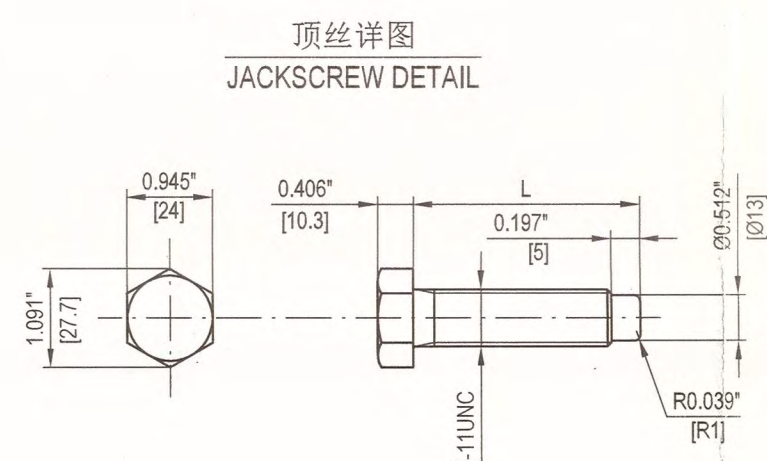
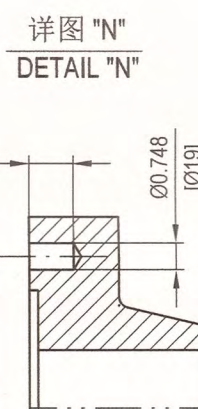
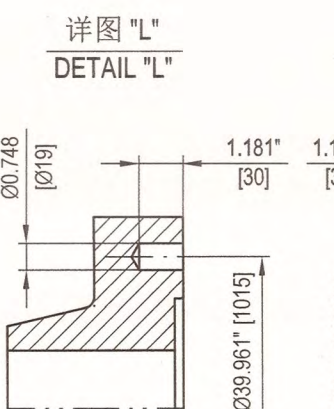
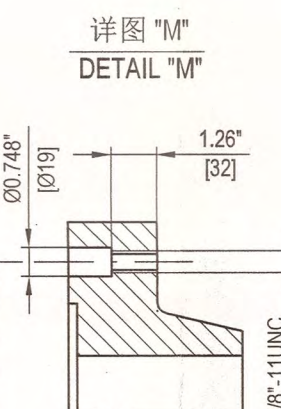
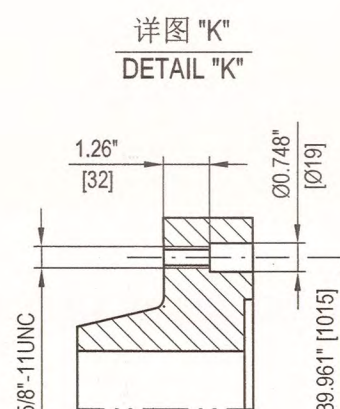
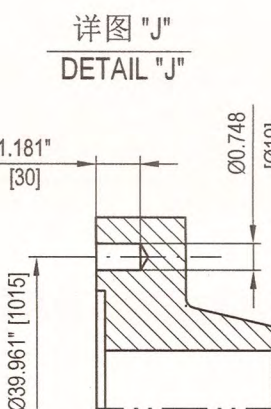
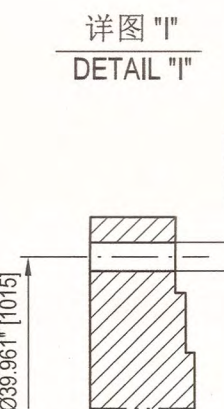
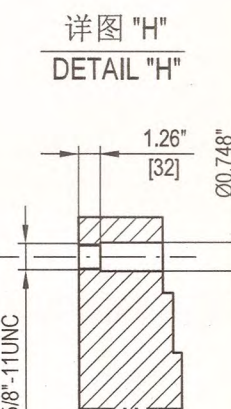
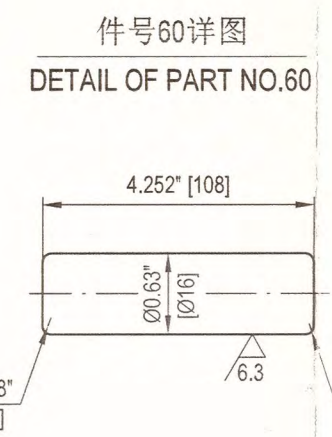
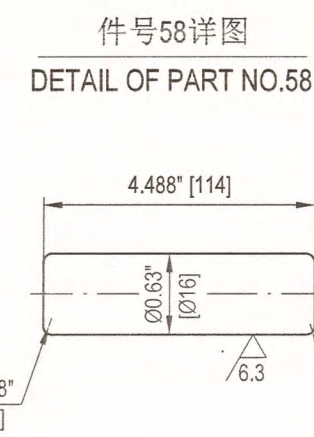
