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سابك
sabic

IR-II PTA DBN Project

PROJECT NO.: 10A/E/P/C/K0542A01

P.O NO.: 10P0542A01-F0007

Req. NO.: 10P0542A01-FM9A.02	Equip. Item No. : 14V020 / 14V024

Document Title: GENERAL ARRANGEMENT DRAWING

CTCI Doc. NO.: F0007-DR-14-VD-5032

Vendor Doc. No.:CK81313-003	Rev.: 3

STATUS CODE	ENGINEER	DEPT.	DATE
A	Leo for	GQ	2012-5.7

COMMENT STATUS CODE

- ☑ A – Approved, work can be proceed.
- ☐ AW – Approved with comments. Revise per comments and resubmit.
- ☐ B – Disapproved, vendor need to resubmit before manufacture.
- ☐ I – For information only

Submit / Resubmit within ______ Calendar Days

Note: Release of drawings in no way absolves vendors from responsibility for their accuracy, or for the design, construction and performance of the equipment.

MASTER
APR 20 2012
CTCI

REV.	DESCRIPTION	BY	CHK.	APPR.	DATE
3	Revised per corrected errors.	S.H	レ	N.F	APR.12, 2012
2	Revised per customer's comments and corrected errors.	S.H	レ	N.F	MAR.29, 2012
1	Revised per customer's comments and design changes.	S.H	レ	N.F	Jan.27, 2012
0	Issue For Approval.	S.H	レ	N.F	Sep.22, 2011

ابن رشد
ibn rushd

ARABIAN INDUSTRIAL FIBERS COMPANY
YANBU, KINGDOM OF SAUDI ARABIA

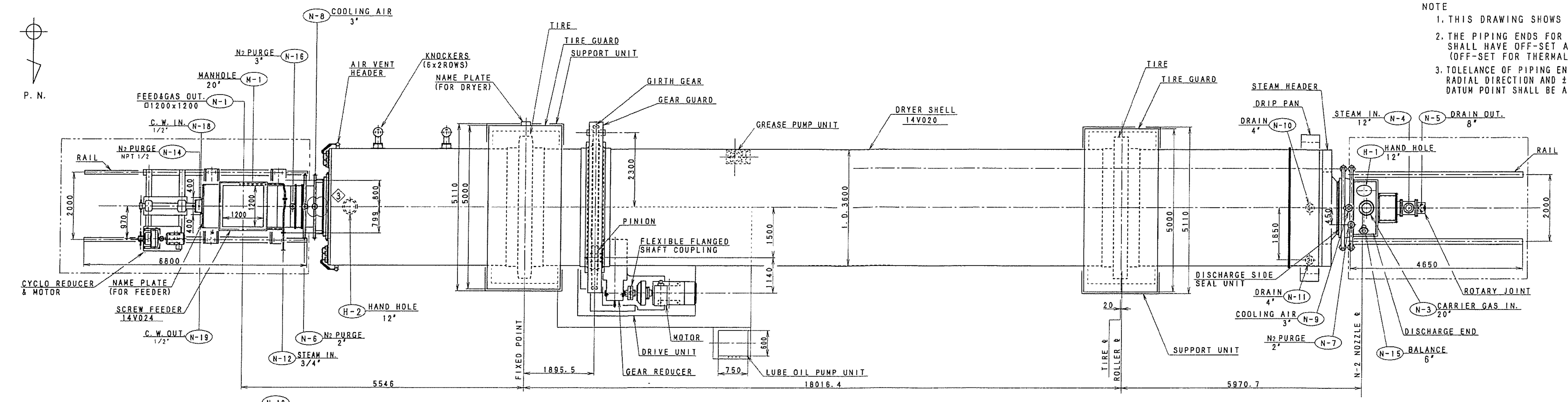
CTCI Corp. Ltd

CERTIFIED

PROJ.
MGR ______________ DATE ______________
CLIENT DATE

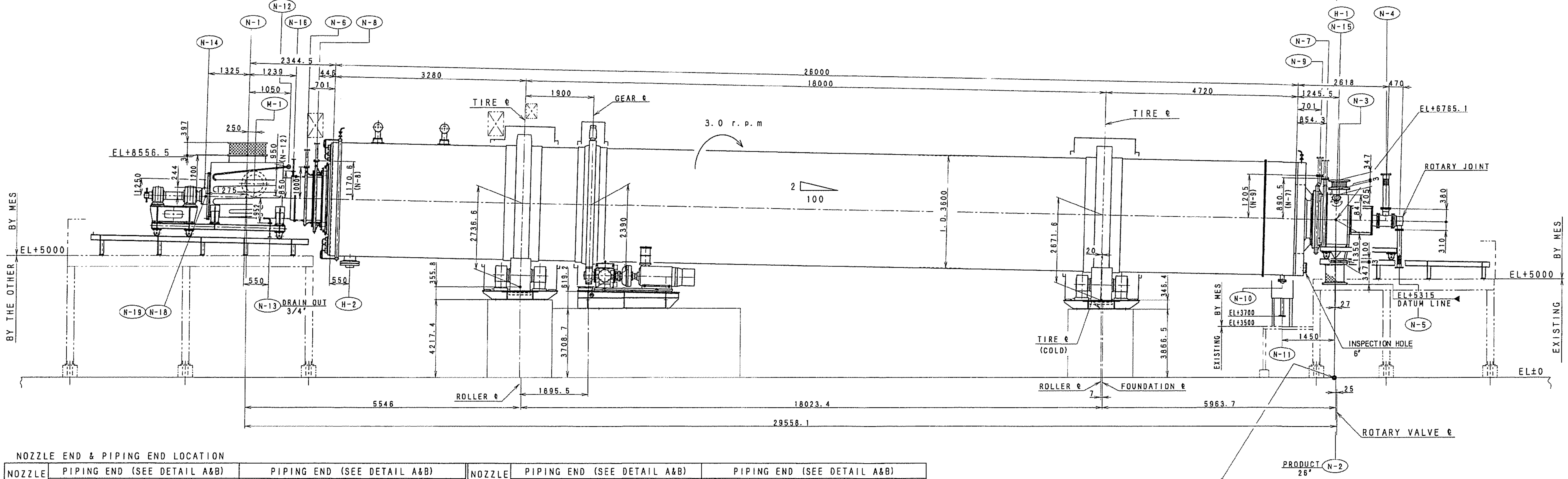
MITSUI ENGINEERING & SHIPBUILDING CO., LTD.
MACHINERY FACTORY MACHINERY & SYSTEMS HEADQUARTERS

PAGE 1 OF 1


P. N.
N-8 COOLING AIR 3"
N2 PURGE 3" N-16
MANHOLE 20" M-1
FEED&GAS OUT. □1200x1200 N-1
C.W. IN. 1/2" N-18
N2 PURGE NPT 1/2 N-14
RAIL
AIR VENT HEADER
KNOCKERS (6x2ROWS)
NAME PLATE (FOR DRYER)
TIRE
TIRE GUARD
SUPPORT UNIT
GIRTH GEAR
GEAR GUARD
GREASE PUMP UNIT
DRYER SHELL 14V020
2000
970
400
400
1200
1200
6800
800
799
5110
5000
2300
1500
1140
I.D. 3600
PINION
FLEXIBLE FLANGED SHAFT COUPLING
CYCLO REDUCER & MOTOR
NAME PLATE (FOR FEEDER)
SCREW FEEDER 14V024
C.W. OUT 1/2" N-19
N-6 N2 PURGE 2"
N-12 STEAM IN. 3/4"
H-2 HAND HOLE 12"
MOTOR
DRIVE UNIT
GEAR REDUCER
LUBE OIL PUMP UNIT
600
750
FIXED POINT
1895.5
5546
18016.4
5970.7
TIRE ℄
ROLLER ℄
20
SUPPORT UNIT
STEAM HEADER
DRIP PAN
DRAIN 4" N-10
STEAM IN. 12" N-4
N-5 DRAIN OUT. 8"
H-1 HAND HOLE 12"
RAIL
1650
450
2000
4650
DISCHARGE SIDE SEAL UNIT
DRAIN 4" N-11
COOLING AIR 3" N-9
N2 PURGE 2" N-7
N-2 NOZZLE ℄
N-15 BALANCE 6"
DISCHARGE END
N-3 CARRIER GAS IN. 20"
ROTARY JOINT

NOTE

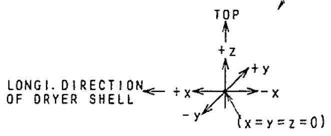
1. THIS DRAWING SHOWS CONNECTING POINT OF NOZZLES.
2. THE PIPING ENDS FOR N10, N11, N12 AND N13 NOZZLE SHALL HAVE OFF-SET AS SPECIFIED IN THIS DRAWING. (OFF-SET FOR THERMAL EXPANSION OF DRYER)
3. TOLELANCE OF PIPING END LOCATION SHALL BE ±3mm IN RADIAL DIRECTION AND ±1mm IN AXIAL DIRECTION OF PIPING. DATUM POINT SHALL BE ACTUAL NOZZLE END LOCATION.

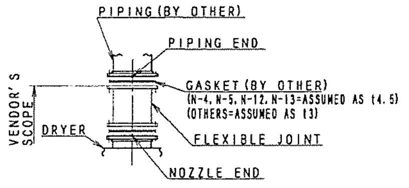

N-14
N-1
N-12
N-16
N-6
N-8
M-1
1325
1239
2344.5
446
1050
701
3280
26000
18000
250
397
EL+8556.5
1250
244
1200
1275
850
1000
952
1170.6 (N-8)
TIRE ℄
1900
GEAR ℄
3.0 r.p.m
2
100
I.D. 3600
2736.6
2390
355.8
619.2
4217.4
3708.7
BY MES
BY THE OTHER
EL+5000
550
550
N-19 N-18
N-13 DRAIN OUT 3/4"
H-2
ROLLER ℄
1895.5
5546
18023.4
29558.1
TIRE ℄
2671.6
20
346.4
3866.5
TIRE ℄ (COLD)
ROLLER ℄
FOUNDATION ℄
7
5963.7
4720
H-1
N-15
N-4
N-7
N-9
N-3
2618
470
1245.5
701
854.3
EL+6765.1
ROTARY JOINT
1205 (N-9)
880.5 (N-7)
347
380
310
1350
1100
347
EL+5000
EL+5315 DATUM LINE
N-10
EL+3700
EL+3500
27
1450
N-11
INSPECTION HOLE 6"
N-5
EXISTING
BY MES
EXISTING
EL±0
25
ROTARY VALVE ℄
PRODUCT 26" N-2

NOZZLE END & PIPING END LOCATION

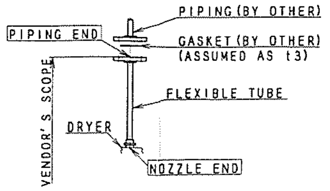
NOZZLE NO.		PIPING END (SEE DETAIL A&B)				PIPING END (SEE DETAIL A&B)			
		x	y	z	LENGTH OF EXPAND or FLEX. JOINT/TUBE	x	y	z	FLANGE FACE
N-1	□1200x1200	+29533	0	+8557	397	+29533	0	+8957	HORIZONTAL
N-2	26"	-27	0	+5315	347	-27	0	+4962	HORIZONTAL
N-3	20"	-98	0	+7810	347	-98	0	+8160	HORIZONTAL
N-4	8"	-1402	0	+7118	1000	-1402	0	+8122	HORIZONTAL
N-5	6"	-1856	0	+6419	1000	-1856	0	+5414	HORIZONTAL
N-6	2"	+27894	0	+8324	500	+27894	0	+8827	HORIZONTAL
N-7	2"	+215	-450	+7661	1000	+215	-450	+8164	HORIZONTAL
N-8	3"	+27625	0	+8508	◇3 500	+27625	0	+9011	◇3 HORIZONTAL
N-9	3"	+513	0	+7981	1000	+513	0	+8984	HORIZONTAL
(*) N-10	4"	+1458	0	+4826	-	-	-	-	HORIZONTAL
N-11	4"	+1450	+1650	+3700	-	-	-	-	HORIZONTAL
N-12	3/4"	+28488	-800	+8286	500	+28488	-1304	+8286	VERTICAL
N-13	3/4"	+29087	0	+6343	500	+29087	0	+5839	HORIZONTAL
N-14	NPT 1/2"	+30882	0	+7627	1000	+30882	0	+8627	HORIZONTAL
N-15	6"	-41	+701	+7466	500	◇3 -67	+1057	+7821	◇3 -
N-16	3"	+28287	0	+8182	500	+28287	0	+8685	HORIZONTAL
N-18	1/2"	+30832	-400	+7382	397	+30832	-800	+7382	VERTICAL
N-19	1/2"	+30832	+400	+7382	397	+30832	+800	+7382	VERTICAL

(*) : THE LOCATION OF N-10 NOZZLE END IS CALCULATED IN CASE THAT THE NOZZLE LOCATES AT 180° (BOTTOM SIDE).


TOP
+z
+y
+x
-x
-y
(x=y=z=0)
LONGI. DIRECTION OF DRYER SHELL


PIPING (BY OTHER)
PIPING END
GASKET (BY OTHER)
(N-4, N-5, N-12, N-13=ASSUMED AS t4.5)
(OTHERS=ASSUMED AS t3)
VENDOR'S SCOPE
DRYER
FLEXIBLE JOINT
NOZZLE END

DETAIL A


PIPING END
PIPING (BY OTHER)
GASKET (BY OTHER) (ASSUMED AS t3)
FLEXIBLE TUBE
VENDOR'S SCOPE
DRYER
NOZZLE END

DETAIL B
(N-14 ONLY)

第三角法 THIRD ANGLE PROJECTION	フランジ類の穴割りは特記の外中心線に対し振り分けとする。 ALL BOLT HOLES SHALL STRADDLE CENTER LINE UNLESS OTHERWISE NOTED

REV.	DATE	DESCRIPTION	BY	CHKD	APPD
◇1	JAN. 27. 2012	REVISED PER CUSTOMER'S COMMENTS AND DESIGN CHANGES.	S. H	✓	N. F
◇2	MAR. 29. 2012	REVISED PER CUSTOMER'S COMMENTS AND CORRECTED ERRORS.	S. H	✓	N. F
◇3	APR. 12. 2012	REVISED PER CORRECTED ERRORS.	S.H	✓	N.F

SET TO BE MANUFACTURED

SCALE

CUSTOMER'S APPROVAL

NOTE

سابك
sabic
Saudi Basic Industries Corporation
Engineering and Project Management
Jubail, Kingdom of Saudi Arabia

ابن رشد
ibn rushd
Arabian Industrial Fibers Company

中鼎工程股份有限公司
CTCI CORPORATION

MITSUI ENGINEERING & SHIPBUILDING CO., LTD.
MACHINERY FACTORY MACHINERY & SYSTEMS HEADQUARTERS

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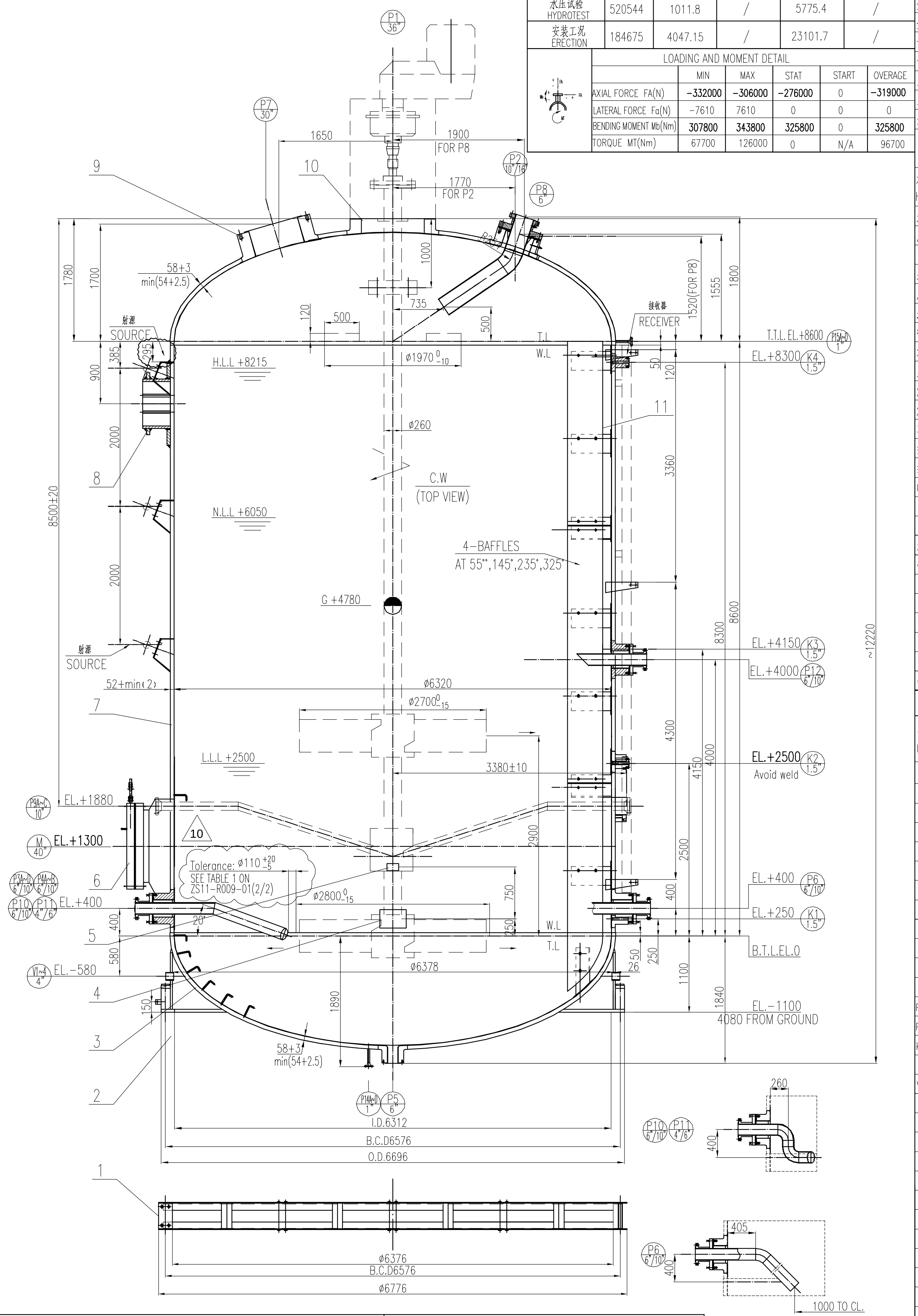
玉機産設 (セス)
PROCESS EQUIPMENT GROUP.
INDUSTRIAL MACHINERY DESIGN DEPT.

DRAWN	T. Inoue	SEP. 21 2011
BY	S. Hirai	SEP. 22 2011
CHKD	✓	
APPD	N. Fujimura	SEP. 22 2011

TITLE
Arabian Industrial Fibers Company (Ibn Rushd)
IBN RUSHD-II PROJECT
14V020 CTA DRYER
GENERAL ARRANGEMENT DRAWING

F. S. NO.	
JOB CLASSIF NO.	
JOB NO.	TK2564
WORKS	TAMANO
DWG NO.	CK81313-003
REV NO.	◇3
GROUP	TK01
USER	SRD
CADAM ID	TK2564CK81313003.0301
FORMAT NO.	



基础载荷 FOUNDATION LOAD

工况 CASES	重力 WEIGHTS kgf	剪力 SHEAR Kgf		弯矩 MOMENT Kg-m	
		风剪力 WIND SHEAR	地震剪力 EARTHQUAKE SHEAR	风弯矩 WIND MOMENT	地震弯矩 EARTHQUAKE MOMENT
操作工况 OPERATION	499141	4047.15	4991.41	23101.7	26157.1
水压试验 HYDROTEST	520544	1011.8	/	5775.4	/
安装工况 ERECTION	184675	4047.15	/	23101.7	/

LOADING AND MOMENT DETAIL

	MIN	MAX	STAT	START	OVERAGE
AXIAL FORCE FA(N)	−332000	−306000	−276000	0	−319000
LATERAL FORCE Fa(N)	−7610	7610	0	0	0
BENDING MOMENT Mb(Nm)	307800	343800	325800	0	325800
TORQUE MT(Nm)	67700	126000	0	N/A	96700

设计数据 DESIGN DATA

设计规范	DESIGN CODE	ASME CODE SEC.VIII Div.1,2010 ED. U STAMP YES ADDITIONAL SPECIFICATION: SEE TABLE BELOW
介质名称	CONTENTS	PX,HAC,TA,WATER
介质密度	CONTENTS DENSITY(OPERATING/DESIGN) Kg/m^3	610/1000
介质特性	FLUID TYPE	Non-Lethal
设计压力	DESIGN PRESSURE(Int/Ext) bar(g)	20.59
设计温度	DESIGN TEMPERATURE(Max/Min) °C	230
工作压力	OPERATING PRESSURE bar(g)	12.09
工作温度	OPERATING TEMPERATURE °C	189.2
最小设计金属温度	MDMT. °C	8°C @ 21.54 bar(g)
最大许用工作压力	MAWP bar(g)	21.54 @ 230°C Limited By Cylinder
	MAP bar(g)	22.34 @ 230°C Limited By Cylinder
水压试验压力 HYDROTEST PRESSURE	制造厂水压试验(卧式) SHOP HYDROTEST (HOR.)NEW AND COLD bar(g)	28.42(UG-99c)
	现场水压试验(立式) FUTURE HYDROTEST(VER.)HOT AND CORR. bar(g)	28.00(UG-99b)
水压试验温度	HYDROTEST TEMPERATURE	Q01-S01
腐蚀裕度	CORROSION ALLOWANCE(Int/Ext) mm	0(FOR SHELL)/2.0 (FOR TI CLAD) /2.0(FOR SKIRT AND BASE PLATE)
设计寿命	DESIGN LIFE YEAR	20
基本风速	BASIC SPEED WIND Km/h	140
风载荷	WIND LOAD	ASCE-98/02/05/IBC-03)
地震载荷	SEISMIC DATA	IBC2009 Ss=0.183,S1=0.048,IMPORTANCE FACTOR=1.25,SITE CLASS"C"
循环载荷和疲劳载荷	CYCLIC LOADING & FATIGUE REQUIREMENT	YES
容积	VESSEL VOLUME m^3	335.9
射线检验	RT	FULL
焊接接头系数	JOINT EFFICIENCY	1.0
焊后热处理	PWHT	YES
冲击试验	Ibar(g)CT TEST	N/A
搅拌器型式	ADITATOR TYPE	HWL2000 N/S
搅拌器转速	AGITATOR SPEED	70~75rpm
电机功率/防爆等级	B.H.P/ENCLOSURE TYPE	780 KW / EXⅡ 3G ex nA ⅡA/B T3
保温厚度	INSULATION/THK. mm	HOT / 190
防火厚度(内/外)	FIREPROOF THK.(INT./EXT.) mm	50(IN & OUTSIDE)
油漆及表面处理	PAINTING & SURFACE PREPARATION	SP-10-LA-5007
包装及运输要求	PACKING & SHIPPING REQUIREMENT	Q01-S01 & Z01-G07
制造重量	FABRICATION WEIGHT Kg	156000(Agitator weight: 24000kg not include)
操作重量	OPERATING WEIGHT Kg	475141(Agitator weight: 24000kg not include)
充满水重量	WEIGHT FULL OF WATER Kg	496544(Agitator weight: 24000kg not include)
设备空重	EMPTY WEIGHT Kg	160675(Agitator weight: 24000kg not include)
吊装重量	LIFTING WEIGHT Kg	160675(Agitator weight: 24000kg not include)
管口 接地板 铭牌 支座等方位	ORIENTATION	AS PER THIS DRAWING

接管表 NOZZLE SCHEDULE

接管号 MARK	数量 NO.	规格 N.D.	壁厚等级 NECK SCH.	法兰 FLANGE 法兰标准 STD.	法兰等级 CLASS	法兰型式 TYPE	密封面形式 FACING	法兰密封面至设备水平中心线的距离 PROJ FROM LEVEL C.L.	用途或名称 SERVICE	备注 NOTES
P1	1	ID.880	–	ASME B16.47(A)	300	PAD	RF	SEE DWG.	AGITATOR CONN.	
P2	1	10"/16"	–	ASME B16.5	300	PAD	RF	SEE DWG.	TOP REFLUX(13E031)	
P3A~D	4	6"/10"	–	ASME B16.5	300	PAD	RF	3604.5	AIR FEED	
P4A~B	2	6"/10"	–	ASME B16.5	300	PAD	RF	3604.5	PROCESS INLET	
P5	1	ID150	–	ASME B16.5	300	PAD	RF	SEE DWG.	DRAIN	
P6	1	6"/10"	–	ASME B16.5	300	PAD	RF	3604.5	DRAIN	
P7	1	30"	–	ASME B16.47(A)	300	PAD	RF	SEE DWG.	VAPOR OUT(13E031)	
P8	1	6"	–	ASME B16.5	300	PAD	RF	SEE DWG.	INSPECTION	W/B&N
P9A~C	3	10"	–	ASME B16.5	300	PAD	RF	3380	STEADY BRG SUPPORT	
P10	1	6"/10"	–	ASME B16.5	300	PAD	RF	3604.5	BTM REFLUX(13E032)	
P11	1	4"/6"	–	ASME B16.5	300	PAD	RF	3704.5	BTM REFLUX(13E033)	
P12	1	6"/10"	–	ASME B16.5	300	PAD	RF	3604.5	SLURRY OUTLET	
P14A~D	4	1"	Sch80	ASME B16.5	300	WN	RF	SEE DWG.	HOT OIL INLET	
P15A~D	4	1"	Sch80	ASME B16.5	300	WN	RF	3650	HOT OIL OUTLET	
K1~4	4	1.5"	–	ASME B16.5	300	PAD	RF	3365	TI CONN	
M	1	ID950	–	ASME B16.47(A)	300	WN	RF	3725	MANHOLE	W/Davit
V1~4	4	4"	Sch80	/	/	/	/	/	VENT HOLE	

主要材料表 MATERIAL DATA

壳体，封头	SHELL,HEADS	SA-516 Gr.70N + SB-265 Gr.1
接管法兰	NOZZLE NECK & NOZZLE FLANGES	SA-105N / SB-265 Gr.1 LINING
法兰盖	BLIND FLANGES	SA-105N/SA-516 Gr.70N+ SB-265 Gr.1
接管	NOZZLE NECK	SA-105N / SB-265 Gr.1 LINING
裙座	SKIRT	SA-516 Gr.70
保温支撑	INSULATION SUPPORT	SA-516 Gr.70
尾耳	TAILING LUGS	SA-516 Gr.70
吊耳	LIFTING LUGS	SA-516 Gr.70
外部螺栓/螺母	EXTERNAL BOLTS/NUTS	SA-193 Gr.B7/SA-194 Gr.2H HOT DIP ZINC
内部螺栓/螺母	INTERNAL BOLTS/NUTS	SB348 Gr2
外部垫片	EXTERNAL GASKETS	SPIRAL WOUND GASKET:TYPE 88 -HOOP: Ti -FILLER: GRAPHITE -INNER RING: Ti -OUTER RING:316L SS
内部垫片	INTERNAL GASKETS	–
内部接管	INTERNAL PIPES	SB-265 Gr.2
内部支撑	INTERNAL SUPPORT	SB348 Gr2
接地片	EARTH PIECE	SA-240 316L
铭牌	NAMEPLATE	SA-240 304 / SA-516 Gr.70

图纸目录 DRAWING LISTS

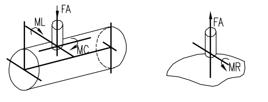
图纸名称 DWG. NAME	图号 DWG. NO.
氧化反应器装配图 CTA OXIDATION REACTOR GENERAL DRAWING	ZS11-R009-01(1/2)
氧化反应器装配图 CTA OXIDATION REACTOR GENERAL DRAWING	ZS11-R009-01(2/2)
氧化反应器排版图 CTA OXIDATION REACTOR DETAIL OF BODY	ZS11-R009-02
氧化反应器裙座图 CTA OXIDATION REACTOR DETAIL OF SKIRT	ZS11-R009-03
氧化反应器人孔图 CTA OXIDATION REACTOR DETAIL OF MANHOLE	ZS11-R009-04
氧化反应器模板图 CTA OXIDATION REACTOR DETAIL OF TEMPLATE	ZS11-R009-05
氧化反应器铭牌图 CTA OXIDATION REACTOR DETAIL OF NAMEPLATE(1)	ZS11-R009-06
氧化反应器铭牌图 CTA OXIDATION REACTOR DETAIL OF NAMEPLATE(2)	ZS11-R009-07
氧化反应器零件图 CTA OXIDATION REACTOR PART DRAWING	ZS11-R009-08
氧化反应器搅拌凸缘图 CTA OXIDATION REACTOR DETAIL OF AGITATOR MOUNT	ZS11-R009-09
氧化反应器内部挡板图 CTA OXIDATION REACTOR DETAIL OF BAFFLE	ZS11-R009-10
氧化反应器接管图 CTA OXIDATION REACTOR DETAIL OF NOZZLE(1)	ZS11-R009-11
氧化反应器接管图 CTA OXIDATION REACTOR DETAIL OF NOZZLE(2)	ZS11-R009-12
氧化反应器接管图 CTA OXIDATION REACTOR DETAIL OF NOZZLE(3)	ZS11-R009-13
氧化反应器接管图 CTA OXIDATION REACTOR DETAIL OF NOZZLE(4)	ZS11-R009-14
氧化反应器接管图 CTA OXIDATION REACTOR DETAIL OF NOZZLE(5)	ZS11-R009-15
氧化反应器接管图 CTA OXIDATION REACTOR DETAIL OF NOZZLE(6)	ZS11-R009-16
氧化反应器接管图 CTA OXIDATION REACTOR DETAIL OF NOZZLE(7)	ZS11-R009-17
氧化反应器接管图 CTA OXIDATION REACTOR DETAIL OF NOZZLE(8)	ZS11-R009-18
氧化反应器保温支撑图 CTA OXIDATION REACTOR DETAIL OF INSULATION (1)	ZS11-R009-19
氧化反应器保温支撑图 CTA OXIDATION REACTOR DETAIL OF INSULATION (2)	ZS11-R009-20
氧化反应器加热盘管图 CTA OXIDATION REACTOR DETAIL OF HEATING COIL(1)	ZS11-R009-21
氧化反应器加热盘管图 CTA OXIDATION REACTOR DETAIL OF HEATING COIL(2)	ZS11-R009-22
氧化反应器管架支架图 DETAIL OF CLIP	ZS11-R009-23
氧化反应器射源支架图 DETAIL OF MOUNTING BRACKET CLIP	ZS11-R009-24

PERFORMANCE OF THE EQUIPMENT.

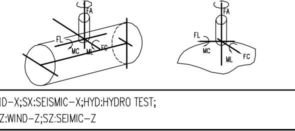
NOZZLE LOADING AND MOMENT DETAIL

AS PER 22854-SP-000-D-001

NOZZLE	NPS	FA(N)	ML (N·m)	MC(N·m)	MR(N·m)
P11	4"/6"	−5600	1460	1120	
P3A~D,P4A~B,P10,P6	6"/10"	−8400	3280	2520	
P2	10"/16"	−14000			11480
P8	6"	−8400			4130



NOZZLE NO.	NPS	CASE	FA(KN)	FC(KN)	FL(KN)	MT(KN-M)	ML(KN-M)	MC(KN-M)	FR(KN)	MR(KN-M)
P5	ID150	HYD	−7.5	–	–	0.2	–	–	−0.8	2.8
		DW	−8.1	–	–	0.2	–	–	−0.8	2.9
		TH	5.0	–	–	−0.7	–	–	7.1	7.5
		SX	–	–	–	–	–	–	–	–
		SZ	–	–	–	–	–	–	–	–
		WX	±0.4	–	–	±0.3	–	–	±1.6	±2.3
		WZ	±0.5	–	–	±0.3	–	–	±0.3	±1.0
P7	30"	HYD	–	–	±11	±4.5	–	±22.5		
		DW	−1	–	±2	±5.5	–	±17.5		
		TH	−37	–	±15.5	±30	–	±80		
		SX	–	–	±3	±5	–	±19		
		SZ	–	–	±2.5	±3.5	–	±17		
		WX	–	–	±12	±2	–	±45		
		WZ	−3.5	–	±11.5	±24	–	±41		
P12	6"/10"	HYD	0.3	0.3	−4.1	0.4	2.6	0.5		
		DW	0.7	0.3	−3.2	0.6	0.8	0.4		
		TH	2.3	−1.2	−0.7	−0.8	2.1	4.9		
		SX	–	–	–	–	–	–		
		SZ	–	–	–	–	–	–		
		WX	±1.4	±0.2	±0.3	±0.1	±0.2	±0.2		
		WZ	±0.3	±0.6	–	±0.2	–	±0.4		



TH:THERMAL;WX:WIND-X;SX:SEISMIC-X;HYD:HYDRO TEST;
DW:DEAD WEIGHT;WZ:WIND-Z;SZ:SEIMIC-Z

IR-Ⅱ PTA DBN PROJECT

PROJECT NO.:10E0542A01	
PO NO.:10P0542B01-F0004	
REQ. NO.:10E0542B01-EC0A.01	EQUIP. ITEM NO.: 13D031
CTCI DOC.NO.:F0004B-GA-13-DA-5001	
VENDOR DOC. NO.:F0004B-GA-13-DA-5001	

STATUS CODE	ENGINEER	DEPT.	DATE

COMMENT STATUS CODE

☐ A-APPROVED, WORK CAN BE PROCEED
☐ AW,APPROVED WITH COMMENTS.REVISE PER COMMENTS AND RESUBMIT.
☐ B,DISAPPROVED,VENDOR NEED TO RESUBMIT BEFORE MANUFACTURE.
☐ I,FOR INFORMATION ONLY
SUBMIT/RESUBMIT WITHIN ________ CALENDAR DAYS

NOTE:RELEASE OF DRAWING IN NO WAY ABSOLVES VENDORS FROM RESPONSIBILITY FOR THEIR ACCURACY,OR FOR THE DESIGN,CONSTRUCTION AND PERFORMANCE OF THE EQUIPMENT.

版次 REV	说明 DESCRIPTION	设计 DESIGNED	校核 CHECKED	审核 REVIEWED	日期 DATE
10	AS BUILT	KUO	WONG	YANG	30/12/2013
9	AS BUILT	庄娟	朱广前	陈瑜	2012.05.18
8	ISSUE FOR REVIEW	庄娟	朱广前	陈瑜	2012.02.28
7	ISSUE FOR REVIEW	庄娟	朱广前	陈瑜	2012.01.31
6	ISSUE FOR REVIEW	庄娟	朱广前	陈瑜	2011.11.22
5	ISSUE FOR REVIEW	庄娟	朱广前	陈瑜	2011.10.17
4	ISSUE FOR REVIEW	庄娟	朱广前	陈瑜	2011.8.18
3	ISSUE FOR REVIEW	庄娟	朱广前	陈瑜	2011.7.22
2	ISSUE FOR REVIEW	庄娟	朱广前	陈瑜	2011.6.17
1	FOR MAIN MATERIAL PURCHASE	庄娟	朱广前	陈瑜	2011.6.1

ابن رشد ibn rushd ARABIAN INDUSTRIAL FIBERS COMPANY

CTCI Corp. Ltd

PLANT:IR-Ⅱ PTA DBN	PROJECT NO.:10E0542A01
REQUISITION NO.:10E0542B01-EC0A.01	**PURCHASE ORDER NO.:10P0542B01-F0004**
CTCI DOC.NO.:F0004B-GA-13-DA-5001	**VENDOR DOC. NO.:F0004B-GA-13-DA-5001**

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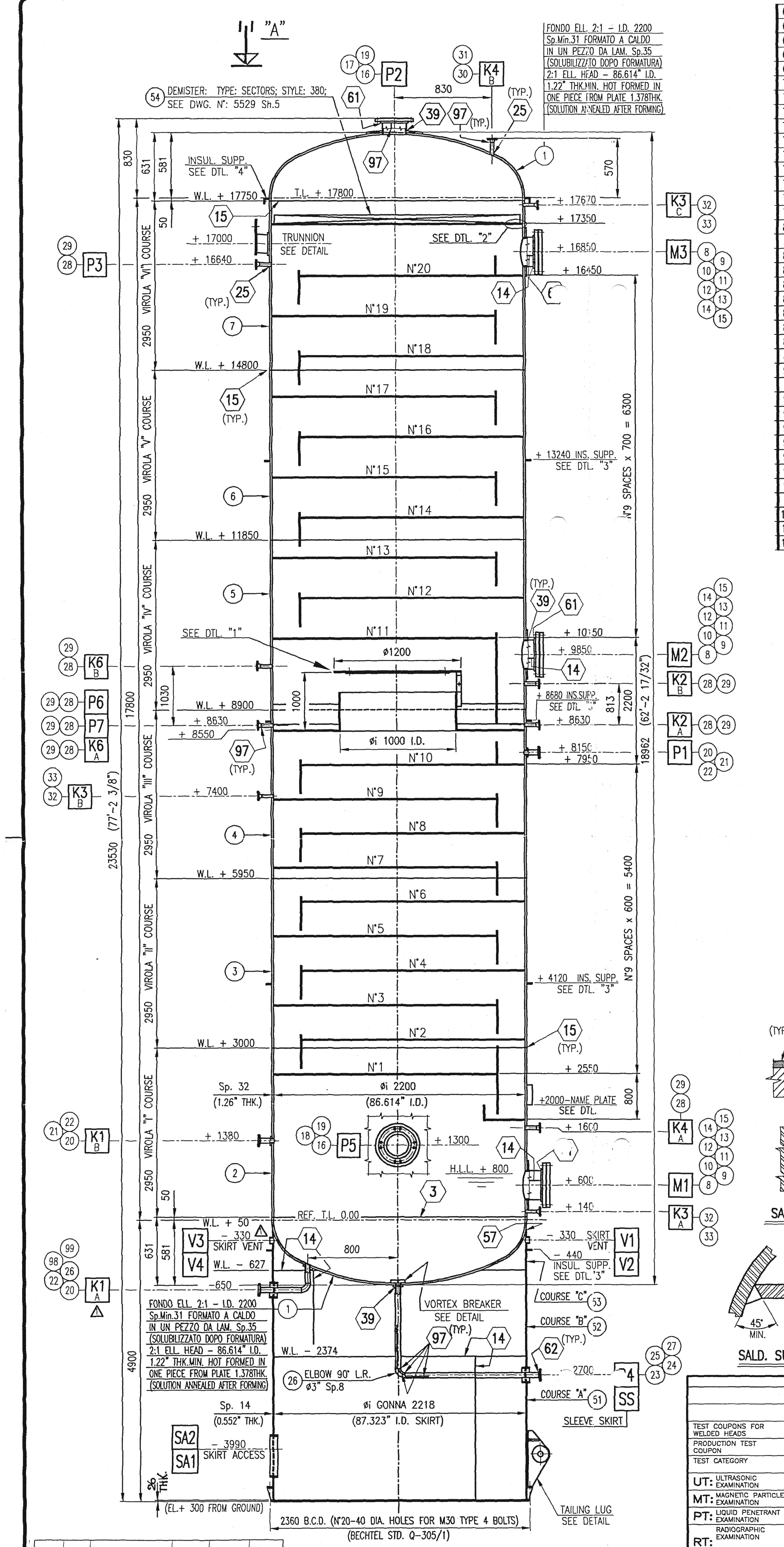
SUNPOWER 江苏中圣高科技产业有限公司 JIANGSU SUNPOWER TECHNOLOGY CO.,LTD

IR-Ⅱ PTA DBN PROJECT

职责 DUTY	签名 SIGNATURE	日期 DATE
设计 DESIGNED	庄娟	2012.05.18
审核 REVIEWED	朱广前	2012.05.18
批准 APPRO	陈瑜	2012.05.18

OXIDATION REACTOR
GENERAL DRAWING(1)
13D031

设计阶段 DESIGN STAGE	竣工图 AS BUILT
图号	ZS11-R009-01(1/2)
工作令号: WORK NO.:	Y-11A065
比例: SCALE:	1:35
张数 PAGE	1/25
年 YEAR	2011
版次 REV.	10


"A"
DEMISTER: TYPE: SECTORS; STYLE: 380; SEE DWG. N°: 5529 Sh.5
54
P2
16 17 19
K4 B
30 31
830
(TYP.)
25
61
39
97
INSUL. SUPP. SEE DTL. "4"
W.L. + 17750
T.L. + 17800
+ 17670
+ 17350
K3 C
32 33
15
+ 17000
TRUNNION SEE DETAIL
SEE DTL. "2"
+ 16850
M3
8 9 10 11 12 13 14 15
+ 16640
+ 16450
P3
28 29
N°20
N°19
N°18
N°17
N°16
N°15
N°14
N°13
N°12
N°11
N°10
N°9
N°8
N°7
N°6
N°5
N°4
N°3
N°2
N°1
W.L. + 14800
+ 13240 INS. SUPP. SEE DTL. "3"
W.L. + 11850
SEE DTL. "1"
ø1200
+ 10150
+ 9850
M2
K2 B
K6 B
P6
P7
K6 A
K3 B
K2 A
P1
W.L. + 8900
+ 8680 INS. SUPP. SEE DTL. "3"
+ 8630
+ 8550
øi 1000 I.D.
+ 8150
+ 7950
+ 7400
W.L. + 5950
+ 4120 INS. SUPP. SEE DTL. "3"
W.L. + 3000
+ 2550
Sp. 32 (1.26" THK.)
ø2200 (86.614" I.D.)
+2000-NAME PLATE SEE DTL.
+ 1600
K4 A
P5
+ 1380
+ 1300
H.L.L. + 800
+ 600
M1
+ 140
K3 A
REF. T.L. 0.00
W.L. + 50
- 330 SKIRT VENT
V3
V4
W.L. - 627
-650
K1 A
800
57
- 330 SKIRT VENT
V1
V2
- 440 INSUL. SUPP. SEE DTL. "3"
FONDO ELL. 2:1 - I.D. 2200 Sp.Min.31 FORMATO A CALDO IN UN PEZZO DA LAM. Sp.35 (SOLUBILIZZATO DOPO FORMATURA) 2:1 ELL. HEAD - 86.614" I.D. 1.22" THK.MIN. HOT FORMED IN ONE PIECE FROM PLATE 1.378THK. (SOLUTION ANNEALED AFTER FORMING)
VORTEX BREAKER SEE DETAIL (TYP.)
COURSE "C" 53
COURSE "B" 52
W.L. - 2374
ELBOW 90° L.R. ø3" Sp.8
26
62 (TYP.)
2700
P4
23 24 25 27
COURSE "A" 51
SS
SLEEVE SKIRT
Sp. 14 (0.552" THK.)
øi GONNA 2218 (87.323" I.D. SKIRT)
SA2
SA1
- 3990 SKIRT ACCESS
26 THK.
(EL.+ 300 FROM GROUND)
2360 B.C.D. (N°20-40 DIA. HOLES FOR M30 TYPE 4 BOLTS) (BECHTEL STD. Q-305/1)
TAILING LUG SEE DETAIL
VIROLA "VI" COURSE
VIROLA "V" COURSE
VIROLA "IV" COURSE
VIROLA "III" COURSE
VIROLA "II" COURSE
VIROLA "I" COURSE
830
631
581
50
570
2950
1030
1000
17800
23530 (77'-2 3/8")
813
2200
18962 (62'-2 17/32")
N°9 SPACES x 700 = 6300
N°9 SPACES x 600 = 5400
800
631
581
4900

REV No.	DATE	DESCRIPTION	DRAWN UP	CHECKED	APPROVED
SCALE:		JOB No.			

