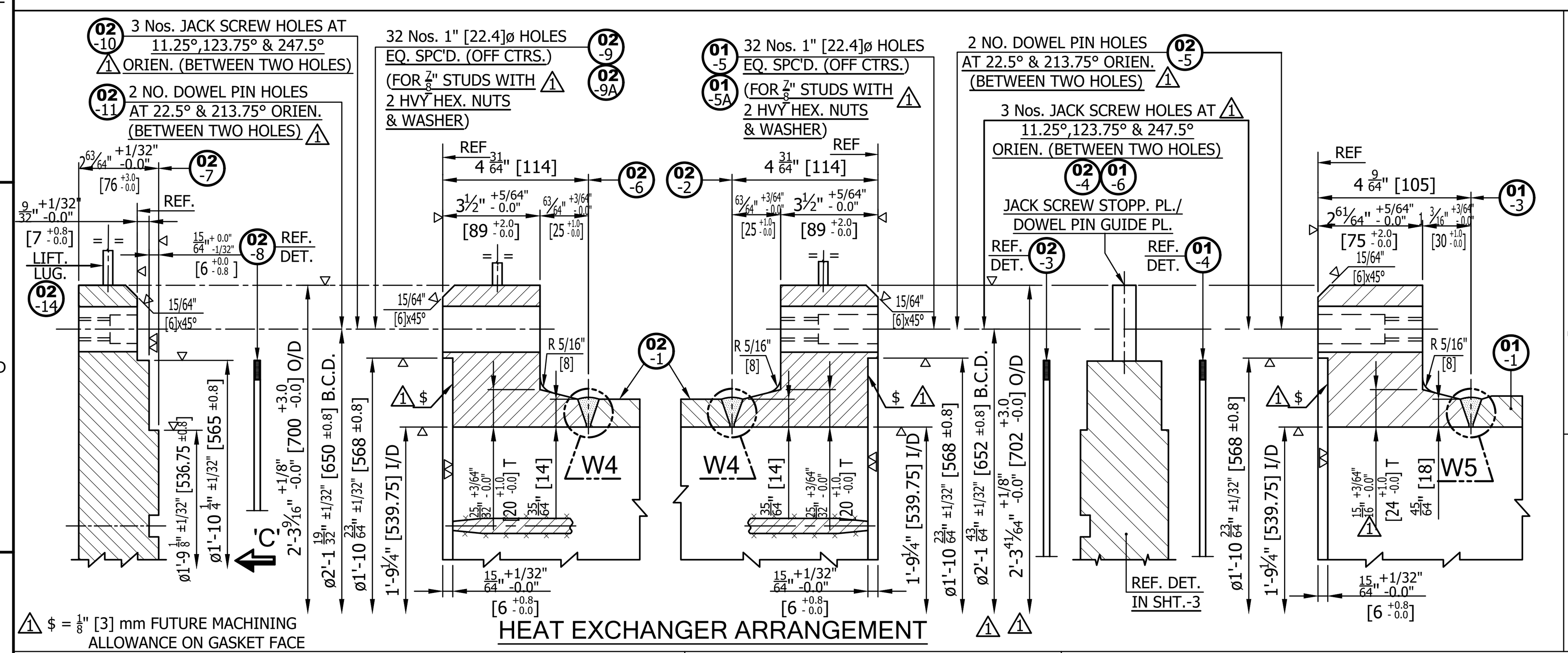
ORIENTATION END VIEW - `A' (CHANNEL SIDE ONLY)

CLIENT ACCEPTED POINT

1) AFTER WELD 16 mm GAP BETWEEN NOZZLE V & D NOZZLE WELD TO PARTITION PLATE.
2) AFTER WELD 29 mm GAP BETWEEN NOZZLE T1 & T2 NOZZLE WELD TO PARTITION PLATE.
3) CH. COVER HINGE ORIENTATION & DETAIL.
4) CONN. S1 DEFLECTOR PLATE DETAIL.

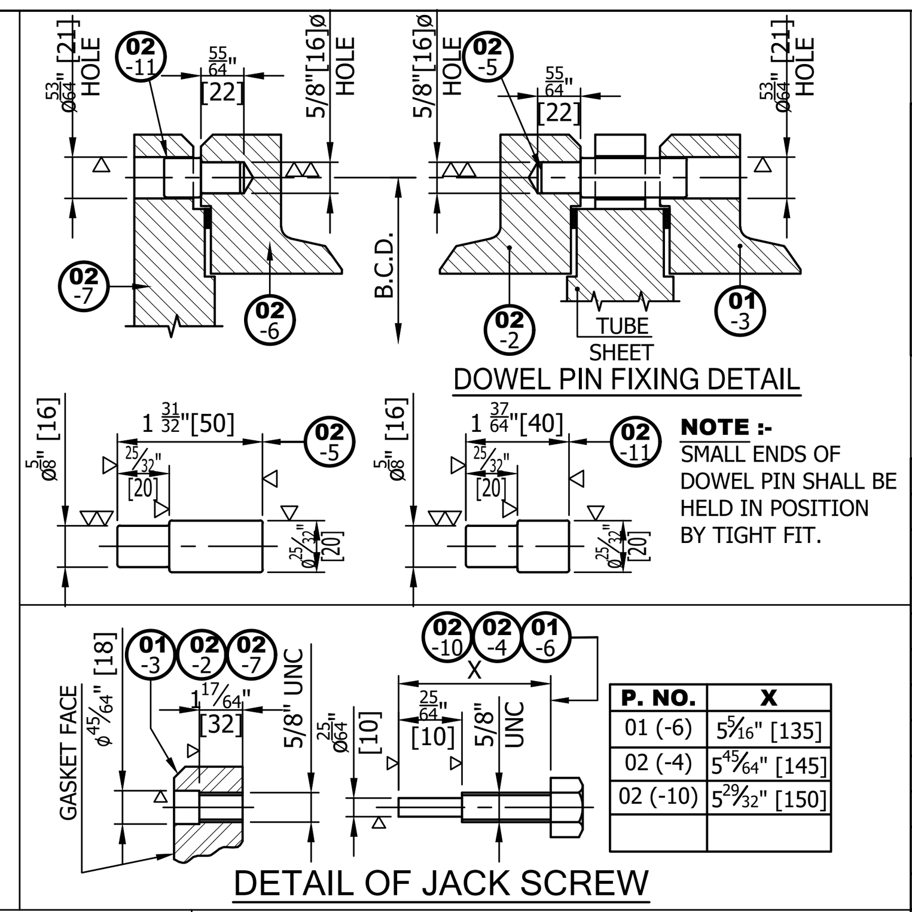
BOLT TORQUE IN HYDRO TEST CONDITION

BOLT SIZE	JOINT	BOLT TORQUE (lb-in)
7/8"	CHANNEL FLANGE TO CHANNEL COVER	4094.58
7/8"	CHANNEL FLANGE TO SHELL FLANGE	3222.48



HEAT EXCHANGER ARRANGEMENT

$\triangle$ $ = $\frac{1}{8}$" [3] mm FUTURE MACHINING ALLOWANCE ON GASKET FACE

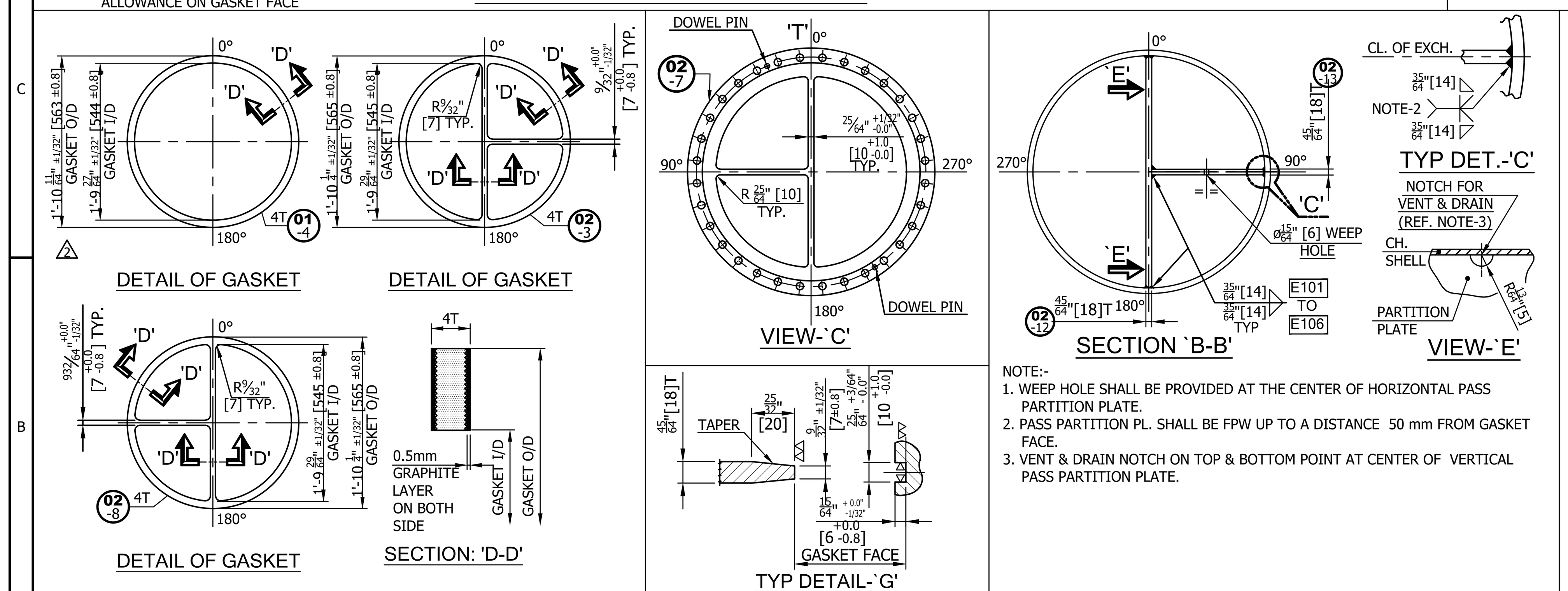


DOWEL PIN FIXING DETAIL

NOTE :- SMALL ENDS OF DOWEL PIN SHALL BE HELD IN POSITION BY TIGHT FIT.