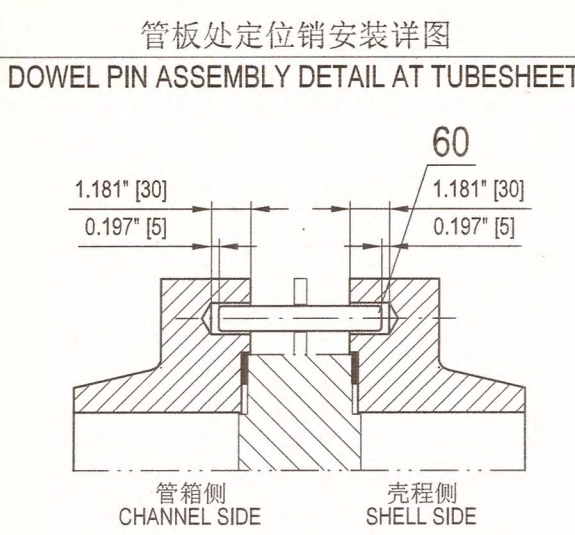
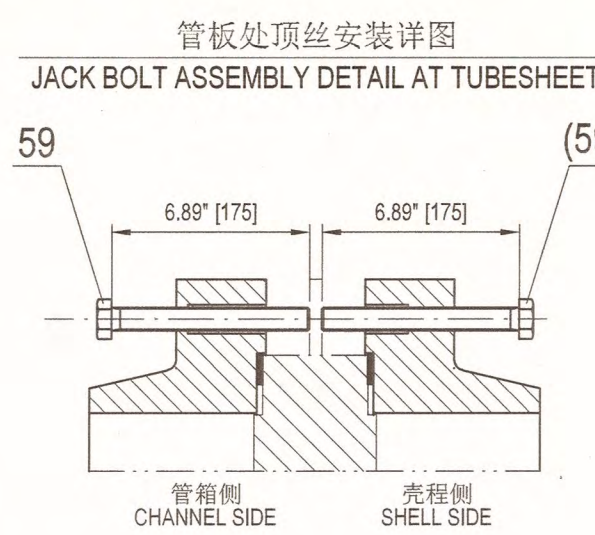
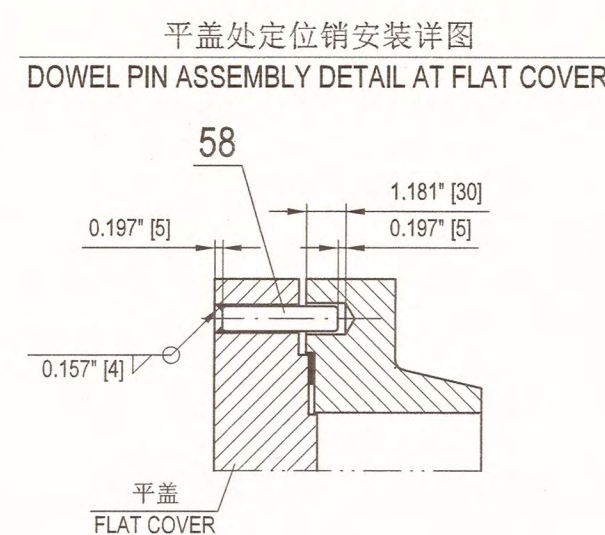
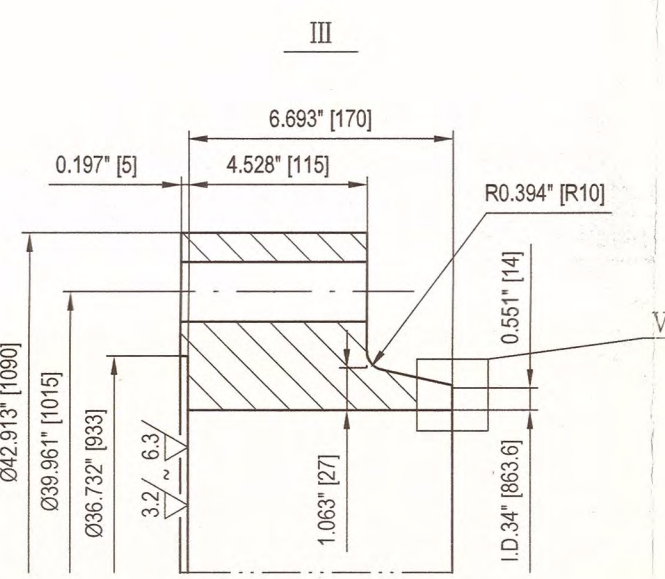
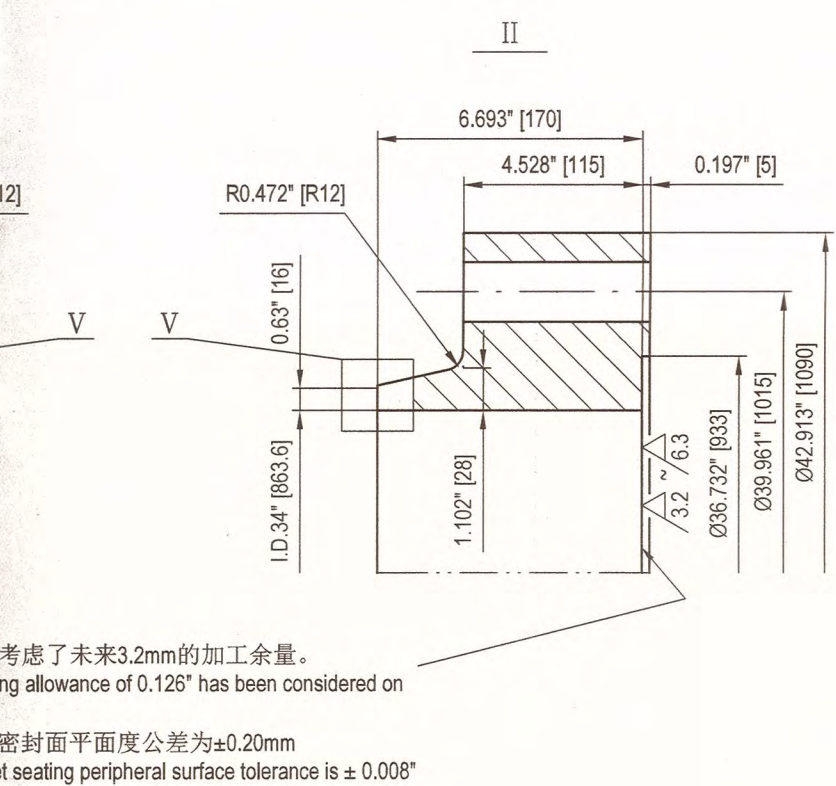
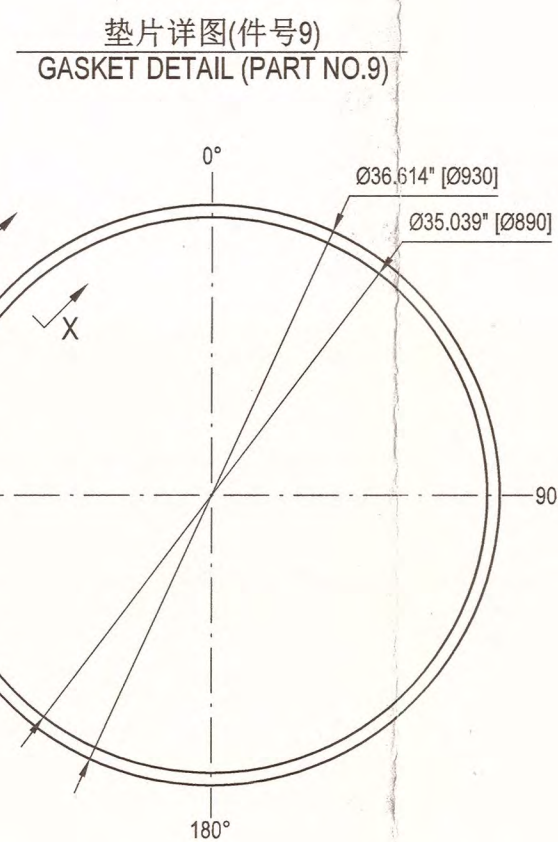
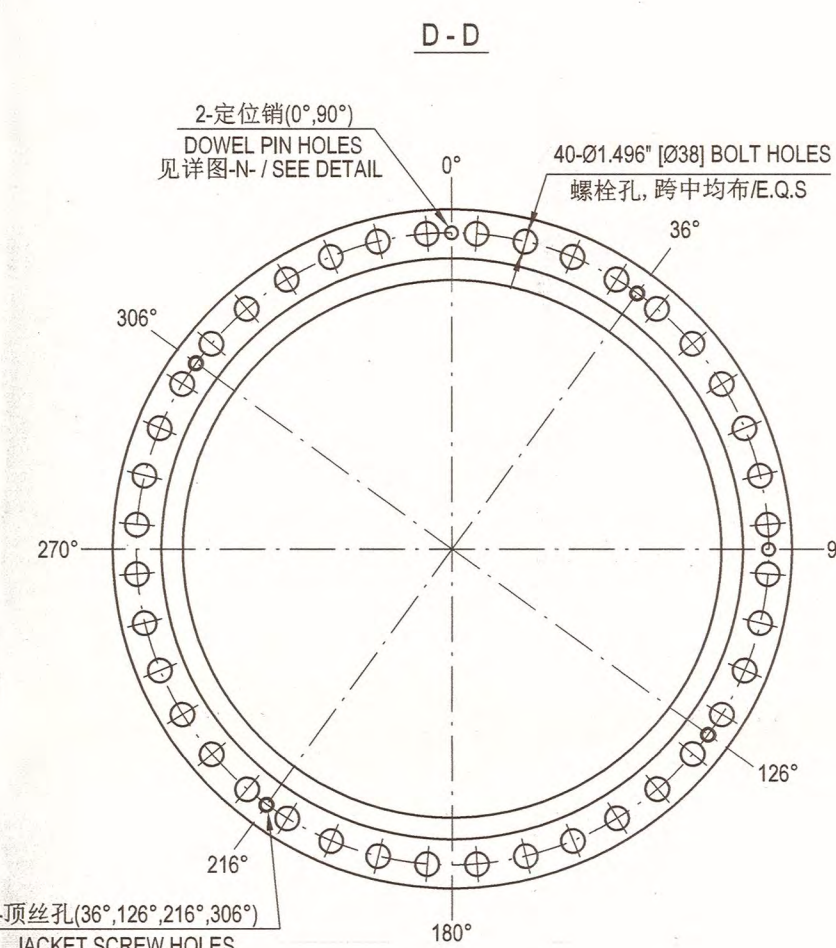
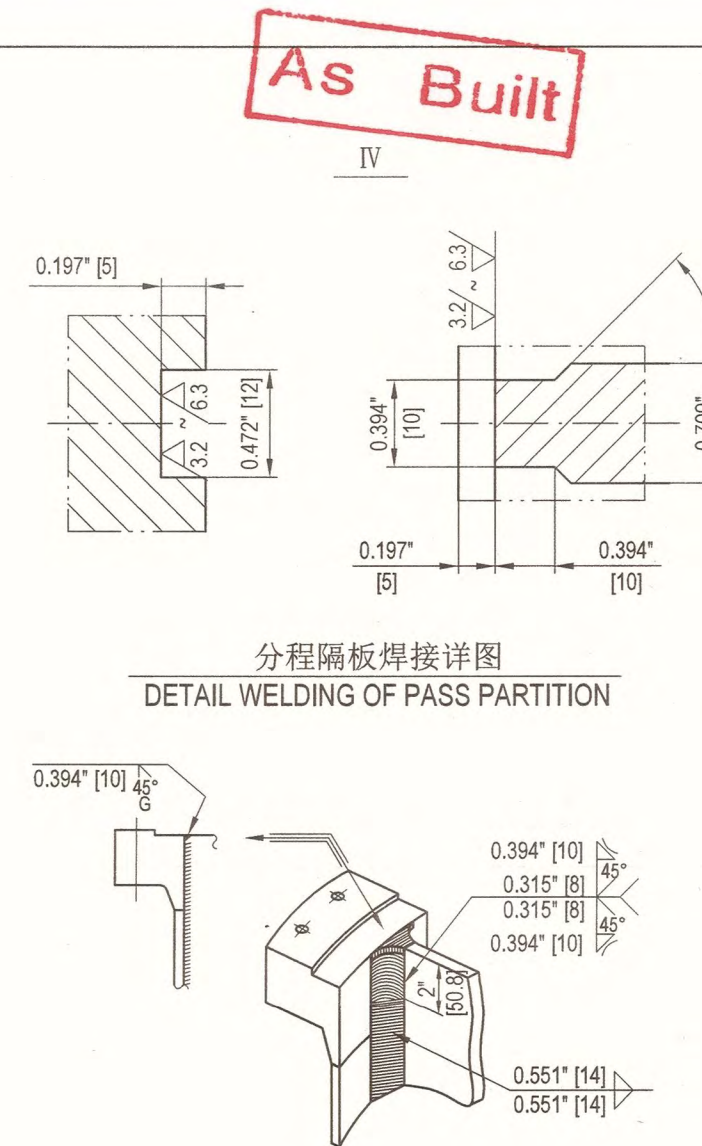
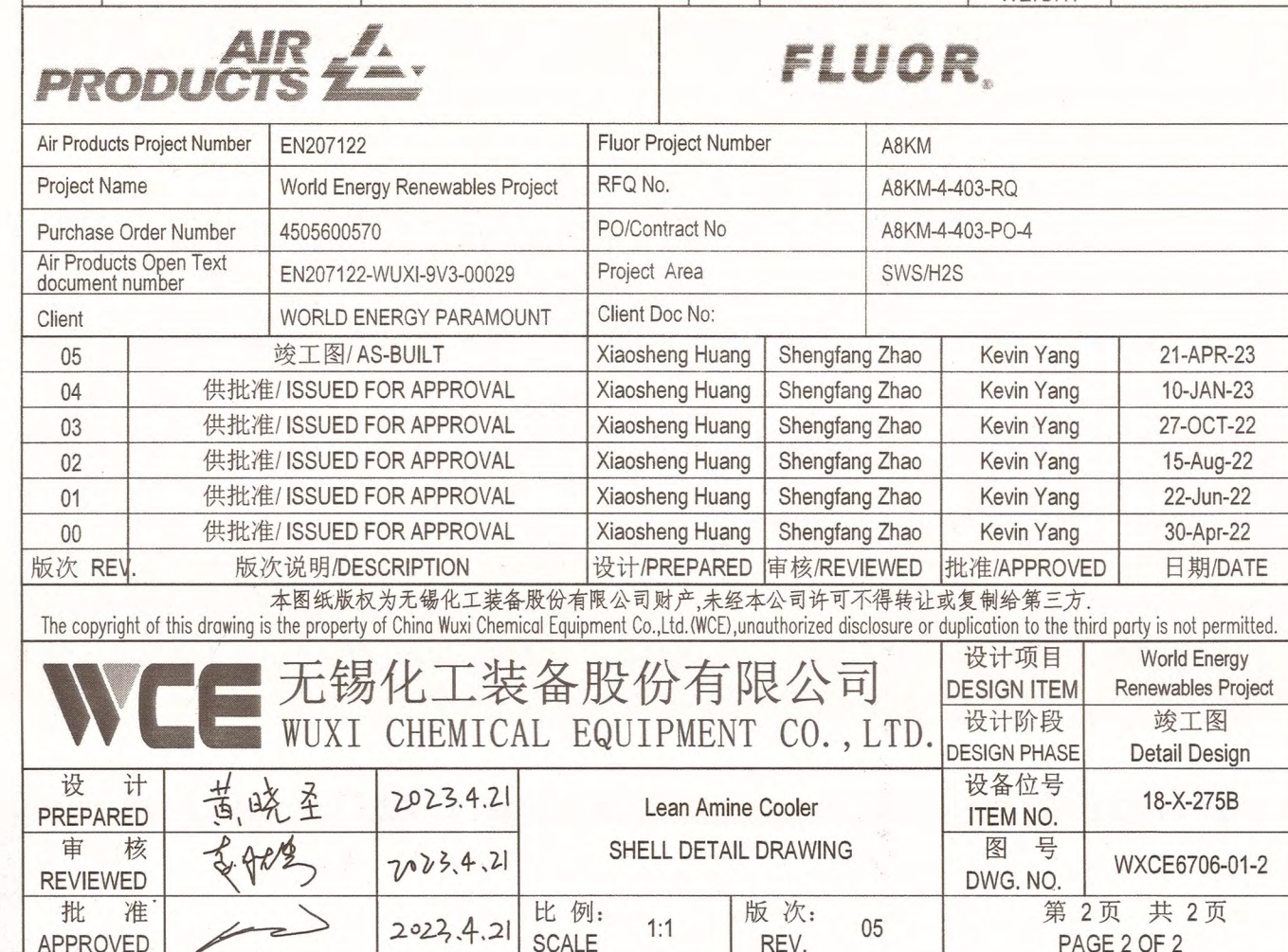
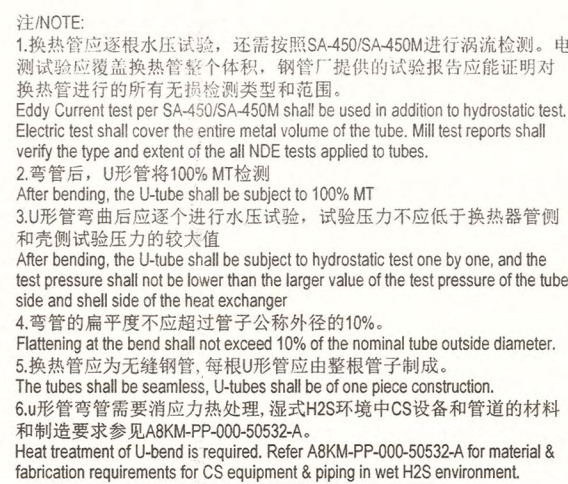