الشركة العربية للألياف الصناعية ابن رشد
ARABIAN INDUSTRIAL FIBERS Co. (IBN RUSHD)
YANBU SAUDI ARABIA

IBN RUSHD PTA PLANT
YANBU SAUDI ARABIA
350,000 MT/Y PTA PLANT

Plant Unit	DRAWING No.	SHEET	REVISION

NOTE: FOR W.P.S. AND P.Q.R. SEE SICES DOCUMENT N° SS-4063.

POS.	WELDING PROCESS	FILLER METALS	N° WPS	N° PQR

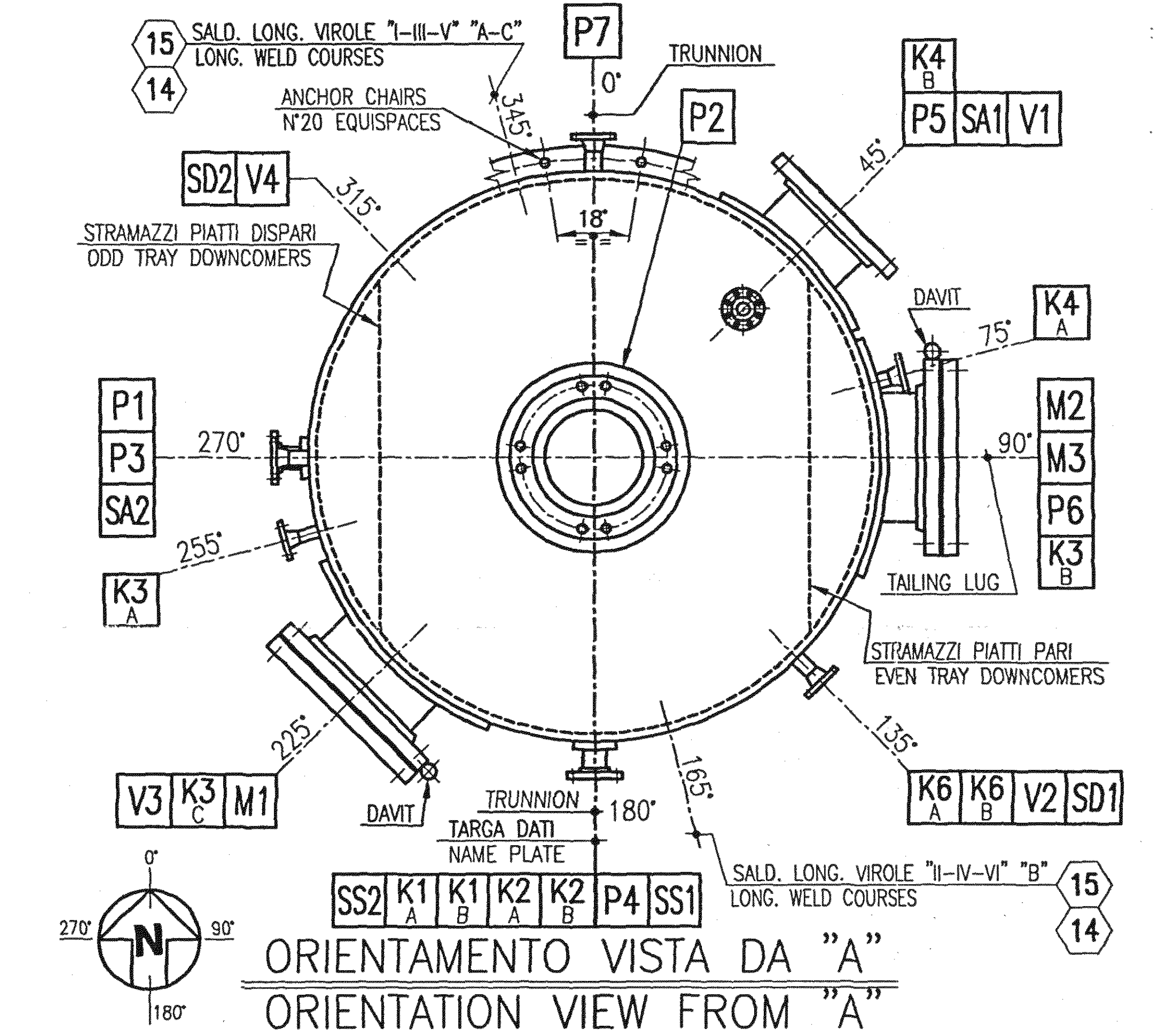
WELDING PROCESS
SMAW: SHIELDED METAL-ARC WELDING
GMAW: GAS METAL-ARC WELDING
GTAW: GAS TUNGSTEN-ARC WELDING
FCAW: FLUX CORED-ARC WELDING
SAW : SUBMERGED-ARC WELDING

WELDING DESCRIPTIONS

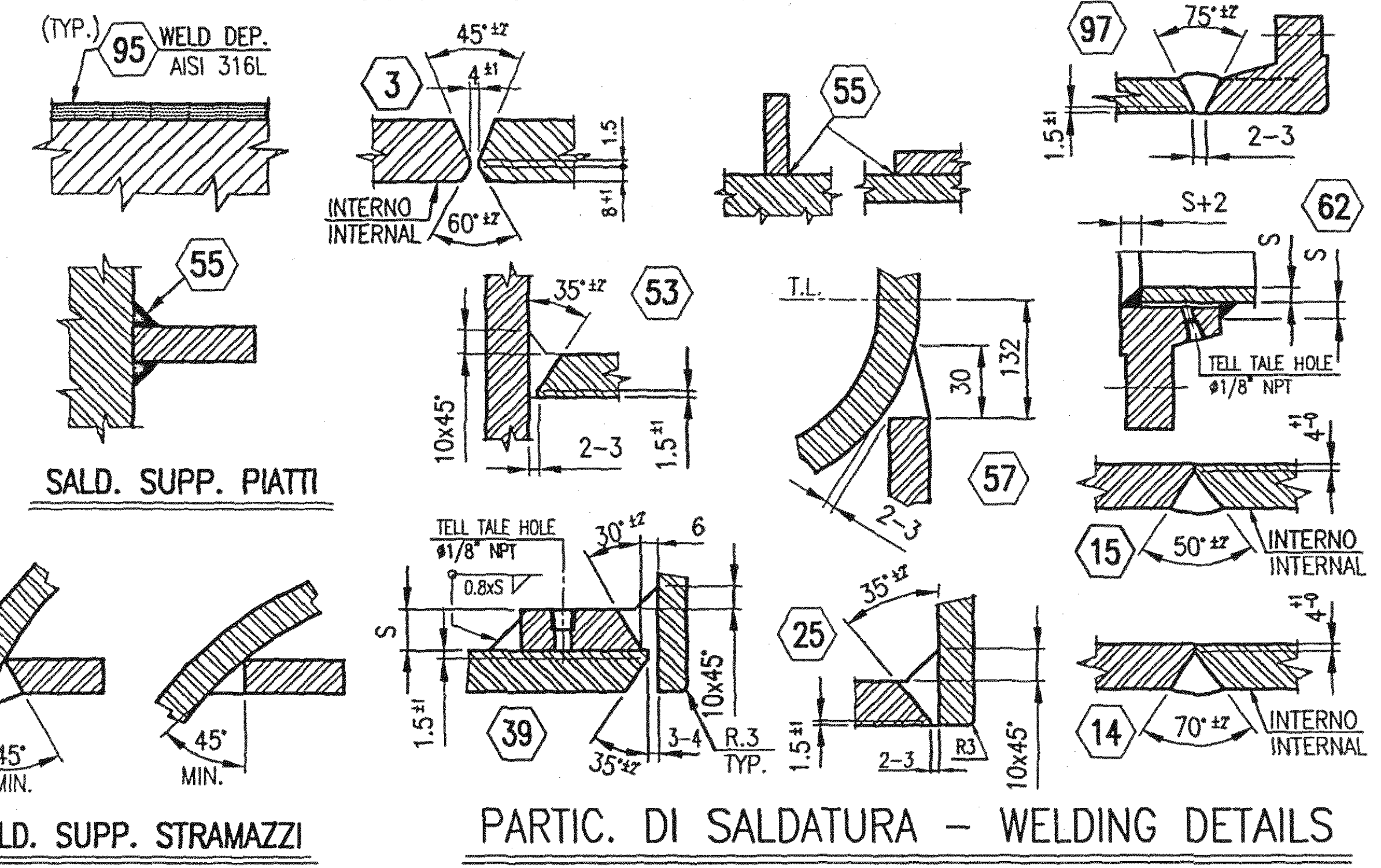
POS.	DESCRIPTION	N° PIECES	MATERIAL	SYM.M	DIMENSIONS	NOTES
65	NAME PLATE SUPPORT △1	1	SA 240 Tp. 316L	◐	286 x 300 x 5thk.	6-7
66	NAME PLATE "SICES" △1	1	AISI 304	○	SEE DWG. Sh. "4"	
67	NAME PLATE "ASME" △1	1	AISI 304	○	SEE DWG. Sh. "4"	
68	RIVETS △1	8	AISI 304	○	ø3 x Lg.25	
69	REINFORCING PLATE TRUNNION △1	2	SA 240 Tp. 316L	◐	350x350x35thk. (HOLE ø278)	6-7
70	PLATE TRUNNION △2	2	SA 240 Tp. 316	○	580 x 340 x 26thk.	
71	PLATE TRUNNION △2	2	SA 240 Tp. 316	○	ø290/77 x 20thk.	
72	PIPE FOR TRUNNION △2	2	SA 240 Tp. 316	○	ø10" Sch.80S Lg.180	6-7
73	REINF. PLATE TAILING LUG △1	2	SA 516 Gr.70	○	570 x 890 x 14thk.	
74	PLATE TAILING LUG △1	1	SA 516 Gr.70	○	405 x 940 x 30thk.	
75	RIBS TAILING LUG △1	2	SA 516 Gr.70	○	330 x 550 x 26thk.	
76	DISK PLATE TAILING LUG △1	2	SA 516 Gr.70	○	ø290/93 x 26thk.	
77	PLATE VORTEX BREAKER △1	1	SA 240 Tp. 316L	◐	240 x 160 x 8thk.	6-7
78	PLATE VORTEX BREAKER △1	2	SA 240 Tp. 316L	◐	116 x 80 x 8thk.	6-7
79	INTERNAL PLATE △1	1	SA 240 Tp. 316L	◐	ø2200/1016 x 8thk.	6-7
80	INTERNAL COURSE △1	1	SA 240 Tp. 316L	◐	I.D. 1000 x 8thk. Lg.658	6-7
81	INTERNAL RIBS △2	4	SA 240 Tp. 316L	◐	592 x 350 x 8thk.	6-7
82	INTERNAL MANHOLE SUPP. △1	2	SA 240 Tp. 316L	◐	1100 x 360 x 8thk.	6-7
83	INTERNAL MANHOLE SUPP. △1	2	SA 240 Tp. 316L	◐	1086 x 55 x 8thk.	6-7
84	INTERNAL MANHOLE COVER PLATE △1	1	SA 240 Tp. 316L	◐	1200 x 460 x 8thk.	6-7
85	INTERNAL PLATE △1	6	SA 240 Tp. 316L	◐	550 x 90 x 8thk.	6-7
86	INTERNAL PLATE △1	6	SA 240 Tp. 316L	◐	250 x 90 x 8thk.	6-7
87	BOLT WITH NUT AND WASHER △1	24	AISI 316L	○	M12 x Lg.35	6
88	SUPPORT PLATE DEMISTER △1	1	SA 240 Tp. 316L	◐	60 x 10thk. Sv.= 6723	6-7
89	INSULATION SUPPORT PLATE △1	4	SA 240 Tp. 304	○	20 x 5thk. Sv.= 7175	
90	INSUL. SUPP. PLATE △1	1	SA 240 Tp. 304	○	45 x 5thk. Sv.= 7411	
91	INSUL. SUPP. PLATE △1	1	SA 240 Tp. 304	○	45 x 5thk. Sv.= 7254	
92	INSUL. SUPP. ROD △1	1	SA 36	○	ø7 x Lg.= 15 mt.	
93	INSUL. SUPP. ROD △1	48	AISI 304	○	ø7 x Lg.= 25	
94	SHAPE FROM PLATE DEMISTER SUPP. △1	1	SA 240 Tp. 316L	◐	80 x 10thk. Lg.= 2180	6
95	SHAPE FROM PLATE DEMISTER SUPP. △1	2	SA 240 Tp. 316L	◐	40 x 10thk. Lg.= 2180	6
96	SUPP. PLATE SHAPE △1	2	SA 240 Tp. 316L	◐	80 x 70 x 10thk.	6
97	BOLT WITH NUT AND WASHER △1	2	AISI 316L	○	M16 x Lg.30	
98	PIPE △1 K1 A	1	SA 240 Tp. 316L	◐	ø3" Sp.8 Lg.357	6-7
99	PIPE △1 K1 A	1	SA 240 Tp. 316L	◐	ø3" Sp.8 Lg.136	6-7
100	HEXAG. NUTS △1	46	AISI 316L	○	M10	
101	HEXAG. NUTS △1	644	SA 307 GR. B	○	M10	
102	HANDLE FROM ROD △1	2	AISI 316L	○	ø20 x Lg.= 310	
64	PLATE SLEEVE SKIRT △2	1	SA 240 Tp. 316L	○	767 x 130 x 14 thk.	
63	BOLT WITH 2 NUTS AND WASHER △1	4	AISI 304	○	M12 x Lg.40	
62	EARTHING LUG PLATE △1	4	AISI 304	○	125 x 125 x 8 thk.	
61	PIPE VENT SKIRT △1	4	SA 312 Tp. 316	○	ø4" Sch.80 Lg.116	
60	PLATE DRAIN SKIRT △1	2	SA 516 GR. 70	○	335 x 120 x 10 thk.	
59	PLATE SLEEVE SKIRT △2	1	SA 516 GR. 70	○	767 x 130 x 14 thk.	
58	PLATE ACCESS SKIRT △2	2	SA 516 GR. 70	○	2080 x 190 x 26 thk.	
57	RIBS PLATE SKIRT △1	41	SA 516 GR. 70	○	204 x 102 x 14 thk.	
56	TOP RING SKIRT △1	1	SA 516 GR. 70	○	ø2450/2246 x 30 thk.	
55	BASE RING SKIRT △1	1	SA 516 GR. 70	○	ø2315/2055 x 26 thk.	
54	DEMISTER (SEE DWG.N° 5529 Sh.5) △1	1	AISI 316L	○	ø2200 x 150 thk.	
53	SKIRT COURSE	1	SA 240 TP. 316L	◐	I.D.2218 x 14 thk. Lg.500	6
52	SKIRT COURSE △1	1	SA 516 GR. 70	○	I.D.2218 x 14 thk. Lg.1742	6
51	SKIRT COURSE	1	SA 516 GR. 70	○	I.D.2218 x 14 thk. Lg.2500	6
50	GALVANIZED SHACKLE △1	3	TYPE "CROSBY G-2130"	○	ø1/2" PORTATA 1.5t.	
49	SCREW △1	6	AISI 304	○	ø1/4" B1.1 Lg.15	
48	GREASE NIPPLE △1	3	AISI 304	○	ø1/8" B1.20.1	
47	HALF COUPLING △1	3	SA 182 GR.F 304	○	ø1/8" B1.20.1 3000lbs.	
46	HEXAG. NUT FOR DAVIT △1	6	SA 307 Gr.B	○	ø3/4" B1-1 UNC	
45	WASHER FOR DAVIT △1	3	SA 307 Gr.B	○	ø3/4"	
44	EYE-BOLT DAVIT FROM ROD △1	3	SA 36	○	øM20 x Lg.230 - SEE DTL.	
43	EYE DAVIT FROM ROD △1	3	SA 36	○	ø16 x Lg.250	
42	HANDLE DAVIT FROM ROD △1	6	SA 36	○	ø16 x Lg.430	
41	CAP FOR DAVIT △1	3	SA 403 Wp.304	○	ø4" Sch.5S	
40	PIPE SUPP. DAVIT △1	3	CHLORINATED POLYVINIL CHLORIDE PIPE	○	ø3" Sch.80S Lg.289	
39	PIPE SUPP. DAVIT △1	3	SA 312 Tp.304	○	ø3 1/2" Sch.40S Lg.305	
38	PIPE DAVIT △1	3	SA 106 Gr.B	○	ø2 1/2" Sch.160 Lg.1165	
37	DISK PLATE FOR DAVIT △1	3	SA 240 Tp.304	○	ø90 x 10thk.	
36	DISK PLATE FOR DAVIT △1	3	SA 516 Gr.70	○	ø53 x 6thk.	
35	SUPP. PLATE FOR DAVIT △1	3	SA 240 TP. 316L	◐	254 x 123 x 10thk.	6
34	SUPP. PLATE FOR DAVIT △1	3	SA 240 TP. 316L	◐	296 x 254 x 10thk.	6
33	FLANGE WN-RF K3 A/B/C	3	SA 182 GR.F 316L	◐	ø1 1/2" 300 lbs Sch.80S	6-7
32	PIPE K3 A/B/C	3	SA 312 TP. 316L	◐	ø1 1/2" Sch.80S Lg.113	6-7
31	FLANGE WN-RF K4 B	1	SA 182 GR.F 316L	◐	ø2" 300 lbs Sch.80S	6-7
30	PIPE K4 B	1	SA 312 TP. 316L	◐	ø2" Sch.80S Lg.165	6-7
29	FLANGE WN-RF P3-P6-P7-K2 A/B-K4 A-K6 A/B	8	SA 182 GR.F 316L	◐	ø2" 300 lbs Sch.80S	6-7
28	PIPE P3-P6-P7-K2 A/B-K4 A-K6 A/B	8	SA 312 TP. 316L	◐	ø2" Sch.80S L[illegible].11	[illegible]-7
27	FLANGE SO-RF P4	1	SA 182 GR.F 316L	◐	ø3" 300 lbs	6-7
26	ELBOW 90° L.R. △1 P4-K1 A	2	SA 240 TP. 316L	◐	ø3" Sp.8	6-7
25	PIPE P4	1	SA 240 TP. 316L	◐	ø3" Sp.8 Lg.1156	6-7
24	PIPE P4	1	SA 240 TP. 316L	◐	ø3" Sp.8 Lg.2037	6-7
23	REINFORCING PLATE P4	1	SA 240 TP. 316L	◐	ø200/99 x 35 thk.	6-7
22	FLANGE SO-RF P1-K1 A/B	3	SA 182 GR.F 316L	◐	ø3" 300 lbs	6-7
21	PIPE △1 P1-K1 B	2	SA 240 TP. 316L	◐	ø3" Sp.8 Lg.171	6-7
20	REINFORCING PLATE P1-K1 A/B	3	SA 240 TP. 316L	◐	ø200/99 x 32 thk.	6-7
19	FLANGE SO-RF △1 P2-P5	2	SA 105 + W.D. AISI 316L	◐	ø16" 300 lbs - SEE DTL.	3-4-6
18	PIPE FROM PLATE △1 P5	1	SA 240 TP. 316L	◐	406 O.D. x 14 thk. Lg.285	6-7
17	PIPE FROM PLATE △1 P2	1	SA 240 TP. 316L	◐	406 O.D. x 14 thk. Lg.278	6-7
16	REINFORCING PLATE P2-P5	2	SA 240 TP. 316L	◐	ø750/416 x 35 thk.	6-7
15	GASKET M1-M2-M3	3+6	SEE NOTE "1"	○	ø20" 300 lbs RF	
14	HEXAG. NUT M1-M2-M3	144+16	SA 194 GR. 2H	◐	ø1 1/4" B1.1-UN8	6
13	STUD BOLT M1-M2-M3	72+8	SA 193 GR. B7	◐	ø1 1/4" B1.1-UN8 Lg.220	6
12	BLIND FLANGE RF M1-M2-M3	3	SA 105+CLAD.+W.D. AISI 316L	◐	ø20" 300 lbs - SEE DTL.	3-4-6
11	FLANGE SO-RF △1 M1-M2-M3	3	SA 105 + W.D. AISI 316L	◐	ø20" 300 lbs - SEE DTL.	3-4-6
10	CARTELLA M1-M2-M3	3	SA 240 TP. 316L	◐	ø474 x 8 thk.	6-7
9	PIPE FROM PLATE △1 M1-M2-M3	3	SA 240 TP. 316L	◐	508 O.D. x 14 thk. Lg.296	6-7
8	REINFORCING PLATE △1 M1-M2-M3	3	SA 240 TP. 316L	◐	ø940/518 x 32 thk.	6-7
7	SHELL COURSE	1	SA 240 TP. 316L	◐	I.D.2200 x 32 thk. Lg.2950	6-7
6	SHELL COURSE	1	SA 240 TP. 316L	◐	I.D.2200 x 32 thk. Lg.2950	6-7
5	SHELL COURSE	1	SA 240 TP. 316L	◐	I.D.2200 x 32 thk. Lg.2950	6-7
4	SHELL COURSE	1	SA 240 TP. 316L	◐	I.D.2200 x 32 thk. Lg.2950	6-7
3	SHELL COURSE	1	SA 240 TP. 316L	◐	I.D.2200 x 32 thk. Lg.2950	6-7
2	SHELL COURSE	1	SA 240 TP. 316L	◐	I.D.2200 x 32 thk. Lg.2950	6-7
1	ELL. HEAD 2:1 coll.h.50	2	SA 240 TP. 316L	◐	I.D.2200 x 31 min.thk.	6-7

MATERIAL LIST

MATERIALS TEST SYMBOL		THICKNESSES TOLERANCE	
◐ MATERIAL WITH MANUFACTURER CERTIFICATE	(DIN 50049 TYPE 3.1.B)	PLATES:	-0,25 mm
○ MATERIAL WITHOUT CERTIFICATE		PIPES:	-12,5%
		HEADS:	SEE NOTE (G)


15
SALD. LONG. VIROLE "I-III-V" "A-C" LONG. WELD COURSES
14
P7
0°
TRUNNION
ANCHOR CHAIRS N°20 EQUISPACES
345°
P2
K4 B
P5
SA1
V1
45°
SD2
V4
315°
STRAMAZZI PIATTI DISPARI ODD TRAY DOWNCOMERS
18°
DAVIT
75°
K4 A
M2
M3
P6
K3 B
90°
P1
P3
SA2
270°
255°
K3 A
TAILING LUG
STRAMAZZI PIATTI PARI EVEN TRAY DOWNCOMERS
225°
135°
165°
V3
K3 C
M1
DAVIT
TRUNNION
180°
TARGA DATI NAME PLATE
K6 A
K6 B
V2
SD1
SS2
K1 A
K1 B
K2 A
K2 B
P4
SS1
SALD. LONG. VIROLE "II-IV-VI" "B" LONG. WELD COURSES
15
14
N
0°
90°
180°
270°

ORIENTAMENTO VISTA DA "A"
ORIENTATION VIEW FROM "A"


(TYP.)
95
WELD DEP. AISI 316L
3
45°±2
1.5
8±1
INTERNO INTERNAL
60°±2
55
97
75°±2
2-3
1.5±1
S+2
62
S
S
55
35°±2
53
2-3
10x45°
1.5±1
30
132
TELL TALE HOLE ø1/8" NPT
57
15
50°±2
INTERNO INTERNAL
SALD. SUPP. PIATTI
TELL TALE HOLE ø1/8" NPT
S
30°±2
0.8S
25
10x45°
45° MIN.
45° MIN.
39
35°±2
3-4
R.3 TYP.
1.5±1
2-3
R3
10x45°
14
70°±2
INTERNO INTERNAL
SALD. SUPP. STRAMAZZI

PARTIC. DI SALDATURA - WELDING DETAILS

TEST COUPONS FOR WELDED HEADS		NONE	
PRODUCTION TEST COUPON		NONE △2	
TEST CATEGORY		//	
UT: ULTRASONIC EXAMINATION		SEE FABRICATION NOTES	
MT: MAGNETIC PARTICLE EXAMINATION		SEE FABRICATION NOTES	
PT: LIQUID PENETRANT EXAMINATION		SEE FABRICATION NOTES	
RT: RADIOGRAPHIC EXAMINATION	SHELL	FULL	
	HEADS/SHELL	FULL	
PWHT: POSTWELD HEAT TREATMENT		NONE	
	SIDE	SHELL	NOTES

NOTES

WELDING EXAMINATIONS AND PWHT

NUMBER	ISSUE	TITLE
DUPONT SG 14.1 S	1	CLEANLINESS REQ. FOR STNL. STEEL EQUIPMENTS
DUPONT SG 1 S	1	GENERAL FABRICATION REQUIREMENTS
DUPONT SG 2 T △1	1	TESTING STAINLESS STEEL FOR PRESENCE OF MOLYBDENUM
DUPONT SW 800 M △1	1	CORROSION EVALUATION OF STAINLESS STEEL AND NICKEL BASED ALLOY
5529-TS △1	2	TRANSPORTATION DRAWING
5529-FT △1	1	FOUNDATION TEMPLATE
5529 Fg.4 △1	2	NAME PLATES
5529 Fg.3 △1	1	DETAILS
5529 Fg.2 △1	2	DETAILS
2743-CZ-SG-001 △1	1	FIREPROOFING GENERAL SPECIFICATION
2743-YW-SG-001 △1	5	SHOP PAINTING
2743-VB-FP-001 △1	3	EQUIPMENT GENERAL NOTES
2743-CC-MR-018	2	MATERIAL REQUISITION
2743-CC-DX-131	2	TECNIMONT BASIC DRAWING
22854-SP-000-M-001	2	BASIC CIVIL ENGINEERING DESIGN DATA
22854-SP-000-W-001	1	MAT., WELDING, NDT AND CORROSION CONTROL
22854-SP-000-D-001	1	UNIFIRED PRESSURE VESSELS
22854-SP-000-A-002	2	BASIC DESIGN DATA

DRAWINGS AND SPECIF. REFERENCE

FF) MATERIALS FOR PRESSURE PARTS AND IN CONTACT WITH PROCESS FLUID SHALL BE TESTED ACCORDING △1 *TO DUPONT SPECIFICATION SG-2-T.*
EE) STAINLESS STEEL INTERNAL SURFACES SHALL BE CLEANED AS PER SPECIFICATION DUPONT SG.14.1.S.
DD) HYDRAULIC TEST PERFORMED USING WATER WITH A MAX. 50 P.P.M. OF CHLORIDE AND TEMPERATURE MINIMUM OF 7°C.
CC) WELD DEPOSIT SHALL BE INSPECTED ACCORDING TO PARA D5.2 OF APPENDIX "D" SPECIF. 22854-SP-000-[illegible]01 REV.1.
BB) BASE METAL WELDED JOINT SHALL BE INSPECTED AS PER CODE PRIOR TO CLAD RESTORATION WITH WELD DEPOSIT.
AA) DYE PENETRANT SHALL BE CARRIED OUT AS FOLLOW :
- 100% ON WELDS OF NOZZLES TO SHELL OR HEADS.
- 10% ON WELDS OF ALL OTHER ATTACCHEMENTS TO PRESSURE PARTS.

FABRICATION NOTES

7) MATERIALS FOR PRESSURE PARTS AND IN CONTACT WITH PROCESS FLUID SHALL BE ACCORDING TO SPECIFIC. 2743-VB-FP-001 REV.03 PARAS "1.b" AND "2.b" AND DUPONT SPECIFICATION SW-800-M. △1
6) MATERIALS FOR PRESSURE PARTS SHALL BE ACCORDING TO ASME II PART. "A" ED. 1995.
5) MINIMUM DESIGN METAL TEMPERATURE = 8°C. : IMPACT TEST NOT REQUIRED ACC. TO ASME VIII DIV.1 ED. 1995 PARAS UCS(66a) AND UHA 51(a).
4) CARBON STEEL MATERIALS FOR PRESSURE PARTS SUPPLIED IN NORMALIZED CONDITIONS.
3) CARBON STEEL MATERIALS FOR PRESSURE PARTS WITH CARB. CONT. 0.25% MAX.
2) 3THK. GASKET PTFE GLASS FILLED 25%. (INTERNAL GASKET)
1) 4,44THK. GASKET SPIRAL WOUND 316L S.S./PTFE GLASS FILLED 25% WITH 316L S.S. INTERNAL RING AND C.S. EXT. RING. *(EXTERNAL GASKET)*

MATERIAL NOTES

R) STABILITY CHECK IN FIRE CONDITIONS:
- PRESSURE = 1.1 DESIGN PRESSURE; - TEMPERATURE = 260°C; - ALLOW. STRESS = THE LOWER BETWEEN 0.7 Su (ULTIMATE TENSILE STRENGTH AT 260°C) AND 2.4 Sm (Sm= THE MINOR BETWEEN Su/3 AND Sy/1.5)

Q) FOR WIND AND EARTQUAKE SEE ALSO SPECIFICATIONS 22854-SP-000-A-002 REV.2 PARAS 3.5 AND 4.6 AND TABLES 1-2.
P) BESIDES THE INSTALLED MATERIALS AT SHOP SHALL BE SUPPLIED THE FOLLOWINGS SPARE PARTS,
EXTERNAL PARTS:
-N° 2 SETS OF GASKETS FOR MAIN FLANGES CONNECTING DIFFERENT SECTIONS OF THE EQUIPMENT
-N° 2 SET OF GASKETS FOR EACH MANHOLE, BLIND FLANGE AND PAD FLANGE.
-STUD BOLTS AND NUTS: 10% WITH A MINIMUM OF 2 PIECES FOR EACH MANHOLE, *BLIND FLANGE AND PAD FLANGE.*
INTERNAL PARTS:
-BOLTS,NUTS,CLAMPS AND GASKETS: 10% WITH A MINIMUM OF 10 PIECES FOR EACH CONNECTION TYPE.
O) NOZZLE FLANGE CONTACT FACES MUST BE PROTECTED WITH MARINE PLYWOOD OR METAL COVERS COMPLETE OF RUBBER GASKET OR MALLEABLE OILED CLOTH.
N) BEFORE SHIPPING THE UNIT MUST BE CLEANED, INTERNALLY DRAINED AND DRIED.
M) ALL UNQUOTED WELDS MUST HAVE SIDES EQUAL TO THE LOWER THICKNESS OF THE PLATES TO WELD.
L) FOR ALL REINFORCING PADS PROVIDE ONE 1/8" ANSI B1.20.1 NPT DIA. HOLE. PADS TO BE AIR TESTED AT 2 bar (g); AFTER THE PRESSURE MUST BE REDUCED TO 0.5 bar (g) AND ALL WELDS MUST BE TESTED FOR LEAKS WITH SOAP SOLUTION. *VENT HOLES WILL BE LEFT OPEN AFTER TESTING. THE HOLES MUST BE FILLED WITH GREASE.*
I) ALL INTERNAL AND EXTERNAL PARTS WELDED TO THE SHELL SHALL BE OF THE SAME MATERIAL WHICH CONSTITUTES THE SECTION *OF THE SHELL WHERE THE PARTS WILL BE WELDED.*
H) FLANGES ACCORDING TO STD. ANSI B16.5 - COUPLINGS ACCORDING TO ANSI B16.11 FULL LENGTH TYPE PER ANSI B1.20.1 TAPER PIPE THREADED - PIPES: CARBON STEEL ACCORDING TO ANSI B36.10 (SEAMLESS); STAINLESS STEEL PER ANSI B36.19 - PIPE FITTINGS ACCORDING TO ANSI B16.9.
G) ALL THICKNESSES SHOWN ON DRAWING EXCEPT FOR ELLIPTICAL HEADS ARE NOMINAL (FOR ELLIPTICAL HEADS ARE THE MINIMUM AFTER FORMING).
F) ALL REMOVABLE INTERNALS SHALL PASS THROUGH A MANHOLE SIZE (480 I.D.). △1
E) *TRAY ELEVATIONS ARE REFERRED TO TOP OF SUPPORT RING.*
D) ALL ELEVATIONS ARE MEASURED FROM BOTTOM TANGENT LINE.
C) UNLESS OTHERWISE INDICATED NOZZLE PROJECTIONS ARE MEASURED FROM EQUIPMENT CENTERLINE TO CONTACT FLANGE FACINGS.
B) UNLESS OTHERWISE INDICATED,ALL GIRTH FLANGES AND FLANGE CONNECTIONS BOLT HOLES MUST BE STAGGERED TO MAIN AXIS OF THE EQUIPMENT.
A) UNLESS OTHERWISE NOTED ALL DIMENSIONS ARE IN MILLIMETERS.