P. NO.	X
01 (-6)	5 5/16" [135]
02 (-4)	5 45/64" [145]
02 (-10)	5 29/32" [150]

DETAIL OF JACK SCREW



DETAIL OF GASKET

DETAIL OF GASKET

DETAIL OF GASKET

SECTION: 'D-D'

VIEW-'C'

SECTION `B-B'

TYP DET.-'C'

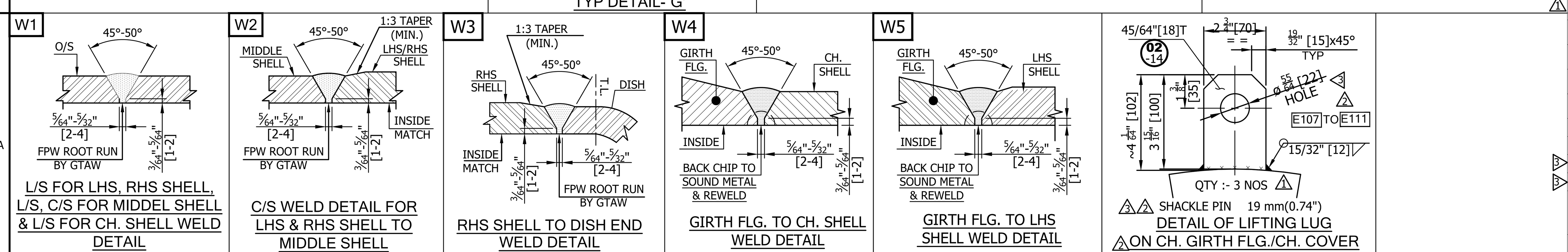
VIEW-`E'

TYP DETAIL-'G'

NOTE:-
1. WEEP HOLE SHALL BE PROVIDED AT THE CENTER OF HORIZONTAL PASS PARTITION PLATE.
2. PASS PARTITION PL. SHALL BE FPW UP TO A DISTANCE 50 mm FROM GASKET FACE.
3. VENT & DRAIN NOTCH ON TOP & BOTTOM POINT AT CENTER OF VERTICAL PASS PARTITION PLATE.

MAXMIMUM LOADING DATA

		FIXED SADDLE	SLIDING SADDLE
WIND LOAD	TRANSVERSE SHEAR (lbf)	507.15	507.15
	BENDING DUE TO TRANSVERSE SHEAR (lbf-ft)	1156.4	1156.4
	LONGITUDINAL SHEAR (lbf)	112.66	112.66
	BENDING DUE TO LONGITUDINAL SHEAR (lbf-ft)	256.9	256.9
SEISMIC LOAD	TRANSVERSE SHEAR (lbf)	2660	2660
	BENDING DUE TO TRANSVERSE SHEAR (lbf-ft)	6065	6065
	LONGITUDIONAL SHEAR (lbf)	5320	5320
	BENDING DUE TO LONGITUDINAL SHEAR (lbf-ft)	12130	12130



W1 L/S FOR LHS, RHS SHELL, L/S, C/S FOR MIDDEL SHELL & L/S FOR CH. SHELL WELD DETAIL

W2 C/S WELD DETAIL FOR LHS & RHS SHELL TO MIDDLE SHELL

W3 RHS SHELL TO DISH END WELD DETAIL

W4 GIRTH FLG. TO CH. SHELL WELD DETAIL

W5 GIRTH FLG. TO LHS SHELL WELD DETAIL

DETAIL OF LIFTING LUG ON CH. GIRTH FLG./CH. COVER

NOZZLE LOADING DATA

NOZZLE LOADS ARE 2 x API-660 FOR 150 CLASS FLANGE RATING

NOZZ MARK	SIZE NPS(DN)	F_A (lb)	F_C (lb)	F_L (lb)	M_C (lb-ft)	M_L (lb-ft)	M_T (lb-ft)
S1, S2	12 (300)	3060	3840	3840	11280	14320	18220
T1, T4	4 (100)	1080	1360	1360	1420	1800	2280

FOUNDATION AT BASE

CONDITION	WIND FORCE (lb)	WIND MOMENT (lbf.ft)	SESIMIC FORCE (lb)	SESIMIC MOMENT (lbf.ft)
EMPTY	1013.2	2533	5279	13197.5
OPERATING	1013.2	2533	5279	13197.5
HYDRO	334.4	836	0	0

BILL OF MATERIAL

1 @@ 4T(3T+(0.5x2)) SS 316L GROOVED METAL GASKET WITH GRAPHITE LAYER ON BOTH SIDES (KAMPROFILE) m=2.75 , y= 3700 psi.

WELD JOINT NO. - A101 TO A107, B101 TO B106, C101 TO C103, E101 TO E109

REV. NO	PART NO	DESCRIPTION	QTY/ ITEM	MATERIAL	SIZE	WEIGHT (kg)	REMARK
3					SUB-TOTAL OF WEIGHT (KG)	1837	
1	-14	LIFTING LUG	3	SA 516 GR 70	18T x 70W x 102 LG (REF.DETAIL)	3	
1	-13	PARTITION PLATE	1	SA 516 GR 70	18T x 258W x 761 LG (FINISH SIZE)	28	
1	-12	PARTITION PLATE	1	SA 516 GR 70	18T x 537W x 761 LG (FINISH SIZE)	58	
	-11	DOWEL PIN	2	SS 304	ϕ20 x 40 L (FINISH SIZE)	0.2	
1	-10	JACK SCREW	3	SS 304	5/8" UNC x 150 LG (REF. DETAIL)	0.7	
1	-9A	WASHER	64+8	ASTM F436 TYPE-1	6T x 44 O/D x 24 I/D	3	
1	-9	STUD WITH 2HVY HEX NUTS	32+4	SA 193 GR B7M/ SA 194 GR 2HM	7/8" UNC x 240 LG (FULL THRD)	32	
	-8	GASKET (LHS)	1+2	@@	4T x AS PER DRG	-	
1	-7	CHANNEL COVER	1	SA 266 GR 2	AS PER DRG	209	
1	-6	CH. GIRTH FLG. COVER SIDE	1	SA 266 GR 2	AS PER DRG	106	
	-5	DOWEL PIN	2	SS 304	ø20 x 50 LG (FINISH SIZE)	0.2	
1	-4	JACK SCREW	3	SS 304	5/8" UNC x 145 LG (REF. DETAIL)	0.7	
	-3	GASKET (RHS)	1+2	@@	4T X AS PER DRG.	-	
1	-2	CH. GIRTH FLG. (RHS)	1	SA 266 GR 2	AS PER DRG.	94	
1	-1	CHANNEL SHELL	1	SA 516 GR 70	14T x 545W x 1740 DEV. Lg.	104	
	02	**CHANNEL SHELL ASSLY.**					
1	-6	JACK SCREW	3	SS 304	5/8" UNC x 135 L (REF.DETAIL)	0.7	
1	-5A	WASHER	64+8	ASTM F436 TYPE-1	6T x 44 O/D x 24 I/D	3	
1	-5	STUD WITH 2HVY HEX NUTS	32+4	SA 193 GR B7M/ SA 194 GR 2HM	7/8" UNC x 275 LG (FULL THRD)	38	
2	-4	GASKET	1+2	@@	4T x AS PER DRG.	-	
1	-3	SHELL GIRTH FLANGE	1	SA 965 F 316L	AS PER DRAWING	83	
	-2	DISHED END	1	SA 240 GR 316L	12T (NOM) x 755 B.DIA	42	
3	-1B	RHS SHELL	1	SA 240 GR 316L	20T x 615W x 1759 DEV.L	170	
1	-1A	MIDDLE SHELL	1	SA 240 GR 316L	10T x 4989W x 1727 DEV.L	691	
3	-1	LHS SHELL	1	SA 240 GR 316L	20T x 615W x 1759 DEV.L	170	
	01	**MAIN SHELL ASSLY**					

NOZZLES AND CONNECTIONS

MARK	QTY/ ITEM	SIZE NPS (DN)	PIPE THK	PIPE SCH	ASME B16.5 FLANGE CLASS	ASME B16.5 FLANGE TYPE	ASME B16.5 FLANGE FACE	SERVICE	RF PAD T x W	REMARK
A4	1	2" I/D (50.8 I/D)	16.67	-	300	LWN	RF	AUXILIARY CHANNEL SIDE	-	WITH BF
A3	1	2" I/D (50.8 I/D)	16.67	-	300	LWN	RF	AUXILIARY CHANNEL SIDE	-	WITH BF
A2	1	2" I/D (50.8 I/D)	16.67	-	300	LWN	RF	AUXILIARY SHELL SIDE	-	WITH BF
A1	1	2" I/D (50.8 I/D)	16.67	-	300	LWN	RF	AUXILIARY SHELL SIDE	-	WITH BF
D	1	2" I/D (50.8 I/D)	16.67	-	300	LWN	RF	DRAIN	-	WITH BF
V	1	2" I/D (50.8 I/D)	16.67	-	300	LWN	RF	VENT	-	WITH BF
T2	1	4 (100)	13.49	160	300	WN	RF	CHANNEL OUTLET	-	-
T1	1	4 (100)	13.49	160	300	WN	RF	CHANNEL INTLET	-	-
S2	1	12 (300)	20	-	300	WN	RF	SHELL OUTLET	-	-
S1	1	12 (300)	20	-	300	WN	RF	SHELL INLET	-	-