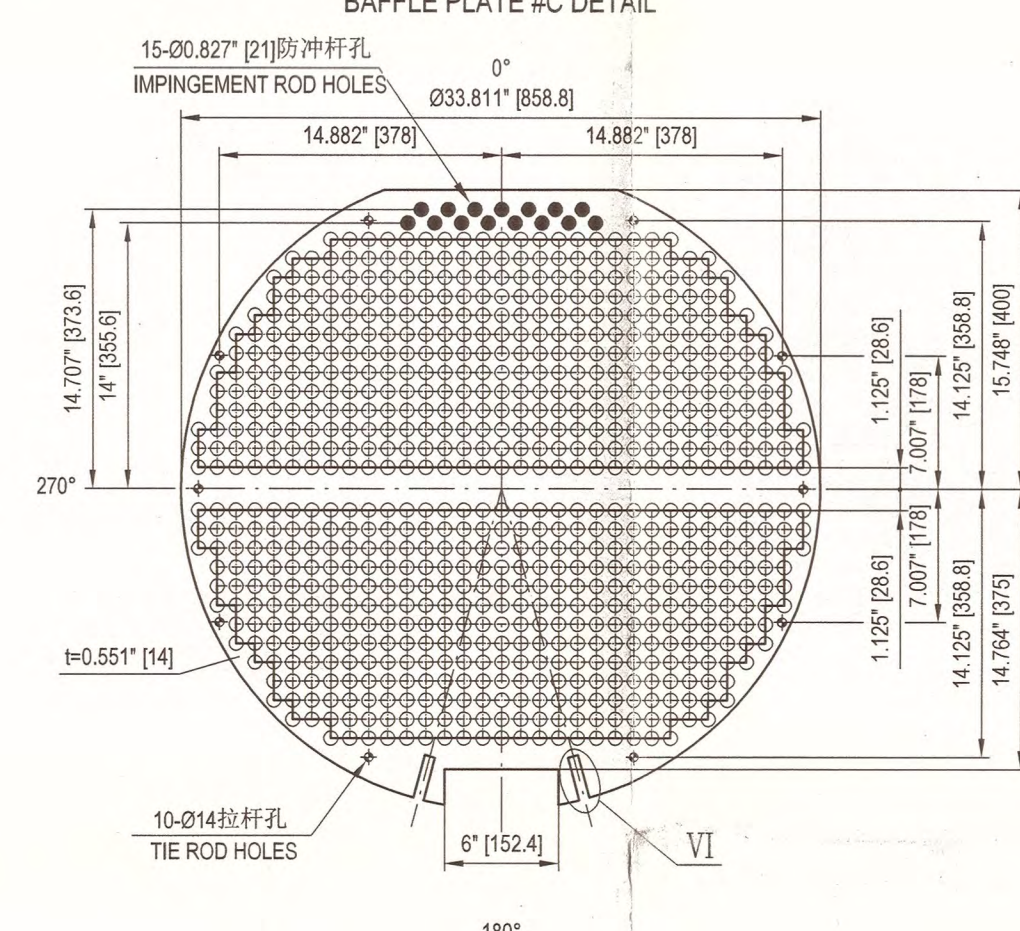
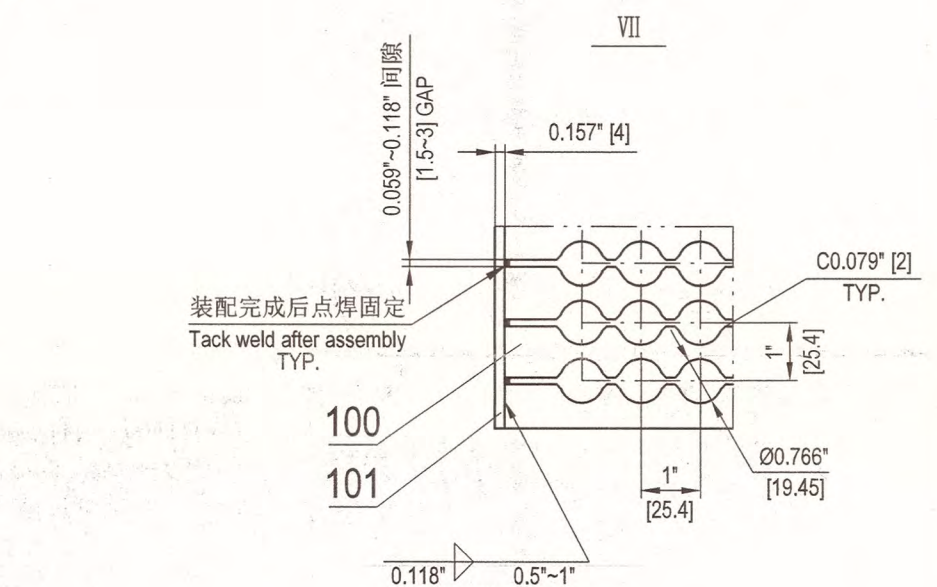


