TOTAL WEIGHT APPROX.=1475 kg

DESIGN DATA

CODE	API 661 2013/ASME SEC.VIII DIV.1 2017
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NOZZLE DATA

REFERENCE DOCUMENT	DOCUMENT No.
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Maximum Dimensional Tolerance
for Rotation of Nozzle Flanges

[illegible][illegible]

PROJECT NAME: BINAK OILFIELD DEVELOPMENT/SURFACE FACILITIES

PROJECT NO.:	971020		N.I.S.O.C./ FIELDS
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HIRGAN         

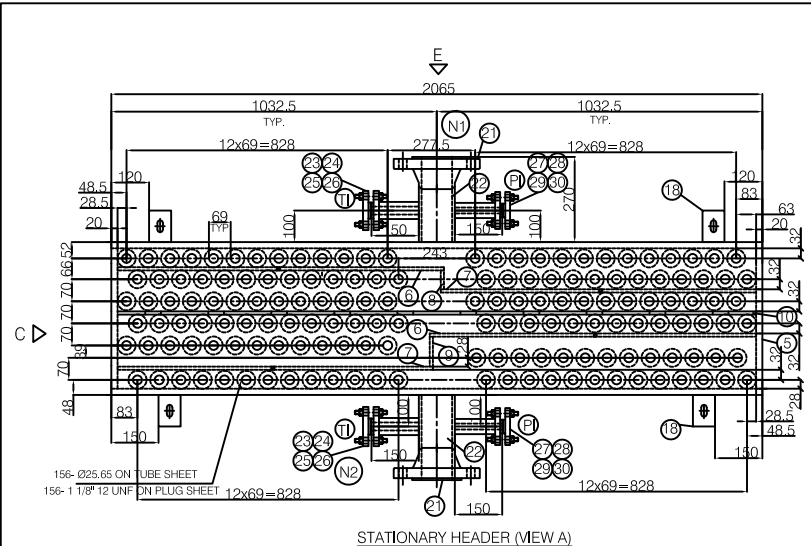
																																																																																																																																							
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HIRGAN ENERGY - DESIGN & INSPECTION COMPANIES	PEDCO	CONTRACT				
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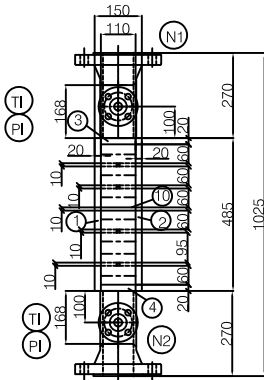
DRAWING TITLE:	Tube Bundle Drawing	NO CONSTRUCTION PERMITTED UNLESS DRAWING APPROVED		
		APPROVED FOR CONSTRUCTION	DATE	SIGNATURE

SCALE	SIZE	DRAWING NO.	SHEET NO.	REV.	BUDGET REF.	LOCATION	SIZE	CLASS	SERIAL NO.	SHEET	REVISION
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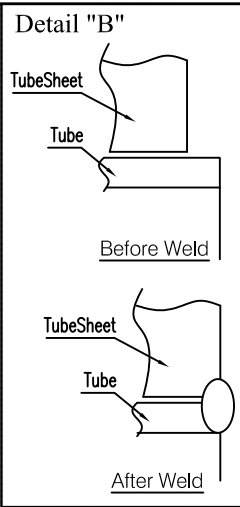
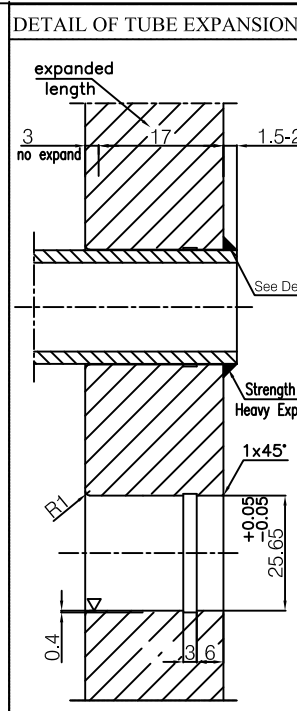
[illegible]