GENERAL NOTES

ITEM	PIECES	DN	SERVICE	FLANGE RATING	FLANGE TYPE	FLANGE FACING	NOZZLE O.D.	NOZZLE THK.	REINF. PAD O.D.	REINF. PAD THK.	PROJECTION	NOTES
K6 A-B	2	2"	LEVEL INDICATOR	300lbs	WN	RF	60.3	5.54	---	---	1280	
K4 B	1	2"	PRESSURE DROP	300lbs	WN	RF	60.3	5.54	---	---	SEE DWG.	
K4 A	1	2"	PRESSURE DROP	300lbs	WN	RF	60.3	5.54	---	---	1280	
K3 A÷C	3	1 1/2"	TEMPERATURE	300lbs	WN	RF	48.3	5.08	---	---	1280	
K2 A-B	2	2"	LEVEL CONTROL	300lbs	WN	RF	60.3	5.54	---	---	1280	
K1 A-B	2	3"	STAND PIPE BOTTOM	300lbs	SO	RF	88.9	8	200	32	1280	
P7	1	2"	DRAIN "13 D 001"	300lbs	WN	RF	60.3	5.54	---	---	1280	
P6	1	2"	LIQUID OUTLET	300lbs	WN	RF	60.3	5.54	---	---	1280	
P5	1	16"	VAPOR INLET △1	300lbs	SO	RF	406.4	14	750	35	1380	WELD DEPOSIT
P4	1	3"	BOTTOM OUTLET	300lbs	SO	RF	88.9	8	200	35	1280	
P3	1	2"	FEED 2	300lbs	WN	RF	60.3	5.54	---	---	1280	
P2	1	16"	VAPOR OUTLET △1	300lbs	SO	RF	406.4	14	750	35	SEE DWG.	WELD DEPOSIT
P1	1	3"	FEED	300lbs	SO	RF	88.9	8	200	32	1280	
M1÷M3	3	20"	MANHOLE (+BLIND AND DAVIT) △1	300lbs	SO	RF	508	14	940	32	1380	WELD DEPOSIT

NOTES

FLANGES SEALING SURFACE FINISHING -FOR SHELL NOZZLES SERRATED CONCENTRIC OR SERRATED SPIRAL FINISH ACCORDING TO ANSI B16.5 WITH RESULTING ROUGHNESS AARH 125-250 MICRONSin (ANSI B46.1)

LIST OF CONNECTIONS

DESIGN DATA

		SIDE	SHELL	NOTES
DESIGN CODES			ASME SECT. VIII DIV.1 ED. 1995	
CODE "U" STAMP			YES	
INSPECTION AUTHORITY			AUTHORIZED INSPECTOR	
PRESSURE (GAUGE)	DESIGN	bar (g)	29.2 (424 PSI.G)	
	OPERATING	bar (g)	20.4 ÷ 20.6	
	EXTERNAL	bar (g)	//	
	HYDROTEST IN VERTICAL (SHOP/FIELD)	bar (g)	43.8/43.8 (636 PSI.G)	
	HYDROTEST IN HORIZONTAL (SHOP)	bar (g)	45.5 (660 PSI.G) △2	ACC.UG 99(c)
	PNEUMATIC TEST	bar (g)	//	
	M.A.W.P. (HOT AND CORRODED)	bar (g)	29.2 (424 PSI.G) △1	
	M.A.P. (NEW AND COLD)	bar (g)	29.2 (424 PSI.G) △2	
TEMPERATURE	DESIGN	°C	135 (275 °F)	
	OPERATING	°C	56 ÷ 63	
	FOR FULL VACUUM DESIGN	°C	//	
MINIMUM DESIGN METAL TEMPERATURE			8 °C AT 29.2 bar (g) / 46.4 °F AT 424 PSI.G	△1
CORROSION ALLOWANCE		mm	1.5	
FLUID	TYPE		WATER/NITROGEN + ACETIC AC./NITROGEN	
	PHYSICAL STATE		LIQUID / VAPOR	
	SPECIFIC GRAVITY	kg/m³	995	
	CAPACITY	m³	70.7	
LIQUID LEV. FOR MECHANICAL DESIGN(ABOVE BOTTOM T.L.)		mm	//	
JOINTS EFFICENCY	SHELL		1	
	HEADS/SHELL		1	
OUT OF ROUND		%	ACCORDING TO ASME CODE UG-80	
INSULATION (BY OTHERS)		TYPE/THK.	MINERAL WOOL / 30 mm	
FIREPROOFING (BY OTHERS)		THK.	50 mm △1	
WIND PRESSURE	SEE BECHTEL SPEC. 22854-SP-		ASCE 7-88 "EXPOSURE C" △1	Q
SEISMIC ZONE	--000-M-001 REV.2 PARA.4.		ASCE 7-88 "ZONE 1" △1	Q
STABILITY CHECK IN FIRE CONDITIONS			SEE NOTE "R"	

LOADS AT BASE		*OPERATING*	HYDROTEST	EARTHQUAKE
VERTICAL LOAD	kN	790	1375	790
SHEAR	kN	67	17	42
MOMENT	kN·m	882	221	590

SUPPLY WEIGHT (MASS)	43800	kg	INSTALLATION	OUTDOOR
WEIGHT FULL OF WATER	114500	kg	SADDLES MOVEMENT	---- mm
SURFACES *(IN FIELD)*				
AVERAGE INSULATION SURFACE	~145	m²		
SURFACE OF INSULATION JACKETING	~148	m²		
FINAL PAINTING SURFACE (CARBON STEEL PARTS)	~ 74	m²		

PAINTING : (IN WORK SHOP)
- FOR CARBON STEEL PARTS: SANDBLASTING SA 2 1/2 AND PAINTING WITH ONE COAT OF INORGANIC ZINC SILICATE 75 MICRONS D.F.T.
- FOR STAINLESS STEEL INTERNAL PARTS: SEE NOTE "EE"
- FOR STAINLESS STEEL EXTERNAL PARTS: PICKLING BY PASTE ON EXTERNAL WELDING AND PROTECT WITH TECTIL △2

ZONE RESERVED FOR APPROVAL STAMPS

MANUFACTURER'S TRADE MARK
SICES LONATE CEPPINO (VARESE) ITALIA
MANUFACTURER'S DRAWING N° 5529 sh. 1
ISSUE 0 1 2

TECNIMONT
CLIENT ARABIAN IND. FIBER CO. LTD.
CLIENT REF. IBN RUSHD
PLANT LOCATION YANBU SAUDI ARABIA

YEAR	JOB	N° PIECES	WORK NUMBER	SCALE
1996	651651	ONE	4063	1:50/1:25

PLANT PTA-YANBU SAUDI ARABIA
ITEM 13 C 001
SERVICE HIGH PRESSURE ABSORBER

IDENTIFICATION CODE

JOB				E	C	T		N°		
2	7	4	3	C	C	V	D	1	3	1

SHEET 0 0 1 ISSUE 0 3

DRAWN UP SICES
APPROVED D.I.
DATE JUNE 96
PURCHASER TECNIMONT
NOT TO BE REPRODUCED WHOLE DWG. PART NOR ENPLOYED FOR ANY PURPOSE OTHER THAN SPECIFICALLY *PERMITTED WRITING.*
PURCHASER ORDER W040476 NG
MATERIAL REQUISITION 2743-CC-MR-018

REV.	DATA Date	DESCRIZIONE Description	DIS. Drawn.	CONTR. Ck.d	VISTO QCM QCM Visa	APPROV. Approved
2	*31-08-96*	*REVISED WHERE MARKED △2*	*tostic*	05.09.96	05.09.96	05.09.96
1	*14-06-96*	*REVISED WHERE MARKED △1*	*tostic*			
0	*12-04-96*	*ISSUED FOR APPROVAL*	*tostic*			

SICES LONATE CEPPINO (VARESE) ITALIA
COMMITTENTE - Purchase *TECNIMONT S.p.A. - MILANO*
ORDINE - Purchase order N. *W040476 NG*
COMMESSA - Job N. 651651

UTENTE - USER : *IBN RUSHD*
LOCALITA' - PLANT LOCATION : *YANBU SAUDI ARABIA*
IMPIANTO - UNIT : *IBN RUSHD PTA AND AROMATICS PROJECT*
SERVIZIO - SERVICE : *HIGH PRESSURE ABSORBER*

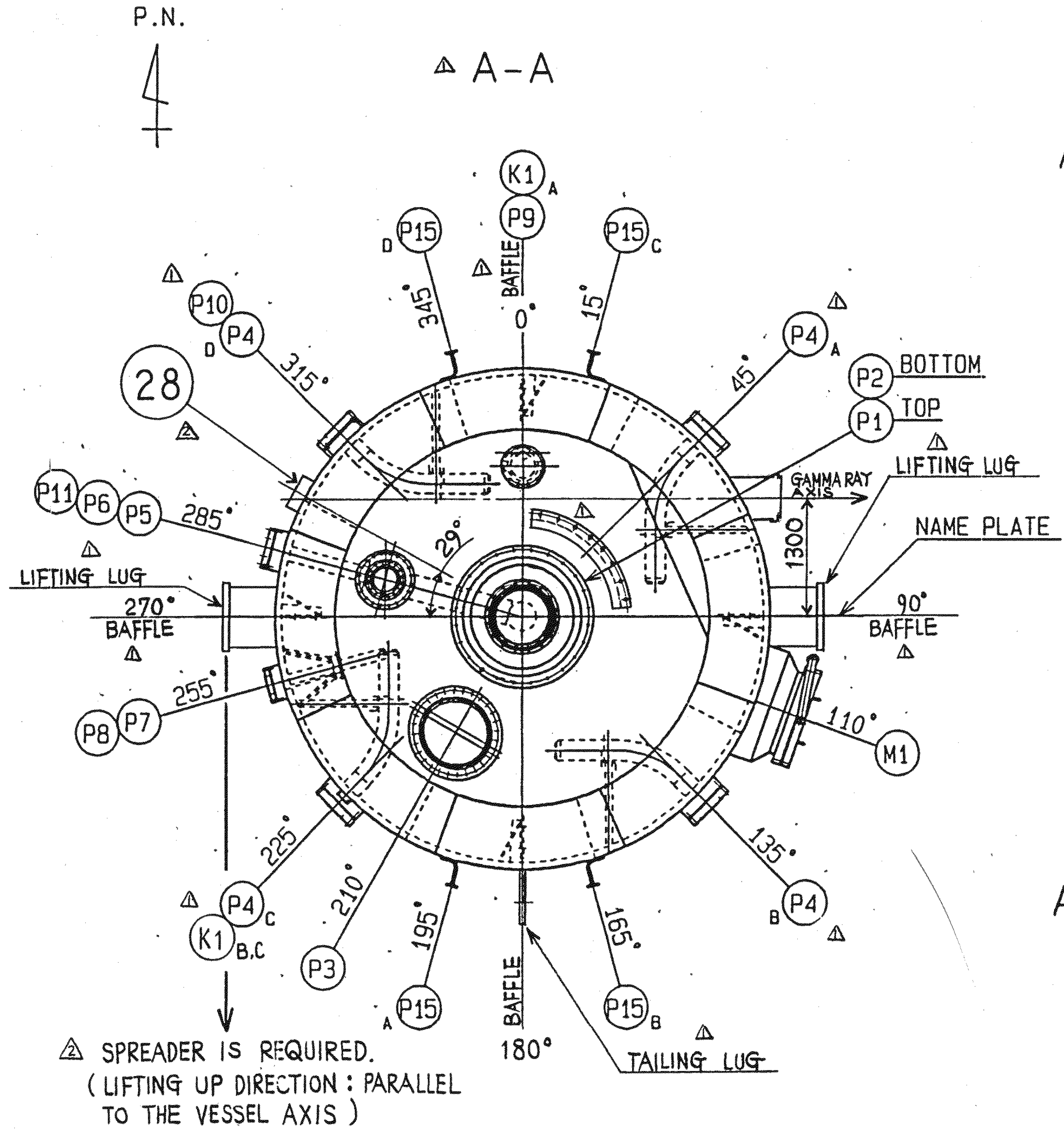
IL PROGETTISTA :
FINAL

HIGH PRESSURE ABSORBER
" 13 C 001 "
(ASSEMBLY)

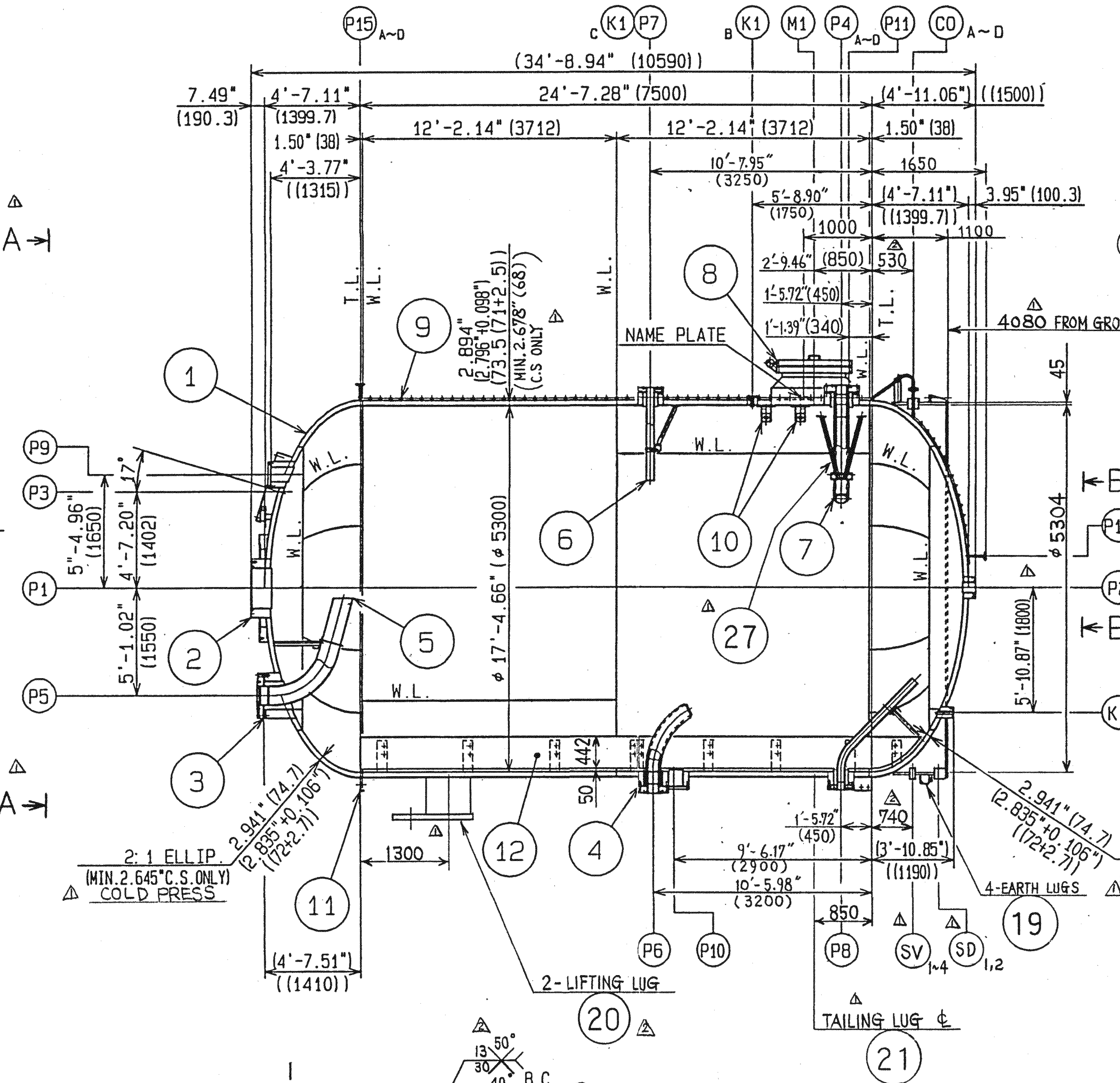
DISEGNO - Drg. 5529

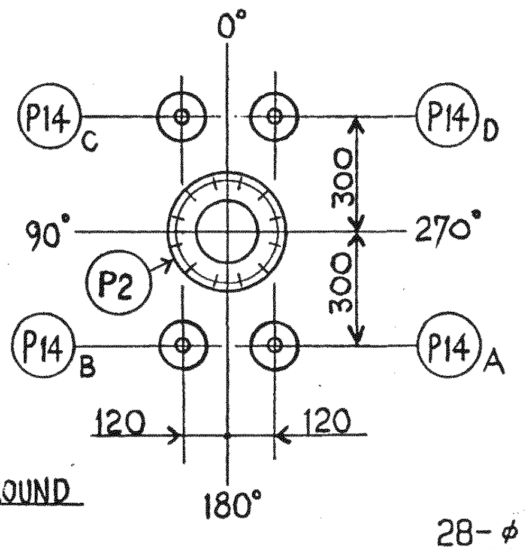
Questo disegno e' vincolato a norma di legge All right of this drawing are reserved	TECNIMONT JOB :	WORK SERIAL NUMBER:	SCALA - Scale	FG.-Sh	DI-Of	REV.
	2743-09	4063	1:50/1:25	1		☒ ☒ 2

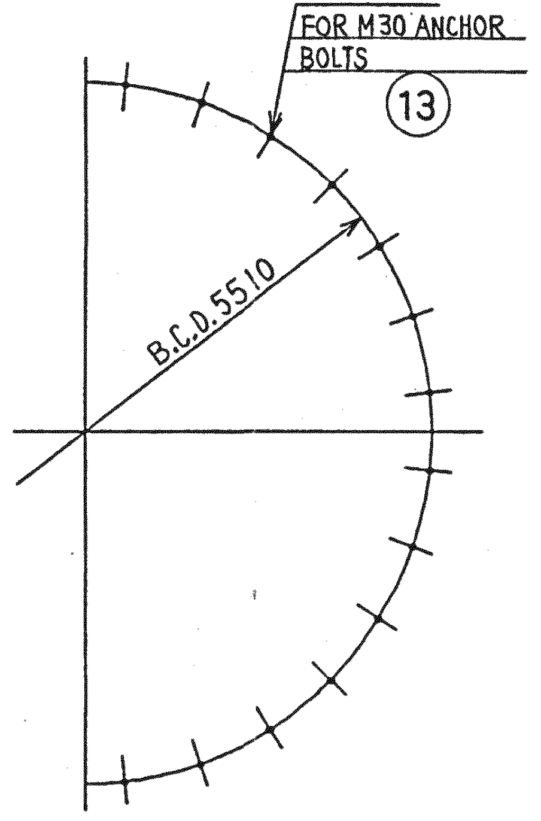
3121- 716400


P.N.
△ A-A
K1
P9
P15
P15
P10
P4
P4
28
P2 BOTTOM
P1 TOP
P11
P6
P5
LIFTING LUG
270°
BAFFLE
GAMMA RAY AXIS
1300
LIFTING LUG
NAME PLATE
90°
BAFFLE
P8
P7
M1
P4
K1 B.C
P3
P15
P15 B
P4
BAFFLE
TAILING LUG
180°
0°
315°
345°
15°
45°
285°
25°
255°
225°
210°
195°
165°
135°
110°

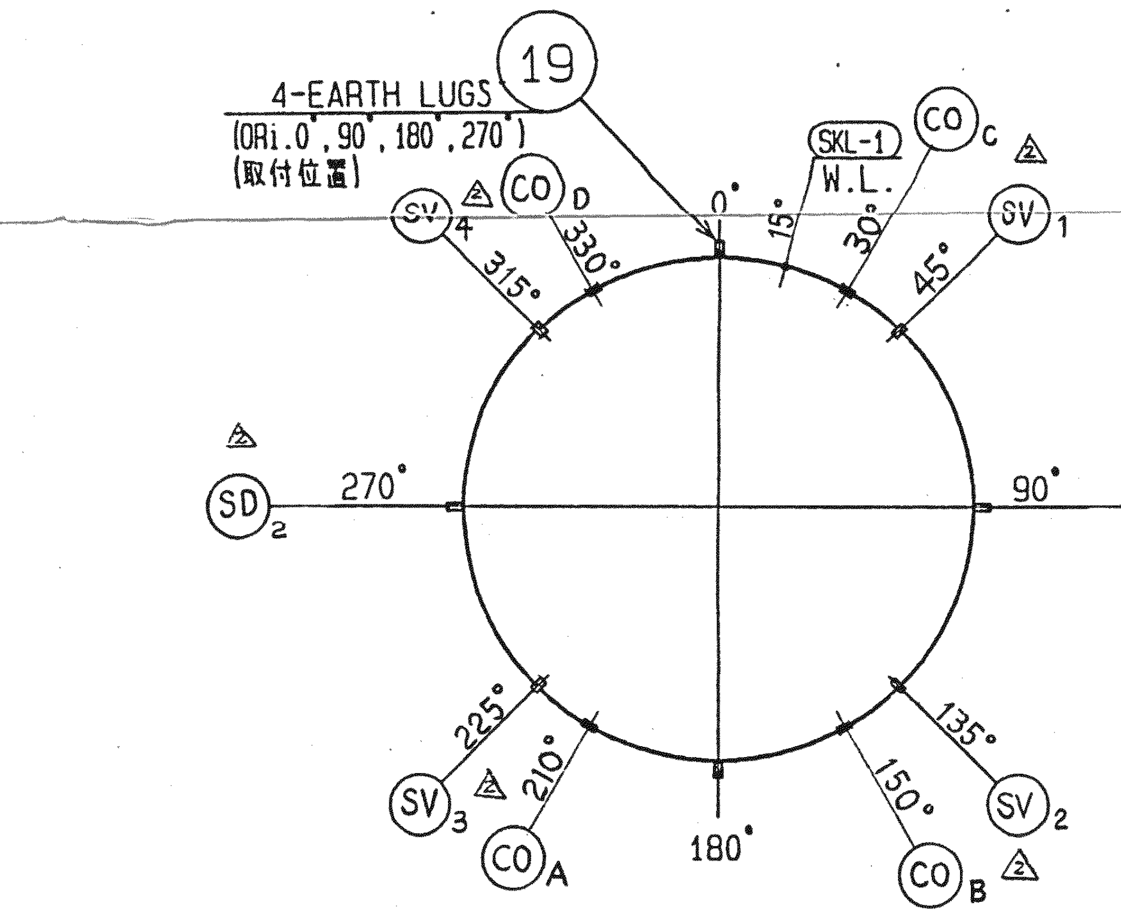
△ SPREADER IS REQUIRED.
(LIFTING UP DIRECTION : PARALLEL TO THE VESSEL AXIS)


P15 A~D
K1 P7
K1 M1 P4 P11 CO A~D
(34'-8.94" (10590))
7.49" (190.3)
4'-7.11" (1399.7)
24'-7.28" (7500)
4'-11.06" ((1500))
1.50" (38)
12'-2.14" (3712)
12'-2.14" (3712)
1.50" (38)
4'-3.77" ((1315))
10'-7.95" (3250)
1650
5'-8.90" (1750)
4'-7.11" ((1399.7))
3.95" (100.3)
1000
1100
2'-9.46" (850)
530
1'-5.72" (450)
1'-1.39" (340)
A
T.L.
W.L.
2.894" (73.5) (+0.098" / -0) (+2.5)
MIN.2.678" (68) (C.S ONLY)
NAME PLATE
4080 FROM GROUND
45
1
9
8
P9
P3
P1
P2
P5
5'-4.96" (1650)
17"
4'-7.20" (1402)
5'-1.02" (1550)
φ 17'-4.66" (φ 5300)
φ 5304
P14 A~D
B
B
5'-10.87" (1800)
K1 A
2
3
5
6
10
7
27
2.941" (74.7)
2.835" +0.106" (72(+2.7))
2:1 ELLIP.
(MIN.2.645"C.S.ONLY)
△ COLD PRESS
442
50
1300
11
12
4
1'-5.72" (450)
740
9'-6.17" (2900)
3'-10.85" ((1190))
10'-5.98" (3200)
850
4-EARTH LUGS
19
2:1 ELLIP.
(MIN.2.645"C.S.ONLY)
△ COLD PRESS
4'-7.51" ((1410))
P6
P10
P8
SV 1~4
SD 1,2
2-LIFTING LUG
20
TAILING LUG ℄
21

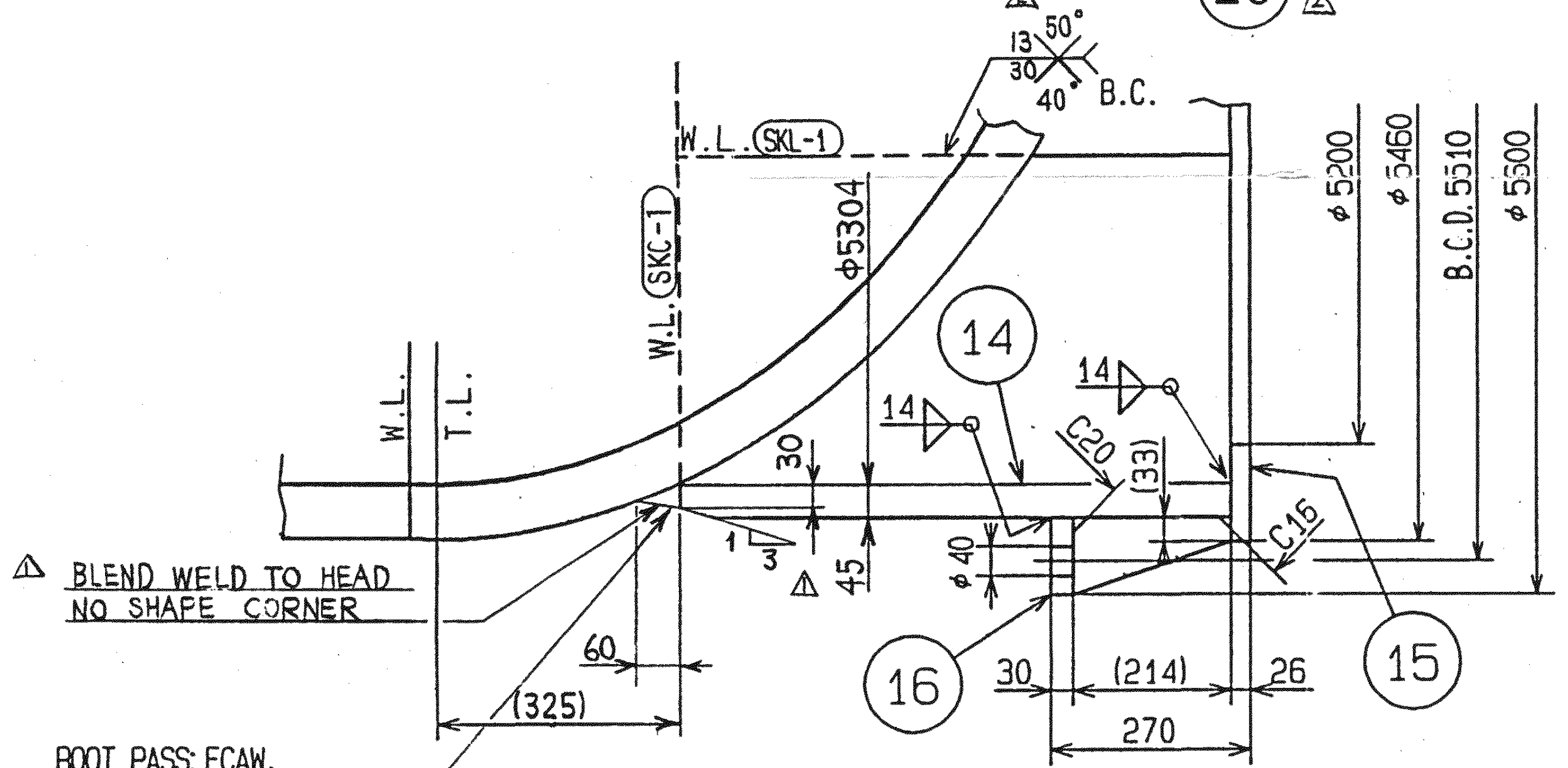

△ B-B
0°
P14 C
P14 D
90°
270°
P2
300
300
P14 B
P14 A
120
120
180°

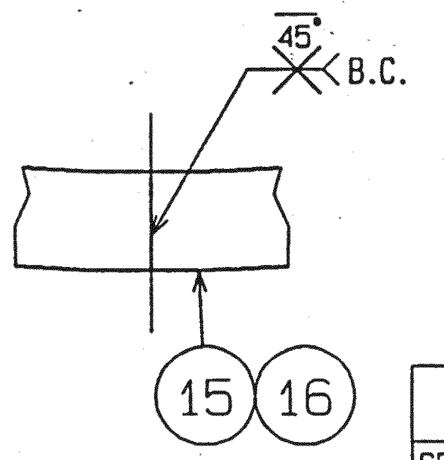

28-φ 40
FOR M30 ANCHOR BOLTS
13
B.C.D.5510

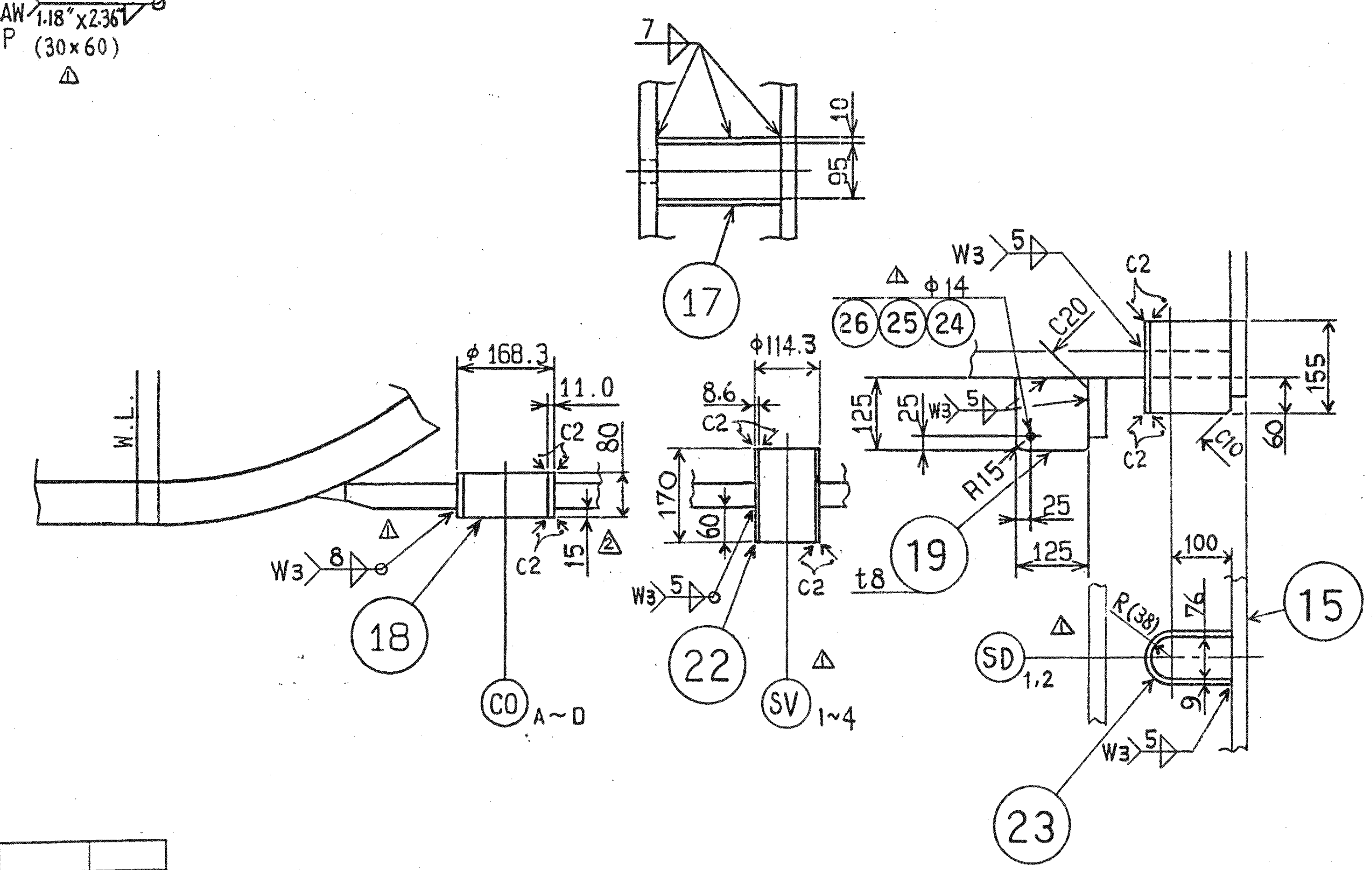
GROUP & QTY E	D	C	B	A	REV SYM 訂正	SHOP 部署	PT.No. 品番	NAME OF PARTS 部品名	CLASS CODE 類別コード		DWG.No.(STD.PT.CODE) 図番(型番)	MATERIAL 材料
			A+B	A+B			1	SHELL & HEAD			1-716308	ASSEMBLY
			A~E	A~E			2	AGITATOR-MOUNT			1-716354	//
			A~C	A~C			3	NOZZLE (1/2)			1-716351	//
			A~C	A~C			4	NOZZLE (2/2)			1-716352	//
			A~C	A~C	△1		5	INS.NOZZLE (1/3)			1-716426	//
			A~C	A~C	△1		6	INS.NOZZLE (2/3)			1-716428	//
			A~C	A~C	△1		7	INS.NOZZLE (3/3)			1-716429	//
			A~E	A~E			8	MANHOLE			1-716353	//
			A~HJ	A~HJ	△1		9	HEATING COIL			1-716457	//
			4A	4A	△1		10	BEARING SUPPORT			2-715875	//
			A+B	A+B	△1		11	EXTERNAL ATTACHMENT			1-716562	//
			A	A	△1		12	BAFFLE			1-716407	//
			A+B	A+B			13	TEMPLATE			2-715766	ASSEMBLY
		1			△1	SB	14	SKIRT				SA516Gr.70
		1				SB	15	BASE PLATE				//
		1				SB	16	SUPPORT RING				//
		56				SB	17	RIB				SA516Gr.70
		4				SB	18	COIL OPENING				SA106Gr.B
		4				SB	19	EARTH LUG				SUS 304
			A	A			20	LIFTING LUG			1-716562	ASSEMBLY
			A	A			21	TAILING LUG			1-716562	ASSEMBLY
		4			△1	SB	22	SKIRT VENT				SA106Gr.B
		2			△1	SB	23	SKIRT DRAIN				SA516Gr.70
	4J				△2		24	BOLT 1/2"-13UNC×40				SUS 304
	4E				△2		25	NUT 1/2"-13UNC				SUS 304
	4				△1	GQ	26	F-WASHER M12				SUS 304CP
			A+B	A+B	△1		27	PIPE SUPPORT			1-716433	ASSEMBLY
			A+B	A+B	△2		28	SOURCE HOLDERS & DETECTORS SUPPORT			1-716612	ASSEMBLY
		1				BP	**C	SKIRT ASSEMBLY				


4-EARTH LUGS
(ORi.0°, 90°, 180°, 270°)
(取付位置)
19
SKL-1
CO C
SV 4
CO D
0°
15°
30°
SV 1
315°
330°
45°
SD 2
270°
90°
SD 1
225°
210°
135°
150°
SV 3
SV 2
CO A
180°
CO B

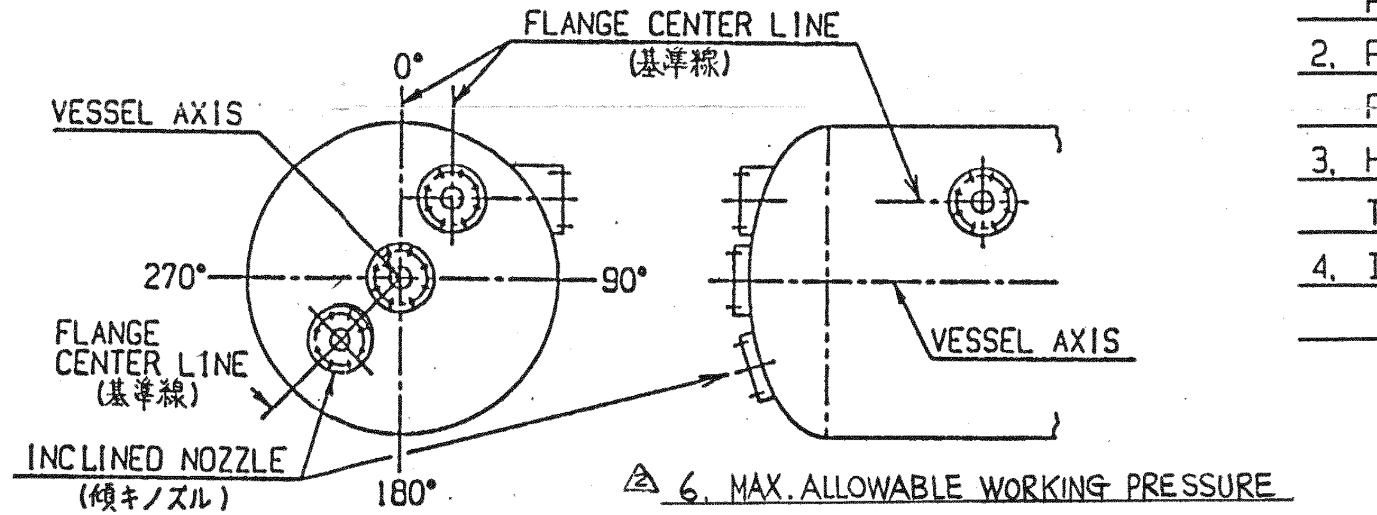
ORI.OF SKIRT SECTION


13
50°
40°
B.C.
W.L.(SKL-1)
φ5304
W.L.(SKL-1)
φ 5200
φ 5460
B.C.D.5510
φ 5300
14
14
14
C20
(33)
C15
30
1
3
45
40
W.L.
T.L.
△ BLEND WELD TO HEAD NO SHAPE CORNER
60
(325)
16
30
(214)
26
270
15
ROOT PASS: FCAW
OTHER PASS: SAW
WPS No.MS112S-1-7P
1/8"x2 3/8" (30x60)




7
10
25
17
W3
5
C2
C20
φ14
26
25
24
155
60
C10
C2
φ 168.3
11.0
C2
80
170
15
W3
8
18
C2
CO A~D
8.6
C2
φ114.3
60
W3
5
22
SV 1~4
C2
t8
125
R15
25
W3
19
25
125
100
R(38)
SD 1,2
W3
15
23

5. LOCATION OF FLANGE BOLT HOLES SHALL BE AS FOLLOWING SKETCH.


FLANGE CENTER LINE
(基準線)
0°
VESSEL AXIS
270°
90°
FLANGE CENTER LINE
(基準線)
INCLINED NOZZLE
(傾キノズル)
180°
VESSEL AXIS

NOTES

1. THE DESIGN FABRICATION INSPECTION AND TESTING SHALL COMPLY WITH REQUIREMENTS OF THE CODE AND PURCHASER. △1 △3
2. REFER TO SHEET NO. "96C01021 Rev. 2" FOR N.D.E. PROCEDURE AND DIMENSIONAL TOLERANCE.
3. HYDRO'C TEST SHOULD BE DONE AT MIN. 76.4°F (24.7℃) TEMP.
4. IMPACT TEST : NONE (REFER TO DOCUMENT NO DVK-M37-V501 △4 REV.4 "DESIGN CALCULATION")

△2 6. MAX. ALLOWABLE WORKING PRESSURE
: 424.08 psiG (29.24 barG)
AT 491°F
MAX. ALLOWABLE PRESSURE
: 435.26 psiG (30.01 barG)
AT 76.4°F

△2 7. HYDRO'C TEST PRESSURE
1). SHOP HYD. TEST (BASED ON M.A.P)
△3 : 638.5 PSIG, 44.91 Kg/cm²G, 44.04 barG)
AT VERTICAL POSITION
2). FIELD HYD. TEST (BASED ON M.A.W.P)
: 636.12 PsiG (43.86 barG)
AT VERTICAL POSITION.