CONSTRUCTION DATA

No.	Item	Unit	SHELL SIDE	TUBE SIDE
1	CONSTRUCTION CODE:- ASME SECT. VIII DIV-1, ED.2019 + TEMA CLASS-R, 10th EDITION 2019 + API 660 9th EDITION 2015, ADD.2020			
	ASME CERTIFICATION MARK WITH 'U' DESIGNATOR		YES	
	NATIONAL BOARD REGISTRATION		YES	
	ADDITIONAL COMPLIANCE		NA	
	TYPE		AEU (H)	
	TEMA SIZE	inch	21.25 x 216	
2	FLUID CIRCULATED		AMINE REGEN OVHD	COOLING WATER
3	NUMBER OF PASSES		1	4
4	DESIGN PRESSURE (INTERNAL)	psi (g) [kg/cm²(g)]	105 [7.38]	120 [8.43]
5	DESIGN PRESSURE (EXTERNAL)	psi (g) [kg/cm²(g)]	F.V.	F.V.
6	DESIGN TEMPERATURE (INTERNAL)	°F [°C]	340 [171.11]	150 [65.56]
7	DESIGN TEMPERATURE (EXTERNAL)	°F [°C]	300 [149]	300 [149]
8	OPERATING TEMPERATURE (IN/OUT)	°F [°C]	130 [54.445] / 95 [35.000]	80 [26.667] / 92 [33.333]
9	OPERATING PRESSURE (INLET)	psi (a) [kg/cm²(a)]	30.696 [2.159]	64.696 [4.549]
10	MINIMUM DESIGN METAL TEMP. (MDMT)	°F [°C]	32 [0]	32 [0]
11	SERVICE		SOUR (NON LETHAL)	WATER
12	FIELD / SHOP HYDRO TEST PRESSURE (AS PER UG-99b/ UG-99c)	psi (g) [kg/cm²(g)]	207.256 / 242 [14.57 / 17]	191.155 / 242 [13.43 /17]
13	MAWP CALCULATED	psi (g) [kg/cm²(g)]	156 / [10.96]	147 [10.33]
14	COMPONENT LIMITING MAWP		TUBE SHEET	STD FLANGE T1
15	MAP CALCULATED	psi (g) [kg/cm²(g)]	183 [12.86]	183 [12.86]
16	COMPONENT LIMITING MAP		TUBE SHEET	TUBE SHEET
17	HYDRO TEST MEDIUM AT TEST TEMPERATURE	°F [°C]	62-112 [17-45]	
18	CORROSION ALLOWANCE	inch [mm]	0.0629 [1.6]	0.1259 [3.2]
19	JOINT EFFICIENCY		1	1
20	RADIOGRAPHY		100%	100%
21	WIND DESIGN CODE		ASCE-7-16	
22	BASIC WIND SPEED	Mph [km/hr]	101 [162.5] EXPOSURE CATEGORY = C	
23	SEISMIC DESIGN CODE		ASCE-7-16, S1 = 0.579 g, Ss = 1.616 g, SDs = 1.077 g, SD1 = 0.966 g, SITE CLASS = D, IMP. FACTOR = 1.5, DESIGN CATEGORY = D	
24	POST FORMING HEAT TREATMENT		EXEMPTED AS PER UHA-44	EXEMPTED AS PER UCS-79
25	POST WELD HEAT TREATMENT		EXEMPTED AS PER UHA-32	EXEMPTED AS PER UCS-56
26	FLUID DENSITY (IN / OUT) (LIQ.)	lb/ft³ [kg/m³]	61.49/62.16 [984.968 / 995.7]	62.226 / 62.099 [996.758 / 994.723]
27	INSULATION (TYPE/THK) (BY OTHERS)	inch [mm]	NA	NA
28	FIRE PROOFING FOR SUPPORT	inch [mm]	NA	
29	HEAT EXCHANGED	MM BTU/hr	1.6501	
30	IMPACT TEST REQUIREMENT		EXEMPTED AS PER UHA-51 (SEE NOTE-M12)	EXEMPTED AS PER UCS-66 (SEE NOTE-M12)
31	APPLICABLE UG-22 LOADINGS		UG-22a,b,c,d (2),f,j	
32	SURFACE AREA/SHELL, AREA/UNIT(EFFECTIVE)	ft² [m²]	795.73 [74.38]	
33	PRESSURE DROP (ALLOWABLE/CALCULATED)	psi (g) [kg/cm²(g)]	0.600 / 0.557 [0.042 / 0.0391]	10.000 / 9.428 [0.703 / 0.662]
34	INSPECTION BY		LLOYD'S REGISTER VERIFICATION LTD. / AP	
35	PAINTING		AS PER APPROVED PAINTING PROCEDURE & A8KM-PP-000-500520-A	
36	WEIGHT FABRICATION	lbs / [kg]	8011.2 / [3633.8]	
	BUNDLE (IMPACT FACTOR)	lbs / [kg]	2368 / [1074] (1.5)	
	OPERATING	lbs / [kg]	11405 / [5173.29]	
	FULL OF WATER	lbs / [kg]	11415.5 / [5178]	
37	TUBE TO TUBE SHEET JOINT		EXPANDED	
38	VOLUME	ft³ [m³]	55.28 [1.56]	

SHELL SIDE : WET H2S SERVICE

MATERIAL OF CONSTRUCTION

Component	Part	SHELL SIDE	TUBE SIDE
SHELL / DISHED END		SA 240 GR 316L / SA 240 GR 316L	SA 516 GR 70
GIRTH FLANGE	FLANGE	SA 965 F 316L	SA 266 GR 2
	STUDS/NUTS	SA 193 GR B7M/SA 194 GR 2HM	SA 193 GR B7M/SA 194 GR 2HM
	GASKET	@@	@@
NOZZLE	NECK	SA 240 GR 316L	SA 106 GR B
	FLANGE	SA 182 F 316L	SA 105
	STUDS/NUTS	SA 193 GR B7M/SA 194 GR 2HM	SA 193 GR B7M/SA 194 GR 2HM
	GASKET	SPWD SS 316L	SPWD SS 304L
TUBE(SEAMLESS)		SA 789 UNS 32205	-
TUBESHEET		SA 182 F 60	-
TUBE TO TUBE SHEET JOINT		EXPANDED	
PARTITION PLATE		SA 516 GR 70	
BAFFLES / TUBE SUPPORT / SEAL STRIP		SA 240 GR 316L / SA 240 GR 316L / SA 240 GR 316L	-
TIE ROD / SPACER		SS 316 L / SA-213 TP 316 L	
WEAR PLATE / SADDLE SUPPORT		SA 240 GR 316L / SA 516 GR 70	-
ANCHOR BOLTS		ASTM F3125, GRADE A325, TYPE 1 HVY HEXA STRUCTURAL BOLTS	

@@ 4T(3T+(0.5x2)) SS 316L GROOVED METAL GASKET WITH GRAPHITE LAYER ON BOTH SIDES (KAMPROFILE).

REFERENCE DRAWING

CLIENT DOCUMENT NO.	DRG.NO.	SHT.No.	DESCRIPTION	REV
EN207121-ANUP-9V3-00029	H-2570-TRANS-2021	1 OF 1	TRANSPORTATION DRAWING	0
EN207121-ANUP-9V3-00028	H-2570-FAD-2021	4 OF 4	NAME PLATE & GENERAL NOTES DETAIL	2
	DELETED			
EN207121-ANUP-9V3-00027	H-2570-FAD-2021	3 OF 4	TUBE BUNDLE ASSEMBLY AND DETAIL	2
EN207121-ANUP-9V3-00020	H-2570-FAD-2021	2 OF 4	NOZZLE AND SADDLE DETAIL	2

REVISIONS

REV. NO.	DATE	DESCRIPTION	BY	CHD.	APPD.
4	20-07-22	REVISED AS PER CLIENT COMMENTS AS MARKED 4 & ISSUED FOR APPROVAL	SBL	PPG	BMP
3	28-03-22	REVISED AS PER CLIENT COMMENTS AS MARKED 3 & ISSUED FOR APPROVAL	SBL	KRK	BMP
2	22-12-21	PARTIAL BAFFLE, DEFLECTOR BAFFLE & CH. COVER HINGE ADDED & OTHERS CHANGES AS MARK 2 REVISED AS PER CLIENT COMMENTS ISSUED FOR APPROVAL	SBP	DMP	DKB
1	05-10-21	REVISED AS PER CLIENT COMMENTS ISSUED FOR APPROVAL	SBP	DMP	DKB
0	16-08-21	ISSUED FOR APPROVAL	SBP	JPM/DMP	DKB

DCR REFERENCE

SIGN.					
DATE					
DCR NO.					

CLIENT

WORLD ENERGY PARAMOUNT

EQUIPMENT OWNER

AIR PRODUCTS MANUFACTURING LLC

CONTRACT NO :

THE ANUP ENGINEERING LTD.
AHMEDABAD

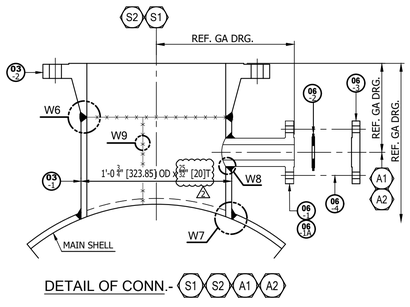
EQUIPMENT OWNER:- AIR PRODUCTS MANUFACTURING LLC	AP DRAWING NO. : EN207121-ANUP-9V3-00026
P.O.NO. : 4505487159	P.R.NO.:-

DRN.	SBP	18-X-261 AMINE REGEN OVHD TRIM COOLER	ITEM NO. 18-X-261
CHD.	JPM/DMP		
APPD.	DKB		
DATE	07-08-2021	GENERAL ARRANGEMENT DRAWING	QTY ONE
SCALE	1 : 18		

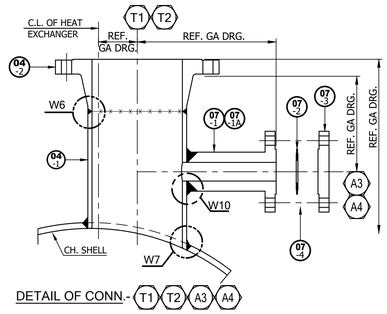
MFR'S SERIAL No.:	DRG. NO	SHEET NO.	REV.	
H-2570	H-2570-FAD-2021	1 OF 4	4	A1

