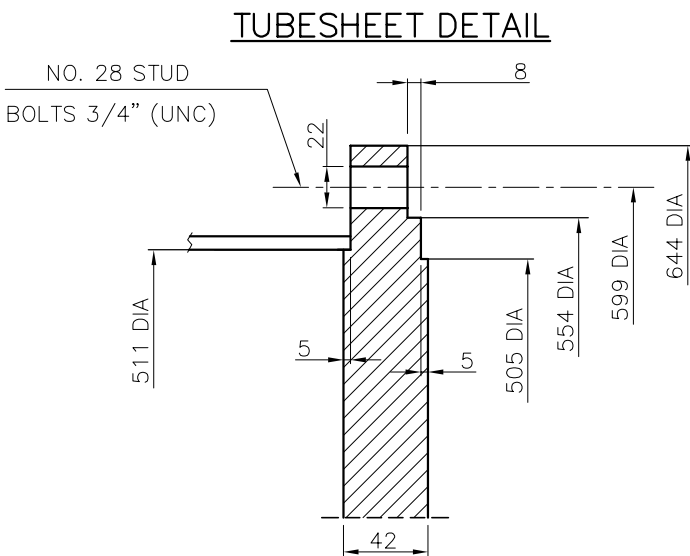
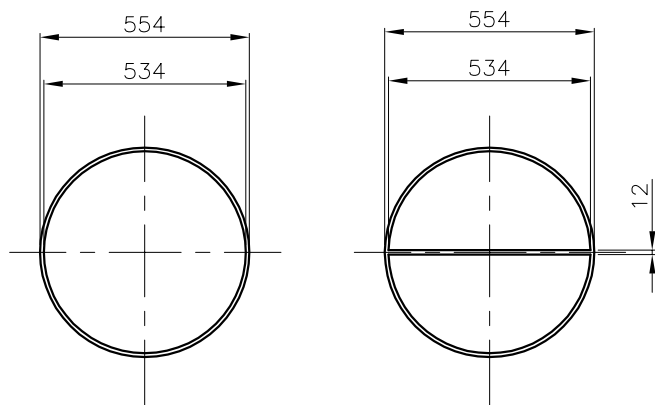
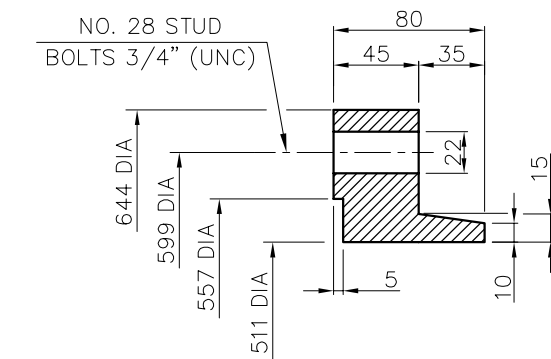
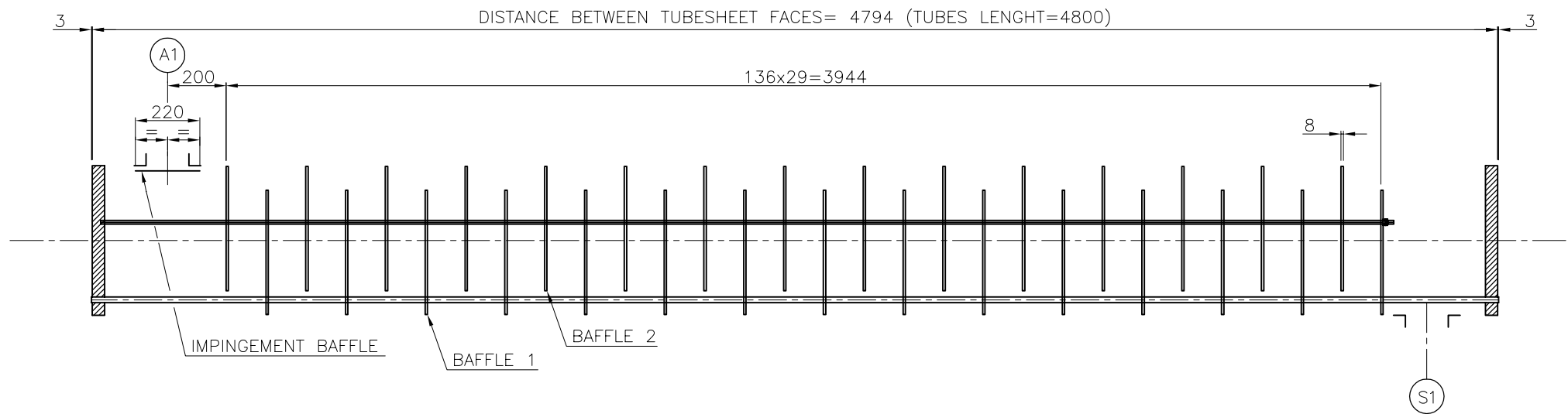