							TOTAL : 3630 kg	
60		定位销 DOWEL PIN	2	SA-479 304	0.2	0.4		
59		顶丝 5/8"-11UNC L=175 JACKSCREW	8	SA-479 304	0.4	3.2		
58		定位销 DOWEL PIN	2	SA-479 304	0.2	0.4		
57		顶丝 5/8"-11UNC L=125 JACKSCREW	4	SA-479 304	0.3	1.2		
56		分程隔板 1#18 PASS PARTITION	1	SA-516 Gr.70N		105		
55		2-1 椭圆形头 ID863.6X14 2-1 ELLIPTICAL HEAD	1	SA-516 Gr.70N		105		After forming: 12
54		壳体 ID.863.6X14 L=4181.1 SHELL	1	SA-516 Gr.70N		1268		
53	ASME PCC-1- 2019 APPENDIX M	硬质圆垫圈 1 3/8" HARDENED CIRCLE WASHER	80+8	TYPE 1	/	/		
52	ASME B18.2.2-2022	重型六角螺母 1 3/8"-8UN-2B HEX HEAVY NUTS	160+16	SA-194 Gr.2HM	0.3	48.0		
51	ASME B18.2.1-2012 (R2021)	全螺纹螺栓 1 3/8"-8UN-2A L=480 FULL THREADED STUD BOLTS	40+4	SA-193 Gr.B7M	3.6	144		
50		壳程法兰 SHELL FLANGE	1	SA-266 Gr.2N		307		
49		壳程法兰垫片 SHELL FLANGE GASKET	1+2	见注 1/See note 1		重 量 (kg)		
48		管箱法兰 CHANNEL FLANGE	1	SA-266 Gr.2N		307		
47		管箱筒体 ID.863.6X16 L=560 CHANNEL SHELL	1	SA-516 Gr.70N		194		
46	ASME PCC-1- 2019 APPENDIX M	硬质圆垫圈 1 1/4" HARDENED CIRCLE WASHER	80+8	TYPE 1	/	/		
45	ASME B18.2.2-2022	重型六角螺母 1 1/4"-8UN-2B HEX HEAVY NUTS	160+16	SA-194 Gr.2H	0.3	48.0		
44	ASME B18.2.1-2012 (R2021)	全螺纹螺栓 1 1/4"-8UN-2A L=385 FULL THREADED STUD BOLTS	40+4	SA-193 Gr.B7	2.5	100		
43		管箱法兰 CHANNEL FLANGE	1	SA-266 Gr.2N		307		
42		管程法兰垫片 CHANNEL FLANGE GASKET	2+4	见注 1/See note 1		/		
41		平盖 FLAT COVER	1	SA-266 Gr.2N		732		
件号	图号或标准号	名 称	数 量	材 料	单件重量(kg)	TOTAL WEIGHT	备 注	
PART NO.	DWG. NO. OR STD. NO.	DESIGNATION	QTY.	MATERIAL	WEI(kg)	REMARKS		