VESSEL DESIGN DATA

SECTION	SHELL	COIL	
REQ'D NO.	2 SETS		
CONTAINING CAPACITY	~ 204.5 m³	~ 0.085 × 4 m³	△1
FLUID NAME (LETHAL SUBSTANCES)	CTA CRYSTAL + CH3COOH + H2O (NONE)	HOT OIL (NONE)	
FLUID DENSITY	950 Kg/m³	805 Kg/m³	△1
CODE	ASME SECT. Ⅷ DIV.1 1995 ED. (W/NO ADDENDA)		
DESIGN PRESS.	423.5psiG (29.78 Kg/cm²G, 29.2 barG)	217.55psiG (15.30 Kg/cm²G, 15 barG)	△1
DESIGN TEMP.	491 F (255℃)	644 F (340℃)	
OPERATING PRESS.	319.07psiG (22.43 Kg/cm²G, 22 barG)	72.52psiG (5.10 Kg/cm²G, 5 barG)	△1
OPERATING TEMP.	419 F (215℃)	601 F (316℃)	
HYDRO'C TEST PRESS.	△2 NOTE 7	326.3 psiG (BY AIR) (22.95 Kg/cm²G, 22.5 barG)	△2
PNEUM'C TEST PRESS.	N/A	N/A	
POST WELD HEAT TREATMENT	YES	NONE	
RADIOGRAPH	FULL	FULL	
JOINT EFFICIENCY	1.00	1.00	
CORR. ALLOWANCE	OUTSIDE: 0mm INSIDE: 0.08" (2mm) Ti	OUTSIDE: 0mm INSIDE: 0.04" (1mm)	
INSPECTION AUTHORITY	AI	—	
CODE STAMP	YES	NONE	
INSULATION (BY OTHER)	CELLULAR GLASS / 160 mm THK		△1
PAINTING	AS PER (HTC) SPEC.NO. DVE-M37-Y009		△1
SURFACE FINISH (INT.)	ACCORDING TO DUPONT SPEC. SWIP-100% IRON FREE		
CORR. INHIBITOR	NONE		
SCREW THREAD	UNIFIED SCREW		
EMPTY WEIGHT (VESSEL ONLY)	313057LB (142000kg) EXCLU AGITATOR		
OPERATING WEIGHT	—		
TESTING WEIGHT	763902LB (346500kg) EXCLU AGITATOR		
SPARE (S)	AS PER SPARE PARTS LIST		
ACCESSORIES	TEMPLATE FOR FOUNDATION		
SAFETY VALVE	PRESSURE RELIEF VALVE TO BE PROVIDED AND INSTALLED ON PIPING CONNECTING WITH NOZZLE (P3) BY USER		
VACUUM LEAK TEST	NONE		
MIN DESIGN METAL TEMP.	46.4°F (8℃)	46.4°F (8℃)	
IMPACT TESTING	NOTE4	—	
N.D.E UT MT PT	NOTE2	—	
MAX. ALLOWABLE WORKING PRESSURE	△2 NOTE 6	217.55 PsiG (15 barG) AT 644°F	
INSTALLATION	OUTDOOR		△1

I									
H									
T									
N									
M	3								
セ									
O									
S	3								
Q	2								
[illegible]	2	SD1,2	76×100	2		—	SKIRT DRAIN		
		SV1~4	4"	4	SCH.80	—	SKIRT VENT		
V		CO A~D	6"	4	SCH.80	—	P14A~D OPENING		
D									
W		K1 B,C	1½"	2	PAD	ANSI 300# RF	TEMP.CONN.	2790	
E		K1 A	1½"	1	PAD	ANSI 300# RF	TEMP.CONN.	SEE DWG.	
車ム		M1	I.D.860	1	t32	SPECIAL WN-RF	MANHOLE	3210	W/B.FL.&DAVIT
		P15A~D	1"	4	SCH.80	ANSI 300# WN-RF	HOT OIL OUTLET	SEE DWG.	
ウ		P14A~D	1"	4	SCH.80	ANSI 300# WN-RF	HOT OIL INLET	SEE DWG.	
ヤ									
ス									
ヨ		P11	2"	1	PAD	ANSI 300# RF	SPARE	2780	W/B.FL.
ア		P10	10"	1	//	//	FEED INLET (SPARE)	2860	//
エ		P9	8"	1	//	//	SPARE	SEE DWG.	W/B.FL.
ト		P8	8"/4"	1	//	//	SLURRY OUTLET	2840	W/4" INT.PIPE
カ		P7	8"/4"	1	//	//	SLURRY OUTLET	2840	W/4" INT.PIPE
運ム		P6	10"/6"	1	//	//	FEED INLET	2860	W/6" INT.PIPE
		P5	16"/10"	1	//	//	LIQUID REFLUX	SEE DWG.	W/10" INT.PIPE
G		P4A~D	12"/6"	4	//	ANSI 300# RF	AIR INLET	2880	W/6" INT.PIPE
ケ	/	P3	28"	1	//	ANSI B16.47 300# RF	VAPOR OUTLET	SEE DWG.	CLASS "A"
輪	/	P2	6"	1	//	ANSI 300# RF	DRAIN	//	
[illegible]	(?)	P1	I.D.580	1	PAD	SPECIAL	AGITATOR MOUNT	SEE DWG.	
[illegible]	/	MARK	SIZE	REQ'D	NECK	RATING	SERVICE	PROJ.FROM ℄	REMARKES
合計		NOZZLE SCHEDULE							

REV No.	DATE	DESCRIPTION	DRAWN UP	CHECKED	APPROVED

SCALE: JOB No.

الشركة العربية للألياف الصناعية ابن رشد
ARABIAN INDUSTRIAL FIBERS Co. (IBN RUSHD)
YANBU SAUDI ARABIA

IBN RUSHD PTA PLANT
YANBU SAUDI ARABIA
350,000 MT/Y PTA PLANT

Plant Unit	DRAWING No.	SHEET	REVISION

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ASME

MANUFACTURER'S TRADE MARK Hitachi, Ltd. Tokyo Japan	MANUFACTURER'S DRAWING N° 3121-716400 ISSUE 0 1 2 3 4	TECNIMONT
		CLIENT ARABIAN IND. FIBERS CO.,LTD.
		CLIENT REF. IBN RUSHD
YEAR 1996 / JOB 91907 / N° PIECES 2 / WORK NUMBER 83253 / SCALE 1:60		PLANT LOCATION YANBU SAUDI ARABIA
PLANT PTA-YANBU SAUDI ARABIA SERVICE OXIDATION REACTOR	ITEM 13D011/021	IDENTIFICATION CODE JOB 2743 E C T N° CRVD301
DRAWN UP T.YANAGI / APPROVED T.TAKATA	DATE SEP.30 1996	SHEET 004 ISSUE 04
PURCHASER TECNIMONT	NOT TO BE REPRODUCED WHOLE DWG. PART NOR ENPLOYED FOR ANY PURPOSE OTHER THAN SPECIFICALLY PERMITTED WRITING.	
PURCHASER ORDER W040255NG / MATERIAL REQUISITION 2743CR-MR-005		

SYM. 記号	ZONE 区域	REVISIONS 来歴	DATE 年月日	REVD. 訂正	CHKD. 審査	APPD. 承認	RE. DWG.	RE. O.D.	RE. D.B.
△4		REVISED REV.No. FOR DESIGN CALCU. SHEET.	96.09.30	H.MIZUKI T.YANAGI	[illegible]	96.10.03 T.TAKATA			
△3		REVISED HYDRO. TEST PRESSURE AND TEST POSITION REVISED DESIGN CAL. AND NDE PROCEDURE REV. No.	96·09·18	H.MIZUKI	96-09-20 96-09-20 H.AKANE	96.09.20 T.TAKATA	/	/	0926
△2		ADDED ORI. AND ELEVE. OF VENT, DRAIN AND OPENING FOR SKIRT. ADDED PART No ㉘ INDICATED MAWP, MAP AND HYDRO'C TEST PRESS. REVISED WELD GROOVE OF W.L (SKL-1)	96.07.16	T.YANAGI	96-07-16 S.MORITA 96-07-17 T.MIZUSEKI 96-07-18 H.AKANE	96.07.18 T.TAKATA	/	/	[illegible]
△1		REVISED VESSEL DESIGN DATA. ADD. SHELL MIN. THK. REVISED P14 ORI. ADD. SKIRT VENT & DRAIN. ADD. ORI. OF LIFTING & TAILING LUGS.	96.05.29 96·05·29	S.MORITA H.MIZUKI	96-06-01 H.AKANE 96-05-31 Y.MIZUSEKI	96.06.03 T.TAKATA	/	/	

REF.DWG.No.

D.B. 96·04·09

REMARKS

△1 83253 (13D021)	199	D	96
△1 83253 (13D011)	099	D	96
83253 (13D021)	101	C	96
83253 (13D021)	118	B	96
83253 (13D011)	001	C	96
83253 (13D011)	018	A	[illegible]
作番	装置番	作業	

GROUP 作業 | MASS 質量

DWN.	T.YANAGI	96·03·29
CHKD.	H.MIZUKI S.MORITA	96·03·29 96·03·29
	Y.MIZUSEKI H.AKANE	96·04·01 96·04·01
APPD.	T.TAKATA	96·04·01

PROJECTION

SCALE. 1:60

REGD. 96.04.08 入庫

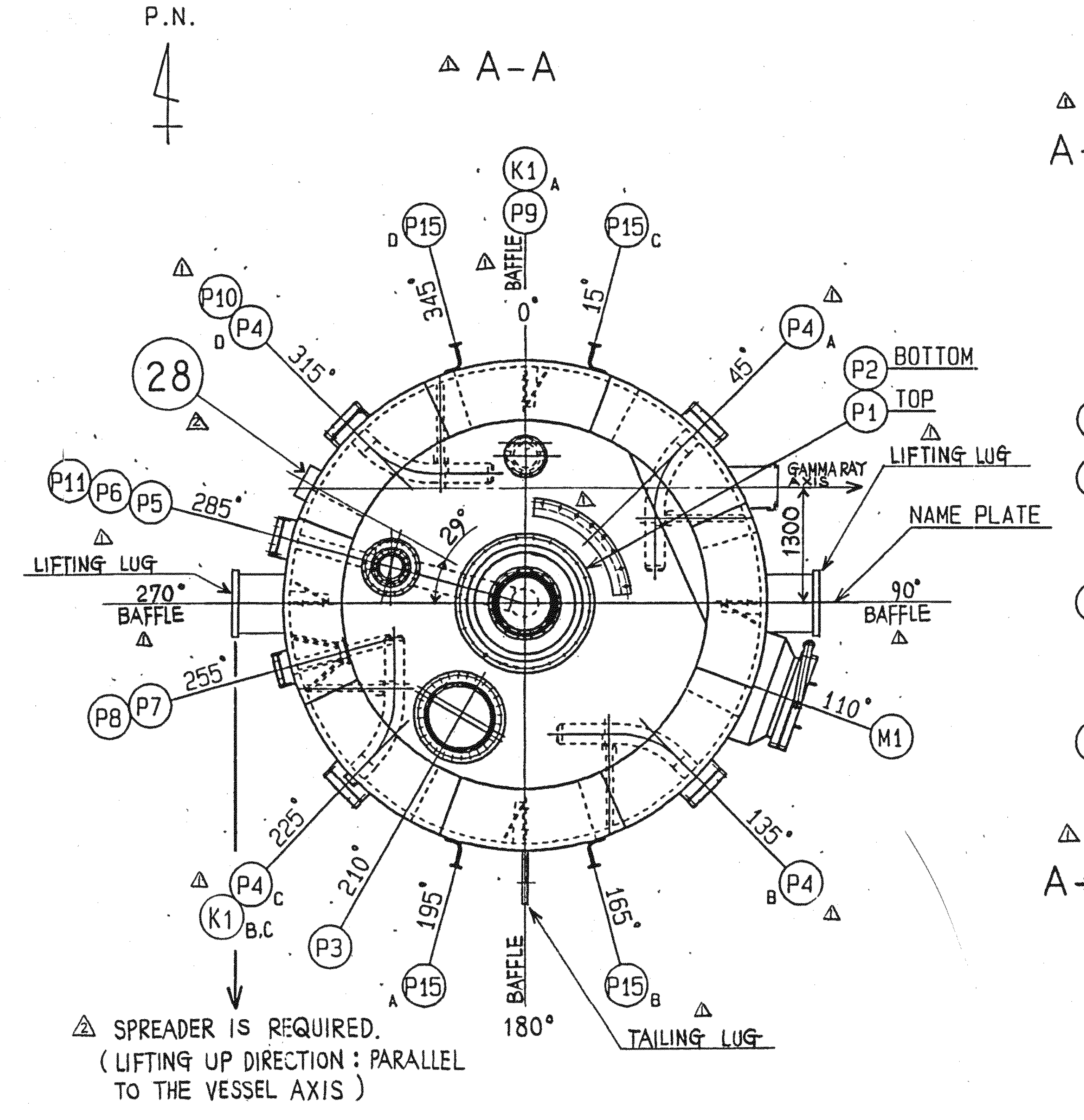
TITLE
13D011/13D021
SHELL ASSEMBLY

Hitachi, Ltd.
Tokyo Japan

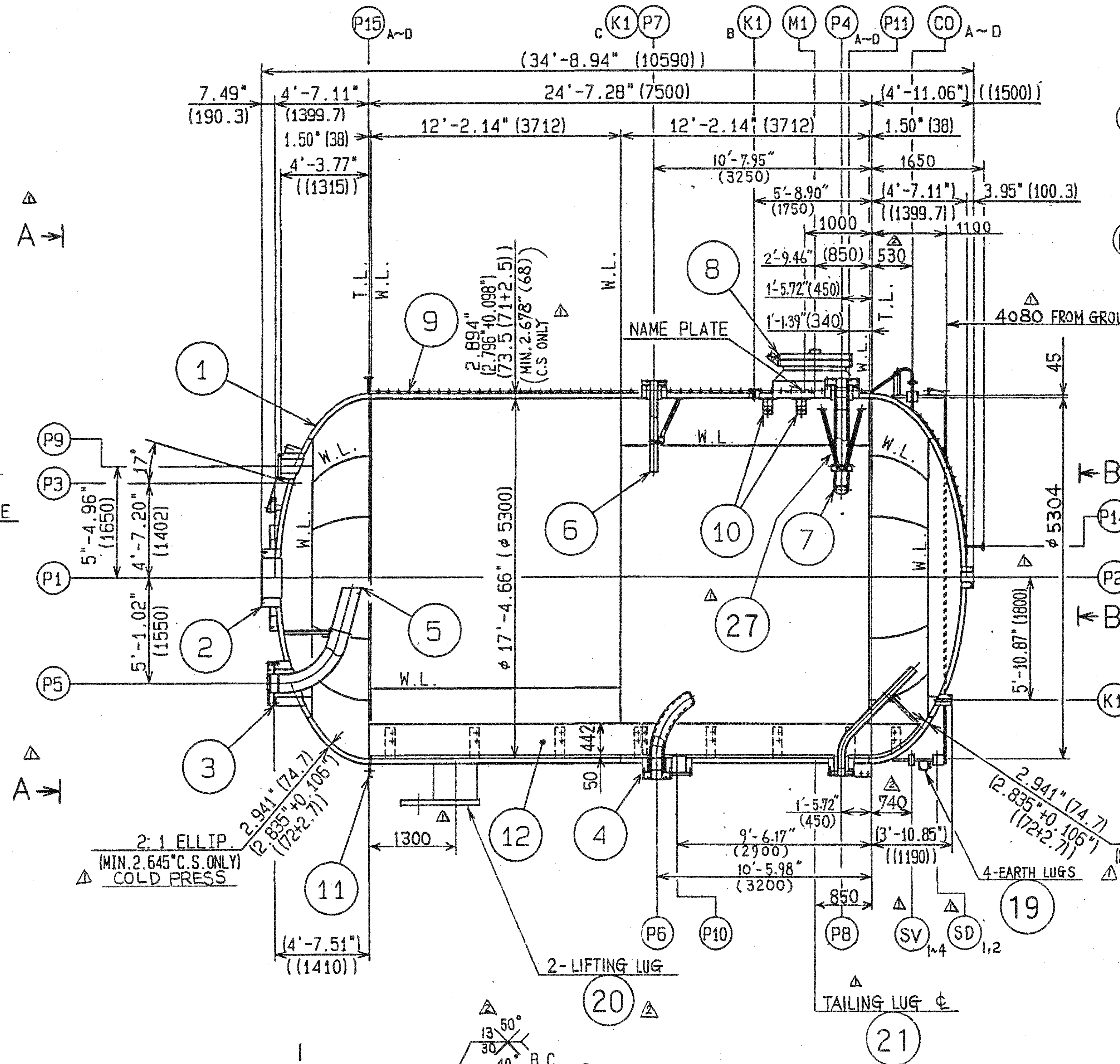
KASADO WORKS DWG. No.
3121- 716400

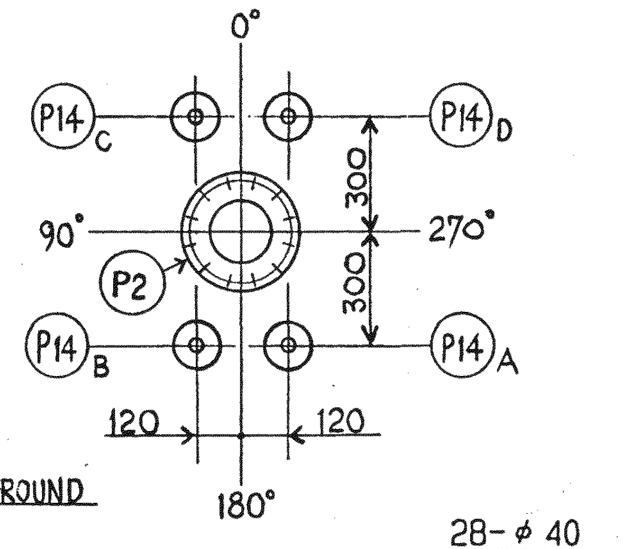
REV. 4

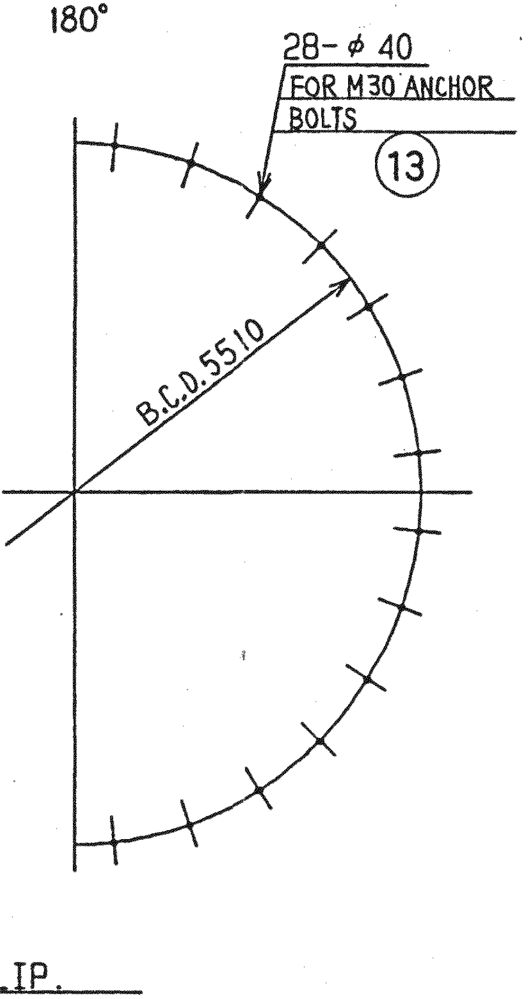
3121- 716400

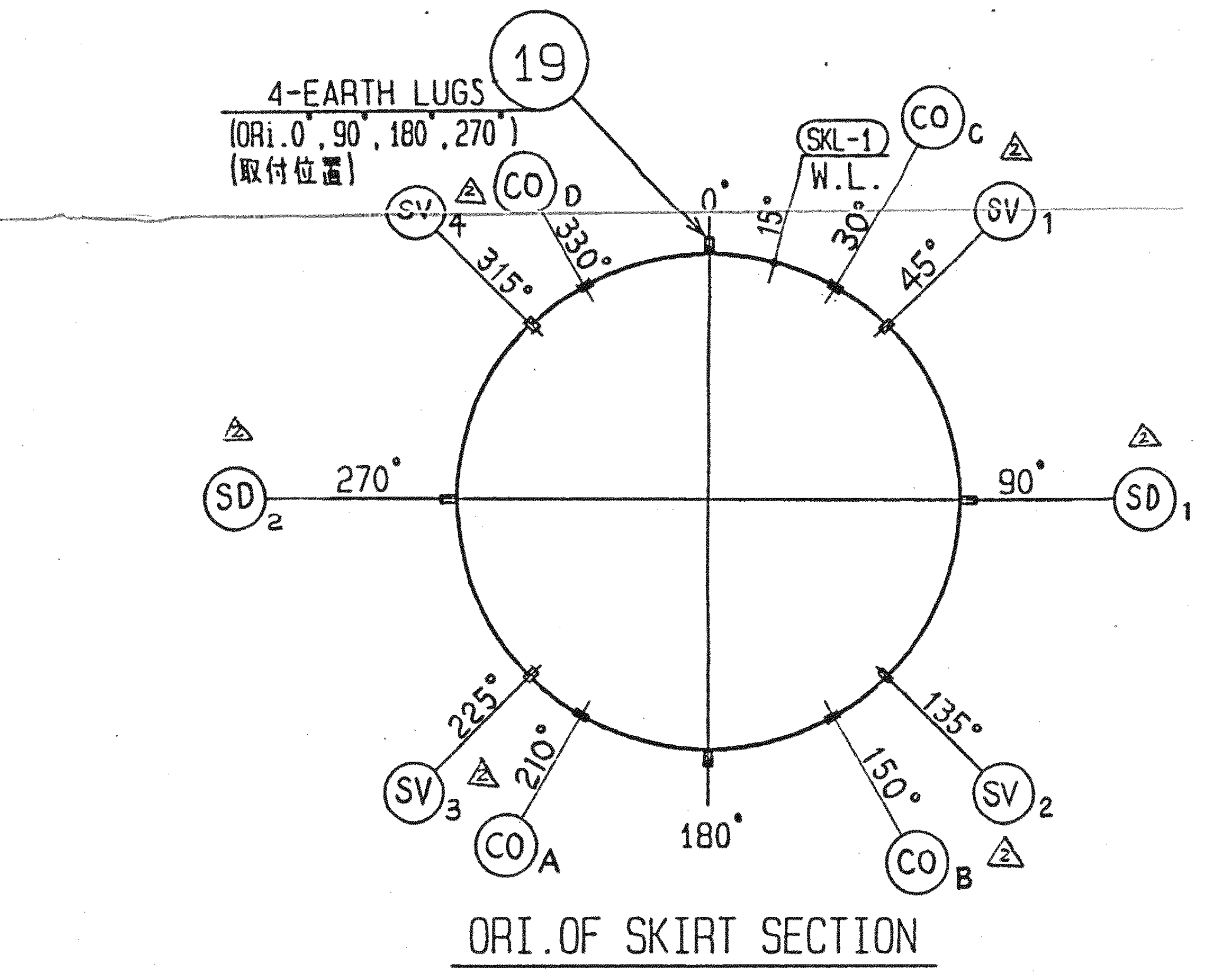

P.N.
▲ A-A
K1 P9 P15 P15 BAFFLE 0° 345° 15°
P10 P4 P4 P2 BOTTOM P1 TOP
28 315° 45°
GAMMA RAY AXIS LIFTING LUG
P11 P6 P5 285° 1300 NAME PLATE
LIFTING LUG 270° BAFFLE 90° BAFFLE
P8 P7 255° 110° M1
225° 135°
P4 K1 B.C 210° 195° 165° P4
P3 P15 BAFFLE P15 180° TAILING LUG

▲ SPREADER IS REQUIRED.
(LIFTING UP DIRECTION : PARALLEL TO THE VESSEL AXIS)

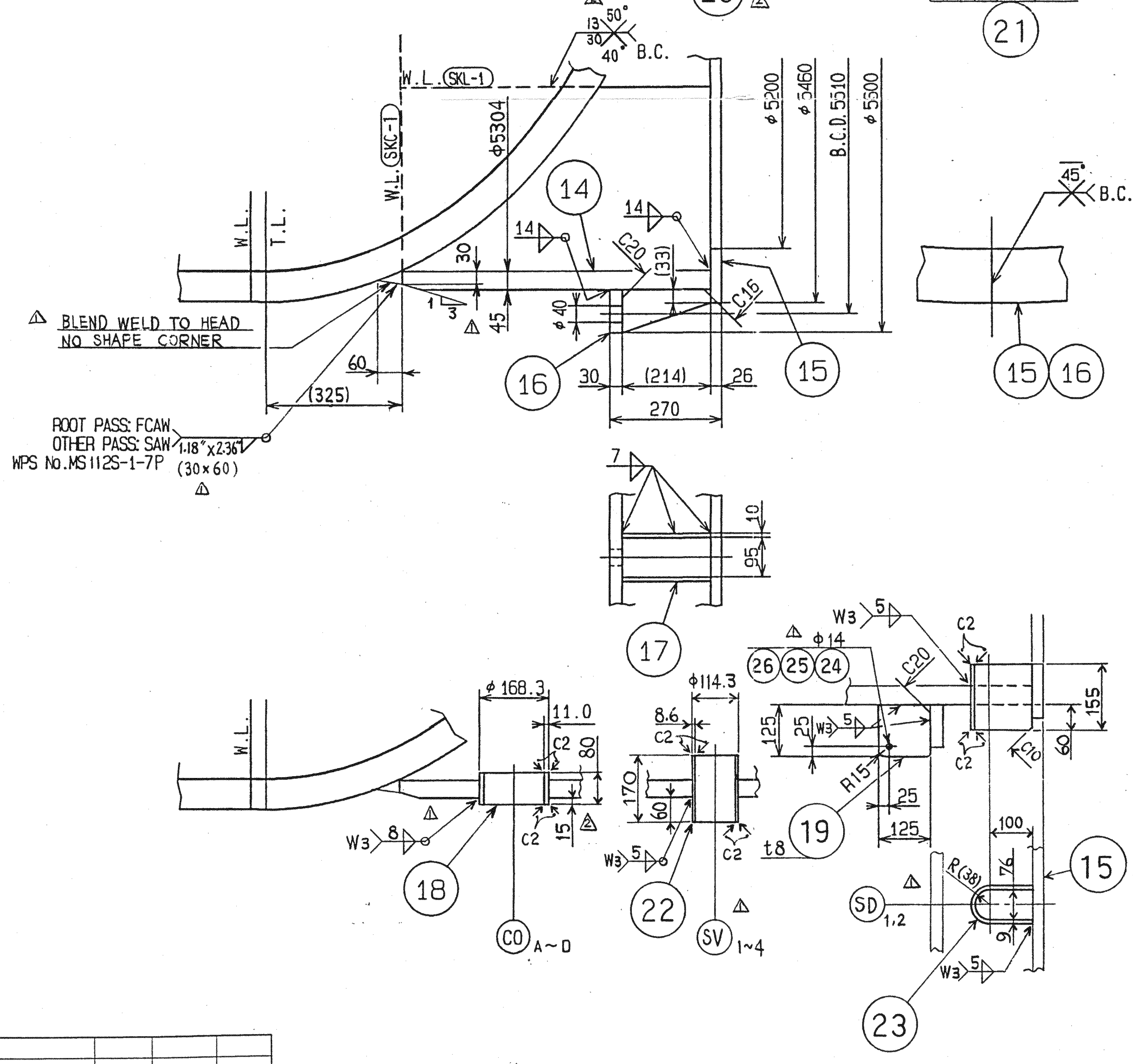

P15 A~D
C K1 P7 B K1 M1 P4 A~D P11 CO A~D
(34'-8.94" (10590))
7.49" (190.3) 4'-7.11" (1399.7) 24'-7.28" (7500) (4'-11.06") ((1500))
1.50" (38) 12'-2.14" (3712) 12'-2.14" (3712) 1.50" (38)
4'-3.77" ((1315)) 10'-7.95" (3250) 1650
5'-8.90" (1750) (4'-7.11") ((1399.7)) 3.95" (100.3)
1000 1100
2'-9.46" (850) 530
1'-5.72" (450)
1'-1.39" (340)
A A-A T.L. W.L. W.L. T.L.
2.894" (73.5) +0.098" (+2.5) (MIN.2.678" (68)) (C.S ONLY)
8 9 NAME PLATE 4080 FROM GROUND 45
1 P9 P3 17 5"-4.96" (1650) 4'-7.20" (1402)
P1 ø 17'-4.66" (ø 5300) 6 10 7 ø5304 B P14 A~D P2
2 5 27 B 5'-10.87" (1800)
P5 5'-1.02" (1550) K1 A
3 442 50 12 4 W.L.
A 2.941" (74.7) (2.835"+0.106" (72+2.7)) 1'-5.72" (450) 740 2.941" (74.7) (2.835" +0.106" (72+2.7))
2:1 ELLIP. (MIN.2.645" C.S.ONLY) ▲ COLD PRESS
11 1300 9'-6.17" (2900) (3'-10.85") ((1190)) 4-EARTH LUGS 19
10'-5.98" (3200) 850
(4'-7.51") ((1410)) P6 P10 P8 SV 1~4 SD 1,2
2-LIFTING LUG 20 ▲ TAILING LUG ℄ 21


▲ B-B
0° P14 C P14 D 90° P2 270° 300 300
P14 B P14 A 120 120 180°

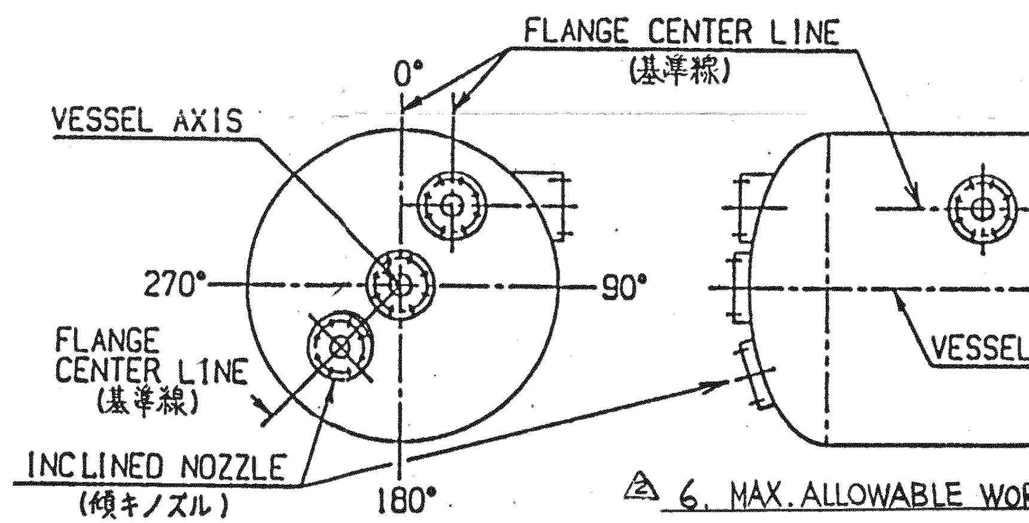

28-ø 40 FOR M30 ANCHOR BOLTS
13
B.C.D.5510


4-EARTH LUGS (ORi.0°,90°,180°,270°) (取付位置)
19 SKL-1 CO C SV 4 CO D 0° 15° 30° SV 1 315° 330° 45°
SD 2 270° 90° SD 1
225° 210° 135° 150°
SV 3 CO A 180° CO B SV 2

ORI.OF SKIRT SECTION


13 50° 40° B.C.
W.L. (SKL-1) ø5304 ø5200 ø5460 B.C.D.5510 ø5300
W.L. T.L. W.L. (SKL-1)
14 14 14 C20 (33) 30 45 1 3 40 C15
▲ BLEND WELD TO HEAD NO SHAPE CORNER
60 (325) 16 30 (214) 26 15 270
ROOT PASS: FCAW OTHER PASS: SAW WPS No.MS112S-1-7P 18°x236 (30x60)
45° B.C. 15 16
7 10 25 17
W.L. ø168.3 11.0 C2 80 8 170 15 C2 18 W3
CO A~D 8.6 C2 ø114.3 60 125 5 22 W3 SV 1~4 C2 t8
26 25 ø14 W3 5 C20 C2 25 5 R15 25 125 19 60 155 C10 C2
100 R(38) SD 1,2 W3 5 15 23

5. LOCATION OF FLANGE BOLT HOLES SHALL BE AS FOLLOWING SKETCH.


FLANGE CENTER LINE (基準線)
0° VESSEL AXIS
270° 90°
FLANGE CENTER LINE (基準線)
INCLINED NOZZLE (傾キノズル)
180°
VESSEL AXIS

NOTES
1. THE DESIGN FABRICATION INSPECTION AND TESTING SHALL COMPLY WITH REQUIREMENTS OF THE CODE AND PURCHASER. ▲▲
2. REFER TO SHEET NO. "96C01021 Rev. 2" FOR N.D.E. PROCEDURE AND DIMENSIONAL TOLERANCE.
3. HYDRO'C TEST SHOULD BE DONE AT MIN.76.4°F (24.7℃) TEMP.
4. IMPACT TEST : NONE (REFER TO DOCUMENT NO DVK-M37-V501 ▲REV.4 "DESIGN CALCULATION")

▲ 6. MAX. ALLOWABLE WORKING PRESSURE
: 424.08 psiG (29.24 barG)
AT 491°F
MAX. ALLOWABLE PRESSURE
: 435.26 psiG (30.01 barG)
AT 76.4°F

▲ 7. HYDRO'C TEST PRESSURE
1). SHOP HYD. TEST (BASED ON M.A.P)
▲ : 638.5 PSiG, 44.91 Kg/cm²G, 44.04barG)
AT VERTICAL POSITION
2). FIELD HYD. TEST (BASED ON M.A.W.P)
: 636.12 PSiG (43.86 barG)
AT VERTICAL POSITION.

GROUP & QTY E	D	C	B	A	REV SYM 訂正	SHOP 部署	PT.No. 品番	NAME OF PARTS 部品名	CLASS CODE 類別コード		DWG.No. (STD.PT.CODE) 図番(型番)	MATERIAL 材料
			A+B	A+B			1	SHELL & HEAD			1-716308	ASSEMBLY
			A~E	A~E			2	AGITATOR-MOUNT			1-716354	//
			A~C	A~C			3	NOZZLE (1/2)			1-716351	//
			A~C	A~C			4	NOZZLE (2/2)			1-716352	//
			A~C	A~C	▲		5	INS.NOZZLE (1/3)			1-716426	//
			A~C	A~C	▲		6	INS.NOZZLE (2/3)			1-716428	//
			A~C	A~C	▲		7	INS.NOZZLE (3/3)			1-716429	//
			A~E	A~E			8	MANHOLE			1-716353	//
			A~HJ	A~HJ	▲		9	HEATING COIL			1-716457	//
			4A	4A	▲		10	BEARING SUPPORT			2-715875	//
			A+B	A+B	▲		11	EXTERNAL ATTACHMENT			1-716562	//
			A	A	▲		12	BAFFLE			1-716407	//
			A+B	A+B			13	TEMPLATE			2-715766	ASSEMBLY
		1			▲	SB	14	SKIRT				SA516Gr.70
		1				SB	15	BASE PLATE				//
		1				SB	16	SUPPORT RING				//
		56				SB	17	RIB				SA516Gr.70
		4				SB	18	COIL OPENING				SA106Gr.B
		4				SB	19	EARTH LUG				SUS 304
			A	A			20	LIFTING LUG			1-716562	ASSEMBLY
			A	A			21	TAILING LUG			1-716562	ASSEMBLY
		4			▲	SB	22	SKIRT VENT				SA106Gr.B
		2			▲	SB	23	SKIRT DRAIN				SA516Gr.70
	4J				▲		24	BOLT ½"-13UNC x 40				SUS 304
	4E				▲		25	NUT ½"-13UNC				SUS 304
	4				▲	GQ	26	F-WASHER M12				SUS 304CP
			A+B	A+B	▲		27	PIPE SUPPORT			1-716433	ASSEMBLY
			A+B	A+B	▲		28	SOURCE HOLDERS & DETECTORS SUPPORT			1-716612	ASSEMBLY
		1				BP	**C	SKIRT ASSEMBLY				

VESSEL DESIGN DATA			
SECTION	SHELL	COIL	
REQ'D NO.	2 SETS		
CONTAINING CAPACITY	~ 204.5 m^3	~ 0.085 x 4 m^3	▲
FLUID NAME (LETHAL SUBSTANCES)	CTA CRYSTAL+ CH3COOH+H2O (NONE)	HOT OIL (NONE)	
FLUID DENSITY	950 Kg/m^3	805 Kg/m^3	▲
CODE	ASME SECT. Ⅷ DIV.1 1995 ED. (W/NO ADDENDA)		
DESIGN PRESS.	423.5psiG (29.78 Kg/cm²G, 29.2 barG)	217.55psiG (15.30 Kg/cm²G, 15 barG)	▲
DESIGN TEMP.	491°F (255℃)	644°F (340℃)	
OPERATING PRESS.	319.07psiG (22.43 Kg/cm²G, 22 barG)	72.52psiG (5.10 Kg/cm²G, 5 barG)	▲
OPERATING TEMP.	419°F (215℃)	601°F (316℃)	
HYDRO'C TEST PRESS.	▲ NOTE 7	326.3 psiG (BY AIR) (22.95 Kg/cm²G, 22.5 barG)	▲
PNEUM'C TEST PRESS.	N/A	N/A	
POST WELD HEAT TREATMENT	YES	NONE	
RADIOGRAPH	FULL	FULL	
JOINT EFFICIENCY	1.00	1.00	
CORR. ALLOWANCE	OUTSIDE: 0mm INSIDE: 0.08" (2mm) Ti	OUTSIDE: 0mm INSIDE: 0.04" (1mm)	
INSPECTION AUTHORITY	AI	—	
CODE STAMP	YES	NONE	
INSULATION (BY OTHER)	CELLULAR GLASS / 160 mm THK		▲
PAINTING	AS PER (HTC) SPEC.NO. DVE-M37-Y009		▲
SURFACE FINISH (INT.)	ACCORDING TO DUPONT SPEC. SWIP-100% IRON FREE		
CORR. INHIBITOR	NONE		
SCREW THREAD	UNIFIED SCREW		
EMPTY WEIGHT (VESSEL ONLY)	313057LB (142000kg) EXCLU AGITATOR		
OPERATING WEIGHT	—		
TESTING WEIGHT	763902LB (346500kg) EXCLU AGITATOR		
SPARE (S)	AS PER SPARE PARTS LIST		
ACCESSORIES	TEMPLATE FOR FOUNDATION		
SAFETY VALVE	PRESSURE RELIEF VALVE TO BE PROVIDED AND INSTALLED ON PIPING CONNECTING WITH NOZZLE (P3) BY USER		
VACUUM LEAK TEST	NONE		
MIN DESIGN METAL TEMP.	46.4°F (8℃)	46.4°F (8℃)	
IMPACT TESTING	NOTE4	—	
N.D.E UT MT PT	NOTE2	—	
MAX. ALLOWABLE WORKING PRESSURE	▲ NOTE 6	217.55 PSiG (15 barG) AT 644°F	
INSTALLATION	OUTDOOR		▲

		MARK	SIZE	REQ'D	NECK	RATING	SERVICE	PROJ. FROM ℄	REMARKES
I									
H									
T									
N									
M	3								
セ									
O									
S	3								
Q	2								
ﾋﾚﾑ	2	SD1,2	76x100	2		—	SKIRT DRAIN		
		SV1~4	4"	4	SCH.80	—	SKIRT VENT		
V		CO A~D	6"	4	SCH.80	—	P14A~D OPENING		
D									
W		K1 B,C	1½"	2	PAD	ANSI 300# RF	TEMP. CONN.	2790	
E		K1 A	1½"	1	PAD	ANSI 300# RF	TEMP. CONN.	SEE DWG.	
車ム		M1	I.D.860	1	t32	SPECIAL WN-RF	MANHOLE	3210	W/B.FL.&DAVIT
		P15A~D	1"	4	SCH.80	ANSI 300# WN-RF	HOT OIL OUTLET	SEE DWG.	
ウ		P14A~D	1"	4	SCH.80	ANSI 300# WN-RF	HOT OIL INLET	SEE DWG.	
ヤ									
ス									
ヨ		P11	2"	1	PAD	ANSI 300# RF	SPARE	2780	W/B.FL.
ア		P10	10"	1	//	//	FEED INLET (SPARE)	2860	//
エ		P9	8"	1	//	//	SPARE	SEE DWG.	W/B.FL.
ト		P8	8"/4"	1	//	//	SLURRY OUTLET	2840	W/4" INT. PIPE
カ		P7	8"/4"	1	//	//	SLURRY OUTLET	2840	W/4" INT. PIPE
運ム		P6	10"/6"	1	//	//	FEED INLET	2860	W/6" INT. PIPE
		P5	16"/10"	1	//	//	LIQUID REFLUX	SEE DWG.	W/10" INT. PIPE
G		P4 A~D	12"/6"	4	//	ANSI 300# RF	AIR INLET	2880	W/6" INT. PIPE
ケ	/	P3	28"	1	//	ANSI B16.47 300# RF	VAPOR OUTLET	SEE DWG.	CLASS "A"
輸	/	P2	6"	1	//	ANSI 300# RF	DRAIN	//	
設	(?)	P1	I.D.580	1	PAD	SPECIAL	AGITATOR MOUNT	SEE DWG.	
機	/	MARK	SIZE	REQ'D	NECK	RATING	SERVICE	PROJ. FROM ℄	REMARKES
合計		NOZZLE SCHEDULE							

REV No.	DATE	DESCRIPTION	DRAWN UP	CHECKED	APPROVED

SCALE: JOB No.