NOZZLE LIST											MATERIALS				DESIGN DATA								
MARK	NB	DESIGNATION	STAND OUT	PIPES/NECKS		FLANGES			REINF.		NOTE	SHELL		SERVICE		FEED PREHEATER (DESIGN CASE)							
				ND/BD	THK/SCH	TYPE	RAT.	FACE	THK.	WIDTH		BARREL		DESIGN CODE	ASME VIII DIV.1, TEMA R								
A1	1	SHELL INLET	520	6"	- /80	W.N.	300	R.F.	-	-	(6)	BARREL	A516 GR 60										
S1	1	SHELL OUTLET	520	6"	- /80	W.N.	300	R.F.	-	-	(6)	FLANGES	-										
E1	1	SHELL VENT	465	2"	- /160	W.N.	300	R.F.	-	-	(6)	NOZZLE FROM PIPE/PLATE	A333 GR 6/A516 GR 60										
A2	1	CHANNEL INLET	465	3"	- /160	W.N.	300	R.F.	-	-	(6)	NOZZLE FLANGES/COUPLINGS	A350 LF2										
S2	1	CHANNEL OUTLET	465	2"	- /160	W.N.	300	R.F.	-	-	(6)	NOZZLE REINFORCEMENT PAD	A516 GR 60										
E2	1	CHANNEL VENT	465	2"	- /160	W.N.	300	R.F.	-	-	(6) ⚠	SADDLES	A285 GR C										
D2	1	CHANNEL DRAIN	465	2"	- /160	W.N.	300	R.F.	-	-	(6) ⚠	SADDLES WEAR PLATES	A516 GR 60										
												EXPANSION JOINT	-										
												SHELL COVER		OPERATING TEMPERATURE IN/OUT		°C	90/86.24	⚠	15/64	⚠			
												COVER		OPERATING PRESSURE		borg	3		5.7				
												FLANGES		DESIGN TEMPERATURE		°C	280		280/280				
														DESIGN PRESSURE		borg	7.5		11.2/F.V.				
												CHANNEL		M.D.M.T.		°C	-27		-27				
												BARREL		SHOP TEST PRESSURE		borg	9.8		14.6				
												FLANGES		INSULATION TYPE/THICKNESS		mm	P.P./50		P.P./50				
												COVER		CORROSION ALLOWANCE		mm	3.2		3.2				
												FLAT COVER		IMPACT TEST			AS PER CODE		AS PER CODE				
												NOZZLE FROM PIPE/PLATE		JOINT EFFICIENCY			0.85		0.85				
												NOZZLE FLANGES/COPLINGS		RADIOGRAPHY			SPOT		SPOT				
												NOZZLE REINFORCEMENT PAD		STRESS RELIEVING			NO		NO				
												PARTITION PLATE		BASIC WIND SPEED (Km/h)/EXPOSURE/IW			160 @10m/D/1						
												TUBE BUNDLE		EARTHQUAKE/SOIL TYPE/I			ZONE 4/Sd/1.25						
												TUBES		EQUIPMENT PAINTING			(8)						
												TUBESHEET		FIREPROOFING FOR SUPPORT/ THICKNESS			NO						
												BAFFLES/SUPPORTS/IMPINGMENT PLATE											
												TIE RODS/SPACER											
												BOLTS AND NUTS											
												SHELL/COVER		LOADING DATA AT BASE		⚠							
												SHELL/CHANNEL		MAX. OPERATING			34.2		37.2		EARTHQUAKE		WIND
												CHANNEL/COVER		WEIGHT (KN)			10.5		0.5		10.5		2.3
														SHEARING LOAD (KN)			5		0.2		5		1.1
														MOMENT (KN.m)									
														REFERENCE SPECIFICATIONS		REFERENCE DOCUMENTS							
														NUMBER		NUMBER							
														⊠ 1705-41-SP-ENG-901		⊠ 1705-41-DT-ENG-830							
														⊠ 1705-41-RP-ENG-907									
														⊠ 1705-41-SP-ENG-302									
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														⊠ 1705-41-SP-ENG-304									
														□ 1705-41-SP-ENG-305									