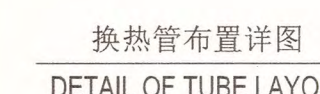
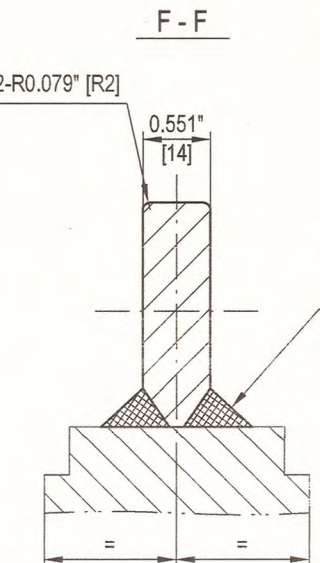




NO.	字 号	弯曲半径(R)(mm)	中心拱起长度(L)(mm)	数量 QTY.	单重(KG)	总重(TOTAL WEIGHT)	是否段内应用 SR FOR BENDING AREA
1	2	BENDING (R)	LENGTH (L)		UNIT WEIGHT		
1	1.125" (28.0)	315.551" (8015)	31	7.1	233	YES/NO	
2	1.250" (31.8)	318.701" (8096)	33	7.1	235	YES/NO	
3	1.3125" (39.4)	321.850" (8175)	33	7.2	238	YES/NO	
4	1.425" (104.8)	324.961" (8255)	31	7.3	225	YES/NO	
5	1.525" (130.2)	328.110" (8334)	31	7.3	228	YES/NO	
6	1.625" (155.6)	331.260" (8414)	31	7.4	230	YES/NO	
7	1.725" (181)	334.409" (8494)	29	7.5	217	YES/NO	
8	1.825" (206.4)	337.559" (8574)	29	7.6	219	YES/NO	
9	1.925" (231.8)	340.699" (8654)	29	7.6	221	YES/NO	
10	1.1025" (282.6)	343.819" (8733)	25	7.7	192	YES/NO	
11	1.125" (282.6)	346.969" (8813)	25	7.8	194	YES/NO	
12	1.125" (308.0)	350.119" (8893)	23	7.8	180	YES/NO	
13	1.125" (323.5)	353.269" (8973)	19	7.9	150	YES/NO	