ORIGINAL FRAME SIZE 841 x 594 mm

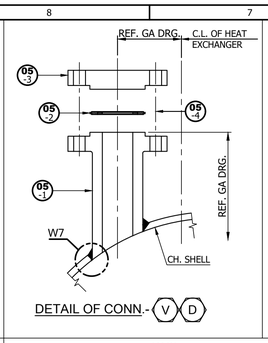
ORIGINAL FRAME SIZE 841 x 594 mm



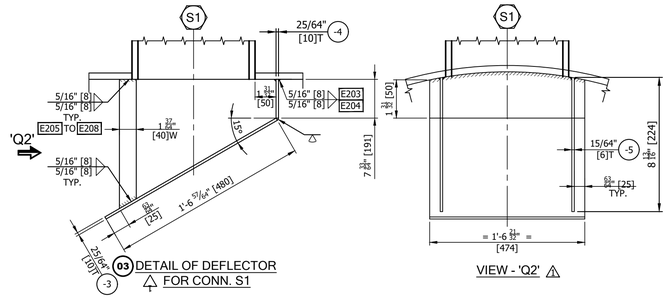
DETAIL OF CONN.- S1 S2 A1 A2

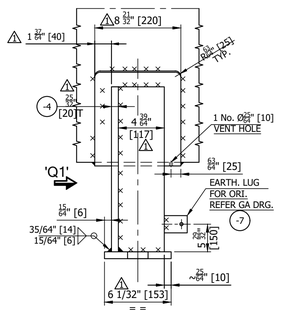


DETAIL OF CONN.- T1 T2 A3 A4

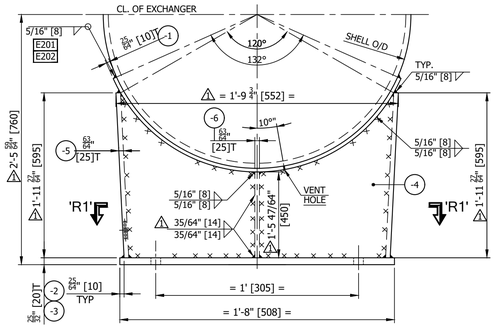


DETAIL OF CONN.- V D

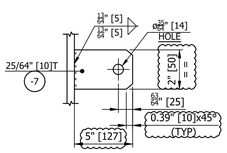




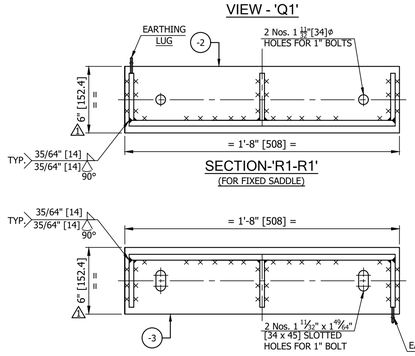
07A DETAIL OF SADDLE SUPPORT



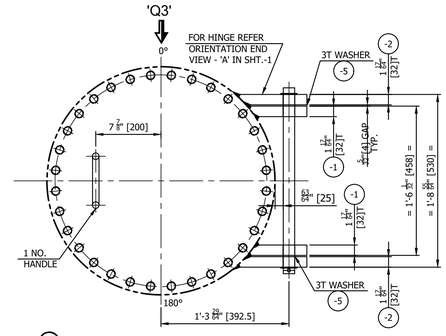
VIEW - 'Q1'



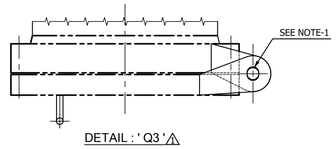
07A DETAIL OF EARTHING LUG



SECTION-'R1-R1'
(FOR SLIDING SADDLE)

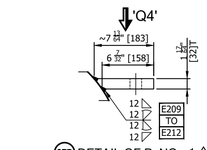


07B DETAIL OF HINGE FOR CH. COVER

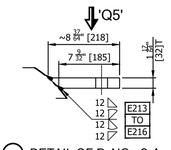


DETAIL : ' Q3 '

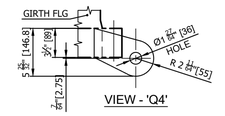
NOTE:-
1) WELD HINGE TABS AFTER TIGHTENING THE COVER WITH GASKET IN PLACE AND MAINTAIN A LOOSE FIT OF HINGE BAR IN HINGE TABS.



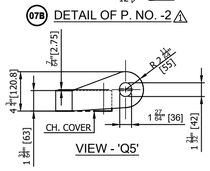
07B DETAIL OF P. NO. -1



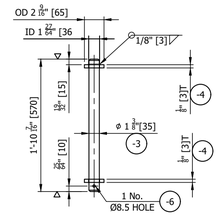
07B DETAIL OF P. NO. -2



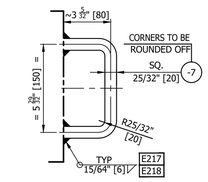
VIEW - 'Q4'



VIEW - 'Q5'



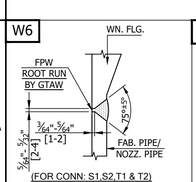
07B DETAIL OF HINGE PIN



07B DETAIL OF HANDLE

NOZZLES WELD JOINT NUMBER					
MARK	NOZZ. FAB. PIPE L/S	FAB.PIPE /NOZZ. PIPE TO FLANGE	FAB. PIPE/NOZZ PIPE/LWN TO MAIN SHELL/CH.SHELL/ FAB. PIPE/NOZZ.PIPE	R-PAD TO SHELL/ CH.SHELL	REMARK
S1	A201	C201	D201	-	
S2	A202	C202	D202	-	
T1	-	C203	D203	-	
T2	-	C204	D204	-	
V	-	-	D205	-	
D	-	-	D206	-	
A1	-	-	D207	-	
A2	-	-	D208	-	
A3	-	-	D209	-	
A4	-	-	D210	-	

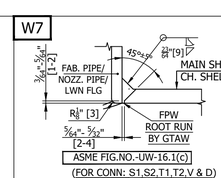
W6



(FOR CONN: S1,S2,T1 & T2)

WN FLANGE TO FAB.PIPE/ NOZZ.PIPE WELD DETAIL

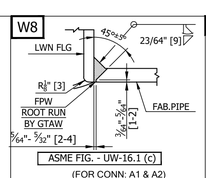
W7



(FOR CONN: S1,S2,T1,T2,V & D)

FAB. PIPE/NOZZ. PIPE/LWN FLG TO MAIN. SHELL/CH. SHELL WELD DETAIL

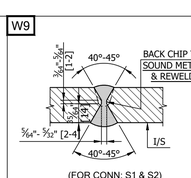
W8



(FOR CONN: A1 & A2)

LWN FLG TO FAB. PIPE WELD DETAIL

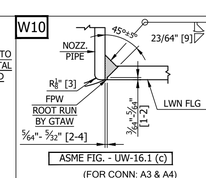
W9



(FOR CONN: S1 & S2)

L/S FOR FAB. PIPE WELD DETAIL

W10



(FOR CONN: A3 & A4)

LWN FLG TO NOZZ. PIPE WELD DETAIL

REV. NO	PART NO	DESCRIPTION	QTY/ ITEM	MATERIAL	SIZE	WEIGHT (kg)	REMARK
		** 4.5T SS 316L SPIRAL WOUND GASKET WITH GRAPHITE FILLER WITH 3.2T SS 316L INNER RING & OUTER RING. (DIMENSIONS AS PER ASME B 16.20)					
1		WELD JOINT NO. - E201 TO E218					
2					SUB-TOTAL OF WEIGHT (KG)	628	
2	-7	HANDLE	1	SA 516 GR 70	SQ.20 x 310 DEV. L	1	
2	-6	SPLIT PIN	1	SS	ø8 x 75 L	-	
2	-5	WASHER	2	CS	3T x 65 O/D x 36 I/D	-	
2	-4	WASHER	2	CS	3T x 65 O/D x 36 I/D	-	
2	-3	PIN FOR HINGE	1	IS 2062	ø35 x 570 L (FINISH SIZE)	4	
2	-2	HINGE PLATE ON COVER	2	SA 516 GR 70	32T x AS PER DRG.	10	
2	-1	HINGE PLATE ON FLG.	2	SA 516 GR 70	32T x AS PER DRG.	9	
2	**07B**	**CH. COVER HINGE ASSLY.**					
2	-7	EARTHING LUG	2	SS 304	10T x 50W x 127 LG	1	
1	-6	RIB PLATE	2	SA 516 GR 70	25T x 117W x 450 LG	21	
1	-5	SIDE RIB PLATE	4	SA 516 GR 70	25T x 117W x 595 LG	55	
1	-4	SUPPORT PLATE	2	SA 516 GR 70	20T x 552W x 595 LG	81	
1	-3	BASE PLATE (SLIDING SUPP.)	1	SA 516 GR 70	20T x 153W x 508 LG	12	
1	-2	BASE PLATE (FIXED SUPP.)	1	SA 516 GR 70	20T x 153W x 508 LG	12	
1	-1	PAD PLATE	2	SA 240 GR 316L	10T x 220W x 660 DEV.L	23	
	07A	**SADDLE SUPPORT ASSLY.**					
	-4	STUD WITH 2HVY HEX NUT	16+2	SA 193 GR B7M/ SA 194 GR 2HM	5/8" UNC X 105 LG (FULL THRD.)	5	
	-3	BLIND FLANGE	2	SA 105	DN 50 x ASME 300 CL BL RF	7	
	-2	GASKET	2+4	**	DN 50 x ASME 300 CL B16.20	-	
	-1A	FLANGE	1	SA 105	50.8 ID x 16.67T x ASME 300 CL LWN RF x 222 LG	9	
	-1	FLANGE	1	SA 105	50.8 ID x 16.67T x ASME 300 CL LWN RF x 222 LG	9	
	07	**CONN A3 & A4 ASSLY**					
	-4	STUD WITH 2HVY HEX NUT	16+2	SA 193 GR B7M/ SA 194 GR 2HM	5/8" UNC X 105 LG (FULL THRD.)	5	
	-3	BLIND FLANGE	2	SA 182 F 316L	DN 50 x ASME 300 CL BL RF	7	
	-2	GASKET	2+4	**	DN 50 x ASME 300 CL B16.20	-	
	-1A	FLANGE -A2	1	SA 182 F 316L	50.8 ID x 16.67T x ASME 300 CL LWN RF x 250 LG	10	
	-1	FLANGE -A1	1	SA 182 F 316L	50.8 ID x 16.67T x ASME 300 CL LWN RF x 250 LG	10	
	06	**CONN A1 & A2 ASSLY**					
	-4	STUD WITH 2HVY HEX NUT	16+2	SA 193 GR B7M/ SA 194 GR 2HM	5/8" UNC X 105 LG (FULL THRD.)	4	
	-3	BLIND FLANGE	2	SA 105	DN 50 x ASME 300 CL BL RF	7	
	-2	GASKET	2+4	**	DN 50 x ASME 300 CL B16.20	-	
	-1	FLANGE	2	SA 105	50.8 ID x 16.67T x ASME 300 CL LWN RF x 265 LG	20	
	05	**CONN V & D ASSLY**					
	-2	FLANGE	2	SA 105	DN 100 x ASME 300 CL WN RF (BORE-ø87.32)	22	
	-1	NOZZLE PIPE	2	SA 106 GR B	DN 100 x 13.49T x 370 LG	21	
	04	**CONN T1 & T2 ASSLY**					
2	-5	DEFLECTOR STIFF. -S1	2	SA 240 GR 316L	10T x 40 W x 224 LG.	2	
2	-4	DEFLECTOR BAFFLE PLATE -S1	1	SA 240 GR 316L	10T x 191 W x 474 L (REF. DETAIL)	7	
2	-3	DEFLECTOR BAFFLE PLATE -S1	1	SA 240 GR 316L	10T x 474 W x 480 L	18	
2	-2	FLANGE	2	SA 182 F 316L	DN 300 x ASME 300 CL WN RF (BORE-ø283.85)	124	
2	-1	FAB. PIPE	2	SA 240 GR 316L	20T x 375W x 955 DEV. L	112	
	03	**CONN S1 & S2 ASSLY**					