الشركة العربية للألياف الصناعية ابن رشد
ARABIAN INDUSTRIAL FIBERS Co. (IBN RUSHD)
YANBU SAUDI ARABIA

IBN RUSHD PTA PLANT
YANBU SAUDI ARABIA
350,000 MT/Y PTA PLANT

Plant Unit	DRAWING No.	SHEET	REVISION

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ASME

MANUFACTURER'S TRADE MARK
Hitachi, Ltd.
Tokyo Japan
MANUFACTURER'S DRAWING Nº 3121-716400
ISSUE 0 1 2 3 4
TECNIMONT
CLIENT ARABIAN IND. FIBERS CO., LTD.
CLIENT REF. IBN RUSHD
PLANT LOCATION YANBU SAUDI ARABIA
YEAR 1996 JOB 91907 Nº PIECES 2 WORK NUMBER 83253 SCALE 1:60
PLANT PTA-YANBU SAUDI ARABIA ITEM 13D011/021
SERVICE OXIDATION REACTOR
IDENTIFICATION CODE JOB 2743 E C T Nº C R V D 3 0 1
DRAWN UP T.YANAGI APPROVED T.TAKATA DATE SEP. 30 1996
SHEET 004 ISSUE 04
PURCHASER TECNIMONT
NOT TO BE REPRODUCED WHOLE DWG. PART NOR ENPLOYED FOR ANY PURPOSE OTHER THAN SPECIFICALLY PERMITTED WRITING.
PURCHASER ORDER W040255NG MATERIAL REQUISITION 2743CR-MR-005

SYM. 記号	ZONE 区域	REVISIONS 来歴	DATE 年月日	REVD. 訂正	CHKD. 審査	APPD. 承認	RE. DWG.	RE. O.D.	RE. D.B.
▲4		REVISED REV. No. FOR DESIGN CALCU. SHEET.	96.09.30	H.MIZUKI T.YANAGI	[illegible]	96.10.03 T.TAKATA			
▲3		REVISED HYDRO. TEST PRESSURE AND TEST POSITION REVISED DESIGN CAL. AND NDE PROCEDURE REV. No.	96-09-18	H.MIZUKI	96-09-20 S.MORITA 96-09-20 H.AKANE	96.09.2[illegible] T.TAKATA	/	/	0926
▲2		ADDED ORI. AND ELEVE. OF VENT, DRAIN AND OPENING FOR SKIRT. ADDED PART No (28) INDICATED MAWP, MAP AND HYDRO'C TEST PRESS. REVISED WELD GROOVE OF W.L (SKL-1)	96.07.16	T.YANAGI	96-07-16 S.MORITA 96-07-17 T.MIZUKI 96-07-18 H.AKANE	96.07.18 T.TAKATA	/	/	[illegible]
▲		REVISED VESSEL DESIGN DATA. ADD. SHELL MIN. THK. REVISED P14 ORI. ADD. SKIRT VENT & DRAIN. ADD. ORI. OF LIFTING & TAILING LUGS.	96.05.29 96-05-29	S.MORITA H.MIZUKI	96-06-01 H.AKANE 96-05-31 Y.MIZUSEKI	96.06.03 T.TAKATA	/	/	[illegible]

REF. DWG. No.
D.B. 96-04-09
REMARKS

	作番	装置番	作業	
▲	83253 (13D021)	199	D	96
▲	83253 (13D011)	099	D	96
	83253 (13D021)	101	C	96
	83253 (13D021)	118	B	96
	83253 (13D011)	001	C	96
	83253 (13D011)	018	A	96
MASS 質量				

GROUP 作番

DWN.	T.YANAGI	96.03.29
CHKD.	H.MIZUKI S.MORITA Y.MIZUSEKI H.AKANE	96.03.29 96.03.29 96.04.01 96.04.01
APPD.	T.TAKATA	96.04.01

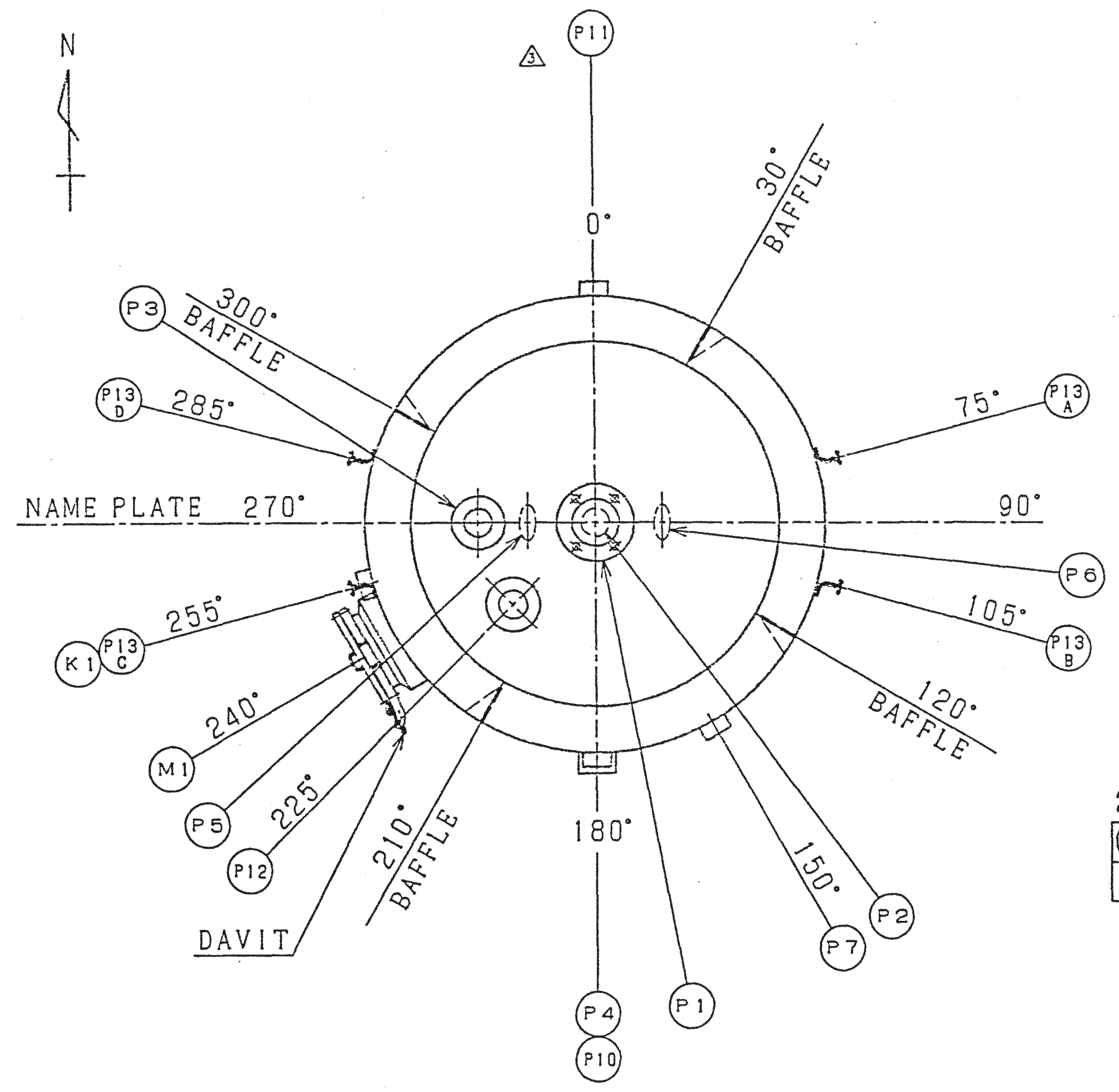
PROJECTION
SCALE. 1:60
RECD. '96.04.08 入庫

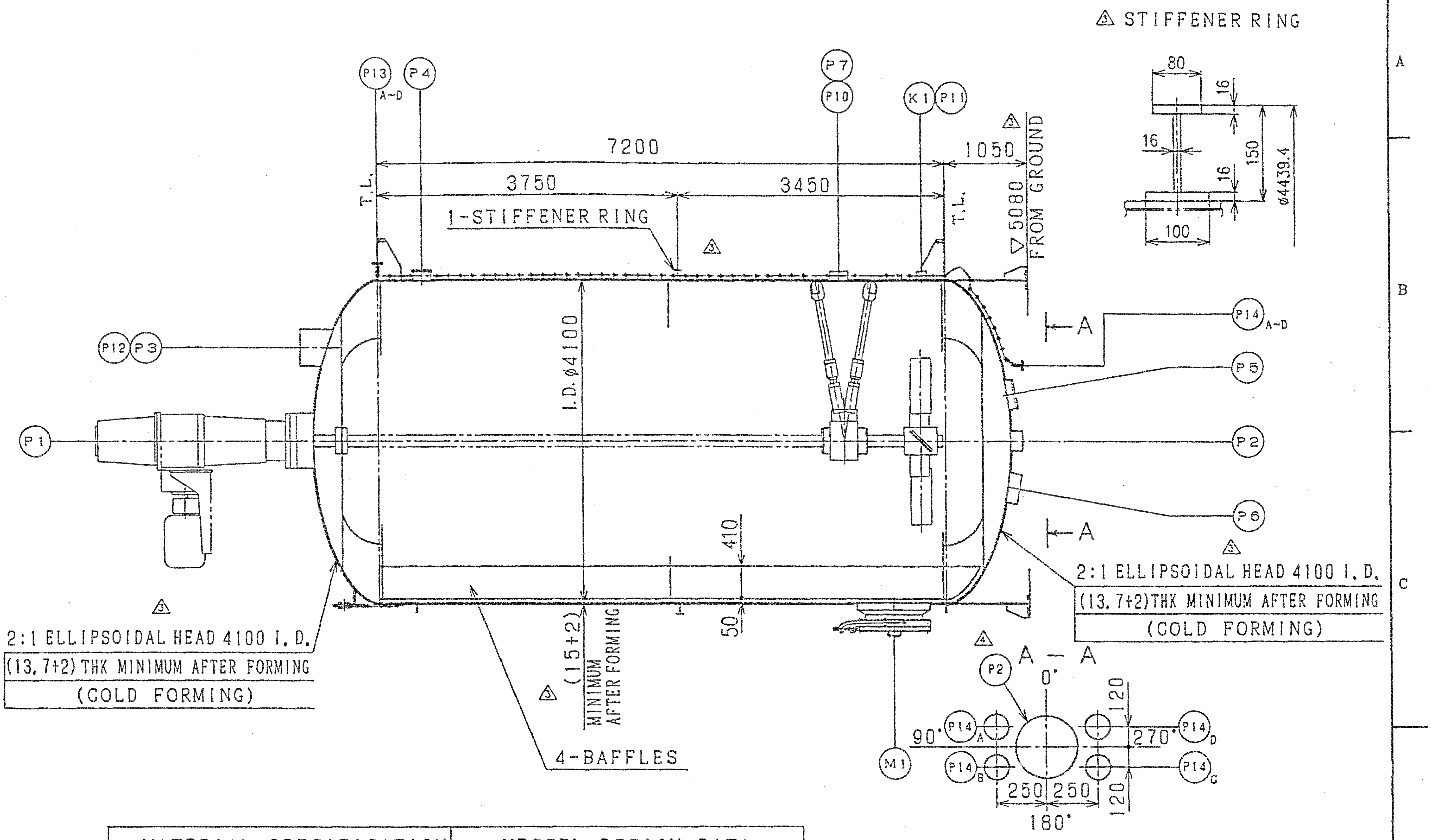
TITLE
13D011/13D021
SHELL ASSEMBLY

Hitachi, Ltd.
Tokyo Japan

KASADO WORKS DWG. No.
3121- 716400
REV. 4

3122-715116


N
0°
30° BAFFLE
P11
△3
P3
300° BAFFLE
P13 D
285°
75°
P13 A
NAME PLATE 270°
90°
P6
105°
P13 B
255°
K1
P13 C
240°
M1
P5
225°
P12
210° BAFFLE
120° BAFFLE
150°
180°
P2
P7
P1
P4
P10
DAVIT


△3 STIFFENER RING
80
16
16
150
16
100
ø4439.4
P13 A~D
P4
P7
P10
K1
P11
△3
7200
1050
T.L.
3750
3450
T.L.
▽5080 FROM GROUND
1-STIFFENER RING
△3
P14 A~D
A
P12
P3
I.D. ø4100
P5
P1
P2
P6
A
410
50
△3
2:1 ELLIPSOIDAL HEAD 4100 I.D.
(13.7+2)THK MINIMUM AFTER FORMING
(COLD FORMING)
△3
2:1 ELLIPSOIDAL HEAD 4100 I.D.
(13.7+2) THK MINIMUM AFTER FORMING
(COLD FORMING)
△3
(15+2) MINIMUM AFTER FORMING
4-BAFFLES
△4
A – A
P2
0°
90°
P14 A
P14 B
270°
P14 D
P14 C
M1
120
120
250
250
180°

REV No.	DATE	DESCRIPTION	DRAWN UP	CHECKED	APPROVED

SCALE:
JOB No.

الشركة العربية للألياف الصناعية ابن رشد
ARABIAN INDUSTRIAL FIBERS Co. (IBN RUSHD)
YANBU SAUDI ARABIA

IBN RUSHHD PTA PLANT
YANBU SAUDI ARABIA
350,000 MT/Y PTA PLANT

Plant Unit	DRAWING No.	SHEET	REVISION

MARK	SIZE	NO. REQ'D	NOZZLE SCHED	RATING	SERVICE	FLANGE TYPE	REMARKS
K1	1-1/2"	1		ANSI150#RF	TEMP. CONN.	PAD	
M1	700°	1		SPECIAL	MANHOLE		W/DAVIT AND B.FL.
P14$^{A\sim}_{D}$	1"	4		ANSI300#RF	CONDENSATE OUTLET	WN	
P13$^{A\sim}_{D}$	1"	4		ANSI300#RF △3	STEAM INLET	WN	
P12	6"	1		ANSI150#RF	SPARE	PAD	W/B.FL.
P11	4"	1		ANSI150#RF	SPARE	PAD	W/B.FL.
P10	6"	1		ANSI300#RF	SLURRY INLET	PAD	
P7	6"	1		ANSI300#RF	SPARE	PAD	W/B.FL.
P6	5"	1		ANSI150#RF	SPARE	PAD	W/B.FL.
P5	5"	1		ANSI150#RF	SLURRY OUTLET	PAD	
P4	3"	1		ANSI150#RF	SPARE	PAD	W/B.FL.
P3	10"	1		ANSI150#RF	VAPOR TO 16C001	PAD △4	LINE WITH SAFETY VALVE
P2	4"	1		ANSI150#RF	DRAIN	PAD	
P1	370°	1		SPECIAL	AGITATOR MOUNT	PAD	

△4 NOTE

1. MAX. ALLOWABLE WORKING PRESSURE
   : 6.6 barG AT 347 °F
   MAX. ALLOWABLE PRESSURE
   : 7.46 barG AT 76.4 °F

2. HYDRO'C TEST PRESSURE
   1) SHOP HYD. TEST (BASED ON M.A.P.)
   : 10.8 barG AT HORIZONTAL POSITION
   2) FIELD HYD. TEST (BASED ON M.A.W.P.)
   : 10.04 barG AT VERTICAL POSITION

MATERIAL SPECIFICATION

		VESSEL	COIL
SHELL (EXPLOSIVELY BONDED) △3		SA516Gr.70+ SB265Gr.1CLAD	–
HEAD (EXPLOSIVELY BONDED) △3		SA516Gr.70+ SB265Gr.1CLAD	–
NOZZLE FLANGE		SA105+ SB265Gr.7	SA105
NOZZLE NECK		SA105+ SB337Gr.1	SA106Gr.B
MANHOLE		SA105+SB265Gr.1&Gr.7	
VESSEL SUPPORT		SA516 Gr.70 △3	
BOLT & NUT (PRESS. PART)		SA193Gr.B7 & SA194Gr.2H	
BOLT & NUT (INTERNAL)		Ti	
GASKET	SHELL △3	SPIRAL WOUND Ti/GRAPHITE WITH Ti INT. RING AND 316L S.S. EXT. RING	
	COIL	SPIRAL WOUND 316 S.S./GRAPHITE WITH 316 S.S. INT. RING AND C.S. EXT. RING	
INTERNALS		Ti	
EXTERNALS		C.S.	
MANHOLE COVER		SA105+SB265Gr.7	

VESSEL DESIGN DATA

		VESSEL	COIL	
	REQ'D NO.	1 SET		
	VOLUME m³	~113.5	~0.039x4	△3
	FLUID NAME	CTA CRYSTAL+ $CH_3COOH+H_2O$	STEAM + CONDENSATE	△3
	FLUID DENSITY kg/m³	1045	1000	△3
	DESIGN CODE	ASME SECT.VIII DIV.1 1995ED. (W/NO ADD.)		
	DESIGN PRESS.	F.V. at 100°C & 4.5barg	F.V. at 100°C & 23barg	
	DESIGN TEMP.	175 ℃	230 ℃	
	OPERATING PRESS.	3 barg	18 barg	
	OPERATING TEMP.	153 ℃	210 ℃	
	HYDRO'C TEST PRESS.	△4 NOTE 2	34.5(BY AIR)barg	△3
	PNEUM'C TEST PRESS.	–	–	
	POST WELD H.T.	NO	NO	
	RADIOGRAPH	FULL	△3 FULL	
	JOINT EFFICIENCY	1.00	1.00	
	CORR. ALLOWANCE	INSIDE 2mm(Ti)	INSIDE 1.0mm	
	INSPECTION AUTHORITY	AI	–	
	CODE STAMP	YES	NO	
	INSULATION / THK (BY OTHERS)	MINERAL WOOL / 100mm		
	PAINTING	ACCORDING TO TCM SPEC. NO.2743-YW-SC-001		
	SURFACE FINISH (INT.)	ACCORDING TO DUPONT SPEC. SWIP(100% IRON FREE)		
	SCREW THREAD	UNIFIED		
△3	FIRE PROOFING (BY OTHERS)	YES 50mm THK		
△3	MINMUM DESIGN METAL TEMPERATURE °C	+8	+8	
	SPARE(S)	SEE SPARE PARTS LIST		
	ACCESSORIES	TEMPLATE		
△3	INSTALLATION	OUTDOOR		
△4	MAX. ALLOWABLE WORKING PRESSURE	NOTE 1		

MANUFACTURER'S TRADE MARK
Hitachi, Ltd.
Tokyo Japan

MANUFACTURER'S DRAWING N° 3122-715116
ISSUE 0 1 2 3 4

TECNIMONT
CLIENT ARABIAN IND. FIBERS CO., LTD.
CLIENT REF. IBN RUSHD
PLANT LOCATION YANBU SAUDI ARABIA

YEAR	JOB	N° PIECES	WORK NUMBER	SCALE
1996	91907	1	83257	1:50

PLANT PTA-YANBU SAUDI ARABIA
ITEM 14D002
SERVICE SECOND CTA CRYSTALLIZER
TYPE
SURFACE m²

IDENTIFICATION CODE

JOB				E	C	T		N°		
2	7	4	3	C	D	V	D	1	4	2

DRAWN UP H.MIZUKI
APPROVED T.TAKATA
DATE NOV.11 1996
SHEET 001 ISSUE 04

PURCHASER TECNIMONT

NOT TO BE REPRODUCED WHOLE DWG. PART NOR ENPLOYED FOR ANY PURPOSE OTHER THAN SPECIFICALLY PERMITTED WRITING.

PURCHASER ORDER W040255NG
MATERIAL REQUISITION 2743CR-MR-005

SYM. 記号	ZONE 区域	REVISIONS 来歴	DATE 年 月 日	REVD. 訂正	CHKD. 審査	APPD. 承認	RE DWG.	RE O.D.	RE D.B.
△4		FOR FINAL	96·11·11	H.MIZUKI	H.AKANE S.MORITA	T.TAKATA			
△3		REVISED IN ACC. WITH TCM'S COMMENTS & OTHERS	96·05·28	T.YANAGI H.MIZUKI	S.MORITA	H.AKANE			
△2		GENERAL REVISION	96·01·20	T.YANAGI H.MIZUKI	Y.MIZUSEKI	T.TAKATA			
△1		GENERAL REVISION	95·11·25	T.KAWAMURA		T.TAKATA			

REF. DWG. NO.
REMARKS

DWN.	H. MIZUKI	95·06·15
CHKD.		· ·
	T. KAWARURA	95·06·16
APPD.	T. TAKATA	95·06·16

PROJECTION
SCALE 1:50
REGD.

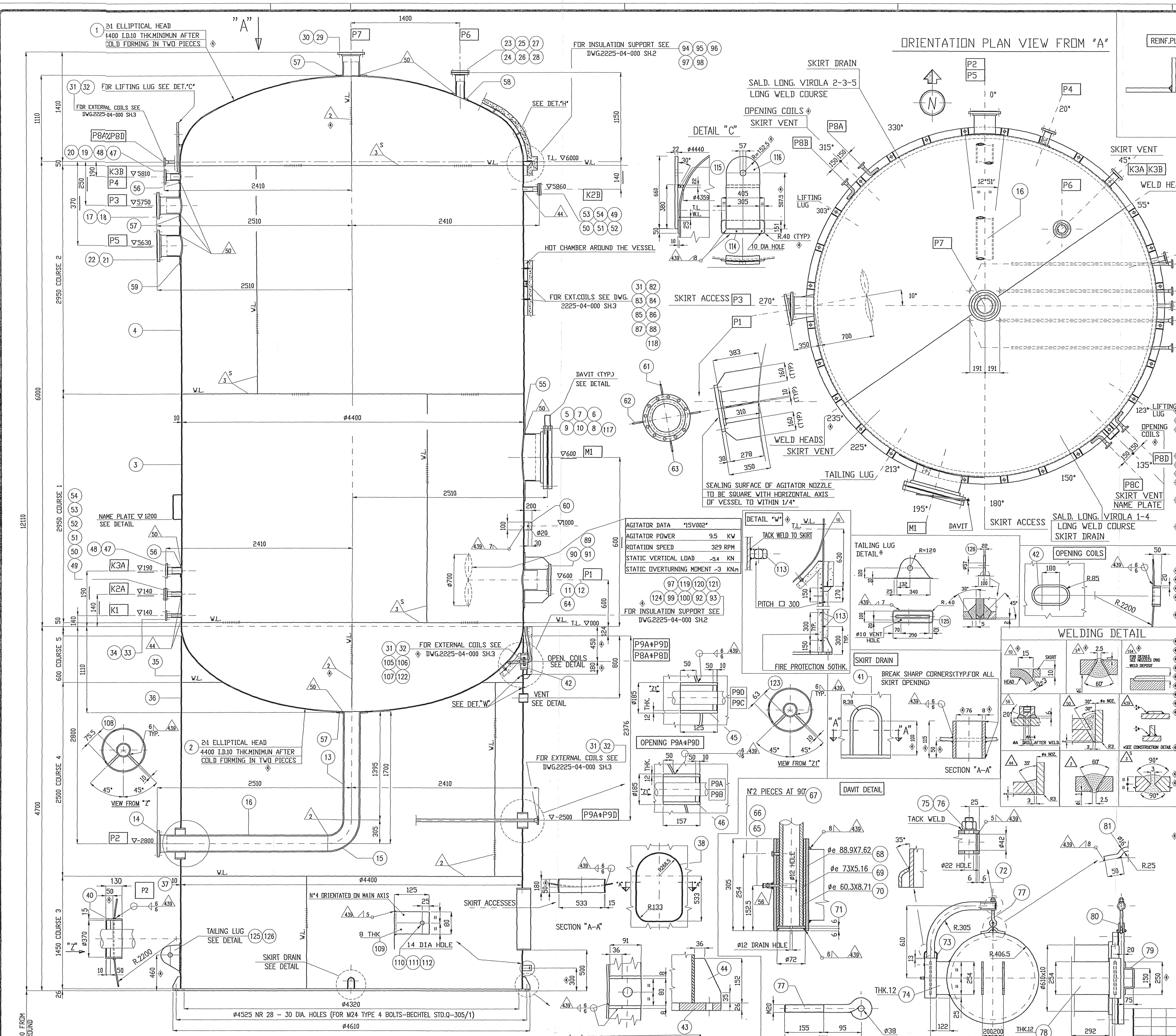
Hitachi, Ltd.
Tokyo Japan

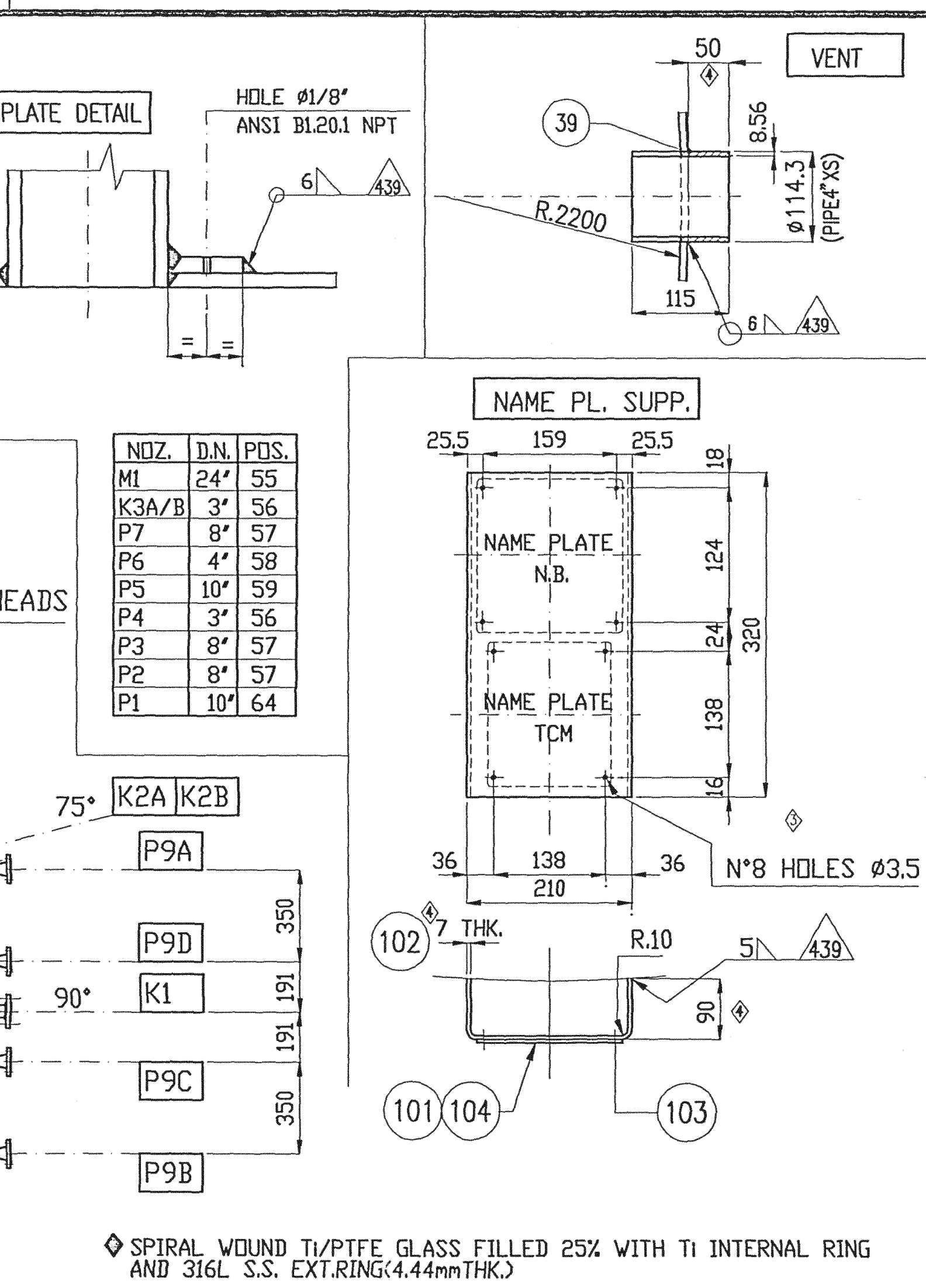
TITLE
SECOND CTA CRYSTALLIZER
(VESSEL)
14D002 △3

KASADO WORKS DWG. NO. 3122-715116
REV. 4

Vol

FOR VESSELS


"A"
ORIENTATION PLAN VIEW FROM "A"
2:1 ELLIPTICAL HEAD 4400 I.D.10 THK.MINIMUN AFTER COLD FORMING IN TWO PIECES
FOR LIFTING LUG SEE DET."C"
FOR EXTERNAL COILS SEE DWG.2225-04-000 SH.3
FOR INSULATION SUPPORT SEE DWG.2225-04-000 SH.2
SEE DET."H"
T.L. ▽6000
HOT CHAMBER ARROUND THE VESSEL
FOR EXT.COILS SEE DWG. 2225-04-000 SH.3
DAVIT (TYP.) SEE DETAIL
NAME PLATE ▽1200 SEE DETAIL
OPEN. COILS SEE DETAIL
VENT SEE DETAIL
SEE DET."W"
2:1 ELLIPTICAL HEAD 4400 I.D.10 THK.MINIMUN AFTER COLD FORMING IN TWO PIECES
VIEW FROM "Z"
TAILING LUG SEE DETAIL
SKIRT DRAIN SEE DETAIL
SKIRT ACCESSES
ø4525 NR 28 – 30 DIA. HOLES (FOR M24 TYPE 4 BOLTS-BECHTEL STD.Q-305/1)
ø4320
ø4610
ø4400
300 FROM GROUND
COURSE 1
COURSE 2
COURSE 3
COURSE 4
COURSE 5
DETAIL "C"
SKIRT DRAIN
SALD. LONG. VIROLA 2-3-5 LONG WELD COURSE
OPENING COILS
SKIRT VENT
LIFTING LUG
SKIRT ACCESS
WELD HEADS
TAILING LUG
SALD. LONG. VIROLA 1-4 LONG WELD COURSE
SKIRT DRAIN
DAVIT
SEALING SURFACE OF AGITATOR NOZZLE TO BE SQUARE WITH HORIZONTAL AXIS OF VESSEL TO WITHIN 1/4"
DETAIL "W"
TACK WELD TO SKIRT
PITCH □ 300
FIRE PROTECTION 50THK.
TAILING LUG DETAIL
OPENING COILS
WELDING DETAIL
SKIRT DRAIN
BREAK SHARP CORNERS(TYP.FOR ALL SKIRT OPENING)
SECTION "A-A"
OPENING P9A÷P9D
VIEW FROM "Z1"
N°2 PIECES AT 90°
DAVIT DETAIL
TACK WELD
N°4 ORIENTATED IN MAIN AXIS
SECTION "A-A"
14 DIA HOLE
ø12 DRAIN HOLE
ø22 HOLE
NAME PL. SUPP.
N°8 HOLES ø3.5
REINF.PLATE DETAIL
VENT



NOZ.	D.N.	POS.
M1	24"	55
K3A/B	3"	56
P7	8"	57
P6	4"	58
P4	3"	56
P3	8"	57
P2	8"	57
P1	10"	64

AGITATOR DATA	"15V002"	
AGITATOR POWER	9.5	KW
ROTATION SPEED	329	RPM
STATIC VERTICAL LOAD	-5.4	KN
STATIC OVERTURNING MOMENT	-3	KNm

◈ SPIRAL WOUND Ti/PTFE GLASS FILLED 25% WITH Ti INTERNAL RING AND 316L S.S. EXT.RING(4.44mmTHK.)

MATERIAL LIST

POS.	DESCRIPTION	N° PIECES	MATERIAL	SYMB.	DIMENSIONS	NOTES
128						
127						
126	LUG ORECCHIA	1	SA 516 GR.60	○	SEE DETAIL	
125	REINF.PL. PIATTO DI RINF	1	SA 516 GR.60	○	390x100x10 THK	
124	ROD TONDO	1	SA 36	○	ø6.35x13750	
123	PLATE PIATTO	8	SA 516 GR.60	○	SEE DETAIL	
122	ELBOW CURVA	4	SA 234 WPB	◐	ø1" STD L.R.	
121	PLATE PIATTO	72	SA 36	○	25x25x2 (UNI6596)	
120	EX.NUTS DADI ES.A.	72	SA 194 GR.2H	○	M6	
119	SCREW VITE T.E.	72	SA 193 GR.B7	○	M6x20	
118	FASTENING LEGACCIO	200	CARBON STEEL	○	ø2X350	
117	LINING M1 RIVESTIM.	1	SA 240 S31803	◐	SEE 2225-04-000 SH.4	
116	LIFT.LUG ORECCHIA	2	SA 516 GR.70	○	SEE DETAIL "C"	
115	PLATE PIATTO	2	SA 240 S31803	◐	SEE DETAIL "C"	
114	REINF.PL. PIATTI DI RINF.	2	SA 240 S31803	◐	SEE DETAIL "C"	
113	EX.NUTS(LUGS) DADI ES.A.	1240	SA 36	○	M10	
112	WASHER RONDELLA	2	304 S.S.	○	ø13X24 UNI 6592	
111	EX.NUTS DADI ES.A.	2	304 S.SS	○	M12 6H	
110	STUDS VITE T.E.	2	304 S.S.	○	M12X60 6g	
109	PLATES PIATTI	4	SA 240 TP.304	○	80X125X8	
108	PLATE PIATTO	2	SA 516 GR.60	○	75.5x50x10	
107	STUD P8A÷D P9A÷D	16	SA 193 GR.B7	◐	ø1/2" 13UNC-2A L=70	P
106	GASKET P8A÷D P9A÷D	4	KLINGER C4500	○	ø1" 150# RF	P
105	EX.NUTS P8A÷D P9A÷D	32	SA 194 GR.2H	◐	ø1/2" 13UNC-2B	P
104	N.PL.N.B. TARGA DATI	1	304 S.S.	○	SEE 2225-04-104	
103	RIVET RIBATTINI	8	304 S.S.	○	ø3	
102	SUPP.NAME PL. SUPP.TARGA	1	SA 240 S31803	◐	SEE DETAIL	
101	N.PL.TCM TARGA DATI	1	304 S.S,	○	SEE 2225-04-101	
100	PLATES PIATTI	12	SA 516 GR.60	○	80x50x5	
99	RING ANELLO	1	SA 516 GR.60	○	I.D.4500x50x5	
98	RODS TONDI	1	SA 36	○	ø6,35x14600	
97	RODS TONDI	94	SA 36	○	ø6,35 X 25,4	
96	RING ANELLO	1	SA 516 GR.60	○	I.D.4514/O.D.4660/5 THK	
95	RING ANELLO	1	SA 516 GR.60	○	I.D.4660x50x5	
94	PLATES PIATTI	22	SA 240 S31803	◐	100x50x8	
93	RING ANELLO	1	SA 516 GR.60	○	I.D.4300/O.D.4398/5 THK	
92	RING ANELLO	1	SA 516 GR.60	○	I.D.4420/O.D.4608/5 THK	
91	GASKET GUARNIZ.	1	◈	○	ø10" 150# RF	, P
90	EX.NUTS P1 DADI ES.A.	24	SA 194 GR.2H	◐	ø7/8"-9UNC-2B	P
89	STUD P1 TIRANTI	12	SA 193 GR.B7	◐	ø7/8"-9UNC-2A L=210	P
88	EX.NUTS DADO ES.A	132	304 S.S.	○	M8	
87	ROD TONDO	132	UNS S31803	○	ø20X47	
86	COLLAR COLLARE	66	SA 516 GR.60	○	SEE 2225-04-000 SH.3	
85	WASHER RONDELLA	1600	SA 36	○	25X25/ø7 2THK.	
84	EX.NUTS DADO ES.A	800	304 S.S.	○	M6	
83	ROD TONDO	800	UNS S31803	○	ø15 X 60	
82	WIRE RETE	1	CARBON STEEL	○	ø2 MESH 22	
81	ROD TONDO	1	SA 36	○	ø16	
80	ANCHOR SHACKLE GRILLO	1	FORGED STEEL	○	ø1/2" STD	
79	HANDLE MANIGLIE	2	SA 36	○	ø16	
78	PLATE PIATTO	1	SA 240 S31803	◐	254X292 12THK.	
77	HOOK GANCIO	1	SA 36	○	M20X250	
76	EX.NUTS DADO ES.A	1	SA 36	○	M20-6H	
75	WASHER RONDELLA	1	SA 36	○	ø37/22 3THK.	
74	PLATE PIATTO	1	SA 516 GR.60	○	122X254X12	
73	CAP FONDELLO	1	SA 403 WP 304	○	ø3.1/2" SCH.10S	
72	DISK DISCO	1	SA 516 GR.60	○	ø42 THK.6	
71	DISK DISCO	1	SA 240 TP.304	○	ø72 THK.6	
70	PIPE TUBO	1	SA 106 GR.B	○	ø2" SCH.160	
69	PIPE TUBO	1	CHLORINATED POLYVINYL CHLORIDE	○	ø2.1/2" SCH 40	
68	PIPE TUBO	1	SA 312 TP.304	○	ø3" SCH.XS	
67	EX.SCREW VITE T.E.	2	304 S.S.	○	ø3/8"X20	
66	GREASE FITTING INGRASS.	1	304 S.S.	○	ø1/8" STD.	
65	HALF COUPLING MEZZO MAN.	1	304 S.S.	○	ø1/8" 3000#	
64	REINF.PLATE PIATTO DI RINF.	1	SA 240 S31803	◐	ø500x10 THK	
63	PLATE PIATTO	1	SA 240 S31803	◐	SEE DETAIL	
62	PLATES PIATTI	2	SA 240 S31803	◐	SEE DETAIL	
61	PLATE PIATTO	1	SA 240 S31803	◐	SEE DETAIL	
60	PLATE PIATTO	1	SA 240 S31803	◐	100 X 200 THK.10	
59	REINF.PLATE PIATTO DI RINF.	1	SA 240 S31803	◐	ø500x10 THK	
58	REINF.PLATE PIATTO DI RINF.	1	SA 240 S31803	◐	ø210x10 THK	
57	REINF.PLATE PIATTO DI RINF.	3	SA 240 S31803	◐	ø400x10 THK	
56	REINF.PLATE PIATTO DI RINF.	3	SA 240 S31803	◐	ø160x10 THK	
55	REINF.PLATE PIATTO DI RINF.	1	SA 240 S31803	◐	ø1120x10 THK	
54	FLANGE K2A/B FLANGIA	2	SA 182 S31803	◐	ø2" 150# SO-RF	
53	PIPE K2A/B TUBO	2	SA 790 S31803	◐	ø2" SCH. 160	
52	BL.FLG. K2A/B FL. CIECA	2	SA 182 S31803	◐	ø2" 150# RF	
51	GASKET K2A/B GUARNIZ.	2	◈	○	ø2" 150# RF	P
50	STUDS TIRANTI	8	SA 193 GR.B7	◐	ø5/8" 11UNC-2A L=90	P
49	EX.NUTS DADI ESA.	16	SA 194 GR.2H	◐	ø5/8" 11UNC-2B	P
48	FLANGE K3A/B FLANGIA	2	SA 182 S31803	◐	ø3" 150# SO-RF	
47	PIPE K3A/B TUBO	2	SA 790 S31803	◐	ø3" SCH. XS	
46	OPEN.NOZ.P9A/B APERTURA	2	SA 516 GR.60	○	SEE DETAIL	
45	OPEN.NOZ.P9C/D APERTURA	2	SA 516 GR.60	○	SEE DETAIL	
44	RIB COSTOLE	56	SA 516 GR.60	○	SEE DETAIL	
43	SKIRT BASE SBORDATURA	1	SA 516 GR.60	○	øe 4610X4320/26THK.	
42	SKIRT COILS SBORDATURA	4	SA 516 GR.60	○	SEE DETAIL	
41	SKIRT DRAIN SBORDATURA	2	SA 516 GR.60	○	SEE DETAIL	
40	OPEN. NOZ.P2 APERT. P2	1	SA 516 GR.60	○	øi 370X130/15THK.	
39	OPEN.VENT APERT. VENT	4	SA 106 GR.B	○	ø4" SCH. XS	
38	SKIRT ACCES ACCESSO	2	SA 516 GR.60	○	SEE DETAIL	
37	COURSE 3 VIROLA	1	SA 516 GR.60	◐	øi 4400X1450/10THK.	
36	COURSE 4 VIROLA	1	SA 516 GR.60	◐	øi 4400X2500/10THK.	
35	COURSE 5 VIROLA	1	SA 240-S31803	◐	øi 4400X600/10THK.	
34	FLANGE K1 FLANGIA	1	SA 182 S31803	◐	ø1.1/2" 150# SO-RF	
33	PIPE K1 TUBO	1	SA 790 S31803	◐	ø1.1/2" SCH.160	
32	FLG. P8A/D-P9A/D FLANGIA	16	SA 105	◐	ø1" 150# WN-RF	
31	PIPE P8A/D-P9A/D TUBO	8	SA 106 GR.B	◐	ø1" SCH. STD L.TOT.m170	
30	FLANGE P7 FLANGIA	1	SA105+W.D. UNS S 31803	◐	ø8" 150# SO-RF	
29	PIPE P7 TUBO	1	SA 790 S31803	◐	ø8" SCH. XS	
28	FLANGE P6 FLANGIA	1	SA 182 S31803	◐	ø4" 150# SO-RF	
27	PIPE P6 TUBO	1	SA 790 S31803	◐	ø4" SCH. XS	
26	BL.FLG. P6 FL. CIECA	1	SA 182 S31803	◐	ø4" 150# RF	
25	GASKET P6 GUARNIZ.	1	◈	○	ø4" 150# RF	P
24	STUDS TIRANTI	8	SA 193 GR.B7	◐	ø5/8" 11UNC-2A L=100	P
23	EX.NUTS DADI ESA.	16	SA 194 GR.2H	◐	ø5/8" 11UNC-2B	P
22	FLANGE P5 FLANGIA	1	SA105+W.D. UNS S 31803	◐	ø10" 150# SO-RF	
21	PIPE P5 TUBO	1	SA 240 S31803	◐	ø10" 10THK.	
20	FLANGE P4 FLANGIA	1	SA 182 S31803	◐	ø3" 150# SO-RF	
19	PIPE P4 TUBO	1	SA 790 S31803	◐	ø3" SCH. XS	
18	FLANGE P3 FLANGIA	1	SA105+W.D. UNS S 31803	◐	ø8" 150# SO-RF	
17	PIPE P3 TUBO	1	SA 790 S31803	◐	ø8" SCH. XS	
16	PIPE P2 TUBO	1	SA 790 S31803	◐	ø8" SCH. XS	
15	ELBOW L.R. CURVA	1	SA 790 S31803	◐	ø8" SCH. XS L.R.	
14	FLANGE P2 FLANGIA	1	SA105+W.D. UNS S 31803	◐	ø8" 150# SO-RF	
13	PIPE P2 TUBO	1	SA 790 S31803	◐	ø8" SCH. XS	
12	FLANGE P1 FLANGIA	1	SA105+W.D. UNS S 31803	◐	ø10" 150# SO-RF	
11	PIPE P1 TUBO	1	SA 240 S31803	◐	ø10" 10THK.	
10	FLANGE M1 FLANGIA	1	SA105+W.D. UNS S 31803	◐	ø24" 150# SO-RF	
9	PIPE M1 TUBO	1	SA 240 S31803	◐	ø610 X 10THK.	
8	BL.FLG. FL. CIECA	1	SA105+W.D. UNS S 31803	◐	ø24" 150# RF	
7	GASKET M1 GUARNIZ.	1	◈	○	ø24" 150# RF	P
6	STUDS TIRANTI	20	SA 193 GR.B7	◐	ø1 1/4" 8UN-2A L=200	P
5	EX.NUTS DADI ESA.	40	SA 194 GR.2H	◐	ø1 1/4" 8UN-2B	P
4	COURSE 2 VIROLA	1	SA 240 S31803	◐	øi 4400X2950/10THK.	
3	COURSE 1 VIROLA	1	SA 240 S31803	◐	øi 4400X2950/10THK.	
2	ELL.HEAD FONDO ELL.	1	SA 240 S31803	◐	øi 4400/10THK.	
1	ELL.HEAD FONDO ELL.	1	SA 240 S31803	◐	øi 4400/10THK.	