STATIONARY HEADER (MEW A)



VIEW C



GENERAL NOTES	
1-ALL DIMENSIONS ARE IN mm , UNLESS OTHERWISE SPECIFIED.	
2-ALL BOLT HOLE FLANGES SHALL BE STRADDLED TO TUBE-BUNDLE MAIN AXIS.	
3-INSIDE SURFACE OF HEADER BOXES SHALL BE DRIED AND FREE OF ALL DIRT AND LOOSE FOREIGN MATERIALS.	
4-MINIMUM WATER TEMPERATURE DURING HYDROTEST TO BE 15°C.	
5-MECHANICAL CALCULATION IN ACCORDANCE WITH (DOC NO.: BK-GCS-AA-120-PR-CN-0001)	
6-FOR TOLERANCES REFER TO API 661 7th Edition 2013 & TEMA 9th-2007.	
7-FIN PITCH SHOULD BE UNIFORM.	
8-NOZZLE FLANGE FACING SHALL BE COATED WITH REMOVABLE RUST-INHIBITOR	
9-PLUGS SHALL BE COATED WITH THREAD LUBRICANT	
10-WEIGHT OF BUNDLE WITH SIDE FRAME (PRELIMINARY): DRY= 2658kg FULL OF WATER =3103 kg	
11-FOR NDT DETAILS REFER TO RELEVANT NDT MAP (DOC NO.: BK-GCS-AA-120-QC-DW-0001) AND NDE PROCEDURES (DOC NO. BK-GCS-AA-120-QC-PR-0005)	
12-FOR SURFACE PREPARATION AND PAINTING REFER TO PAINTING PROCEDURE (DOC NO.: BK-GCS-AA-120-QC-PR-0004)	
13- FULL RADIOGRAPHY FOR FLANGE TO NOZZLE CONNECTIONS AND FULL ULTRASONIC TEST FOR ALL OTHER FULL PENETRATION GROOVE WELD LINES SHALL BE DONE.	
14- REQUIREMENTS OF ANSI/NACE MR0175 / ISO 15156 SHALL BE CONSIDERED	