BILL OF MATERIAL

REV. NO.	DATE	DESCRIPTION	BY	CHD.	APPD.
2	28-03-22	REVISED AS PER CLIENT COMMENTS AS MARKED & ISSUED FOR APPROVAL	SBL	KRK	BMP
1	22-12-21	REVISED AS PER CLIENT COMMENTS ISSUED FOR APPROVAL	SBP	DMP	DKB
0	05-10-21	ISSUED FOR APPROVAL	SBP	DMP	DKB

REVISIONS

CLIENT

WORLD ENERGY PARAMOUNT

EQUIPMENT OWNER

AIR PRODUCTS MANUFACTURING LLC

CONTRACT NO :

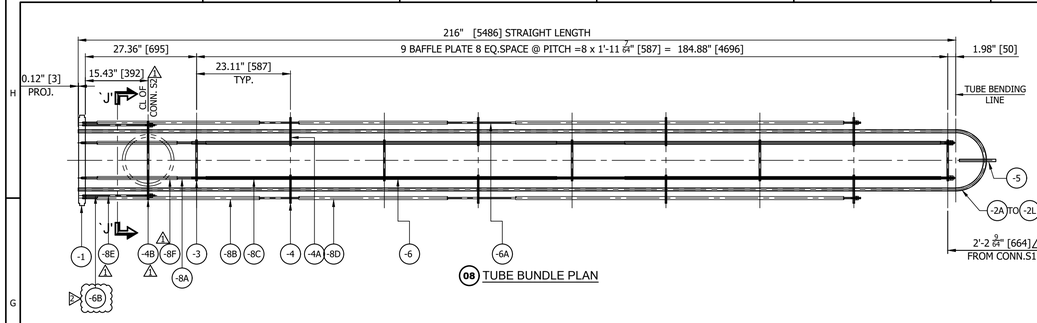
THE ANUP ENGINEERING LTD.
AHMEDABAD

EQUIPMENT OWNER:- AIR PRODUCTS MANUFACTURING LLC	AP DRAWING NO. : EN207121-ANUP-9V3-00020
P.O.NO. : 4505487159	P.R.NO.:-

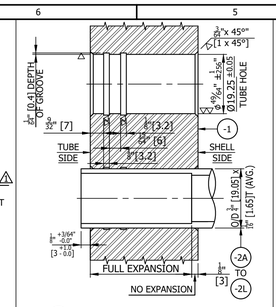
DRN.	SBP	18-X-261 AMINE REGEN OVHD TRIM COOLER	ITEM NO. 18-X-261
CHD.	DMP		
APPD.	DKB		
DATE	02-10-2021	NOZZLE AND SADDLE DETAIL	QTY ONE
SCALE	1 : 18		

MFR'S SERIAL No.: H-2570 | DRG. NO H-2570-FAD-2021 | SHEET NO. 2 OF 4 | REV. 0 1 2 | A1

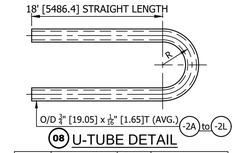
ANUP JOB NO. H-2570



08 TUBE BUNDLE PLAN



08 TUBE HOLE & TUBE TO TUBE SHEET JOINT DETAIL

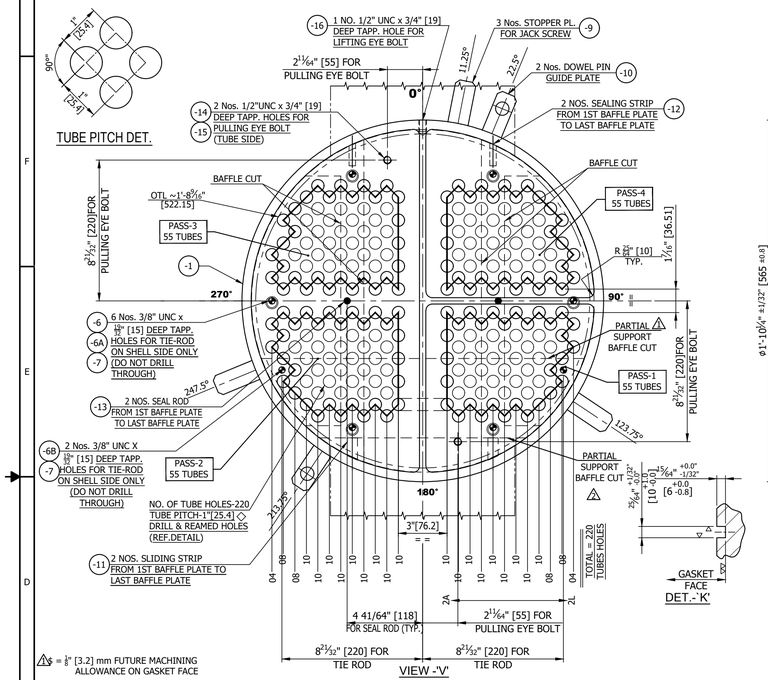


08 U-TUBE DETAIL

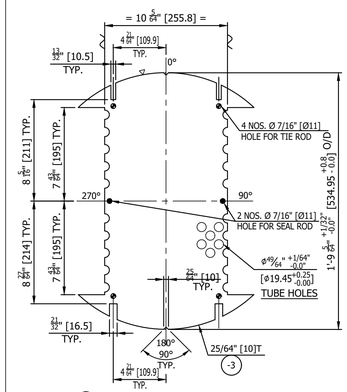
P.NO.	RADIUS-R	QTY/ ITEM	TOTAL Lg
-2A	38.1	10	11093
-2B	56.06	10	11149
-2C	74.02	10	11206
-2D	91.98	10	11262
-2E	109.94	10	11319
-2F	127.90	10	11375
-2G	145.86	10	11431
-2H	163.82	10	11488
-2I	181.78	10	11544
-2J	199.74	08	11601
-2K	217.71	08	11657
-2L	235.67	04	11714

TUBESHEET LIGAMENTS (AS PER TEMA TABLE RCB-7.22M):-

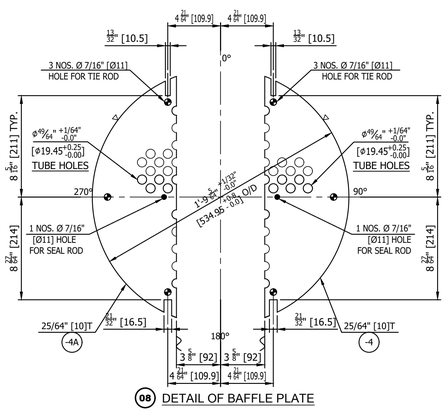
- NOMINAL LIGAMENT WIDTH :- 0.240 INCH
- MINIMUM STD. LIGAMENT WIDTH :- 0.204 INCH (96% OF LIGAMENTS MUST EQUAL OR EXCEED THIS VALUE.)
- MINIMUM PERMISSIBLE LIGAMENT WIDTH :- 0.120 INCH (4% OF LIGAMENTS MUST EQUAL OR EXCEED THIS VALUE.)
- GASKET REACTION DIAMETER :21.850 INCH



08 DETAIL OF STATIONARY TUBE SHEET



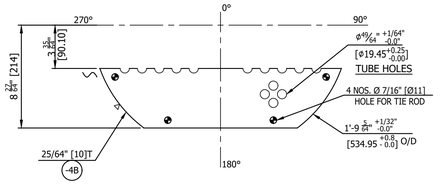
08 DETAIL OF BAFFLE PLATE



08 DETAIL OF BAFFLE PLATE

NOTE:-

1. TIE ROD, SEAL ROD & TUBE HOLE LAYOUT AS PER STATIONARY TUBE SHEET LAYOUT.
2. TUBE HOLES IN BAFFLE PLATE, PARTIAL SUPPORT BAFFLE PLATE & VIBRATION PLATE SHOULD BE DEBURRED AND ROUNDED OFF FROM BOTH SIDES.