MATERIALS TEST SYMBOL		THICKNESSES TOLERANCE	
◍	MATERIAL TESTED BY OFFICIAL AUTHORITY	PLATES:	-0,25 mm
◐	MATERIAL WITH MANUFACTURER CERTIFICATE	PIPES:	-12,5%
○	MATERIAL WITHOUT CERTIFICATE	HEADS:	SEE NOTE (G)

DESIGN DATA

SIDE		SHELL	COIL	NOTES
DESIGN CODES		ASME SECTION VIII DIV.1 ED.1992+94 ADD.		④
CODE "U" STAMP		YES	NONE	
INSPECTION AUTHORITY		ABS IV	–	
PRESSURE (GAUGE) DESIGN	bar (g)	2	8 ∓ F.V.	
OPERATING	bar (g)	0.1	5	
EXTERNAL	bar (g)	–	–	
HYDROTEST IN VERTICAL (SHOP/FIELD)	bar (g)	④ 8.2/6	12	
HYDROTEST IN HORIZANTAL (SHOP)	bar (g)	④ 8.5	–	
PNEUMATIC TEST	bar (g)	–	–	
M.A.P. (NEW AND COLD)	bar (g)	④ 5.9	–	
M.A.W.P. (HOT AND CORR.)	bar (g)	④ 4	–	
TEMPERATURE DESIGN	°C	130	180	
OPERATING	°C	80	158	
FULL VACUUM CONDITION	°C	–	100	
MINIMUM DESIGN METAL TEMPERATURE		8°C AT 2 bar (g)	8°C AT 8 bar (g)	
CORROSION ALLOWANCE	mm	1.5	1	
FLUID TYPE		CH3COOH+WATER+SOLIDS	STEAM+CONDENSATE	
PHYSICAL STATE				
SPECIFIC GRAVITY	kg/m³	980	1000	
CAPACITY	m³	~113.6	~0.024X4	
LIQUID LEV. FOR MECHANICAL DESIGN(ABOVE BOTTOM T.L.)	mm			
JOINTS EFFICENCY	SHELL	0.85	–	
	HEADS	1	–	
OUT OF ROUND	%	ACCORDING TO ASME CODE UG 80		
INSULATION	TYPE/THK.	MINERAL WOOL/60		
FIREPROOFING		YES-50mmTHK.	–	
WIND PRESSURE	SEE BECHTEL SPEC.22854-SP-000	ASCE 7-88 "EXPOSURE C"		Q
SEISMIC ZONE	-M-001 Rev.2 PARA 4	ASCE 7-88 "ZONE 1"		Q

LOADS AT BASE		OPERATING	HYDROTEST	EARTHQUAKE
VERTICAL LOAD	kN	1529	1552	1529
SHEAR	kN	37.8	9.5	81
MOMENT	kN·m	233	58.25	621

SUPPLY WEIGHT (MASS)	~17600	kg
WEIGHT FULL OF WATER	~131300	kg
SURFACES (IN FIELD)		
INSULATION (MEDIUM SURFACE)	~142	m²
SHEETS FOR INSULATION JACKETING	~145	m²
FINAL PAINTING (CARBON STEEL PARTS)	~140	m²

LOCATION OUTDOOR

SADDLES MOVEMENT – mm

PAINTING (IN WORK SHOP)
PAINTING : (IN WORK SHOP) (ACCORDING TO SPC N° 2743-YW-SG-001 SH.1 ISSUE 5)
- FOR CARBON STEEL PARTS: SANDBLASTING SA 2 1/2 AND PAINTING WITH ONE COAT OF INORGANIC ZINC SILICATE 75 MICRONS D.F.T.
- FOR STAINLESS STEEL INTERNAL PARTS: SEE NOTE "EE"
- FOR STAINLESS STEEL EXTERNAL PARTS: PICKLING BY PASTE ON EXTERNAL WELDING AND PROTECT WITH TECTIL

ZONE RESERVED FOR APPROVAL STAMPS

FINAL
7/1/97

REV No.	DATE	DESCRIPTION	DRAWN UP	CHECKED	APPROVED

SCALE: JOB No.

ARABIAN INDUSTRIAL FIBERS Co.(IBN RUSHD)
YANBU SAUDI ARABIA

IBN RUSHD PTA PLANT
YANBU SAUDI ARABIA
350,000 MT/Y PTA PLANT

Plant Unit	DRAWING No.	SHEET	REVISION

ISSUE	DESCRIPTION	DRAWN UP	APPROVED	DATE
4	EMISSIONE FINALE FINAL ISSUE	FEDERICI	SILVESTRI	21-10-96
3	MODIF.COME INDICATO DAL CLIENTE MODIF.AS INDICATED BY COSTOMER	BOTTI	SILVESTRI	24-7-96
2	EMESSO PER APPROVAZIONE ISSUE FOR APPROVAL	LEONI	MURGIA	15-5-96
1	EMESSO PER APPROVAZIONE ISSUE FOR APPROVAL	LEONI	MURGIA	15-1-96

MANUFACTURER'S TRADE MARK
FBM HUDSON

MANUFACTURER'S DRAWING N° 2225-04-000 SH.1
ISSUE 1 2 3 4

YEAR	JOB	N° PIECES	WORK NUMBER	SCALE
1996	2225	1	96/1046/01	/

PLANT PTA-YANBU SAUDI ARABIA
ITEM 15 D 002
SERVICE MOTHER LIQUOR DRUM (ASSEMBLY DRAWING)
DRAWN UP LEONI
APPROVED MURGIA
DATE 29-01-96
PURCHASER TECNIMONT
PURCHASER ORDER W 040295 NG
MATERIAL REQUISITION 2743 CD-MR-002

NOT TO BE REPRODUCED WHOLE DWG. PART NOR ENPLOYED FOR ANY PURPOSE OTHER THAN SPECIFICALLY PERMITTED WRITING.

TECNIMONT
CLIENT ARABIAN IND.FIBERS CO.LTD
CLIENT REF. IBN RUSHD
PLANT LOCATION YANBU SAUDI ARABIA

IDENTIFICATION CODE

JOB	E	C	T	N°
2743	C	D	VD	152

SHEET 001 ISSUE 04

LIST OF CONNECTIONS

ITEM	PIECES	DN	SERVICE	FLANGE RATING	FLANGE TYPE	FLANGE FACING	NOZZLE O.D.	NOZZLE THK.	REINF. PAD O.D.	REINF. PAD THK.	NOTES
K2A÷B	2 ④	2"	LEVEL CONTROLLER	150#	SO	RF	60.3	8.71	–	–	4
K3A÷B	2 ④	3"	STAND PIPE	150#	SO	RF	88.9	7.62	160	10	
K1	1	1 1/2"	TEMPERATURE	150#	SO	RF	48.3	7.14	–	–	
P9A÷D	4	1"	CONDENSATE OUTLET	150#	WN	RF	33.4	3.38	–	–	3
P8A÷D	4	1"	STEAM INLET	150#	WN	RF	33.4	3.38	–	–	3
P7	1	8"	VENT	150#	SO	RF	219	12.7	400	10	
P6	1	4"	SPARE	150#	SO	RF	114.3	8.56	210	10	2
P5	1	10"	MANIFOLD RECYCLE	150#	SO	RF	273	10	500	10	
P4	1	3"	15G002/012 RECYCLE	150#	SO	RF	88.9	7.62	160	10	
P3	1	8"	INLET FROM FILT.SYST.	150#	SO	RF	219	12.7	400	10	
P2	1	8"	LIQUID OUTLET	150#	SO	RF	219	12.7	400	10	
P1	1	10"	AGITATOR MOUNT	150#	SO	RF	273	10	500	10	
M1	1	24"	MANHOLE	150#	SO	RF	610	10	1120	10	1

NOTES
1)WITH BLIND FLANGE AND DAVIT
2)WITH BLIND FLANGE
3)NOZZLES OF EXTERNAL HEATING COILS
4)WITH BLIND FLANGE DRILLED FOR 33.4 O.D. PIPE WELDED IN FIELD

FLANGES SEALING SURFACE FINISHING
SERRATED SPIRAL FINISH WITH RESULTING ROUGHNESS
SHELL SIDE=125÷250 μin AARH
COIL SIDE=125÷250 μin AARH

WELDING EXAMINATIONS AND PWHT

SIDE	SHELL	COIL	NOTES
IMPACT TEST	SEE NOTE 5	④	
TEST COUPONS FOR WELDED HEADS	NOT REQUIRED	④	
PRODUCTION TEST COUPON	NOT REQUIRED	④	
TEST CATEGORY	—		
UT: ULTRASONIC EXAMINATION MT: MAGNETIC PARTICLE EXAMINATION PT: LIQUID PENETRANT EXAMINATION	SEE DOC. NR. 2225.01-IT-04		④
RT: RADIOGRAPHIC EXAMINATION SHELL	SPOT	–	(1)
RT: RADIOGRAPHIC EXAMINATION HEADS	100%	–	(1)
PWHT: POSTWELD HEAT TREATMENT	NONE	NONE	

NOTES
1)RX 100% ON LONGITUDINAL WELD OF NOZZLES FROM PLATE

WELDING DESCRIPTIONS

POSITION	WELDING PROCESS	FILLER METALS	N° WPS	N° PQR
SEE DOC.NR.2225.00-WB-001				

WELDING PROCESS
SMAW: SHIELDED METAL-ARC WELDING
GTAW: GAS TUNGSTEN-ARC WELDING
SAW : SUBMERGED-ARC WELDING
GMAW: GAS METAL-ARC WELDING
FCAW: FLUX CORED-ARC WELDING

DRAWINGS AND SPECIF. REFERENCE

NUMBER	ISSUE	TITLE
2743-CD-MR-002	2	MATERIAL REQUISITION
2743-CD-DX-152 SH.1-2	3	TECNIMONT DWG
2743-VB-FP-001	3	EQUIPMENT GENERAL NOTES
2743-YW-SG-001	5	SHOP PAINTING
2743-SZ-SG-001	3	FIREPROOFING GENERAL SPECIFIC.
22854-SP-000-A-002	2	BASIC DESIGN DATA
22854-SP-000-D-001	1	UNFIRED PRESSURE VESSELS
22854-SP-000-W-001	1	MAT.,WELDING,NDT AND CORROSION CONTROL
22854-SP-000-M-001	2	BASIC CIVIL ENGINEERING DESIGN DATA
DU-PONT SG 1 S	1	GENERAL FABRICATION REQUIREMENTS
DU-PONT SG 14.1 S	1	CLEANLINESS REQ.FOR STNL.STEEL EQUIPMENT.
2225-04-500	1	SHIPPING DRAWING
2225-04-400	1	TEMPLATE DRAWING
2225-04-104	1	NAME PL.NB DRAWING
2225-04-101	1	NAME PL.TCM DRAWING
2225-04-000 SH.4	3	NOZZLES DRAWING
2225-04-000 SH.3	2	EXT.COILS DRAWING
2225-04-000 SH.2	1	INSULATION SUPPORT DRAWING
2225-04-000 SH.1	4	ASSEMBLY DRAWING

FABRICATION NOTES

FF) FOR STAINLESS STEEL WELDING AND OVERLAY, THE FERRITE CONTENT SHALL BE IN THE RANGE FROM 30 TO 70% ④
EE) STAINLESS STEEL INTERNAL SURFACES SHALL BE CLEANED AS PER SPECIFICATION DUPONT SG.14.1.S.
DD) HYDRAULIC TEST PERFORMED USING WATER WITH A MAX. 50 P.P.M. OF CHLORIDE AND TEMPERATURE MINIMUM OF 7°C.
CC) WELD DEPOSIT SHALL BE INSPECTED ACCORDING TO PARA D5.2 OF APPENDIX "D" SPECIF. 22854-SP-000-D-001 REV.1
~~BB) BASE METAL WELDED JOINT SHALL BE INSPECTED AS PER CODE PRIOR TO CLAD RESTORATION WITH WELD DEPOSIT.~~ ④
AA) DYE PENETRANT SHALL BE CARRIED OUT AS FOLLOW :
- 100% ON WELDS OF NOZZLES TO SHELL OR HEADS. ④
- 100% ON WELDS OF ALL OTHER ATTACCHEMENTS TO PRESSURE PARTS.

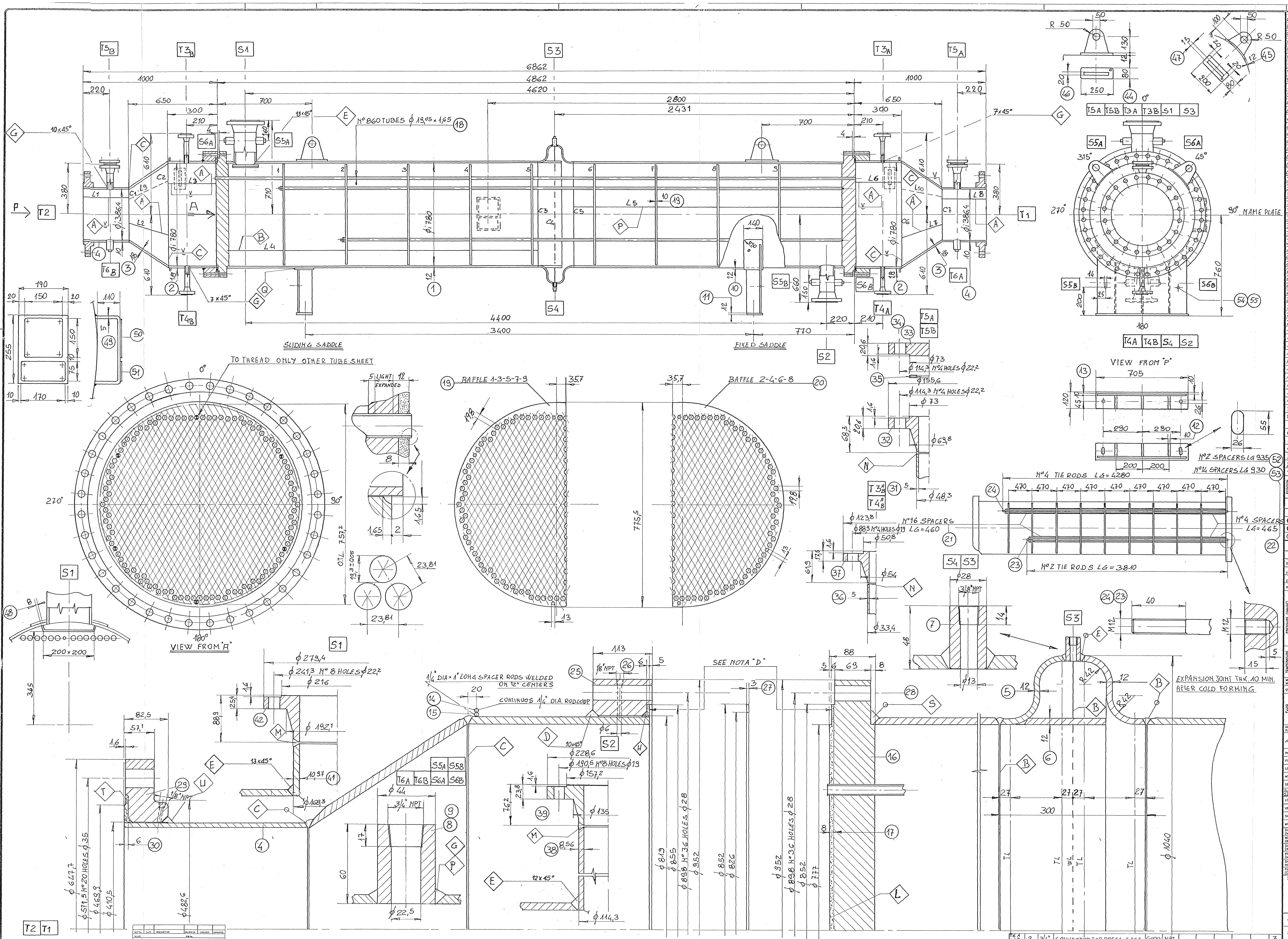
MATERIAL NOTES

8) IF NOZZLE NEEKS ARE OBTAINED FROM PLATE, THE SAME SHALL BE 100% RADIOGRAPHED ON LONGITUDINAL JOINTS.
7) MATERIALS FOR PRESSURE PARTS AND IN CONTACT WITH PROCESS FLUID SHALL BE ACCORDING TO SPECIFIC. 2743-VB-FP-001 REV.03 PARAS "1.c" AND "2.b" AND "2c"
6) MATERIALS FOR PRESSURE PARTS SHALL BE ACCORDING TO ASME II PART."A" ED. 1992+94 ADD: ④
5) MINIMUM DESIGN METAL TEMPERATURE = 8°C. : IMPACT TEST NOT REQUIRED ACC. TO ASME VIII DIV.1 ED. 1992+94 ADD. PARAS UCS(66a) AND UHA 51(a) ④
4) CARBON STEEL MATERIALS FOR PRESSURE PARTS SUPPLIED IN NORMALIZED CONDITIONS.
3) CARBON STEEL MATERIALS FOR PRESSURE PARTS WITH CARB. CONT. 0.25% MAX.
2) NON ASBESTOS CARBON GRAPHITIC FIBER WITH SBR BINDER KLINGER C4500 (1.6 THK)-(COIL SIDE GASKET MAT.) ④
1) SPIRAL WOUND Ti/PTFE GLASS FILLED 25% WITH Ti INTERNAL RING AND 316L S.S. EXTERNAL RING (4.44 mm THK.) (SHELL SIDE GASKET MATERIAL) ④

GENERAL NOTES

Q) FOR WIND AND EARTHQUAKE SEE ALSO SPECIFICATIONS 22854-SP-000-A-002 Rev.2 PARA 3.5 AND 4.6 AND TABLES 1-2
P) BESIDES THE INSTALLED MATERIALS AT SHOP SHALL BE SUPPLIED THE FOLLOWINGS SPARE PARTS.
EXTERNAL PARTS:
-N° 2 SETS OF GASKETS FOR MAIN FLANGES CONNECTING DIFFERENT SECTIONS OF THE EQUIPMENT
④ -N° 2 SET OF GASKETS FOR EACH MANHOLE OR BLIND FLANGE
-STUD BOLTS AND NUTS: 10% WITH A MINIMUM OF 2 PIECES FOR EACH CONNECTION TYPE.
INTERNAL PARTS:
-BOLTS,NUTS,CLAMPS AND GASKETS: 10% WITH A MINIMUM OF 10 PIECES FOR EACH CONNECTION TYPE.
O) NOZZLE FLANGE CONTACT FACES MUST BE PROTECTED WITH MARINE PLYWOOD OR METAL COVERS COMPLETE OF RUBBER GASKET OR MALLEABLE OILED CLOTH.
N) BEFORE SHIPPING THE UNIT MUST BE CLEANED INTERNALLY DRAINED AND DRIED.
M) ALL UNQUOTED WELDS MUST HAVE SIDES EQUAL TO THE LOWER THICKNESS OF THE PLATES TO WELD.
L) FOR ALL REINFORCING PADS PROVIDE ONE 1/8" ANSI B1.20.1 NPT DIA. HOLE. PADS TO BE AIR TESTED AT 2 bar (g); AFTER THE PRESSURE MUST BE REDUCED TO 0.5 bar (g) AND ALL WELDS MUST BE TESTED FOR LEAKS WITH SOAP SOLUTION. VENT HOLES WILL BE LEFT OPEN AFTER TESTING. THE HOLES MUST BE FILLED WITH GREASE.
I) ALL INTERNAL AND EXTERNAL PARTS WELDED TO THE SHELL SHALL BE OF THE SAME MATERIAL WHICH CONSTITUTES THE SECTION OF THE SHELL WHERE THE PARTS WILL BE WELDED.
H) FLANGES ACCORDING TO STD. ANSI B16.5 – COUPLINGS ACCORDING TO ANSI B16.11 FULL LENGTH TYPE PER ANSI B1.20.1 TAPER PIPE THREADED – PIPES: CARBON STEEL ACCORDING TO ANSI B36.10 (SEAMLESS); STAINLESS STEEL PER ANSI B36.19 – PIPE FITTINGS ACCORDING TO ANSI B16.9.
G) ALL THICKNESSES SHOWN ON DRAWING EXCEPT FOR ELLIPTICAL HEADS ARE NOMINAL (FOR ELLIPTICAL HEADS ARE THE MINIMUM AFTER FORMING).
F) ALL REMOVABLE INTERNALS SHALL PASS THROUGH A MANHOLE SIZE (590 I.D.).
E) TRAY ELEVATIONS ARE REFERRED TO TOP OF SUPPORT RING.
D) ALL ELEVATIONS ARE MEASURED FROM BOTTOM TANGENT LINE.
C) UNLESS OTHERWISE INDICATED NOZZLE PROJECTIONS ARE MEASURED FROM EQUIPMENT CENTERLINE TO CONTACT FLANGE FACINGS.
B) UNLESS OTHERWISE INDICATED,ALL GIRTH FLANGES AND FLANGE CONNECTIONS BOLT HOLES MUST BE STAGGERED TO MAIN AXIS OF THE EQUIPMENT.
A) UNLESS OTHERWISE NOTED ALL DIMENSIONS ARE IN MILLIMETERS.

FOR EXCHANGER



POSITION	DESCRIPTION	N° PIECES	MATERIAL	SYMBOLISM	DIMENSIONS	NOTES
60				○		
59				○		
58				○		
57				○		
56				○		
55	WASHER	1	SA 240 316L	○	φ 20 x 2,5	
54	SCREW WITH NUTS	1	SS 304	○	M12 x 30	
53	SPACERS	14	SA 312 TP 304	○	φ 21,3 x 2 x 930	
52	SPACERS	2	SA 312 TP 304	○	φ 21,3 x 2 x 935	
51	NAME PLATE	1	SA 240 304	○	2 THK	
50	NAME PLATE	1	SA 240 304	○	2 THK	
49	NAME PLATE SUPPORT	1	SA 516 Gr. 60	○	THK. 5	
48	IMPING. PLATE	1	SA 516 Gr. 60	◐	THK. 8	
47	LIFTING LUG	4	SA 285 Gr. C	○	THK. 15	
46	LIFTING LUG	2	SA 285 Gr. C	○	THK. 20	
45	REINFORCING PLATE	4	SA 240 316L	◐	THK. 12	
44	REINFORCING PLATE	2	SA 516 Gr. 60	◐	THK. 12	
43				○		
42	FLANGE DN 6"	1	SA 105	◐	DN 6" ANSI 150# WN RF	
41	NOZZLE DN 6"	1	SA 106 Gr. B	◐	φ 168,3 x 10,9	
40				-		
39	FLANGE DN 4"	1	SA 105	◐	DN 4" ANSI 150# WN RF	
38	NOZZLE DN 4"	1	SA 106 Gr. B	◐	φ 114,3 x 8,56	
37	FLANGE DN 1"	4	SA 182 F 316L	◐	DN 1" ANSI 300# WN RF	
36	NOZZLE DN 1"	4	SA 312 TP 316L	◐	φ 33,4 x 5	
35	GASKETS	2+4	SPIRAL WOUND 316L/PTFE WITH 316L I.R. C.S.E.R.	○	ANSI 300# RF	
34	BOLTS WITH 2 NUTS	8+2	SA 193 B7 / A 194 2H	◐	5/4" UNC x 100	
33	BLIND FLANGE	2	SA 182 F 316L	◐	DN 1½" ANSI 300 bl RF	
32	FLANGES DN 1½"	2	SA 182 F 316L	◐	DN 1½" ANSI 300# WN RF	
31	NOZZLE DN 1½"	2	SA 312 TP 316L	◐	φ 48,3 x 5	
30	FLANGES LINING	2	WELD DEPOSIT 316L	◐	THK. 6	
29	FLANGES	2	SA 105	◐	DN 16" ANSI 300# SO RF	
28	BOLTS WITH 2 NUTS	72+8	SA 193 B7 / A 194 2H	◐	φ 1" UNC x 260	
27	GASKETS	2+4	DOUBLE JACKETED AISI 316L WITH CER. FIB. / Gr. INS	○	φ 852/826 THK. 3	
26	FLANGE LINING	2	WELD DEPOSIT 316L	◐	THK 6	
25	MAIN FLANGES	2	SA 105	◐	φ 952 x 113	
24	TIE RODS WITH 2 NUTS	4	SA 36	○	φ 12 x 4280	
23	TIE RODS WITH 2 NUTS	2	SA 36	○	φ 12 x 3810	
22	SPACERS	4	SA 312 TP 304	○	φ 21,3 x 2 x 465	
21	SPACERS	16	SA 312 TP 304	○	φ 21,3 x 2 x 460	
20	BAFFLES	4	SA 285 Gr. C	○	φ 775,5 x 10	
19	BAFFLES	5	SA 285 Gr. C	○	φ 775,5 x 10	
18	TUBES L= 4880	860	SA 213 TP 316L	◐	φ 19,05 x 1,65	
17	TUBESHEETS LINING	2	WELD DEPOSIT 316L	◐	THK. 8	
16	TUBESHEETS	2	SA 266 CL. 2	◐	φ 952 x 80	
15	INSULATION SUPPORT	18	AISI 304	○	ROD φ 6 x 25	
14	INSULATION SUPPORT RING	2	Tp 304	○	ROD φ 6	
13	REINFORCINGS	2	SA 285 Gr. C	○	THK. 10	
12	REINFORCINGS	6	SA 285 Gr. C	○	THK. 10	
11	BASE PLATE	2	SA 285 Gr. C	○	705 x 120 x 12	
10	REINFORCING PLATE	2	SA 516 Gr 60	○	140 x 12	
9	COUPLING WITH PLUG	2	SA 182 F 316L	○	DN 3/4" 6000# B1.201	
8	COUPLING WITH PLUG	4	SA 105	○	DN 3/4" 6000# B1.201	
7	COUPLING WITH PLUG	2	SA 105	○	DN 3/8" 6000# B1.201	
6	INTERNAL SHELL	1	SA 516 Gr. 60	◐	THK 12	
5	EXPANSION JOINT	2	SA 516 Gr 70	◐	THK. 12	
4	NOZZLE DN 16"	2	SA 240 316L	◐	THK. 10	
3	CONICAL RED.	2	SA 240 316L	◐	THK. 18	
2	SHELL	2	SA 240 316L	◐	THK. 18	
1	SHELL	2	SA 516 Gr 60	◐	THK. 12	

MATERIAL LIST

MATERIALS TEST SYMBOL	THICKNESSES TOLERANCE	
● MATERIAL TESTED BY OFFICIAL AUTHORITY	PLATES:	-0,25 mm
◐ MATERIAL WITH MANUFACTURER CERTIFICATE	PIPES:	-12,5%
○ MATERIAL WITHOUT CERTIFICATE	HEADS:	SEE NOTE (G)

DESIGN DATA

	SIDE	SHELL	TUBES	NOTES
DESIGN CODES		ASME SECT. VIII DIV. 1 ED. '95 AD. '95		
TEMA CLASS		C		
CODE "U" STAMP		YES	YES	
INSPECTION AUTHORITY		LR INSURANCE		
PRESSURE (GAUGE) DESIGN	(PSI) bar (g)	(116) 8 / F.V.	(423,4) 29,2	
OPERATING	(PSI) bar (g)	(63,8) 4,4	(291,4) 20,1	
EXTERNAL	(PSI) bar (g)	/	/	
HYDROTEST IN WORKSHOP	(PSI) bar (g)	(290) 20	(841) 58	
HYDROTEST IN FIELD	(PSI) bar (g)	(188,5) 13	(648,5) 44,73	
M.A.P. (NEW AND COLD)	(PSI) bar (g)	(229,8) 15,85	(600) 41,38	
M.A.W.P. (HOT AND CORR.)	(PSI) bar (g)	(166,4) 11,48	(432,3) 29,82	
TEMPERATURE DESIGN	(°F) °C	(356) 180	(356) 180	
OPERATING	(°F) °C	(311) 155	(298,4) 148	
TUBE START-UP WALL TEMP.	(°F) PSI °C	(46,4 at 0) 8 at 0 bar	(133 at 423,4) 56 at 29,2 barg	
TUBESHEETS DESIGN	(°F) °C	(356) 180	(356) 180	
MINIMUM DESIGN METAL TEMPERATURE		8 °C AT 8 bar (g)	8 °C AT 29,2 bar (g)	
CORROSION ALLOWANCE	mm	3	1,5	
FLUID TYPE		RECOVERY STEAM	13C001 VENT	
PHYSICAL STATE		VAP. / LIQUID	VAP.	
SPECIFIC GRAVITY	kg/m³	1000	22,6	
CAPACITY	m³	1,1	1,39	
NUMBER OF PASSES		1	1	
JOINTS EFFICENCY	SHELL	0,85	1	
	HEADS			
INSULATION	TYPE/THK.	MIN. WOOL 80	MIN WOOL 50	
FIREPROOFING		NONE		
LOCATION		OUTDOOR		
WIND PRESSURE		ASCE 7.88 EXPOSURE C		
SEISMIC ZONE		ASCE 7.88 ZONE 1		
SHELL START-UP WALL TEMP.	(°F) PSI °C	(311 at 116) 155 at 8 barg	(311 at 0) 155 at 0 barg	

LOADS AT BASE		OPERATING	HYDROTEST	EARTHQUAKE
VERTICAL LOAD	kN	72,6	91,2	72,6
SHEAR	kN	3,2	0,8	3,9
MOMENT	kNm	2,5	0,63	3

SUPPLY WEIGHT (MASS)	6530	kg	BUNDLE WEIGHT		kg
WEIGHT FULL OF WATER	9020	kg	SADDLES MOVEMENT	8	mm
SURFACES (IN FIELD)			PAINTING (IN WORK SHOP)	SAND BLASTING: GRADE SA2 ½ INORGANIC ZINC SILICATE COATING PRIMER (1x75 µm) FOR STAINLESS STEEL EXTERNAL PART: PICKLING BY PASTE ON WELDING AND PROTECT BY TECTYL	
INSULATION (MEDIUM SURFACE)	17	m²			
SHEETS FOR INSULATION JACKETING	18,5	m²			
FINAL PAINTING (CARBON STEEL PARTS)	2	m²			

ZONE RESERVED FOR APPROVAL STAMPS

ISSUE	DESCRIPTION	DRAW.	DATE	T.M.	DATE	Q.C.M.	DATE
4	ISSUED FINAL		18/11/96	Dal Maso	18/11/96		18/11/96
3	ISSUED FINAL	Sc	17/09 1996	Dal Maso	17/09 1996		17/09 1996
2	CORRECT AS COMMENT		05/07 1996		05/07 1996		05/07 1996
1	ISSUED FOR APPROVAL	Sc	26/04/96	Dal Maso	11/06 96		11/06/96

ITEM	PIECES	DN	SERVICE	FLANGE RATING	FLANGE TYPE	FLANGE FACING	NOZZLE O.D.	NOZZLE THK.	REINF. PAD O.D.	REINF. PAD THK.	NOTES
T6A T6B	2	3/4"	CONNECTION FOR PRESS GAGE	6000	NPT						3
S6A S6B	2	3/4"	CONNECTION FOR PRESSURE GAGE	6000	NPT						3
S5B S5A	2	3/4"	CONNECTION FOR TEMPERATURE	6000	NPT						3
S4	1	3/8"	DRAIN	6000	NPT						3
S3	1	3/8"	VENT	6000	NPT						3
S2	1	4"	SHELL-OUT	150#	WN	RF	114,3	8,56			
S1	1	6"	SHELL-IN	150#	WN	RF	168,3	10,97			2
T5A-B	2	1½"	THERMOWELL	300#	WN	RF	48,3	5	/	/	1
T4A-B	2	1"	DRAIN	300#	WN	RF	33,4	5	/	/	
T3A-B	2	1"	VENT	300#	WN	RF	33,4	5	/	/	
T2	1	16"	TUBE OUT	300#	SO	RF	406,4	10	/	/	
T1	1	16"	TUBE IN	300	SO	RF	406,4	10	/	/	

LIST OF CONNECTIONS

NOTES

1) WITH BLIND FLANGE
2) WITH IMPING. PLATE
3) WITH PLUG

FLANGES SEALING SURFACE FINISHING

- NOZZLE FLANGE SURFACE FINISHING:
- SHELL SIDE: 125 ÷ 500 µ in AARH
- TUBE SIDE: 125 ÷ 250 µ in AARH

POSITION	WELDING PROCESS	FILLER METALS	N° WPS	N° PQR
P	GTAW + SMAW	AWS A 5.18 ER 70S-3 AWS A 5.1 E 7018	S 162/B	P034
R	GTAW	AWS A 5.9 ER 316L	S 166/A	P038
Q	SMAW	AWS A 5.1 E 7018-1	S 34/A	2823
N	GTAW + SMAW	AWS A 5.9 ER 316L AWS A 5.4 E 316-16	S 110/A	P008
M-S	GTAW + SMAW	AWS A 5.18 ER 70S-3 AWS A 5.1 E 7018	S 162/A	P034
H-L-T	GMAW + GMAW	AWS A 5.9 ER 309L AWS A 5.9 ER 316L	157/A	P030
G	SMAW	AWS A 5.4 E 316L-15	S 19/A	2147
E	SMAW	AWS A 5.1 E 7018-1	S 34/C	2823
D-U	SMAW	AWS A 5.4 E 309 Mo 16	S 35/A	2824
B	SMAW + SAW	AWS A 5.1 E 7018.1 AWS A 5.17 EH 12 K	S 156/A	P029
A-C	SMAW + SAW	AWS A 5.4 E 316L 15 AWS A 5.9 ER 316L	S 21/A	2149

WELDING PROCESS

SMAW: SHIELDED METAL-ARC WELDING
GTAW: GAS TUNGSTEN-ARC WELDING
SAW : SUBMERGED-ARC WELDING
GMAW: GAS METAL-ARC WELDING
FCAW: FLUX CORED-ARC WELDING

WELDING DESCRIPTIONS

	SIDE	SHELL	TUBES	NOTES
TEST COUPONS FOR WELDED HEADS				
PRODUCTION TEST COUPON				
TEST CATEGORY				
UT: ULTRASONIC EXAMINATION				
MT: MAGNETIC PARTICLE EXAMINATION				
PT: LIQUID PENETRANT EXAMINATION		100%	100%	
RT: RADIOGRAPHIC EXAMINATION	SHELL	SPOT (15%)	100%	1
	HEADS			
PWHT: POSTWELD HEAT TREATMENT		EXP. JOINT	NO	

NOTES

1) EXPANSION JOINT RT = 100%

WELDING EXAMINATIONS AND PWHT

NUMBER	ISSUE	TITLE
22854-SP.000-E.001	1	GENER. SPEC. AND FABBR. REQ'TS
DU PONT G SE		HEAT EXCHANGER INSTALL.
2743 C2SG 330	1	FLANGES TYPE
ASME/ANSI B16.5		FLANGES TYPE
2743-CE-MR-015	2	MATERIAL REQUISITION
2743-CE-DX-122	3	SETTING PLAN
2743 VE FP001	2	HEAD EXCANGERS GEN. NOTES
9581		ASSEMBLING DRAWING
9645		TRANSPORTATION SCKETCH
9644		WELDING MAP

DRAWINGS AND SPECIF. REFERENCE

R) TOLLERANCES ACCORDING TO TECNIMONT STD. 300.99/95
Q) APPLICABLE STANDARD B1.20.1-83 / B16.5-88 / B16.11-91 / B36.10-94 / B16.9-93
P) BESIDES THE INSTALLED MATERIALS AT SHOP SHALL BE SUPPLIED THE FOLLOWINGS SPARE PARTS:
-N° 2 SETS OF GASKETS FOR GIRTH FLANGES.
-N° 1 SETS OF GASKETS FOR EACH BLIND FLANGE.
-STUD BOLTS AND NUTS: 10% WITH A MINIMUM OF 2 PIECES FOR EACH CONNECTION TYPE.
O) NOZZLE FLANGE CONTACT FACES MUST BE PROTECTED WITH MARINE PLYWOOD OR METAL COVERS COMPLETE OF RUBBER GASKET OR MALLEABLE OILED CLOTH.
N) BEFORE SHIPPING THE UNIT MUST BE CLEANED INTERNALLY DRAINED AND DRIED.
M) ALL UNQUOTED WELDS MUST HAVE SIDES EQUAL TO THE LOWER THICKNESS OF THE PLATES TO WELD.
L) FOR ALL REINFORCING PADS PROVIDE ONE 1/8" ANSI B1.20.1/83 NPT DIA. HOLE. PADS TO BE AIR TESTED AT 2 bar (g); AFTER THE PRESSURE MUST BE REDUCED TO 0.5 bar (g) AND ALL WELDS MUST BE TESTED FOR LEAKS WITH SOAP SOLUTION. VENT HOLES WILL BE LEFT OPEN AFTER TESTING. THE HOLES MUST BE FILLED WITH GREASE.
I) ALL INTERNAL AND EXTERNAL PARTS WELDED TO THE SHELL SHALL BE OF THE SAME MATERIAL WHICH CONSTITUTES THE SECTION OF THE SHELL WHERE THE PARTS WILL BE WELDED.
H) FLANGES ACCORDING TO STD. ANSI B16.5/88-COUPLINGS ACCORDING TO ANSI B16.11/91 FULL LENGTH TYPE PER ANSI B1.20.1/83 TAPER PIPE THREADED – PIPES: CARBON STEEL ACCORDING TO ANSI B36.10/94 (SEAMLESS); STAINLESS STEEL PER ANSI B36.19 – PIPE FITTINGS ACCORDING TO ANSI B16.9/93
G) ALL THICKNESSES SHOWN ON DRAWING EXCEPT FOR ELLIPTICAL HEADS ARE NOMINAL (FOR ELLIPTICAL HEADS AND EXPANSION JOINTS ARE THE MINIMUM AFTER FORMING).
F) THE EVENTUAL CORROSION IN THE PROJECT DATA IS NOT TO BE APPLIED TO THE BUNDLE TUBES FOR WHICH IS ZERO.
E) TUBE HOLES EDGES IN BAFFLES TO BE CHANFERED.
D) GIRTH FLANGES AND TUBESHEETS SEALING SURFACE SHALL HAVE SMOOTH FINISH WITH A CENTER LINE AVERAGE Ra-2,0 µm (80 µin) PER ANSI B46-1.
C) UNLESS OTHERWISE INDICATED NOZZLE PROJECTIONS ARE MEASURED FROM EQUIPMENT CENTERLINE TO CONTACT FLANGE FACINGS.
B) UNLESS OTHERWISE INDICATED, ALL GIRTH FLANGES AND FLANGE CONNECTIONS BOLT HOLES MUST BE STAGGERED TO MAIN AXIS OF THE EQUIPMENT.
A) UNLESS OTHERWISE NOTED ALL DIMENSIONS ARE IN MILLIMETERS.