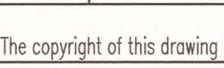
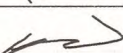


VI



101		扁钢 50X4 BAR	1	SA-516 Gr.70N		2.0	
100		挡条 t=10 BAFFLE STRIPS	1	SA-516 Gr.70N		11.0	
99		防冲杆 Ø20 IMPINGEMENT RODS	15	SA-36	1.2	18.0	
98		滑道 t=14 SLIDING STRIPS	2	SA-516 Gr.70N	25.5	51.0	
97		顶丝板 t=14 JACKET SCREW PLATE	4	SA-516 Gr.70N	0.4	1.6	
96		定位销板 t=14 DOWEL PIN PLATE	2	SA-516 Gr.70N	0.4	0.8	
95		螺塞 PLUGS	4	SA-105	0.5	2.0	
94	CROSBY S-279	吊环螺栓 1"-8UNC L=40 EYE BOLT	4	SA-105	1.0	4.0	
93	ASME B18.2.2-2002	六角螺母 1/2"-13UNC-2B HEX NUT	20	SA-36	0.05	1.0	

92		拉杆 Ø13 L=3910 TIE RODS	10	SA-36	4.1	41.0	
91		支撑板#C 14 SUPPORT BAFFLE #C	1	SA-516 Gr.70N		27.0	
90		定距管 Ø19.05X2.11 L=320.2 SPACERS	8	SA-179	0.28	2.2	
89		定距管 Ø19.05X2.11 L=852.9 SPACERS	2	SA-179	0.58	1.2	
88		定距管 Ø19.05X2.11 L=855.5 SPACERS	16	SA-179	0.58	9.3	
87		折流板#B 10 BAFFLE #B	5	SA-516 Gr.70N	23.1	116	
86		折流板#A 10 BAFFLE #A	5	SA-516 Gr.70N	23.1	116	
85		定距管 Ø19.05X2.11 L=322.7 SPACERS	54	SA-179	0.28	15.1	
84		定距管 Ø19.05X2.11 L=846.5 SPACERS	2	SA-179	0.75	1.5	
		定距管 Ø19.05X2.11 L=513.7 SPACERS	8	SA-179	0.45	3.6	
82		换热管 Ø19.05X2.11 (Min) TUBES	369U	SA-179		2747	(SEALMESS)
81		管板 TUBESHEET	1	SA-266 Gr.2N		248	