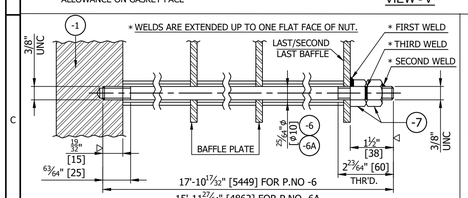


08 DETAIL OF PARTIAL SUPPORT BAFFLE PLATE

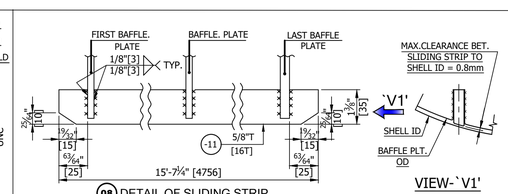
	WELD JOINT NO. : E301 TO E308					
2				TOTAL WEIGHT (kg)	(1075)	
1	-16	LIFTING EYE BOLT	1	SA 182 F 304	1/2" UNC x AS PER DRG	0.2
	-15	PLUG FOR PULLING EYE BOLT	2	SS 316	1/2" UNC x 75 L (FINISH SIZE)	0.1
1	-14	PULLING EYE BOLT	2	SA 182 F 304	1/2" UNC x AS PER DRG	0.4
3	-13	SEAL ROD	2	SS 316	10ø x (4746 LG (FINISH SIZE)	6
	-12	SEALING STRIP	2	SA 240 TYPE 316	10T x 35W x 4756 LG	27
	-11	SLIDING STRIP	2	SA 240 TYPE 316	16T x 35W x 4756 LG	43
	-10	DOWEL PIN GUIDE PLATE	2	SA 240 TYPE 316	12T x 32W x 68 LG	0.4
	-9	JACK SCREW STOPPER PLATE	3	SA 240 TYPE 316	12T x 32W x 68 LG	0.5
1	-8I-F	SPACER	SEE TABLE	SA-213 TP 316 L	19.05 OD x 1.65 THK x AS PER TABLE	23
2	-7	HEX. NUT FOR TIE ROD	14	SS 316	3/8" UNC (STD.)	0.6
2	-6B	TIE ROD	2	SS 316 L	10ø x 450 LG (FINISH SIZE)	0.5
1	-6A	TIE ROD	2	SS 316 L	10ø x 4862 LG (FINISH SIZE)	6
1	-6	TIE ROD	4	SS 316 L	10ø x 5449 LG (FINISH SIZE)	14
	-5	U-BEND STRIP SUPPORT	1	SA 240 TYPE 316	10T x 247W x 400 LG (REF. DETAIL)	8
2	-4B	PARTIAL SUPPORT BAFFLE PLATE	1	SA 240 TYPE 316	10T x AS PER DRG.	4
	-4A	BAFFLE PLATE	4	SA 240 TYPE 316	10T x AS PER DRG.	16
	-4	BAFFLE PLATE	4	SA 240 TYPE 316	10T x AS PER DRG.	16
	-3	BAFFLE PLATE	5	SA 240 TYPE 316	10T x AS PER DRG.	40
	-2A-2L	TUBES (SEAMLESS)	SEE TABLE	SA-789 UNS 32205	19.05 O/D x 1.65T(AVG.) x AS PER TABLE	804
	-1	STATIONARY TUBE SHEET	1	SA-182 GR F60	AS PER DRG.	65
	08	**TUBE BUNDLE ASSLY**				

REV. NO	SR. NO	DESCRIPTION	QTY/ ITEM	MATERIAL	SIZE	WT (kg)	REMARK

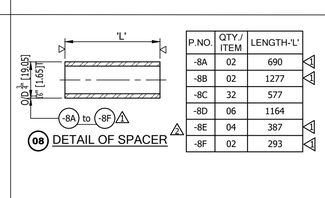
BILL OF MATERIAL



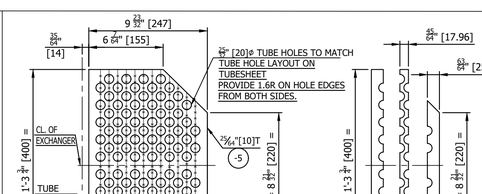
08 DETAIL OF TIE ROD ASSLY.



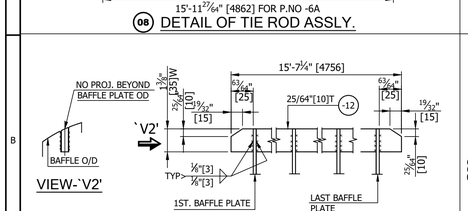
08 DETAIL OF SLIDING STRIP



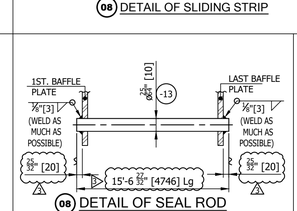
08 DETAIL OF SPACER



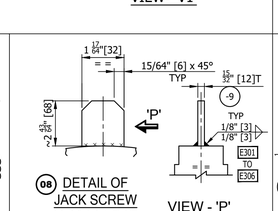
08 DETAIL OF U-BEND STRIP BAFFLE



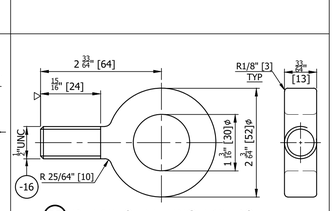
08 DETAIL OF SEALING STRIP



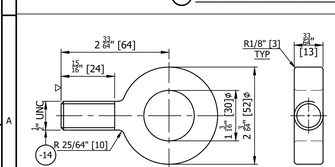
08 DETAIL OF SEAL ROD



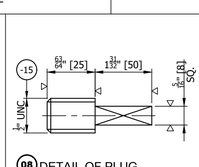
08 DETAIL OF JACK SCREW STOPPER PL.



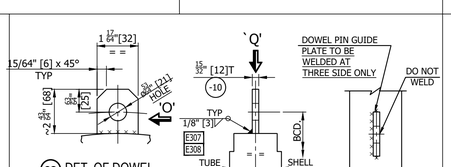
08 DETAIL OF LIFTING EYE BOLT



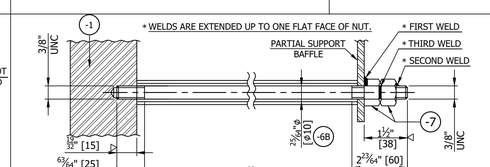
08 DETAIL OF PULLING EYE BOLT



08 DETAIL OF PLUG (FOR PULLING EYEBOLT)



08 DET. OF DOWEL PIN GUIDE PLATE



08 DETAIL OF TIE ROD ASSLY.

REV. NO.	DATE	DESCRIPTION	BY	CHD.	APPD.
3	20-07-22	DRAWING REVISED AS MARKED △3 & ISSUED FOR APPROVAL	SBL	PPG	BMP
2	28-03-22	REVISED AS PER CLIENT COMMENTS AS MARKED △2 & ISSUED FOR APPROVAL	SBL	KRK	BMP
1	22-12-21	REVISED AS PER CLIENT COMMENTS ISSUED FOR APPROVAL	SBP	DMP	DKB
0	05-10-21	ISSUED FOR APPROVAL	SBP	JPM/DMP	DKB

REVISIONS

CLIENT: WORLD ENERGY PARAMOUNT

EQUIPMENT OWNER: AIR PRODUCTS MANUFACTURING LLC

CONTRACT NO :

THE ANUP ENGINEERING LTD.
AHMEDABAD

EQUIPMENT OWNER:- AIR PRODUCTS MANUFACTURING LLC		AP DRAWING NO. : EN207121-ANUP-9V3-00027	
P.O.NO. : 4505487159		P.R.NO.:-	
DRN.	SBP	18-X-261 AMINE REGEN OVHD TRIM COOLER	ITEM NO. 18-X-261
CHD.	JPM/DMP		
APPD.	DKB		
DATE	02-10-2021	TUBE BUNDLE ASSEMBLY AND DETAIL	QTY ONE
SCALE	1 : 18		
MFR'S SERIAL No.: H-2570		DRG. NO H-2570-FAD-2021	SHEET NO. 3 OF 4 / REV. 3 / A1

ANUP JOB NO. H-2570

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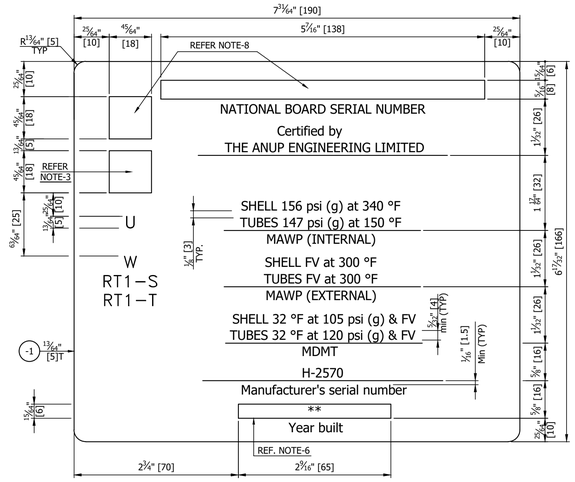
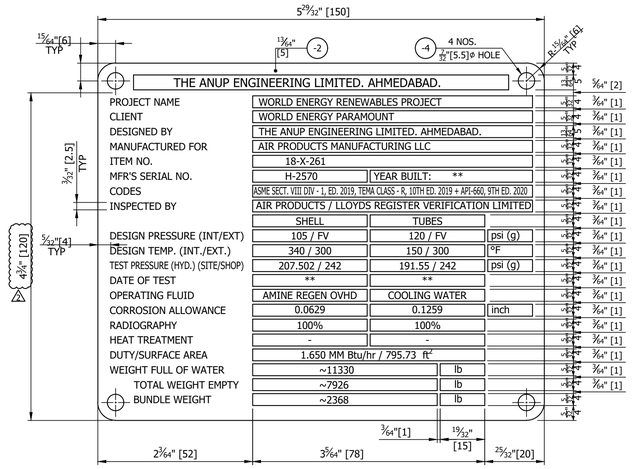
ORIGINAL FRAME SIZE 594 X 594 mm



⚠09 DETAIL OF ASME NAME PLATE

NOTES:-

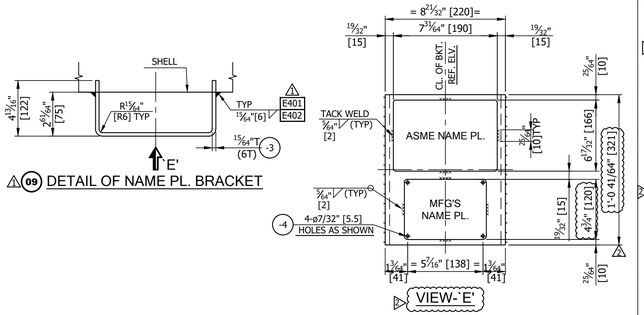
1) ALL DIMENSIONS ARE IN mm UNLESS OTHERWISE SHOWN.
2) HEIGHT OF CHARACTERS SHALL BE AT LEAST 4 mm & SHALL BE ENGRAVED IN A BLACK ENAMELED BACKGROUND. CHARACTERS SHALL BE EITHER INDENTED OR RAISED AT LEAST 0.1 mm & SHALL BE LEGIBLE & READABLE.
3) CERTIFICATION MARK (U) TO BE HARD STAMPED IN PRESENCE OF AI AFTER OBTAINING HIS AUTHORIZATION.
4) NAME PLATE SHALL BE WELDED TO BRACKET ON ALL FOUR SIDES.
5) BRACKET WITH NAME PLATE TO BE LOCATED AS MARKED IN DRG.
6) ** YEAR BUILT SHALL CORRESPOND TO DATE OF HYDROSTATIC TESTING & SHALL BE HARD PUNCHED AFTER SUCCESSFUL COMPLETION OF HYDRO TEST.
7) ALL HARD STAMPED FACE (BLOCK) SHALL BE RAISED FACE.
8) NATIONAL BOARD SYMBOL AND NATIONAL BOARD SERIAL NUMBER AS ADVISED BY HEAD-QUALITY SHALL BE HARD STAMPED IN PRESENCE OF AI AFTER OBTAINING HIS AUTHORIZATION.
9) DELETED.
10) DELETED.