GENERAL NOTES

REF No.	DATE	DESCRIPTION	DRAWN UP	CHECKED	APPROVED
SCALE:		JOB No.			

الشركة العربية للألياف الصناعية ابن رشد
ARABIAN INDUSTRIAL FIBERS Co. (IBN RUSHD)
YANBU SAUDI ARABIA

IBN RUSHD PTA PLANT
YANBU SAUDI ARABIA
350,000 MT/Y PTA PLANT

Plant Unit | DRAWING No. | SHEET | REVISION

FF) MINIMUM THICKNESS OF WELDING DEPOSIT ON FLANGES FACE, AFTER MACHINING, SHALL BE 1,5 TIMES THE CLADDING THICKNESS WITH 4 mm AS MINIMUM.
EE) STAILESS STEEL INTERNAL SURFACE SHALL BE CLEANED AS PER SPECIFICATION DUPONT SG.14.1.S.
DD) HYDRAULIC TEST PERFORMED USING WATER WITH A MAX. 50 P.P.M. OF CHLORIDE AND TEMPERATURE MINIMUM OF 7°C.
CC) WELD DEPOSIT SHALL BE INSPECTED ACCORDING TO PARA D5.2 OF APPENDIX "D" SPECIF. 22854-SP-000-D-001 REV.1.
BB) BASE METAL WELDED JOINT SHALL BE INSPECTED AS PER CODE PRIOR TO CLAD RESTORATION WITH WELD DEPOSIT.
AA) DYE PENETRANT SHALL BE CARRIED OUT AS FOLLOW:
- 100% ON WELDS OF NOZZLES TO SHELL OR HEADS
- 10% ON WELDS OF ALL OTHER ATTACHEMENTS TO PRESSURE PARTS

FABRICATION NOTES

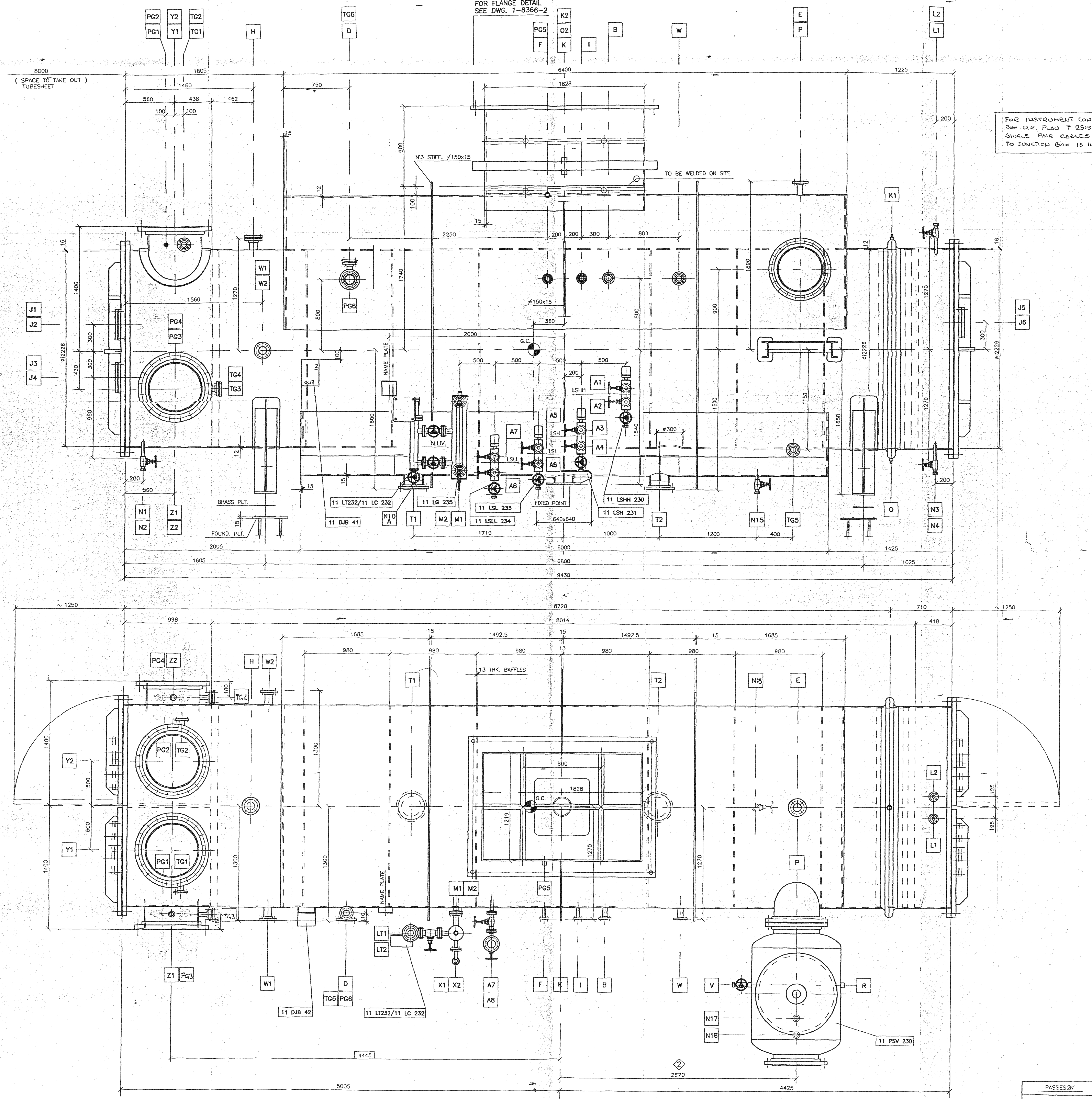
7) MATERIALS FOR PRESSURE PARTS AND IN CONTACT WITH PROCESS FLUID SHALL BE ACORDING TO SPECIF. 2743-VB-FB-001 REV. 03 PARA "1B" AND "2B".
6) MATERIAL FOR PRESSURE PARTS SHALL BE ACCORDING TO ASME II PART. "A" ED. 1995. / ADD 95
5) MINIMUN DESIGN METAL TEMPERATURE = 8 °C:
IMPACT TEST NOT REQUIRED ACC. TO ASME VIII DIV. 1 ED. 1995 ADD 95 PARA UCS (66) AND UHA 51 (a).
4) CARBON STEEL MATERIALS FOR PRESSURE PARTS SUPPLIED IN NORMALIZED CONDITIONS.
3) CARBON STEEL MATERIAL S FOR PRESSURE PARTS WITH CARBON CONT. 0,25%

1) 4.44 THK. GASKET SPIRAL WOUND 316L S.S./PTFE GLASS FILLED 25% WITH 316L S.S. INTERNAL RING AND C.S. EXT. RING (SHELL SIDE GASKET MATERIAL).

MATERIAL NOTES

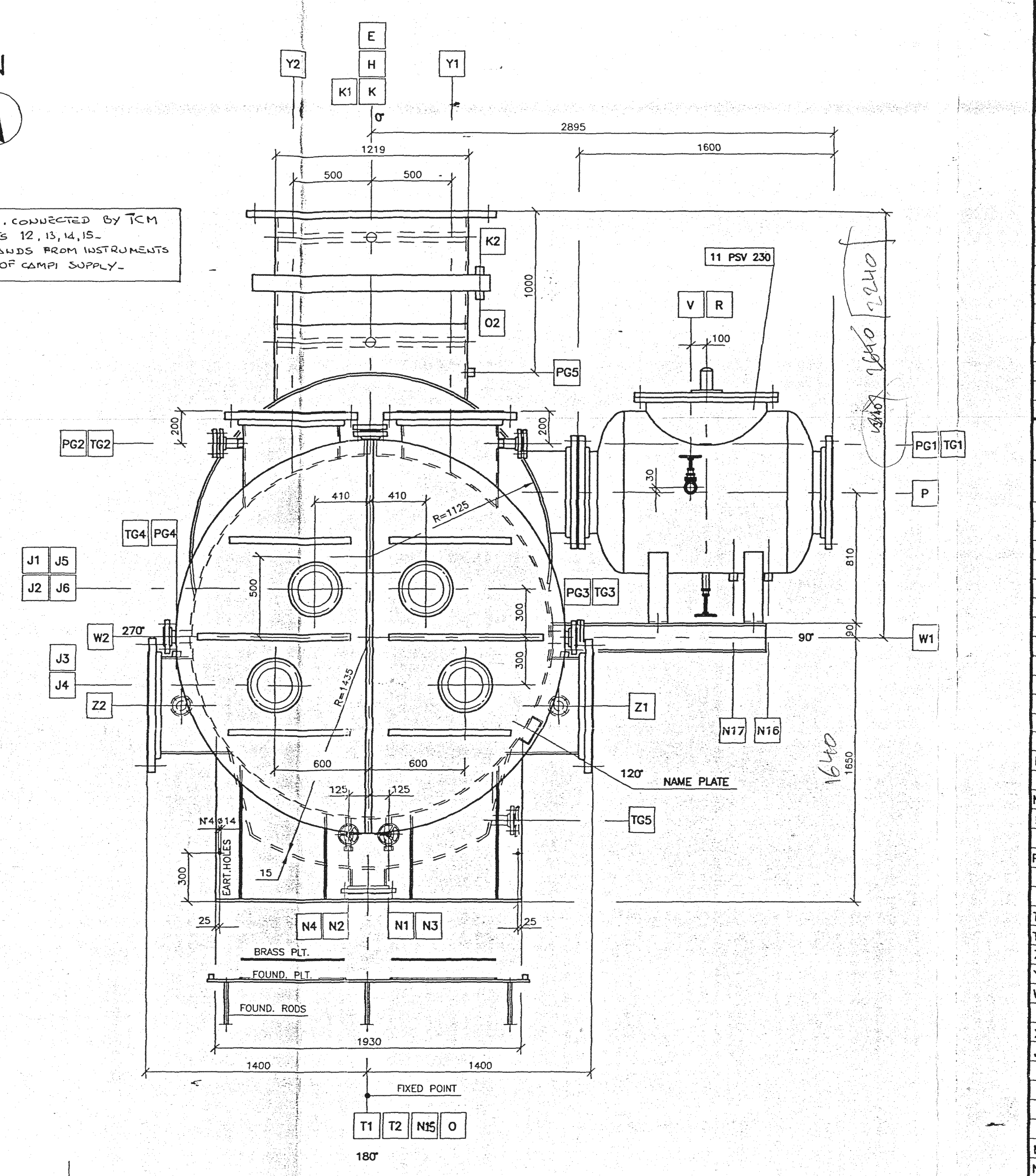
MANUFACTURER'S TRADE MARK: DETTIN S.p.A. SCHIO ITALY			MANUFACTURER'S DRAWING N° 9643		TECNIMONT
			ISSUE 1 2 3 4		CLIENT ARABIAN IND. FIBERS CO. LTD
YEAR 1996	JOB 98	N° PIECES 1	WORK NUMBER 865	SCALE 1:10	CLIENT REF. IBN RUSHD
PLANT PTA-YANBU SAUDI ARABIA			ITEM 11E 002		PLANT LOCATION YANBU SAUDI ARABIA
SERVICE OFF GAS PREHEATER					IDENTIFICATION CODE: JOB 2743 E C CE T VD N° 112
TYPE BEM HORIZ.			SURFACE m² 251		SHEET 2 ISSUE 4
DRAWN UP Sc 26/04/96	T.M. Dal Maso 11/06/96		Q.C.M. 11/06/96		
PURCHASER TECNIMONT			NOT TO BE REPRODUCED WHOLE DWG. PART NOR ENPLOYED FOR ANY PURPOSE OTHER THAN SPECIFICALLY PERMITTED WRITING.		
PURCHASER ORDER W040326 NG	MATERIAL REQUISITION 2743-CE-MR-015				

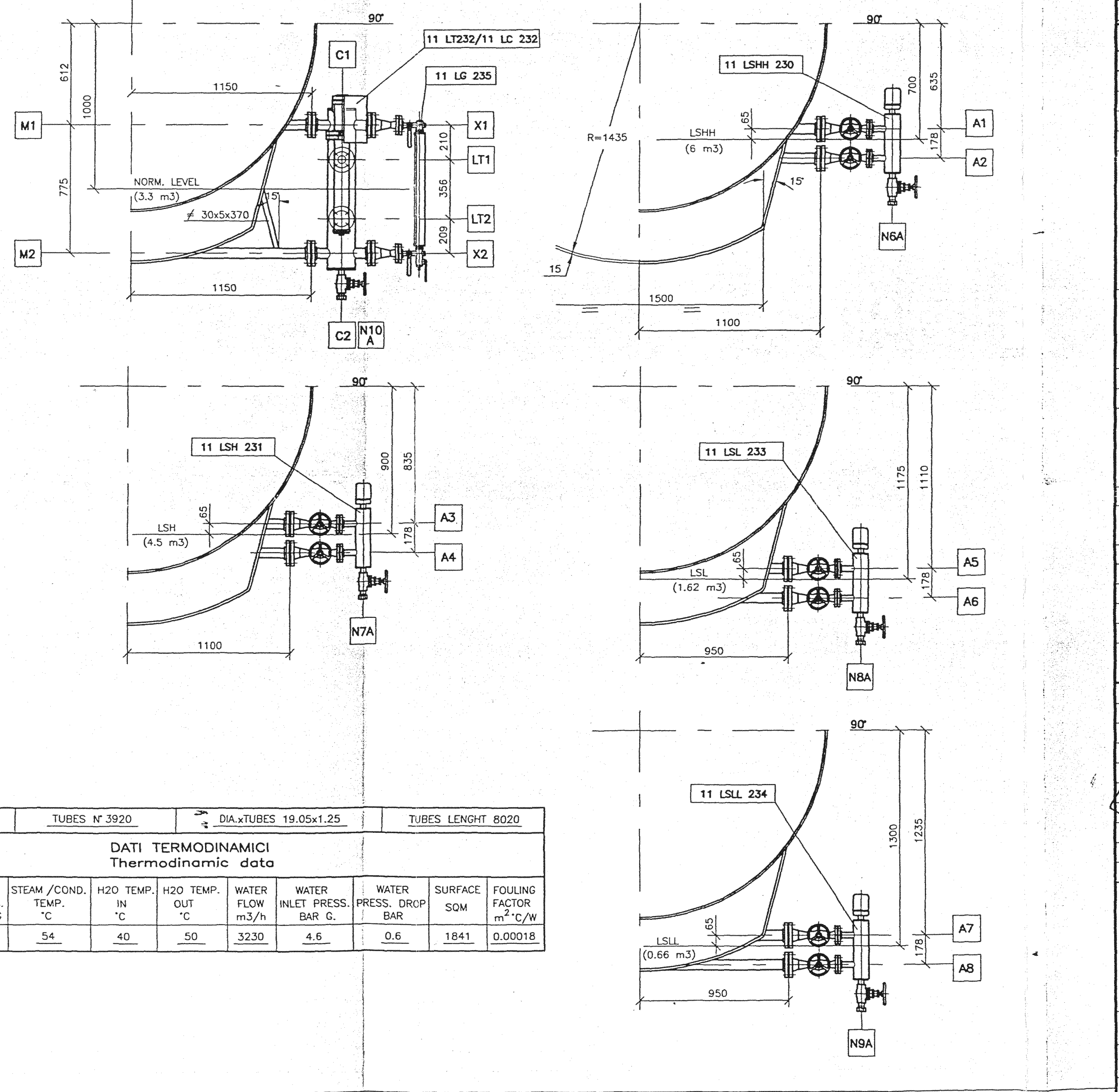
A0



FOR INSTRUMENT CONNECTION, CONNECTED BY TCM
SEE D.R. PLAN T 251907 SHEETS 12, 13, 14, 15.
SINGLE PAIR CABLES AND GLANDS FROM INSTRUMENTS
TO JUNCTION BOX IS IN SCOPE OF CAMPI SUPPLY.

ORIENTATION NOZZLES



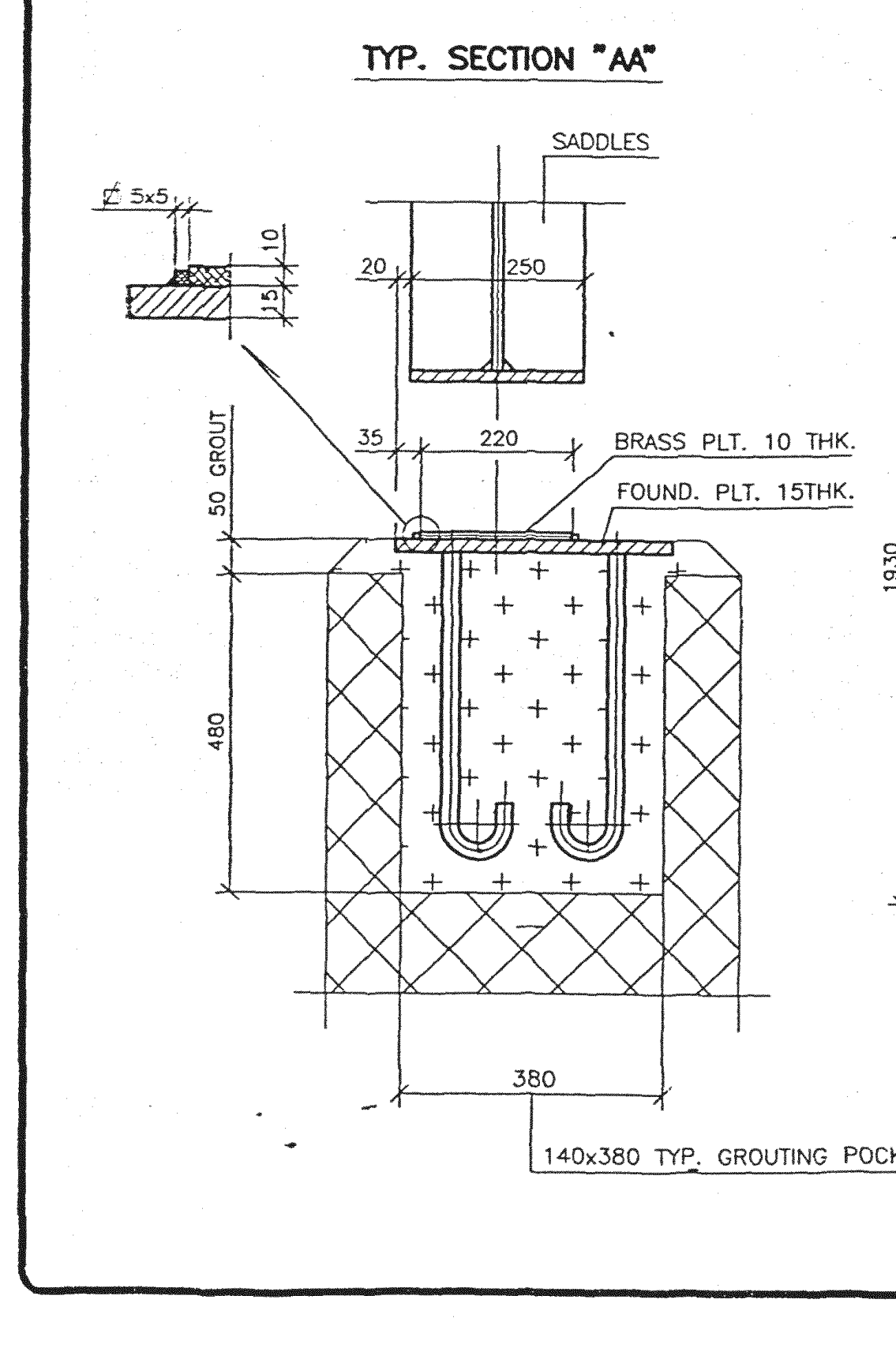


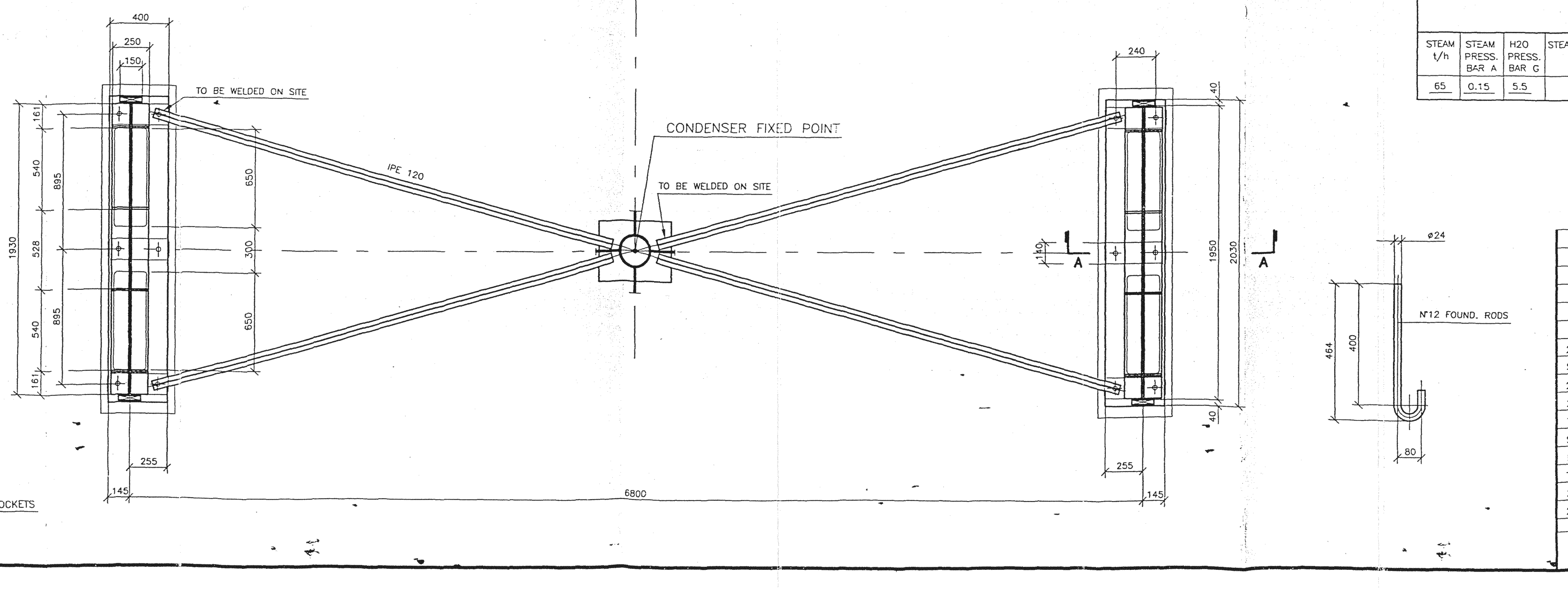
PASSES 2N°	TUBES N° 3920	DIA.xTUBES 19.05x1.25	TUBES LENGHT 8020

DATI TERMODINAMICI
Thermodinamic data

STEAM t/h	STEAM PRESS. BAR A	H2O PRESS. BAR G	STEAM /COND. TEMP. °C	H2O TEMP. IN °C	H2O TEMP. OUT °C	WATER FLOW m3/h	WATER INLET PRESS. BAR G.	WATER PRESS. DROP BAR	SURFACE SQM	FOULING FACTOR $m^2 \cdot °C/W$
65	0.15	5.5	54	40	50	3230	4.6	0.6	1841	0.00018

TYP. SECTION "AA"





ELENCO MATERIALI–Material list

DESCRIZIONE Description	MATERIALE Material	NOTE Notes
SHELL 12 THK. AND 15 THK.	SA 516 Gr.70	
EXPANSION BELLOW	SA 240 Tp. 304	
WATER BOX COVERS	SA 516 Gr.70	
WATER BOX FLANGES	SA 516 Gr.70	
TUBESHEETS	SA 516 Gr.70	
PLATE NOZZLES	SA 516 Gr.70	
NOZZLES REINFORCING PLATES	SA 516 Gr.70	
PIPE NOZZLES	SA 106 Gr.B	
FLANGES NOZZLES	SA 105	
HALF COUPLING	SA 105	
SADDLES	SA 285 Gr. C	
REINFORCING SADDLES	SA 516 Gr.60	
BAFFLES 13 THK.	SA 516 Gr.60	
TUBES	B 111 C 44300 (Admir. brass)	
BOTTLE	SA 106 Gr.B	
STUD BOLTS	SA 193 Gr.B7	
NUTS	SA 194 Gr. 2H	
GASKETS	NON ASB. SYNTETIC FIBER KLINGER C 4430, 3 mm.THK.	
FOUNDATION BOLTS	Fe 430 B UNI 7070	

ELENCO CONNESSIONI – List of connections

SIGLA Item	N°PEZZI Pieces	DN Nominal size	SERVIZIO Service	FLANGIA Flange SERIE Rating	FLANGIA Flange TIPO Type	FLANGIA Flange FACCIA Facing	TRONCHETTO Nozzle DIA. EST. o.d.	TRONCHETTO Nozzle SPESS. Thk.	RINFORZO Reinforcing pad DIA. EST. o.d.	RINFORZO Reinforcing pad SPESS. Thk.	NOTE Notes
A1/2	2	2"	LSHH	150#	SO	RF	60.3	5.54			5)
A3/4	2	2"	LSH	150#	SO	RF	60.3	5.54			5)
A5/6	2	2"	LSL	150#	SO	RF	60.3	5.54			5)
A7/8	2	2"	LSLL	150#	SO	RF	60.3	5.54			5)
B	1	1"1/2	CONDENSATE FROM VACUUM COND.	150#	SO	RF	48.3	5.08			
C1	1	3/4"	BOTTLE VENT	3000# 1/2 COUPL. NPTF							4)
C2	1	3/4"	BOTTLE DRAIN	3000# 1/2 COUPL. NPTF							4)
D	1	4"	CONDENSATE INLET	150#	SO	RF	114.3	6.02			
H	1	3"	SPARE	150#	SO	RF	88.9	5.49			1)
I	1	1"	CONDENS. FROM VACUUM	150#	SO	RF	33.4	4.55			
K1–2	2	1/2"	EXPANSION VENT	3000# 1/2 COUPL. NPTF							4)
O1–2	2	1/2"	EXPANSION DRAIN	3000# 1/2 COUPL. NPTF							4)
L1–2	2	1"	VENT	3000# 1/2 NIPPLE NPTM							7)
LT1–2	2	2"	LEVEL CONTROL	150#	SO	RF	60.3	5.54			2)
N1÷4	4	1"	DRAIN	3000# 1/2 NIPPLE NPTM							7)
N6A÷N9A	4	1"	DRAIN	3000# 1/2 NIPPLE NPTM							7)
M1–2	1	2"	EXPANSION BOTTLE CONNECT.	150#	SO	RF	60.3	5.54			
P	1	20"	P.S.V.	150#	SO	RF	508	15			
PG1÷6	6	3/4"	P.I.	3000# 1/2 COUPL. NPTF							
F	1	1"	CONDENSATE FROM GLAND COND.	150#	SO	RF	33.4	4.55			
K	1	1219/1828	STEAM INLET	—	—	—	1219/1828	15			SEE DWG.
T1–2	2	8"	CONDENSATE OUTLET	150#	SO	RF	219.1	8.18			
TG1÷6	6	1"1/2	T.I.	150#	SO	RF	48.3	7.14			9)
Z1–2	2	24"	COOLING WATER INLET	150#	SO	RF	610	16	880	20	
Y1–2	2	24"	COOLING WATER OUTLET	150#	SO	RF	610	16	880	20	
W1–2	2	3"	VACUUM	150#	SO	RF	88.9	5.49			
W	1	2"	START UP DEMI WATER	150#	SO	RF	60.3	5.54			
X1–2	2	2"	L.G.	150#	SO	RF	60.3	5.54			3)
J1÷J6	6	8"	HANDHOLES	150#	SO	RF	—	—			1)
V	1	1/2"	CONDENSATE INLET	800#	SW						8)
R	1	1/2"	CONDENSATE OUTLET	800#	SW						
E	1	2"	VACUUM BREACKER	150#	SO	RF	60.3	5.54			
N15	1	1"	DRAIN	3000# 1/2 NIPPLE NPTM							7)
N16–17	2	1/2"	DRAIN	3000# 1/2 COUPL. NPTF							4)
N10 A	1	3/4"	DRAIN	3000# 1/2 NIPPLE NPTM							7)

DESIGN DATA

SIDE			SHELL	TUBES	NOTES
DESIGN CODES			HEI		
TEMA CLASS			—		
CODE "U" STAMP			—	—	
INSPECTION AUTHORITY			BUREAU VERITAS, DRESSER RAND AND TECNIMONT		
PRESSURE (GAUGE)	DESIGN	bar (g)	FULL VACUUM/1	11	
	OPERATING	bar (a)	0.15	5.6	
	EXTERNAL	bar (g)	—	—	
	HYDROTEST	bar (g)	WATER FILLING	16.5	
	PNEUMATIC TEST	bar (g)	ONLY NOZZLE REINFORCING PAD		
	M.A.P. (NEW AND COLD)	bar (g)	1.20	12.05	
	M.A.W.P. (HOT AND CORR.)	bar (g)	1.07	12.05	
TEMPERATURE	DESIGN	°C	120	85	
	OPERATING	°C	54	40/50	
	WALL: OPERATING	°C	54	49	
	TUBESHEETS DESIGN	°C	—	120	
MINIMUM DESIGN METAL TEMPERATURE			8 °C AT 1 bar (g)	8 °C AT 11 bar (g)	
CORROSION ALLOWANCE		mm	1	3 (EXCEPT TUBES)	
FLUID	TYPE		STEAM	WATER	
	PHYSICAL STATE		VAPOUR	LIQUID	
	SPECIFIC GRAVITY	kg/m³		1000	
	CAPACITY	m³	34	12.5	
NUMBER OF PASSES			1	2	
JOINTS EFFICENCY	SHELL		0.85	0.85	
	HEADS		—	—	
OUT OF ROUND			ACCORDING TO CODE UG 80		
INSULATION		TYPE/THK.	NONE	NONE	
FIREPROOFING			—	—	
LOCATION			INDOOR		
WIND PRESSURE			NONE		
SEISMIC ZONE			BECTHEL SPC. 22854-SP-000-M 001/1 ASCE 7-88 ZONE 1.		

LOADS AT BASE		OPERATING	HYDROTEST	EARTHQUAKE (OPERATING)
VERTICAL LOAD	kN	600	890	—
SHEAR	kN	—	—	21
MOMENT	kN·m	—	—	35

SUPPL. WEIGHT (MASS)	42000	kg	BUNDLE WEIGHT	—	kg
WEIGHT FULL OF WATER	88500	kg	SADDLES MOVEMENT	2	mm
SURFACES (IN FIELD)	—		PAINTING (IN WORK SHOP)		
INSULATION (MEDIUM SURFACE)	—	m²	EXTERNAL: SANDBLASTING SA 2 WITH EPOXY MASTIC, THK.125 microns FOR CARBON STEEL PARTS.		
SHEETS FOR INSULATION JACKETING	—	m²			
FINAL PAINTING (CARBON STEEL PARTS)	58	m²			

TECNIMONT
CHECKED
DATE 8/10.96
INITIALS
SIGNATURE
NOT ACCEPTED
ACCEPTED AS NOTED
ACCEPTED
TECNIMONT ACCEPTANCE OF THIS DOCUMENT DOES IN NO WAY RELIEVE THE SUPPLIER OF HIS CONTRACTUAL OBLIGATIONS (RE. TO TM 061)

REC'D
16. OTT 96

AS BUILT

Rev	DATUM	BEARB.	GEPRUEFT*	ABTEILUNG	TELEFON
3	30.9.96	Ras	Ho.	9021-1	3433
1	08.05.96			9021-1	3433
–	16.05.96				

Benennung COND. SYS MAIN COND. SETTING PLAN

DEMAG DELAVAL
TURBOMACHINERY
Verk Duisburg
AV Oja Xnem
Ident-Nr. 4 4 2 5 9 4 1 5
Format 0
Blatt 1 1 Bl

* GEPRUEFT: DIESE PRUEFUNG NIMMT DEN LIEFERANTEN NICHT AUS SEINER VERANTWORTUNG

ISSUE	DESCRIPTION	DRAWN UP	APPROVED	DATE
3				
2	AS REQUIRED D.R. FAX DTD 13.06.96 AND COMMENTS DTD 19.07.96	TCN.		27.08.96
1	GENERAL REVISION AS TCM. COMMENTS DATE 06.03.96	TCN.		08.05.96

22854-SP-000-W-001		NDT & CORROSION CONTROL
SW 10 W DUPONT		WELDING PROCEDURE
22854-SP-A-023		INSPECTION AND TESTING REQ.
2743-GP-MR-001	2	MATERIAL REQUISITION
TM 300-90	1	GROUNDING CLIPS
SG 1 E DUPONT		TOLERANCES FOR EXCHANGERS
BECHTEL STD. Q-305	1	ANCHOR BOLTS
TM 300-24	94	SADDLES FOR HORIZONTAL VESSEL
2743-CZ-SG 304	2	NAME PLATE
2743-CZ-SG 330	1	METALLIC FLANGES
NUMERO–Number	REV.	TITOLO–Title

RIFERIMENTO DISEGNI E SPECIFICHE
Drawings and specifications reference

GENERAL NOTES

6) Besides the installed materials at shop shall be supplied the followings spare parts. external parts: n°1 set of gasket for start up.

5) Nozzle flange contact faces must protected with marine plywood or metal covers complete of rubber gasket or malleable oiled cloth.

4) Before shipping the unit must be drained, internally dried and cleaned.

3) The eventual corrosion in the project data is not to be applied to the bundle tubes for which is zero.

2) Flanges according to std. ANSI B16.5 – Couplings according to ANSI B16.11 full length type for ANSI B1.20.1 taper pipe threaded – Pipes: carbon

1) Unless otherwise noted all dimensions are in millimeters.

NOTE–Notes	FINITURA SUPERFICI DI TENUTA FLANGE Flanges sealing surface finishing
1) WITH BLIND FLANGE, GASKET AND STUD BOLTS. 2) WITH L.R., GASKET AND STUD BOLTS. 3) WITH LEVEL INDIC., GASKET AND STUD BOLTS. 4) WITH PLUG. 5) WITH LEVEL INT., VALVE, GASKET AND STUD BOLTS. 6) WITH GASKET AND STUD BOLTS. 7) WITH VALVE AND PLUG. 8) WITH VALVE. 9) WITH BLIND, WELD. THREAD. COUPLING, GASKET, STUD BOLTS.	SERRATED CONCENTRIC OR SERRATED SPIRAL FINISH. ACCORDING TO ANSI B 16.5 WITH RESULTING ROUGHNESS AARH 125-250 micropound (ANSI B 46.1).