MATERIALS & PART LIST FOR ONE BUNDLE (AE-2101)						
NO	DESCRIPTION	MATERIAL	QTY	REMARK	WEIGHT	
1	S, TUBESHEET	20x485x2065	SA-240 TP316L	1	NACE MR 0175	148
2	S, PLUGSHEET	20x485x2065	SA-240 TP316L	1	NACE MR 0175	144.5
3	S, TOP PLATE	20x110x2065	SA-240 TP316L	1	NACE MR 0175	36.5
4	S, BOTTOM PLATE	20x110x2065	SA-240 TP316L	1	NACE MR 0175	36.5
5	S, END PLATES	20x110x445	SA-240 TP316L	2	NACE MR 0175	16
6	S, PARTITION PLATE	10x110x1035	SA-240 TP316L	2	NACE MR 0175	18.5
7	S, PARTITION PLATE	10x110x1000	SA-240 TP316L	2	NACE MR 0175	18
8	S, PARTITION PLATE	10x110x60	SA-240 TP316L	1	NACE MR 0175	1
9	S, PARTITION PLATE	10x110x95	SA-240 TP316L	1	NACE MR 0175	1
10	S, STAY PLATE	10x110x2025	SA-240 TP316L	1	NACE MR 0175	16.5
11	F, TUBESHEET	20x450x2065	SA-240 TP316L	1	NACE MR 0175	142.5
12	F, PLUGSHEET	20x450x2065	SA-240 TP316L	1	NACE MR 0175	141
13	F, TOP PLATE	20x100x2065	SA-240 TP316L	1	NACE MR 0175	33
14	F, BOTTOM PLATE	20x100x2065	SA-240 TP316L	1	NACE MR 0175	33
15	F, END PLATES	20x100x410	SA-240 TP316L	2	NACE MR 0175	13.5
16	F, PARTITION PLATE	10x100x2025	SA-240 TP316L	1	NACE MR 0175	16.5
17	F, STAY PLATE	10x100x2025	SA-240 TP316L	4	NACE MR 0175	60
18	STOPPER	20x70x100	SA-240 TP316L	8	NACE MR 0175	9
19	NAME PLATE	176x152x2	SA-240 TP304	1	-	-
20	NAME PLATE SUPPORT	264x190x4	S4240 TP316L	1	-	-
21	FLANGE 4" W.N. RF, #600, SCH. 80S	SA 182F316L-NACE MR0175	2	ASME B16.5	38	
22	NOZZLE PIPE 4" SCH 80S x 168 L	SA312TP316L-NACE MR0175	2	ASME B36.19	7.5	
23	FLANGE 1" L.W.N RF, #600 L=150, THK=14.3	SA 182F316L-NACE MR0175	2	ASME B16.5	7	
24	GASKET FOR FLG 1" RF, #600	S.S. TP316 SPIRAL WOUND WITH SS316 INNER & OUTER RINGS	2	ASME B16.20	-	
25	BLIND FLANGE 1" RF, #600	SA 182F316L-NACE MR0175	2	ASME B16.5	1.5	
26	STUD BOLT & 2HEX. NUTS 5/8" UNC x 90 Lg.	SA 193-88M/ SA194-8M	8 Set	ASME B18.2	1	
27	FLANGE 3/4" L.W.N RF, #600 L=150, THK=14.5	SA 182F316L-NACE MR0175	2	ASME B16.5	7	
28	GASKET FOR FLG 3/4" RF, #600	S.S. TP316 SPIRAL WOUND WITH SS316 INNER & OUTER RINGS	2	ASME B16.20	-	
29	BLIND FLANGE 3/4", RF, #600	SA 182F316L-NACE MR0175	2	ASME B16.5	1.5	
30	STUD BOLT & 2HEX. NUTS 5/8" UNC x 90 Lg.	SA 193-88M/ SA194-8M	8 Set	ASME B18.2	1	
31	FLANGE 2" L.W.N RF, #600 L=150, THK=16.6	SA 182F316L-NACE MR0175	2	ASME B16.5	14	
32	GASKET FOR FLG 2" RF, #300	S.S. TP316 SPIRAL WOUND WITH SS316 INNER & OUTER RINGS	2	ASME B16.20	-	
33	BLIND FLANGE 2" RF, #600	SA 182F316L-NACE MR0175	2	ASME B16.5	2	
34	STUD BOLT & 2HEX. NUTS 5/8" UNC x 110 Lg.	SA 193-88M/ SA194-8M	16 Set	ASME B18.2	2	
35	HEXAGONAL PLUG 1 1/8" 12UNF x 20 L.	SA 182F316L-NACE MR0175	312	ASME B1.1	83	
36	PLUG GASKET THK 3.2	FLAT SOLID METAL, SS316L	312	Hardness HRC< 82	-	
37	FINNED TUBE, 1" Thk =1.651, TYPE: EXTRUDED LENGTH FINNED /TUBE = 3840 / 3900	SA-213 TP316L NACE MR0175	156	SEAMLESS TUBE SB221 FOR AL FIN	1073	

TOTAL WEIGHT APPROX.=2126 kg

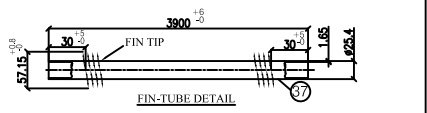
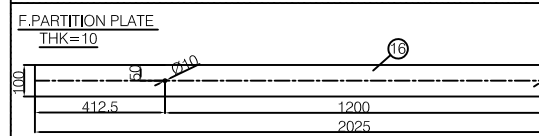
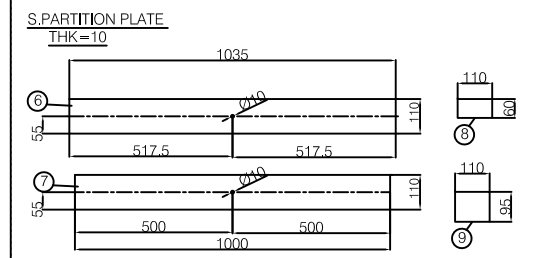
TOTAL NO. OF TYPICAL BUNDLES = 3