⚠09 DETAIL OF NAME PLATE

NOTES:

(1) ** TO BE FILLED AFTER COMPILATION OF HYDRO TEST.
(2) ALL LETTERS & LETTER BLOCKS SHALL BE ENGRAVED IN BLACK.
(3) NAME PLATE SHALL BE RIVETED & TACK WELDED WITH BRACKET ON ALL FOUR SIDES (10mm LONG WELD).



GENERAL NOTES:

DESIGN:

D1) MECHANICAL DESIGN CALCULATION SHALL BE AS PER ASME SEC.VIII-DIV.1 ED. 2019.
D2) FUTURE MACHINING ALLOWANCE OF 1/8" PROVIDED FOR ALL FLANGE GASKET SEATING SURFACES.

MATERIAL:

M1) ALL PRESSURE PART CARBON STEEL SHALL BE FULLY KILLED CONDITION. ALL SS PLATES AND FORGINGS SHALL BE SUPPLIED IN SOLUTION ANNEALED AND PICKLED CONDITION.
M2) FOR CARBON STEEL THE CARBON CONTENT SHALL NOT EXCEED 0.23% AND THE CARBON EQUIVALENT (C.E.) SHALL BE 0.43 MAXIMUM WHERE,
CE = C + Mn/6 + {Cr+Mo+V}/5 + {Cu+Ni}/15.
M3) HARDNESS
a. LAS MATERIAL SHALL NOT EXCEED 225 BHN.
b. CS MATERIAL SHALL NOT EXCEED 200 BHN.
c. TUBE MATERIAL SHALL NOT EXCEED ROCKWELL HARDNESS C28
d. TUBESHEET MATERIAL SHALL NOT EXCEED 290 BHN.
M4) MATERIAL CERTIFICATION SHALL BE AS FOLLOWS
a. PRESSURE PARTS: EN 10204 TYPE 3.1 CERTIFICATE FOR AIR PRODUCTS APPROVED COUNTRIES AND TYPE 3.2 FOR NON APPROVED COUNTRIES.
b. NON PRESSURE PARTS : EN 10204 TYPE 3.1 CERTIFICATE FOR AIR PRODUCTS APPROVED COUNTRIES AND TYPE 3.2 FOR NON APPROVED COUNTRIES.
c. DELETED.
M5) DELETED.
M6) ALL NOZZLE FLANGES ARE AS PER ASME B 16.5-2013 FOR SIZES DN 600 (NPS 24) & BELOW.
M7) FLANGE FACING TO BE IN ACCORDANCE WITH ASME B 16.5 SURFACE FINISH: ROUGHNESS Ra 3.2 TO 6.3 µm (Ra 125 TO 250 µinch).
M8) DIMENSIONS OF GASKET FOR STD. NOZZLE FLANGES SHALL BE AS PER ASME B16.20-2017.
M9) SPARE QUANTITY
a. MANDATORY SPARE
i. GASKET: 200%
ii. FASTENERS: 10 % (MIN. 2)
M10) MATERIAL SHALL MEET THE REQUIREMENT OF TPS NO. LISTED BELOW.

SR. NO.	MATERIAL	TPS. NO.
1	SA-240 316L	H-2565-71_SA-240 TYPE316L_PL -REV-0
2	SA-182 F316L	H-2565-71_SA 182_F316L-FORG-REV-0
3	SA-965 F316L	H-2565-71_SA 965_F316L_FORG-REV-0
4	SA-516 GR 70	H-2565-71SA516 Gr 70_PL-REV-0
5	SA-105	H-2565-71_SA105 _ FORG-REV-0
6	SA-266 GR 2	H-2566-71_SA266GR2_FORG-REV-0
7	SA-106 GR B	H-2566-71_SA106B_PIPE-REV-0
8	SA 193 GR B7M	H-2566-71_SA193B7_STUDS-REV-0
9	SA 194 GR 2HM	H-2566-71_SA1942H_NUTS-REV-0
10	SA 789 UNS 32205	H-2570-71_SA789_TUBES-REV-0

M11) PAINT SYSTEM AS PER APPROVED PAINTING PROCEDURE & DOCUMENT NO. A8KM-PP-000-500520-A.
M12) CHARPY V NOTCH IMAPCT TEST EXEMPTED AS PER UHA-51 FOR SHELL SIDE AND UCS 66(a) FOR CHANELL PLATES,UCS-66(c) FOR STANDARD FORGINGS AND UCS 66 NOTE(c) FOR BOLT MATERIAL. HOWEVER,TS SHALL BE IMPACT TESTED AS PER ASTM A 923 B AND SHALL MEET THE CHARPY VALUE OF >54J AT -40°C.

FABRICATION:

F1) ALL DIMENSIONS ARE IN in (mm) UNLESS NOTED OTHERWISE. DIMENSIONS TOLERANCE SHALL BE AS PER API 660 AND TEMA CLASS R
F2) ALL THICKNESSES SPECIFIED ON THE DRAWING ARE MINIMUM AFTER FORMING AND MACHINING.
F3) ROLLING OF PLATES SHALL BE IN LONGITUDINAL DIRECTION OF PLATES.
F4) ALL SHARP EDGES AND CORNERS SHALL BE ROUNDED OFF TO SMOOTH RADIUS.
F5) RAW MATERIAL IDENTIFICATION SHALL BE CARRIED OUT AS PER APPROVED QAP.
F6) WELDING TO BE DONE AS PER THE APPROVED WELDING PROCEDURE AND WELD TEST PLAN.
F7) ALL FLANGE FACES & OTHER MACHINED SURFACES SHALL BE GREASED OR PROTECTED WITH RUST PREVENTIVE COATING.
F8) NOZZLES SHALL BE LOCATED SO THAT THE NOZZLE, NOZZLE TO VESSEL WELD, AND NOZZLE REINFORCEMENT ARE AT LEAST 50 MM FROM ALL PRESSURE CONTAINING SHELL AND HEAD WELDS.
F9) CIRCUMFERENTIAL WELDS SHALL HAVE A CLEARANCE OF AT LEAST ONE INCH (25MM) FROM WELDS AND OTHER CIRCUMFERENTIAL ATTACHMENTS.
F10) ALL VESSEL SEAMS SHALL BE LOCATED TO CLEAR ALL EXTERNAL AND INTERNAL PERMANENT ATTACHMENTS. THE DISTANCE FROM THE EDGE OF THE ATTACHMENT WELD TO THE EDGE OF MAIN WELD SHALL BE AT LEAST 50MM OR TWICE THE THICKNESS OF THE PRESSURE PART, WHICHEVER IS GREATER.
F11) ALL BOLT HOLES OF THE NOZZLE FLANGE SHALL STRADDLE CENTERLINE OF THE EQUIPMENT.
F12) ALL ATTACHMENTS DIRECTLY WELDED TO PRESSURE PARTS OF EQUIPMENT SHALL BE OF SAME MATERIAL AS THAT OF PRESSURE PART.
F13) THE MAX. ± DEVIATIONS FROM TRUE CIRCLE (E) MEASURED FROM A SEGMENTAL CIRCULAR TEMPLATE AS SHOWN BELOW.

PART	R	R	E
	mm	mm	mm
MAIN SHELL 18T	287.875	288.00	4.10
MAIN SHELL 10T	279.875	437.00	3.36
DISHED END	AS PER DISH PROFILE	242.00	3.22
CHANNEL SHELL 14T	283.875	228	3.24

F14) WELDING SHALL BE IN ACCORDANCE WITH THE SPECIFICATION A8KM-PP-000-50550-A "WELDING / NDE REQUIREMENTS FOR EQUIPMENT".
F15) EXTERNAL NOZZLE PROJECTION ARE FROM THE VESSEL CENTER LINE TO THE GASKET FACE OF FLANGE.
F16) ALL WELDS, INCLUDING TACK AND FIT UP WELDS, SHALL BE DONE WITH APPROVED PROCEDURES, MATERIALS AND CERTIFIED WELDERS / WELDING OPERATORS.
F17) THE FILLER METAL SHALL BE IN ACCORDANCE WITH PARAGRAPH 5.2.3, A8KM-PP-000-500530-A

INSPECTION AND TESTING :-

I1) ALL PRESSURE BEARING BUTT WELD JOINTS ON SHELL SIDE AND TUBE SIDE SHALL BE 100% RADIOGRAPHED AS PER UW-11(a).
I2) 100% MT/PT SHALL BE PERFORMED FOR ALL WELDS.
I3) DELETED.
I4) DELETED.
I5) WELDS JOINING NON-PRESSURE CONTAINING COMPONENTS TO PRESSURE CONTAINING COMPONENTS SHALL BE 100% LIQUID PENETRANT OR MAGNETIC PARTICLE EXAMINED (AFTER PWHT, WHEN PWHT IS REQUIRED). THIS APPLIES TO PERMANENT AND NON-PERMANENT (E.G., LIFTING LUGS, TRUNIONS, ETC.) ATTACHMENTS ON THE INSIDE AND OUTSIDE OF THE VESSEL.
I6) WHEN TEMPORARY ATTACHMENTS ARE REMOVED, THE AREA SHALL BE GROUND FLUSH WITH THE SURROUNDING SHELL SURFACE AND LIQUID PENETRATE OR MAGNETIC PARTICLE EXAMINED.
I7) LEAK TEST SHALL BE PERFORMED BEFORE CODE TESTING AS PER CLAUSE 3.13.1, SPEC-ENG-DOC002