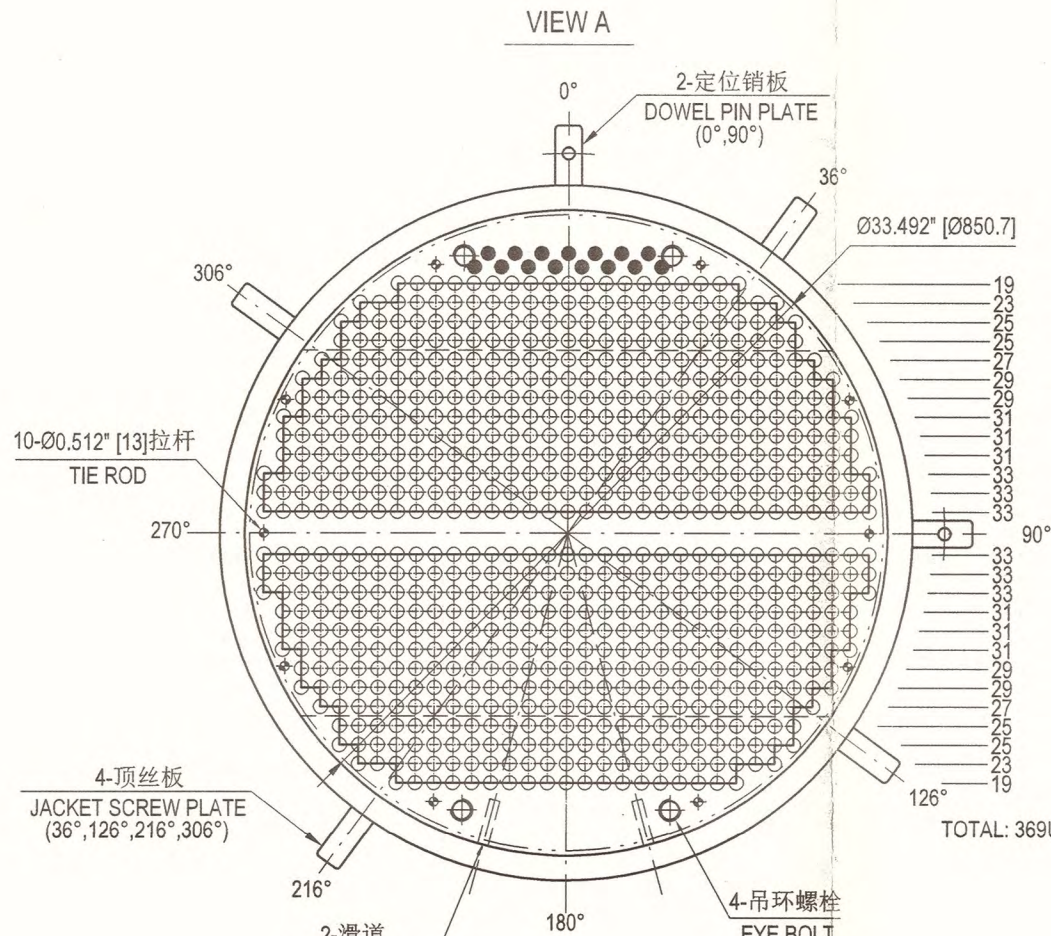
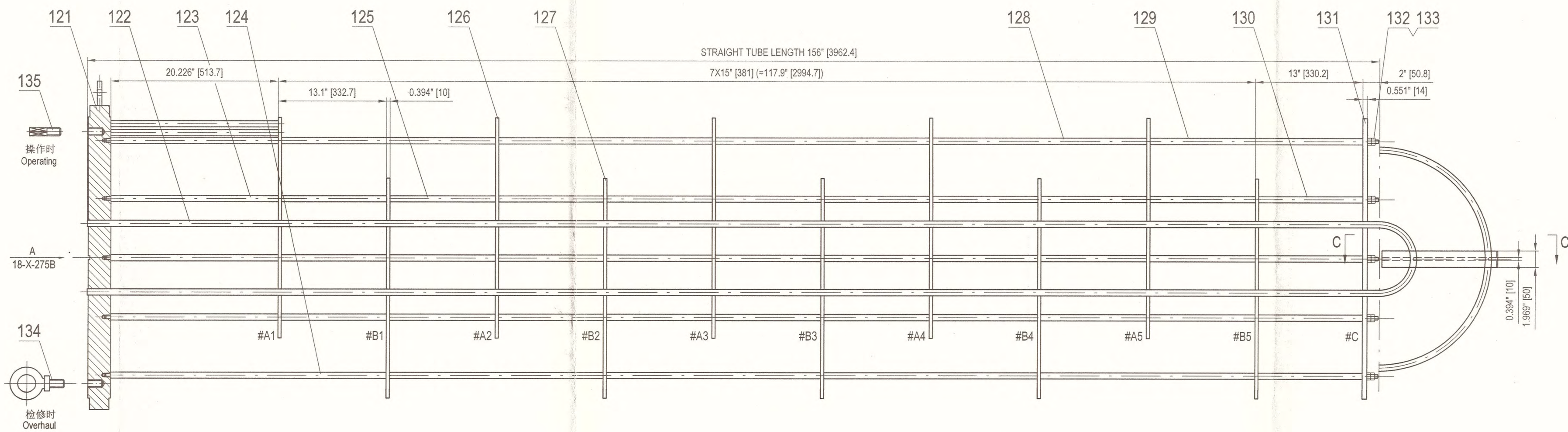
件号	图号或标准号	名称	数量	材料	重量(Kg)	备注
PART NO.	DWG. NO. OR STD. NO.	DESIGNATION	QTY.	MATERIAL	WEIGHT	REMARKS
						
Air Products Project Number		EN207122	Fluor Project Number		AK8M	
Project Name		World Energy Renewables Project	RFQ No.		AK8M-4.403-R0	
Purchase Order Number		4505600570	PO/Contract No.		AK8M-4.403-PO-4	
Air Products Open Text document number		EN207122-WUJ-SV3-00029	Project Area		SWSHS2S	
Client		World Energy PARAMOUNT	Client Doc No:			
05	竣工图/AS-BUILT		Xiaosheng Huang	Shengfang Zhao	Kevin Yang	21-APR-23
04	供批准/ISSUED FOR APPROVAL		Xiaosheng Huang	Shengfang Zhao	Kevin Yang	10-JAN-23
03	供批准/ISSUED FOR APPROVAL		Xiaosheng Huang	Shengfang Zhao	Kevin Yang	27-OCT-22
02	供批准/ISSUED FOR APPROVAL		Xiaosheng Huang	Shengfang Zhao	Kevin Yang	15-AUG-22
01	供批准/ISSUED FOR APPROVAL		Xiaosheng Huang	Shengfang Zhao	Kevin Yang	22-JUN-22
00	供批准/ISSUED FOR APPROVAL		Xiaosheng Huang	Shengfang Zhao	Kevin Yang	30-APR-22
版次 REV.		版次说明/DESCRIPTION	设计/PREPARED	审核/REVIEWED	批准/APPROVED	日期/DATE
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			设计项目 DESIGN ITEM 设计阶段 DESIGN PHASE		World Energy Renewables Project 竣工图 Detail Design	
设计 PREPARED	曹晓至	2023.4.21	Lean Amine Cooler		设备位号 ITEM NO.	
审核 REVIEWED	李树强	2023.4.21	BUNDLE DETAIL DRAWING		18-X-275A	
批准 APPROVED		2023.4.21	比例 SCALE	1:1	版次 REV.	05
					DWG. NO. WXC68706-02-1	
					第 1 页 共 2 页 Page 1 of 2	