DESIGN DATA

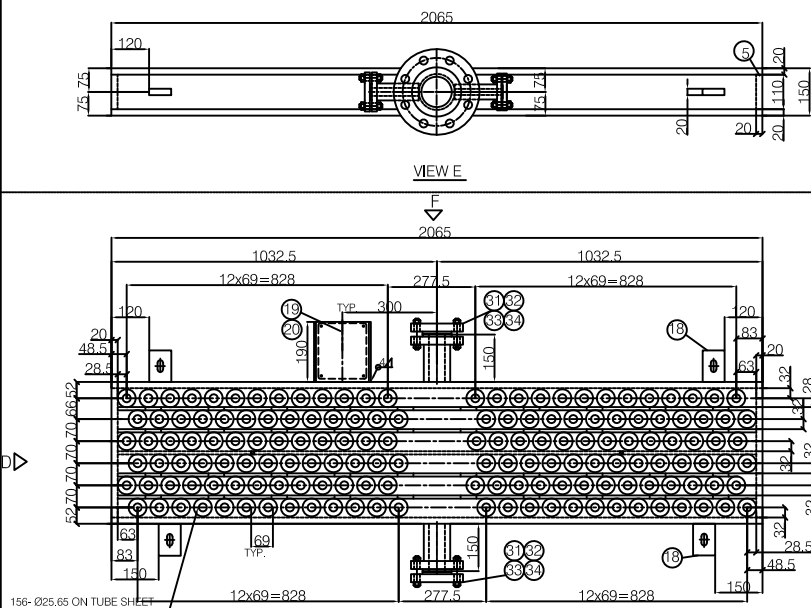
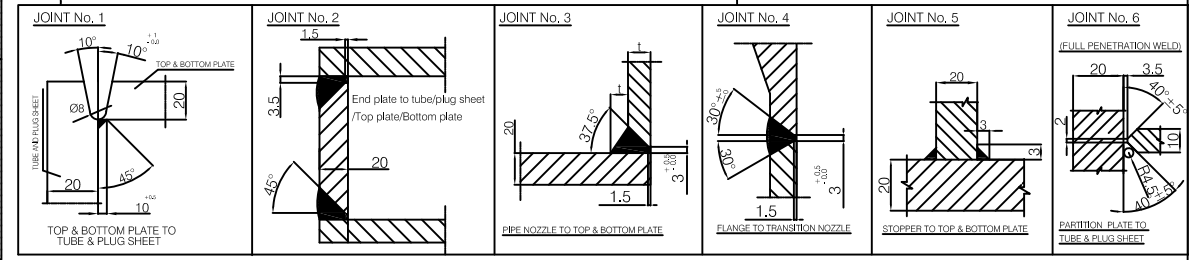
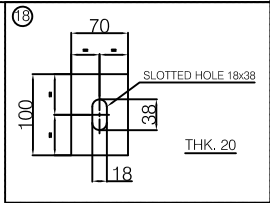
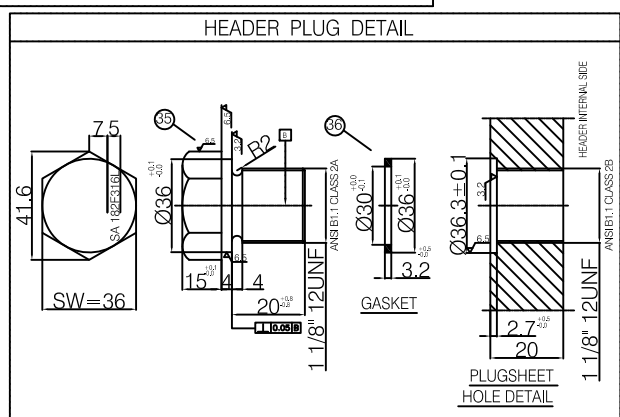
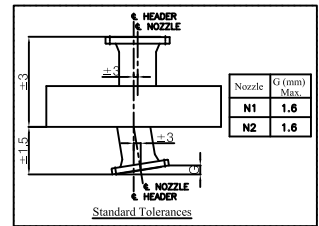
CODE	API 661 2013/ASME SEC.VIII DIV.1 2017
TYPE OF DRAFT	INDUCED
DESIGN PRESSURE	barg 62
DESIGN TEMPERATURE	°C 175
TEST PRESSURE	barg 80.6
CORROSION ALLOWANCE	mm 0
HEADER P.W.H.T.	NO
JOINT EFFICIENCY FACTOR	0.85 SEE NOTE 13
JOINT EFFICIENCY FACTOR FOR STIFFENER/STAY PLATE	0.6