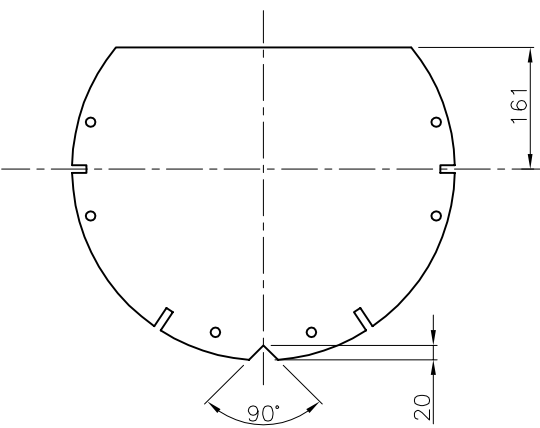


2								
1	12/11/05	IFA	S.M.	H.S. AR.N.	A.KH.			
0	02/10/05	IFC	M.A.	H.S. AR.N.	A.KH.			
REV.	DATE	DESCRI.	DRWN.	CHK.	APP.	CHK.	APP.	APP.
			SUBCONTRACTOR			CONTRACTOR		OWNER
 TABRIZ PETROCHEMICAL CO.		HIPS II (LINE D) PRODUCTION PLANT TABRIZ PETROCHEMICAL CO.						
 S.P.I.R.E.		<u>DRAWING TITLE:</u> ENGINEERING DWG. 41-E-201 (FEED PREHEATER (DESIGN CASE))					 P.I.R.E. Co.	
UNIT:D	DISC: MEC			SCALE:1:10		DWG. SIZE: A3		
DWG.NO:1705-41-DT-ENG-940					SH:2 OF 3		REV:1	