As Built

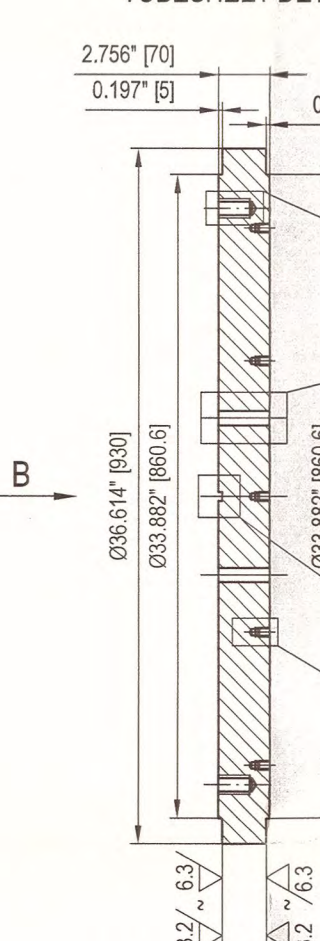
注NOTE:
1.换热器应做水压试验, 还应按照SA-450/SA-450M进行涡流检测。电
测试验应覆盖换热器整个体积。制管厂提供的试验报告应能证明对
换热器进行的所有无损检测类型和范围。
Eddy Current test per SA-450/SA-450M shall be used in addition to hydrostatic test.
Electric test shall cover the entire metal volume of the tube. Mill test reports shall
verify the type and extent of the all NDE tests applied to tubes.
2.弯管后, U形管应进行100% MT检测。
After bending, the U-tube shall be subjected to hydrostatic test one by one, and the
test pressure shall not be lower than the larger value of the test pressure of the tube
side and shell side of the heat exchanger.
3.U形管弯曲后应逐个进行水压试验, 试验压力不得低于换热器管侧
和壳侧试验压力的较大值。
After bending, the U-tube shall be subjected to hydrostatic test one by one, and the
test pressure shall not be lower than the larger value of the test pressure of the tube
side and shell side of the heat exchanger.
4.弯管的扁平度不得超过管子公称外径的10%。
Flattening at the bend shall not exceed 10% of the nominal tube outside diameter.
5.多条管束应无支撑制作, 每根管束应设置管子制。
The tubes shall be seamless. U-tubes shall be of one piece construction.
6.弯管等管束应进行应力热处理, 需符合ASME中CS设备和管道的材料
和制造要求。见ASME-PP-000-5032-A。
Heat treatment of U-tube is required. Refer ASME-PP-000-5032-A for material &
fabrication requirements for CS equipment & piping in well H2S environment.

换热管尺寸表 TUBES CHART

序号 NO.	弯曲半径R(mm) BENDING R(mm)	单根展开长度(mm) TOTAL LENGTH	数量 QTY.	单重(Kg) UNIT WEIGHT	总重(Kg) TOTAL WEIGHT	弯管段消应力 SR FOR BENDING AREA
1	1.125" [28.6]	315.55" [8015]	33	7.1	233	YES/要
2	2.125" [54.0]	316.70" [8039]	33	7.1	235	YES/要
3	3.125" [79.4]	321.85" [8175]	33	7.2	238	YES/要
4	4.125" [104.8]	324.96" [8255]	31	7.3	225	YES/要
5	5.125" [130.2]	328.11" [8334]	31	7.3	228	YES/要
6	6.125" [155.6]	331.26" [8414]	31	7.4	230	YES/要
7	7.125" [181]	334.40" [8494]	29	7.5	217	YES/要
8	8.125" [206.4]	337.55" [8574]	29	7.6	219	YES/要
9	9.125" [231.8]	340.69" [8654]	27	7.6	206	YES/要
10	10.125" [257.2]	343.81" [8733]	25	7.7	192	YES/要
11	11.125" [282.6]	346.96" [8813]	25	7.8	194	YES/要
12	12.125" [308.0]	350.11" [8893]	23	7.8	180	YES/要
13	13.125" [333.4]	353.26" [8973]	19	7.9	150	YES/要

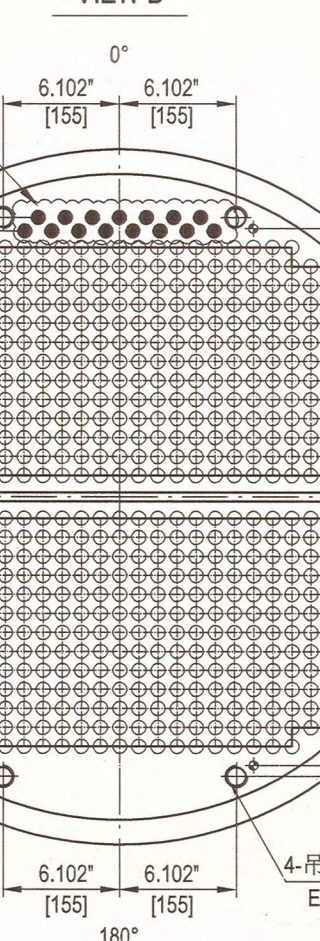


管板详图
TUBESHEET DETAIL

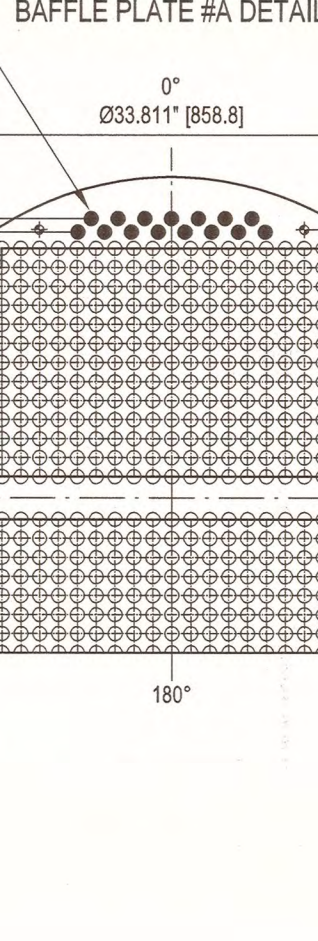


注: 在垫片密封面两侧都考虑了未
来0.125"的加工余量。
Note: Stating future machining allowance of
0.125" has been considered on both side of
gasket sealing face.

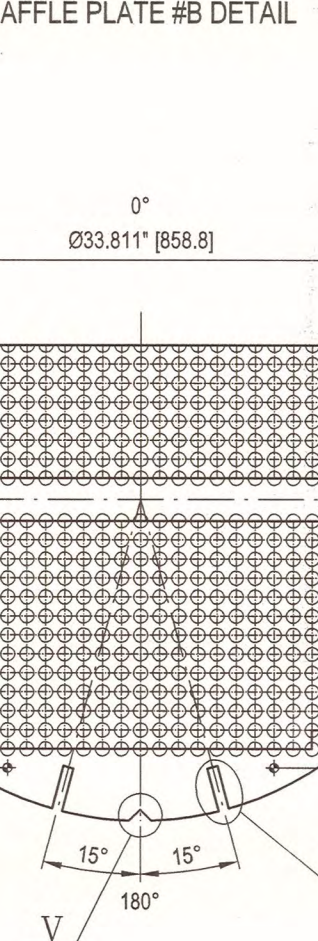
折流板#A详图
BAFFLE PLATE #A DETAIL



折流板#B详图
BAFFLE PLATE #B DETAIL



折流板#C详图
BAFFLE PLATE #C DETAIL



管板详图
TUBESHEET DETAIL