NOZZLE DATA

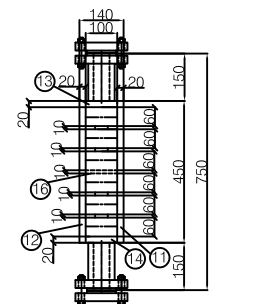
MARK	QTY.	SIZE	RATING	FACE	TYPE	SCH/THK	SERVICE
N1	1	4"	600#	RF/SMOOTH	ANSI B16.5 W.N.	80S	INLET
N2	1	4"	600#	RF/SMOOTH	ANSI B16.5 W.N.	80S	OUTLET
T1	2	1"	600#	RF/SMOOTH	ANSI B16.5 L.W.N.	14.3	TI (WITH BLIND)
P1	2	3/4"	600#	RF/SMOOTH	ANSI B16.5 L.W.N.	14.5	P1 (WITH BLIND)
V	1	2"	600#	RF/SMOOTH	ANSI B16.5 L.W.N.	16.6	VENT (WITH BLIND)
D	1	2"	600#	RF/SMOOTH	ANSI B16.5 L.W.N.	16.6	DRAIN (WITH BLIND)



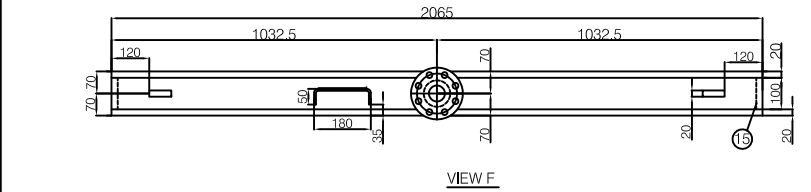
Max. Allowable Nozzle Loads (3xapi 661)						
NOZZLE	FORCES (N)			Moments (N.M)		
	Fx	Fy	Fz	Mx	My	Mz
N1	10020	8010	10020	2430	3660	2430
N2	10020	8010	10020	2430	3660	2430