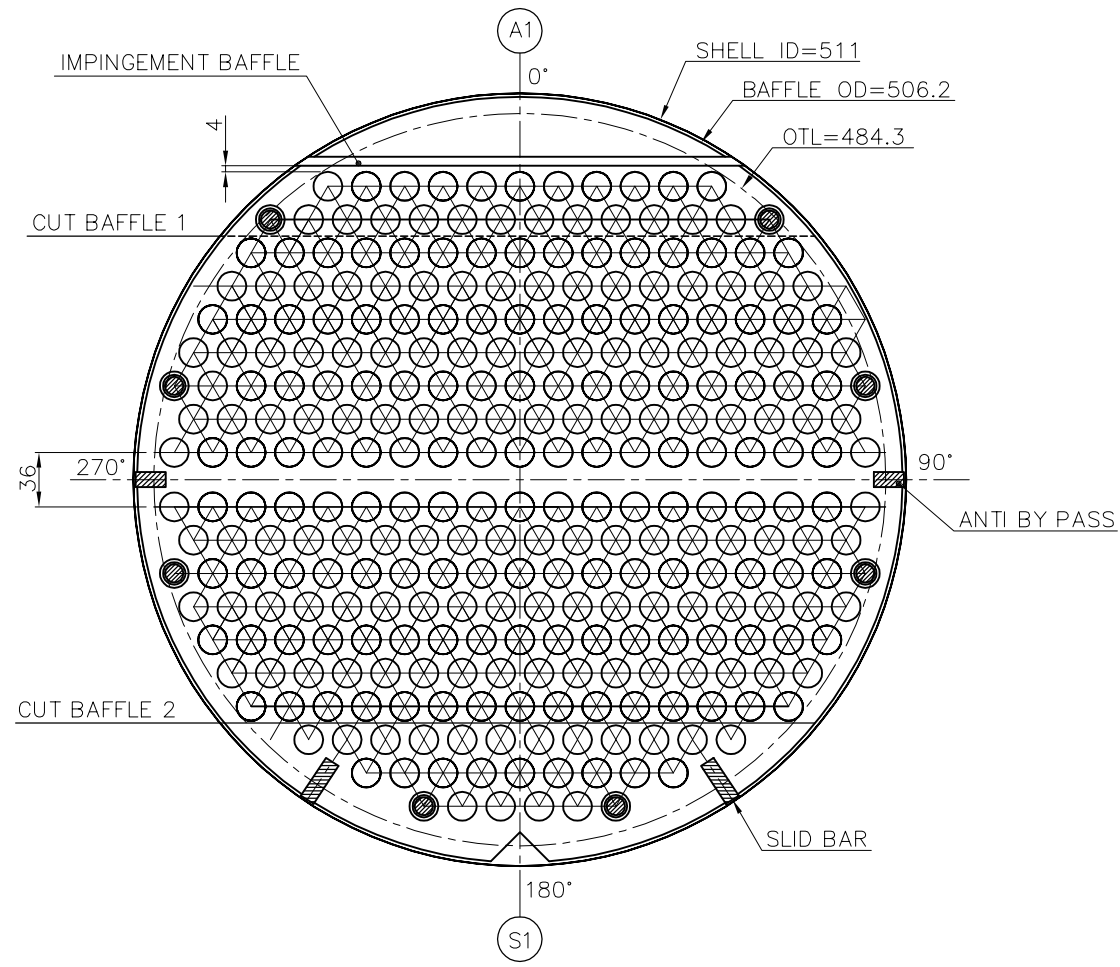
BUNDLE LAY-OUT



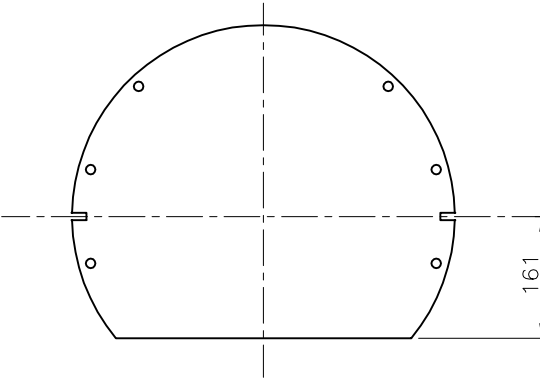
BAFFLE (1) DETAIL



CROSS BUNDLE LAY-OUT

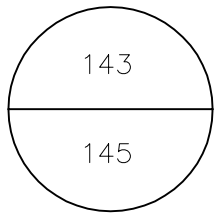


BAFFLE (2) DETAIL

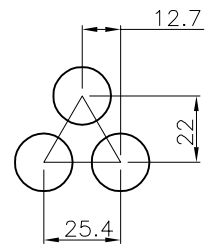


- 8 TIE RODS 12 DIA.
- 8 SPACERS 19.05 DIA., 2.11 THK.
- 2 ANTI BY PASS 20x10.
- 2 SLIDS BAR 30x10.
- 1 IMPINGEMENT BAFFLE 6 THK.

TOTAL NUMBER OF TUBES=288



TUBE PATTERN



TUBE BUNDLE DATA

NO. TUBE HOLES	O	288	TUBES O.D.	mm	19.05	THK.(MIN.)	mm	2.11	LENGTH	mm	4800	TUBE LAYOUT	DEG.	30°
TUBE PITCH	mm	25.4	NO. OF PASSES	2	SURFACE	m ²	81.8	TUBE TO TUBESHEET JOINT		EXPANDED + 2GROOVES				

2								
1	12/11/05	IFA	S.M.	H.S. AR.N.	A.KH.			
0	02/10/05	IFC	M.A.	H.S. AR.N.	A.KH.			
REV.	DATE	DESCRI.	DRWN.	CHK.	APP.	CHK.	APP.	APP.
			SUBCONTRACTOR			CONTRACTOR		OWNER
 TABRIZ PETROCHEMICAL CO.		HIPS II (LINE D) PRODUCTION PLANT TABRIZ PETROCHEMICAL CO.						
 P.I.R.E. Co.		<u>DRAWING TITLE:</u> ENGINEERING DWG. 41-E-201 (FEED PREHEATER (DESIGN CASE))					 P.I.R.E. Co.	
UNIT:D	DISC:MEC		SCALE:1:20			DWG. SIZE: A3		
DWG.NO:1705-41-DT-ENG-940						SH:3 OF 3		REV:1