HYDRO TEST

H1) PRESSURE TESTING SHALL BE COMPLETED BEFORE PRIMERS, PAINT, OR OTHER COATINGS ARE APPLIED.
H2) THE WATER USED FOR HYDROSTATIC TESTING FOR AUSTENITIC STAINLESS STEEL VESSELS SHALL BE CONDENSATE , DEMINERALIZED, OR POTABLE WITH A SOLUBLE CHLORIDE CONTENT OF LESS THAN 50 PARTS PER MILLION (PPM) BY VOLUME.
H3) THE WELDS OF WELDED ATTACHMENTS PROVIDED WITH VENT HOLES SHALL BE LEAK TESTED USING 15PSIG {1 KG/CM2 (G)} PNEUMATIC PRESSURE AND A BUBBLE FORMING SOLUTION PRIOR TO POSTWELD HEAT TREATMENT AND FINAL HYDROSTATIC TEST.
H4) THE VESSEL SHALL BE DRAINED AND THOROUGHLY DRIED IMMEDIATELY UPON THE COMPLETION OF PRESSURE TESTING. THE PROCEDURE FOR DRAINING THE TEST FLUID SHALL PREVENT DEVELOPMENT OF VACUUM PRESSURE WITHIN THE VESSEL OR ITS INTERNALS. THE PROCEDURE SHALL PREVENT DAMAGE TO OR DISLOCATION OF THE INTERNALS.
H5) THE HYDROSTATIC TEST PRESSURE SHALL BE HELD FOR AT LEAST 30 MINUTES.
H6) HOT AIR MAY BE USED FOR DRYING OF AUSTENITIC STAINLESS STEEL IF AND ONLY IF THE HYDROSTATIC TEST WATER HAS CHLORIDE CONTENT OF LESS THAN 1 PPM

TRANSPORTATION

T1) EQUIPMENT SHALL BE PURGED WITH NITROGEN AT 0.5 KG/CM2 (G) PRESSURE.
T2) EQUIPMENT ON TUBESIDE IS PWHT AND SHALL BE LABELED "TUBESIDE IS PWHT – DO NOT WELD."
T3) ADDITIONAL INDICATIONS SUCH AS NORTH/SOUTH/EAST/WEST ALONG WITH CENTER OF GRAVITY SHALL BE CLEARLY MARKED.

WELD JOINT NO.- E401 & E402

BILL OF MATERIAL

REV. NO.	SR. NO	DESCRIPTION	QTY/ ITEM	MATERIAL	SIZE	WT (kg)	REM.
					TOTAL WEIGHT kg :	10.40	
	-4	RIVET	4	ALLUMINIUM	ø5 x 25 LG	-	-
2	-3	NAME PLATE BRACKET	1	SA 240 GR 316L	6T x (321W) x 464 DEV LG	7	-
	-2	MFG'S NAME PLATE	1	SS 304	5T x 110W x 150 LG	1.4	-
	-1	ASME NAME PLATE	1	SS 304	5T x 130W x 190 LG	2	-
1	09	**NAME PLATE ASSLY**					

REFERENCE SPECIFICATIONS

SR. NO.	SPEC. NO.	DESCRIPTION	REV. NO.
1	A8KM-PP-000-500550-A	WELDING/NDE REQUIREMENTS FOR EQUIPMENT	0A
2	SPEC-ENG-DOC001	SUPPLIER-DESIGNED, SHOP-FABRICATED PRESSURE EQUIPMENT	0
3	4WPI-670210	BOLT-UP PROCEDURE FOR FLANGED CONNECTIONS	5
4	SPEC-ENG-MQ042	MATERIAL CERTIFICATION AND RETESTING REQUIREMENTS	0
5	4WGN-10001	SHIPMENT AND PACKING SPECIFICATION FOR EQUIPMENT AND MATERIALS BEING EXPORTED DIRECTLY BY VENDORS	6
6	A8KM-18-088-540321-A	MECHANICAL EQUIPMENT DATA SHEET FOR 18-X-261	D
7	A8KM-PP-000-20001-A	PLANT SITE DATASHEET	0
8	A8KM-PP-000-40002-A	STRUCTURAL DATA FOR MECHANICAL EQUIPMENT GENERAL	0
9	A8KM-PP-000-50720-A	SHELL AND TUBE HEAT EXCHANGERS	0
10	A8KM-PP-000-500512-A	POSITIVE MATERIAL IDENTIFICATION (PMI)	0
11	A8KM-PP-000-500520-A	PAINTING	D
12	A8KM-PP-000-500530-A	MATERIALS AND FABRICATION REQUIREMENTS FOR DUPLEX STAINLESS STEEL	0
13	A8KM-PP-000-50005-A	DESIGN OF LIFTING COMPONENTS FOR MECHANICAL EQUIPMENT	0

REV. NO.	DATE	DESCRIPTION	BY	CHD.	APPD.
2	28-03-22	REVISED AS PER CLIENT COMMENTS AS MARKED ⚠ & ISSUED FOR APPROVAL	SBL	KRK	BMP
1	22-12-21	REVISED AS PER CLIENT COMMENTS ISSUED FOR APPROVAL	SBP	DMP	DKB
0	05-10-21	ISSUED FOR APPROVAL	SBP	DMP	DKB

REVISIONS

CLIENT
WORLD ENERGY PARAMOUNT

EQUIPMENT OWNER
AIR PRODUCTS MANUFACTURING LLC

CONTRACT NO :

THE ANUP ENGINEERING LTD.
AHMEDABAD

EQUIPMENT OWNER:- AIR PRODUCTS MANUFACTURING LLC | AP DRAWING NO. : EN207121-ANUP-9V3-00028
P.O.NO. : 4505487159 | P.R.NO.:-

DRN.	SBP
CHD.	DMP
APPD.	DKB
DATE	02-10-2021
SCALE	1 : 18

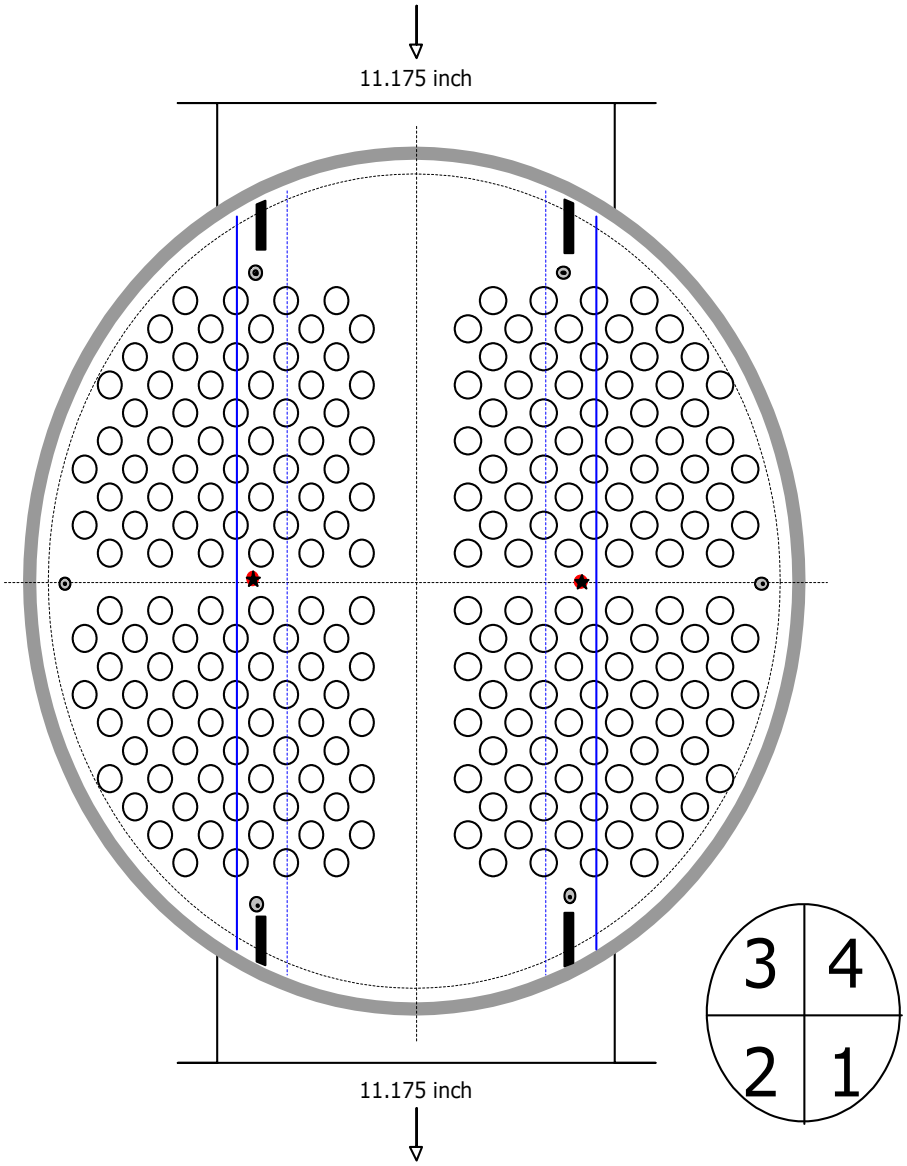
18-X-261 AMINE REGEN OVHD TRIM COOLER — ITEM NO. 18-X-261
NAME PLATE & GENERAL NOTES DETAIL — QTY ONE

MFR'S SERIAL No.: H-2570 | DRG. NO H-2570-FAD-2021 | SHEET NO. 4 OF 4 | REV. 0 1 2 | A1

ANUP JOB NO. H-2570

ORIGINAL FRAME SIZE 841 x 594 mm

Amine Energy OVHD Trim Cooler : 18-X-261
Rating - Horizontal Multipass Flow TEMA AEU Shell With Double-Segmental Baffles



Item number	18-X-261
TEMA type	AEU
Shell ID	21.250 inch
Actual OTL	20.557 inch
Height under inlet nozzle	21.250 inch
Height under outlet nozzle	3.1673 inch
Tube type	Plain
Tube OD	0.7500 inch
Tube pitch	1.0000 inch
Tube layout angle	45 deg
Tubes	220
Tube positions available	220
Tie rods	6
Seal strip pairs	2
Passlane seal rods	2
Tube Passes	4
Parallel passlane width	0.6875 inch
Perpendicular passlane width	2.2500 inch
Baffle cut % diameter	26.3

TUBEPASS DETAILS

Pass	Rows	Tubes
1	10	55
2	10	55
3	10	55
4	10	55

SYMBOL LEGEND
- Tube
- Dummy Short Tube
- Dummy Long Tube
- Plugged Tube
- Tie Rod
- Seal Rod
- Impingement Rod