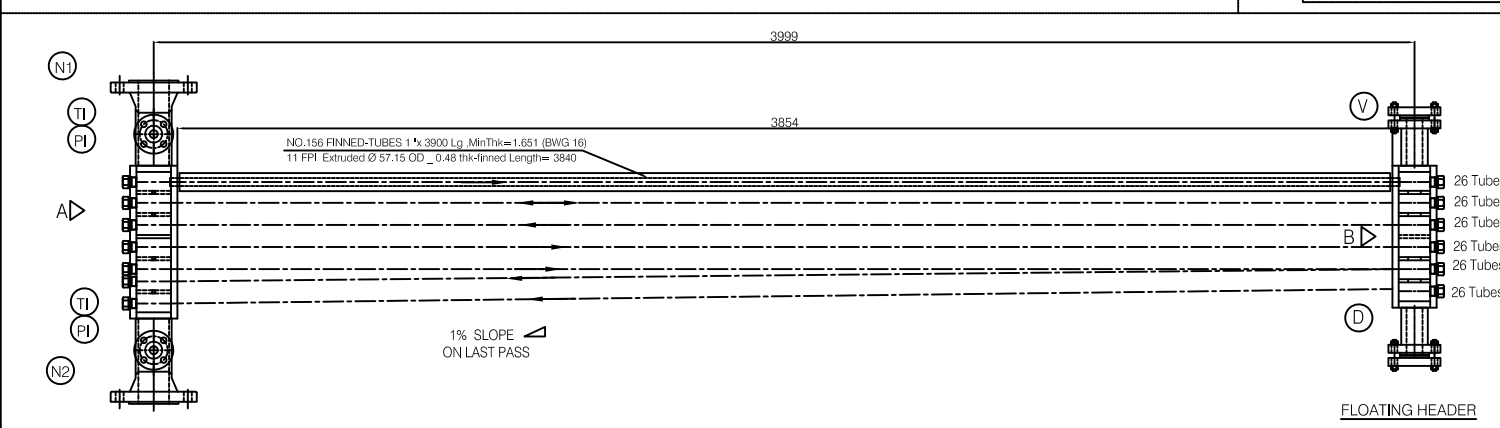
FLOATING HEADER (MEW B)



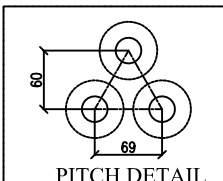
VIEW D



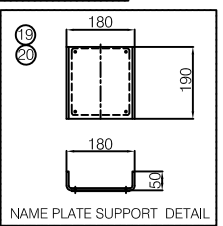
VIEW F



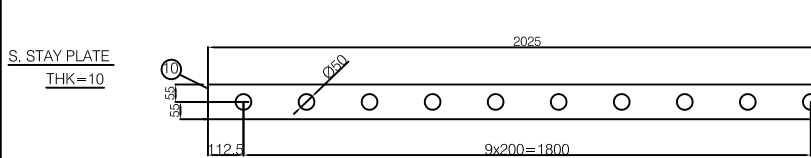
FLOATING HEADER



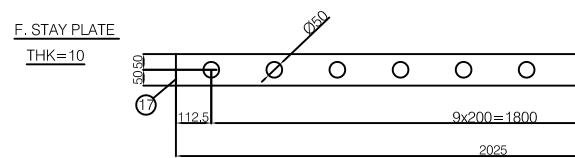
PITCH DETAIL



NAME PLATE SUPPORT DETAIL



S. STAY PLATE
THK=10



F. STAY PLATE
THK=10

Note : Drilling of holes shall be done before final welding of stayplate.
Inside surface of holes shall be tested with PT after drilling .

ITEM AE-2102
VENDOR LOGO:
AAC
Project No: 17208

REVISIONS					
REV.	DATE	DESCRIPTION	BY	DATE	REVISIONS
V00	Aug.24	IFA	AAC	M.PAKHARIAN	M.SADEGHIAN
REV.	DATE	P.O.I.S	PREP.	CHK.	APP.
PROJECT NAME: BINAK OILFIELD DEVELOPMENT/SURFACE FACILITIES GAS & GAS-CONDENSATE PIPELINES					
PROJECT NO.: 971020					
EPC CONTRACTOR: HIRGAN ENERGY - DESIGN & INSPECTION COMPANIES					
EPD/EPC CONTRACTOR (GC): PETROIRAN DEVELOPMENT COMPANY					
DRAWING TITLE: Tube Bundle Drawing					
SCALE	SIZE	DRAWING NO.	SHEET NO.	REV.	
*****	A3	BK-GCS-AA-120-ME-DW-0002	2 OF 2	V00	
NO CONSTRUCTION PERMITTED UNLESS DRAWING APPROVED					
APPROVED FOR CONSTRUCTION BY: DATE:					
BUDGET REF.	LOCATION	SIZE CLASS	SERIAL NO.	SHEET	REVISION