MANUFACTURER'S TRADE MARK
C.A.M.P.I. Srl
FERRARA ITALY

MANUFACTURER'S DRAWING N° 1-8366-1
ISSUE 1 2

TECNIMONT
CLIENT ARABIAN IND. FIBERS Co. LTD.
CLIENT REF. IBN RUSHD
PLANT LOCATION YANBU SAUDI ARABIA

YEAR	JOB	N° PIECES	WORK NUMBER	SCALE
1997	1777	1	02348	1:20

PLANT PTA-YANBU SAUDI ARABIA
ITEM 11 E 101
SERVICE MAIN CONDENSER
TYPE SETTING PLAN
SURFACE m² 1841

IDENTIFICATION CODE

JOB				E	C	T		N°		
2	7	4	3	G	Y	V	D	0	0	1

SHEET ~~3~~ 0 2
ISSUE 0 2

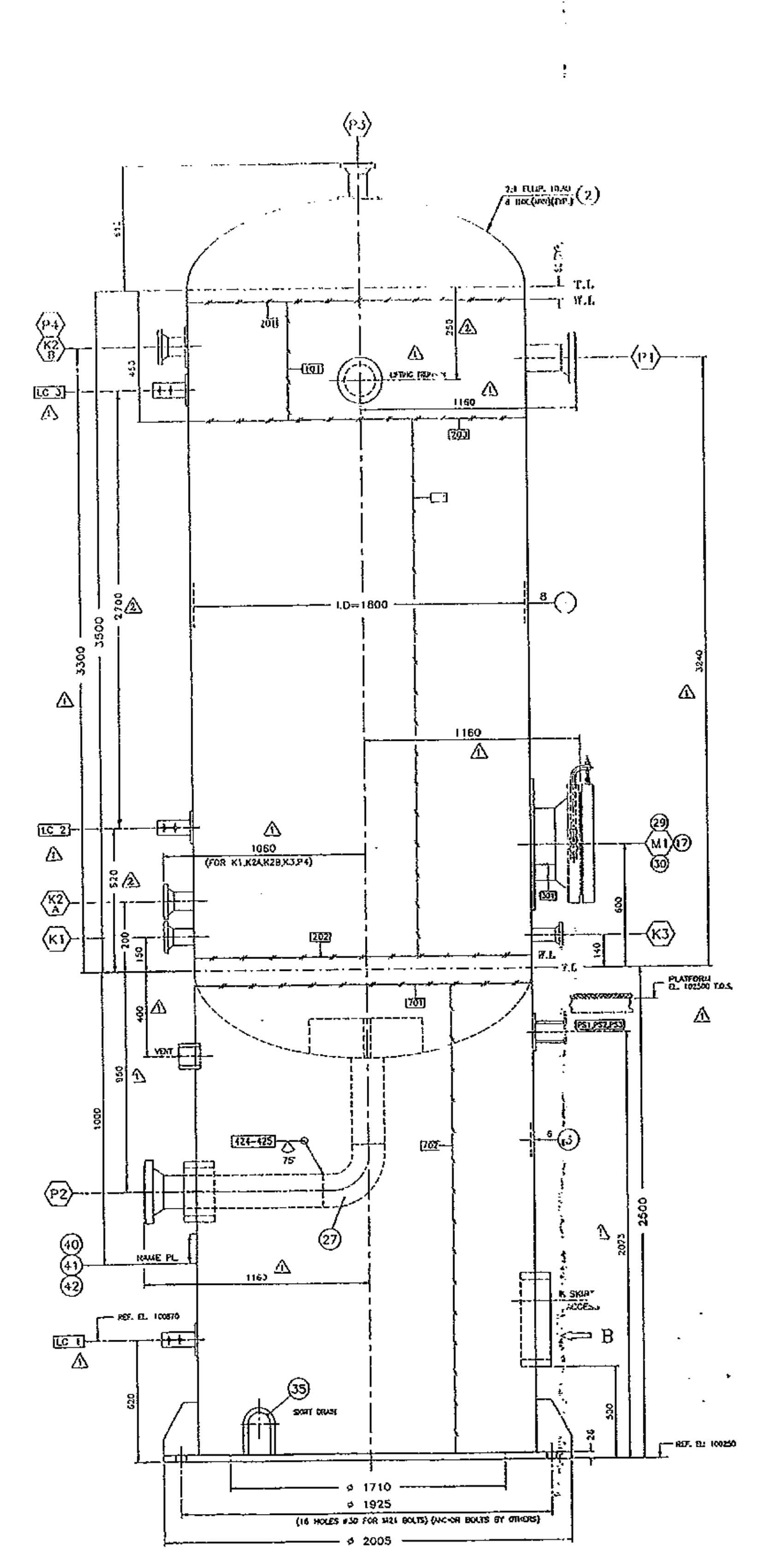
DRAWN UP TCN.
APPROVED
DATE 16.01.96

PURCHASER TECNIMONT

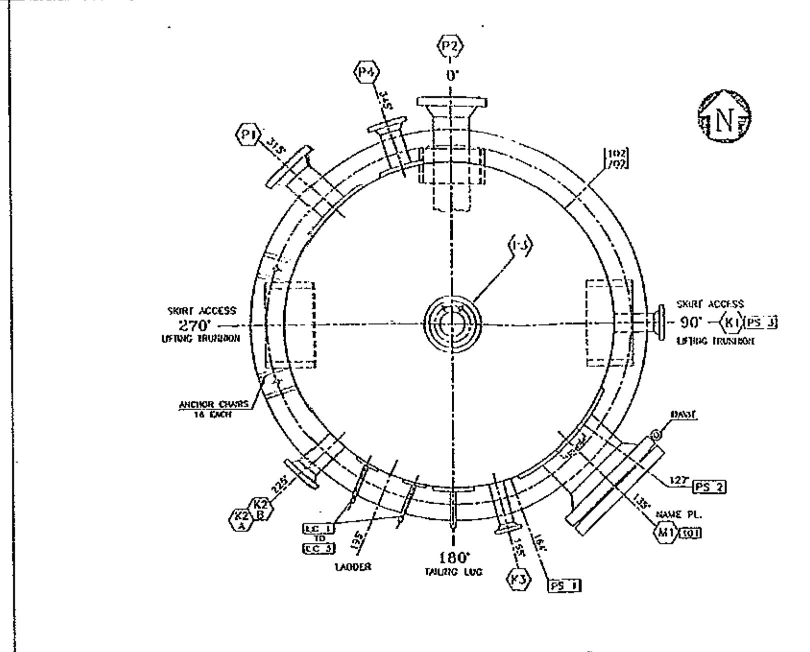
NOT TO BE REPRODUCED WHOLE DWG. PART NOR EMPLOYED FOR ANY PURPOSE OTHER THAN SPECIFICALLY PERMITTED WRITING.

PURCHASER ORDER W 040225 LI
MATERIAL REQUISITION 2743-GP-MP 001

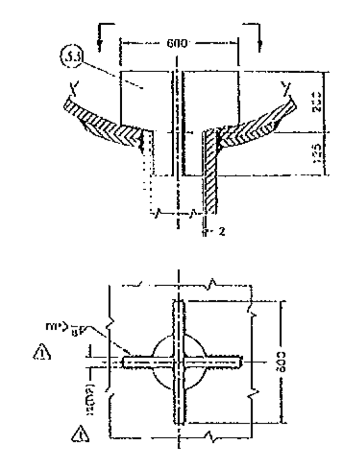
VDC 6005.
(37)


P3
2:1 ELLIP. HEAD
T.L.
W.L.
P4
K2 B
LC 3
LIFTING TRUNN.
P1
1160
I.D.=1800
3300
3500
2700
3240
LC 2
1050 (FOR K1,K2A,K2B,K3,P4)
K2 A
K1
K3
M1
PLATFORM EL. 102500 T.O.S.
VENT
P2
NAME PL.
REF. EL. 100570
LC 1
SKIRT DRAIN
SKIRT ACCESS
REF. EL. 100250
ø 1710
ø 1925
(16 HOLES ø30 FOR M24 BOLTS) (ANCHOR BOLTS BY OTHERS)
ø 2005

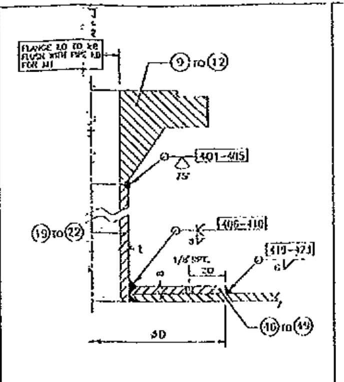
E L E V A T I O N


P2
0°
P4
P1
N
SKIRT ACCESS
270°
LIFTING TRUNNION
SKIRT ACCESS
90°
K1
PS 3
LIFTING TRUNNION
ANCHOR CHAIRS 16 EACH
DAVIT
PS 2
NAME PL.
M1
LC 1
LC 3
LADDER
180°
TAILING LUG
K3
PS 1

O R I E N T A T I O N

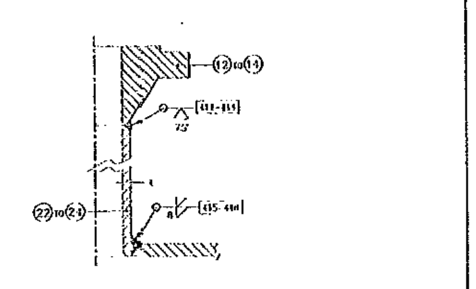

600
250
125
800

P2 VORTEX-BREAKER DETAIL


FLANGE TO BE FLUSH WITH PIPE FOR M1
9 to 12
401-415
19 to 22
406-410
419-423
30
10 to 49

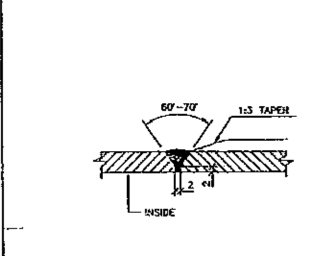
NOZZLE	SIZE	t	D
M1	20"	8	910
P2	8"	12.7	400
P1	6"	10.97	310
P3,P4	3"	11.13	160

NOZZLES WITH REPAD

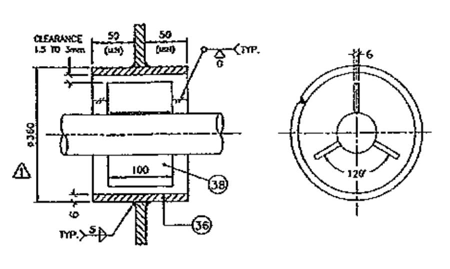

12 to 14
22 to 24
415-416

NOZZLE	SIZE	t
K2A,K2B	3"	11.13
K1	2"	8.74
K3	1-1/2"	7.14

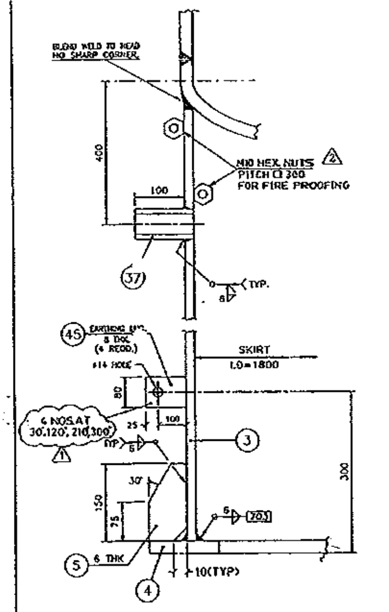
NOZZLES WITHOUT REPAD


60°-70°
1:3 TAPER
INSIDE

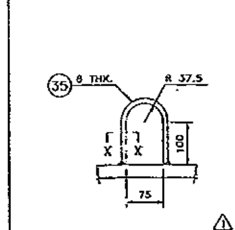
TYPICAL SHELL TO SHELL & SHELL TO HEAD SEAM WELD


CLEARANCE 1.5 TO 3mm
52
50
ø350
100
38
36
120°

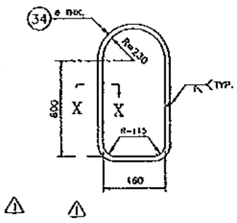
SKIRT OPENING FOR P2


BLEND WELD TO HEAD NO SHARP CORNER
400
NIO HEX NUTS PITCH @ 350 FOR FIRE PROOFING
100
37
45
SKIRT I.D.=1800
6 NOS AT 30°,120°,210°,300°
3
300
4
5
6 THK

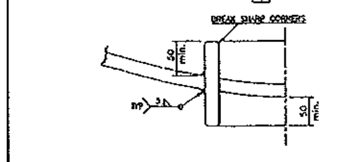
SKIRT & BASE RING DETAILS


35
8 THK.
R 37.5
100
75

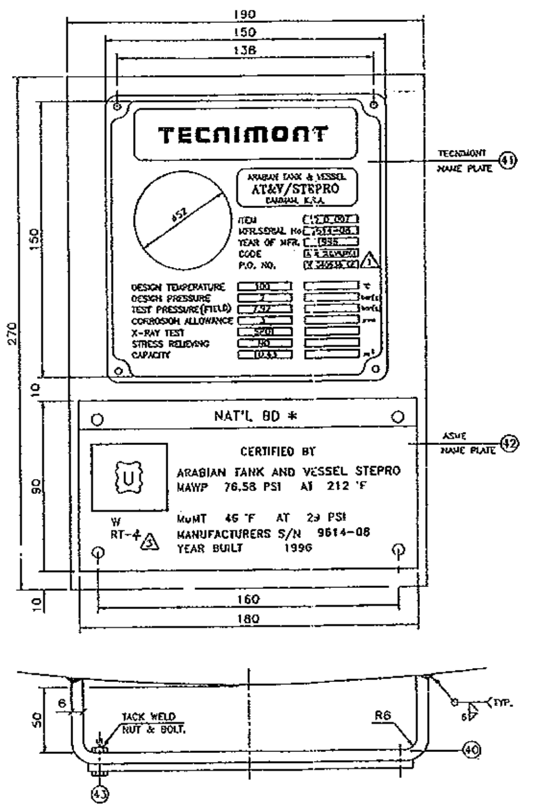
SKIRT DRAIN DETAIL


34
8 thk.
R=230
600
R=115
160

SKIRT ACCESS DETAIL VIEW FROM B


BREAK SHARP CORNERS

SECTION X–X


190
150
138
TECNIMONT
ARABIAN TANK & VESSEL
AT&V/STEPRO
DAMMAM, K.S.A.
ITEM
MFR.SERIAL No.
YEAR OF MFR.
CODE
P.O. NO.
DESIGN TEMPERATURE 100
DESIGN PRESSURE 2
TEST PRESSURE (FIELD) 7.92
CORROSION ALLOWANCE 3
X-RAY TEST SPOT
STRESS RELIEVING NO
CAPACITY 10.43
TECNIMONT NAME PLATE 41
NAT'L BD *
CERTIFIED BY
ARABIAN TANK AND VESSEL STEPRO
MAWP 76.58 PSI AT 212 °F
MDMT 46 °F AT 29 PSI
MANUFACTURERS S/N 9614-08
YEAR BUILT 1996
W
RT-4
ASME NAME PLATE 42
160
180
270
150
90
10
TACK WELD NUT & BOLT
R6
43
40

NAME PLATE & SUPPORT

(* NOT REGISTERED WITH NBBI.)

NOTE: REF. DRG. 9614-08-999 FOR DETAILED BILL OF MATERIAL

ITEM	DESCRIPTION	MATERIAL		DIMENSIONS	NOTES
7	GASKETS. (EXTERNAL)	NON ASBESTOS SYNTHETIC FIBRE WITH NBR BINDER GASKET "BLUE GUARD" STYLE 3000 / KLINGER C-4430 (1.6mm. THK.)			
6	BOLTS/NUTS	SA 193 B7/194 2H	◐		
5	SUPPORTS,STRUCTURES	A 36 OR EQ.	○		
4	SKIRT, BASE RING	A 516 GR.70	◐		
3	FLANGES	SA 105	◐		
2	NOZZLE NECKS (PIPES)	SA 106 GR.B	◐		
1	SHELL,HEADS,REPADS	SA 516 GR.70	◐		

MATERIAL LIST

MATERIALS TEST SYMBOL	THICKNESS TOLERANCE	
● MATERIAL TESTED BY OFFICIAL AUTHORITY	PLATES	−0.25 mm
◐ MATERIAL WITH MANUFACTURER CERTIFICATE	PIPES	−12.5%
○ MATERIAL WITHOUT CERTIFICATE	HEADS	SEE NOTE (9)

DESIGN DATA

		SHELL	JACKET OR COIL	NOTES
DESIGN CODE		ASME SEC.VIII DIV.1(1995)		
CODE "U" STAMP		YES		
INSPECTION AUTHORITY		ABS IV LTD		
PRESSURE (GAUGE) DESIGN	bar (g)	2		
PRESSURE (GAUGE) OPERATING	bar (g)	ATM		
PRESSURE (GAUGE) EXTERNAL	bar (g)	–		
HYDROTEST IN FIELD VERTICAL (HOT & CORRODED)	bar (g)	7.92		
HYDROTEST IN SHOP HORIZONTAL (NEW & COLD)	bar (g)	13.41		
PNEUMATIC TEST	bar (g)	NR		
M.A.P. (NEW & COLD)	bar (g)	9.07		
M.A.W.P. (HOT & CORRODED)	bar (g)	5.28		
TEMPERATURE DESIGN	°C	100		
TEMPERATURE OPERATING	°C	60		
TEMPERATURE EXTERNAL PRESSURE	°C	–		
MINIMUM DESIGN METAL TEMPERATURE		+8 °C AT 2 bar (g)		
CORROSION ALLOWANCE	mm	3		
FLUID TYPE		WATER		
FLUID PHYSICAL STATE		LIQUID		
FLUID SPECIFIC GRAVITY	kg/m³	≈1000		
FLUID CAPACITY	m³	10.43		
LIQUID LEVEL FOR MECHANICAL DESIGN (ABOVE BOTTOM T.L.)	mm	1110		
JOINTS EFFICIENCY SHELL		0.85		
JOINTS EFFICIENCY HEADS		1		
OUT OF ROUND	%	1		
INSULATION NONE	TYPE/THK.	–		
FIREPROOFING		YES – 50mm THK.		
WIND PRESSURE		PER ASCE-7-88, EXP. C		
SEISMIC ZONE		ASCE-7-88-ZONE 1		

LOADS AT BASE		OPERATING	HYDROTEST	EARTHQUAKE
VERTICAL LOAD	kN	155	155	155
SHEAR	kN	10	2.5	8.7
MOMENT	kN·m	32.3	8.1	37.5

EMPTY WEIGHT (MASS)	3740 (APPROX) kg	LOCATION	OUT DOOR	
WEIGHT FULL OF WATER	14130 kg	SADDLES MOVEMENT	–	mm
SURFACES (IN FIELD)		PAINTING (IN MAIN SHOP) (EXTERIOR ONLY) SAND BLAST TO SA 2.5 (SSPC.SP.10) ONE COAT OF EPOXY MASTIC PRIMER, 125 MICRONS. DFT.		
INSULATION (OUTSIDE SURFACE)	– m²			
SHEETS FOR INSULATION JACKETING	– m²			
FINAL PAINTING (CARBON STEEL PARTS)	60 m²			

ZONE RESERVED FOR APPROVAL STAMPS

ASME

FINAL CERTIFIED
09 MAR 1997
DATE
AT&V ENGG. DEPT.

NUMBER	ISSUE	TITLE
2743-CO-MR-021	2	MATERIAL REQUISITION
2743-YY-SG-001	5	SHOP PAINTING
DUPONT SC.I.S	Sep.94	GENERAL FABRICATION REQUIREMENTS
22651-SP-000-0001	1	UNFIRED PRESSURE VESSELS
22651-SP-000-M001	4	BASIC CIVIL ENGG. DATA
22651-SP-000-A002	2	BASIC DESIGN DATA
2743-YB-FP-001	3	EQUIPMENT GENERAL NOTES
2743 CODX 107	04	TECNIMONT DATA SHEET.
9614-01-002	1	MANHOLE DAVIT
9614-08-004	1	BASE RING TEMPLATE
9614-08-001	1	LIFTING TRUNNION,TAILING LUG,PLATFORM CLIPS
9614-08-999	2	BILL OF MATERIAL

DRAWINGS AND SPECIF. REFERENCE

POSITION	WELDING PROCESS	FILLER METALS	NO. WPS	NO. PQR
701,703	SMAW	E 7018	224-07	Q 224
419-423	SMAW	E 7018	224-07	Q 224
702	GTAW + SMAW	ER 70S-2 + E 7018	224-05	Q 224
424-425	GTAW + SMAW	ER 70S-2 + E 7018	224-05	Q 224
401-418	GTAW + SMAW	ER 70S-2 + E 7018	224-05	Q 224
301	GTAW + SMAW	ER 70S-2 + E 7018	224-05	Q 224
201-203	GTAW + SMAW	ER 70S-2 + E 7018	224-05	Q 224
101-102	GTAW + SMAW	ER 70S-2 + E 7018	224-05	Q 224

WELDING PROCESS
SMAW: SHIELDED METAL-ARC WELDING
GTAW: GAS TUNGSTEN-ARC WELDING
SAW : SUBMERGED-ARC WELDING
GMAW: GAS METAL-ARC WELDING
FCAW: FLUX CORED-ARC WELDING

WELDING DESCRIPTIONS

		SHELL	JACKET OR COIL	NOTES
TEST COUPONS PER WELDED PIECE		NR		
PRODUCTION TEST COUPON		NR		
TEST CUTOUT		U / T		
UT: ULTRASONIC EXAMINATION		NR		
MT: MAGNETIC PARTICLE EXAMINATION		NR		
PT: LIQUID PENETRANT EXAMINATION		NOTE 3		
RT: RADIOGRAPHIC EXAMINATION	SHELL	SPOT, RT-3		
	HEADS	FULL		
PWHT: POSTWELD HEAT TREATMENT		NR		

NOTES
1)- 100% RT ON NOZZLE NECK SEAMS.
2)- IMPACT TEST EXEMPTED PER UCS-66
3)- PT ON NOZZLE ATTACHEMENT WELDS 100%
– PT ON OTHER ATTACHEMENTS 10%

WELDING EXAMINATIONS AND PWHT

ITEM	PCS	DN	SERVICE	FLANGE RATING	FLANGE TYPE	FLANGE FACING	NOZZLE O.D.	NOZZLE THK.	REINF. PAD O.D.	REINF. PAD THK.
K 3	1	1-1/2"	TEMP. INDICATOR	150#	WNRF	125-250 AARH	48.3	SCH.160	NOT REQD. PER UG-36	
K2B	1	3"	STAND PIPE	150#	WNRF		88.9	SCH.160		
K2A	1	3"	STAND PIPE	150#	WNRF		88.9	SCH.160		
K 1	1	2"	LEVEL INDICATOR	150#	WNRF		60.3	SCH.160		
P 4	1	3"	OVER FLOW	150#	WNRF		88.9	SCH.160	170	8
P 3	1	3"	VENT	150#	WNRF		88.9	SCH.160	160	8
P 2	1	8"	COOLING WATER OUTLET W/ VORTEX BREAKER	150#	WNRF		219.1	SCH.XS	400	8
P 1	1	6"	COOLING WATER INLET	150#	WNRF		168.3	SCH.XS	310	8
M 1	1	20"	MANHOLE+BLIND+DAVIT	150#	WNRF		508	8	910	8

LIST OF CONNECTIONS

NOTES — FLANGES SEALING SURFACE FINISHING: 125-250 AARH

LEGEND
○ NOZZLE MARK
○ ITEM NUMBER
WELD SEAM
WELD SEAM NO.
PS PLATFORM SUPPORT
LC LADDER CLIP

REV.	DESCRIPTION	DRAWN UP	APPROVED	DATE
4				
3	AS BUILT			9 MAR 97
2	ISSUED FOR FABRICATION			19 DEC,96
1	ISSUED FOR FABRICATION / CUSTOMER COMMENTS INCORPORATED			3 OCT,96
0	ISSUED FOR APPROVAL			16 JUN,96

MANUFACTURER'S TRADE MARK: ARABIAN TANK AND VESSEL. AT&V/STEPRO
MANUFACTURER'S DRAWING NO.: 9614-08-000
ISSUE: ~~0~~ ~~1~~ 2 3
YEAR: 1996 | JOB: 9614 | NO. PIECES: 1 | WORK NUMBER: 9614-08 | SCALE: NTS
PLANT: PTA-YANBU SAUDI ARABIA | ITEM: 10 D 007
SERVICE: EMERGENCY COOLING WATER DRUM
DRAWN UP: Francis | APPROVED: | DATE: JUNE 16 ,1996
PURCHASER: T E C N I M O N T
PURCHASER ORDER: Y 010636 CK | MATERIAL REQUISITION: 2743-CO-MR021
NOT TO BE REPRODUCED WHOLE OR PART NOR EMPLOYED FOR ANY PURPOSE OTHER THAN SPECIFICALLY PERMITTED WRITING.

TECNIMONT
CLIENT: ARABIAN IND. FIBRE CO. LTD.
CLIENT REF.: IBN RUSHD
PLANT LOCATION: YANBU SAUDI ARABIA
IDENTIFICATION CODE: JOB 2743 | C D | V O | NO. 1 0 7
SHEET 1 | OF 03

FOR VESSELS

REV-No	DATE	DESCRIPTION	DRAWN UP	CHECKED	APPROVED

SCALE ______ AKD No. ______

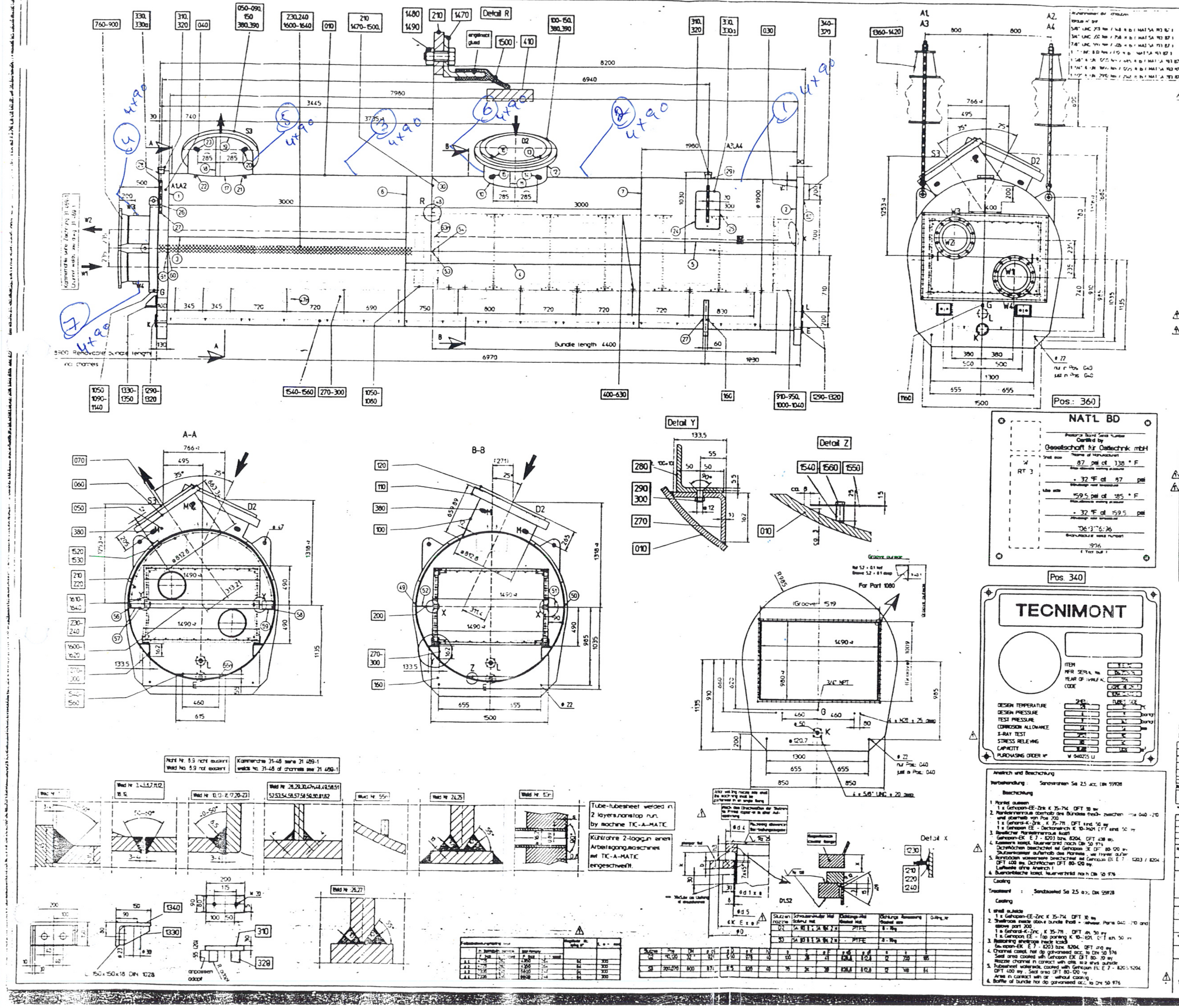
الشركة العربية للألياف الصناعية ابن رشد
ARABIAN INDUSTRIAL FIBRES Co. IBN RUSHD
YANBU SAUDI ARABIA

IBN RUSHD PTA PLANT
YANBU SAUDI ARABIA
[illegible] PTA PLANT

Plant Unit | DRAWING No | SHEET | REVISION

GENERAL NOTES
1) NAME AND TEMPLATE SHALL BE SUPPLIED BY AT&V/STEPRO.
2) [illegible] FOR LIFTING.
3) WELD SEAM No. APPLICABLE IN THIS DWG ARE: 101,102, 201-203, 301, 401-425, 701-703
4) HYDROTEST: 1) TEST PRESSURE SHALL BE HELD FOR ONE HOUR MINIMUM. 2) USE POTABLE WATER FOR HYDROTEST. 3) TEST GASKETS SHALL BE SAME TYPE AND MATERIAL AS SPARE GASKETS. 4) HYDROTEST MAY BE CONDUCTED IN HORIZONTAL POSITION
[illegible]

11-E-112


Detail R
Detail Y
Detail Z
Detail X
A-A
B-B
Bundle length 4400
8200
6940
7980
6970
3445
3000
1500
1300
Pos.: 360
Pos. 340
4x90
4x90
4x90
4x90
4x90
4x90
4x90
Tube-tubesheet welded in 2 layers,nonstop run, by machine TIC-A-MATIC
Kühlrohre 2-lagig in einem Arbeitsgang,maschinell mit TIC-A-MATIC eingeschweißt
NAT'L BD
Certified by
Gesellschaft für Oeltechnik mbH
87 psi at 338 °F
- 32 °F at 87 psi
159.5 psi at 185 °F
- 32 °F at 159.5 psi
106/3176/96
1996
TECNIMONT
ITEM
MFR SERIAL No
YEAR OF MANUFAC
CODE
SHELL
TUBES SIDE
DESIGN TEMPERATURE
DESIGN PRESSURE
TEST PRESSURE
CORROSION ALLOWANCE
X-RAY TEST
STRESS RELIEVING
CAPACITY
PURCHASING ORDER Nº
W 040275 U
ASME
TECNIMONT

Nozzle list

[illegible]	[illegible]	[illegible]	DN	[illegible]	[illegible]
1	D2	[illegible]	150# ANSI B16.5	Rz 25 ayn	Air inlet
1	S3	800	[illegible]	Rz 25 ayn	Air Outlet
1	K	2"	150# ANSI B16.5	FF	Condensate Outlet
1	L	2"	150# ANSI B16.5	FF	Drain shell
1	G	3/4"	NPT 3000 #		Connection
1	W1	[illegible]	150# ANSI B16.5	RF	Water Inlet
1	W2	[illegible]	150# ANSI B16.5	RF	Water Outlet
1	W3	1/2"	NPT 3000 #		Vent Water
1	W4	3/4"	NPT 3000 #		Drain Water
8	M	[illegible]	NPT 3000 #		Measuring Connection
1	I	2"	150# ANSI B16.5	FF	LG connection

Design and stamp per ASME Code Sec. VIII Div. 1 Ed. 1995, Add. 1996
TEMA Class C with exceptions

		Shell side	Tube side	
Max allowable working temperature		170 338	85 185	°C °F
Min. Design Metal Temp. 0 °C / + 32 °F				
Temperature de service	TH 001	41.00 / 50.00	40 / 50	°C
		105.80 / 122.00	104 / 122	°F
Operating pressure		4.30 bar abs	5.5 bar	
	TH 001	62.35 psig a	79.75 psig g	
Max allowable working pressure		6 87	11 159.5	bar g psig
Test pressure		9 130.5	16.5 239.25	bar g psig
Prüfmedium / Testmedium		Water	water	
Fluid		Air	Water	
Volume		19 400	1 820	ltr
		685.1	64.27	ft³
Corrosion allowance		1.6 mm / 1/16"	1.5 mm / 1/16"	
Tubes		0	0	mm
Welding efficiency		0.85	0.7	
Welding procedure and filler metals		sehe / see / voir W 31 472		
Heat treatment		No		
Non-destructive test		sehe / see / voir O 31 472		
Impact tested		no , acc. to UG 20 (f)		
Radiography		spot per ASME Code		
Drawing approval		LR-insurance inc / MD / Tecnimont		
Inspection by		LR-insurance inc / MD / Tecnimont		
Weight empty / service / full of water		22 300 / 24 120 / 43 520 kg		
Bundle weight with channels		10 150 kg		
Associated documents		Oeltechnik Doc. NBR		
Portal		31 472 - 4		
Bundle		31 466 - 1		
Channels		31 469 - 1		
Welding plan		W 31 472		
Test and inspection check-list		O 31 472		
Calculation		C 31 472 - 4		

Anstrich und Beschichtung

Vorbehandlung : Sandstrahlen Sa 2.5 acc. DIN 55928

Beschichtung

1. Mantel aussen
   1 x Gehopon-EE-Zink K 35-714 DFT 30 my
2. Manteinnenraum oberhalb des Bündels frei zwischen Pos 040 - 210 und oberhalb von Pos 200
   1 x Geharol-K-Zink , K 35-711 . DFT mind. 50 my
   1 x Gehopon EE - Deckanstrich K 10-3601 DFT mind. 50 my
3. Restlicher Mantelinnenraum (kalt)
   Gehopon-EK E 7 - 8203 bzw. 8204 DFT 400 my
4. Kammern kompl. feuerverzinkt nach DIN 50 976
   Dichtflächen beschichtet mit Gehopon EK DFT 80-120 my
   Stutzenkammer außerhalb des Mantels , wie Mantel außen
5. Rohrböden wasserseitig beschichtet mit Gehopon EK E 7 - 8203 / 8204
   DFT 400 my. Dichtflächen DFT 80-120 my.
   Luftseite ohne Anstrich !
6. Bündelbleche kompl. feuerverzinkt nach DIN 50 976

Coating

Treatment : Sandblasted Sa 2.5 acc. DIN 55928

Coating

1. shell outside
   1 x Gehopon-EE-Zinc K 35-714 DFT 30 my
2. Shellroom inside above bundle (hot) - between Parts 040 - 210 and above part 200
   1 x Geharol-K-Zinc , K 35-711 . DFT min. 50 my
   1 x Gehopon EE - top painting K 10-3601 DFT min. 50 my
3. Remaining shellroom inside (cold)
   Gehopon-EK E 7 - 8203 bzw. 8204 DFT 400 my
4. Channel compl. hot dip galvanised acc. to DIN 50 976
   Seal area coated with Gehopon EK DFT 80-120 my
   Nozzle channel in contact with atm. as shell outside
5. Tubesheet waterside coated with Gehopon EK E 7 - 8203/8204
   DFT 400 my . Seal area DFT 80-120 my
   Area in contact with air without coating .
6. Baffle of bundle hot dip galvanised acc. to DIN 50 976

MD CODE BN RUSHO
MD ORDER 2432 5057

ITEM 11 E 112 , TAG Nº 11 E 112
INTERCOOLER ZK 2 (Dimension drawing)

Zwischenkühler ZK 2 (Maßbild)

DEMAG DELAVAL
TURBOMACHINERY

44350215

1	15-Nov-96	[illegible]	[illegible]	9025-1	2705
-	22-Aug-96	[illegible]		9025-1	2705

Format A0, Blatt 1

• Geprüft : Diese Prüfung nimmt den Lieferanten nicht aus seiner Verantwortung

1	15-Nov-96	Haag	[illegible]	Tecnimont comments

Änderungsliste - List of Revision - Modification

DIN 28 008 •

DIN 28 005 •

106/3176/96

OELTECHNIK

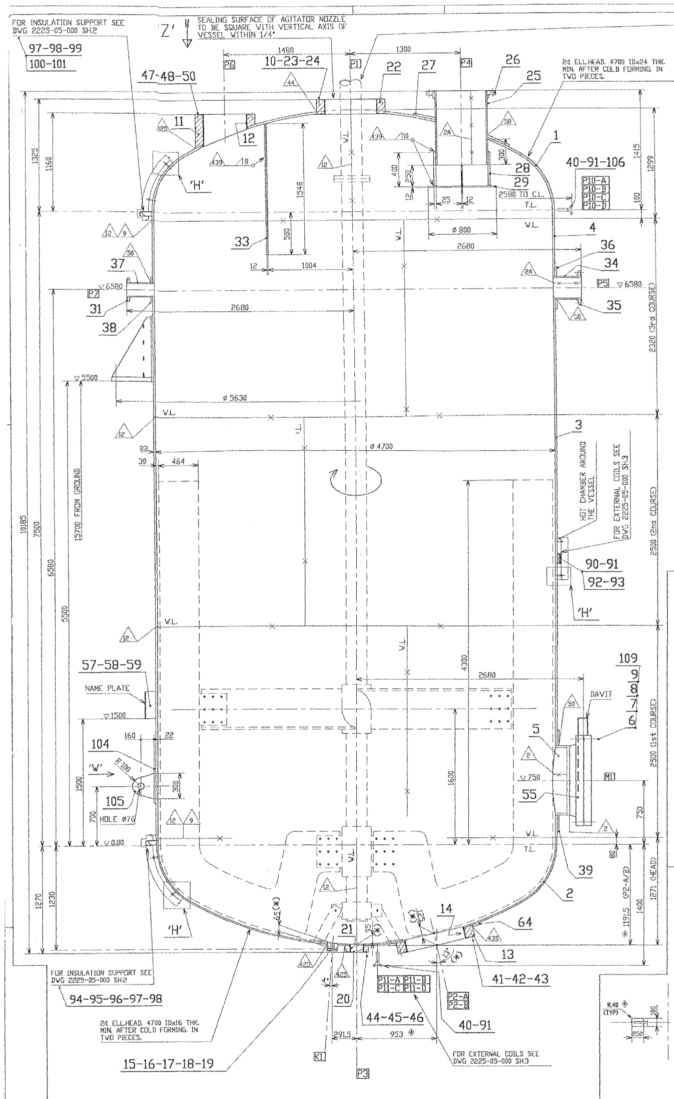
Air Cooler Type EKE 190.420.2.1.15R
Nº 2 INTERCOOLER

Scale 1:15

31 472 - 0

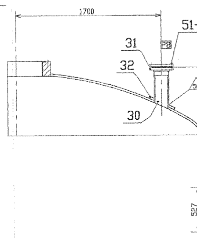
CAD

FOR VESSELS

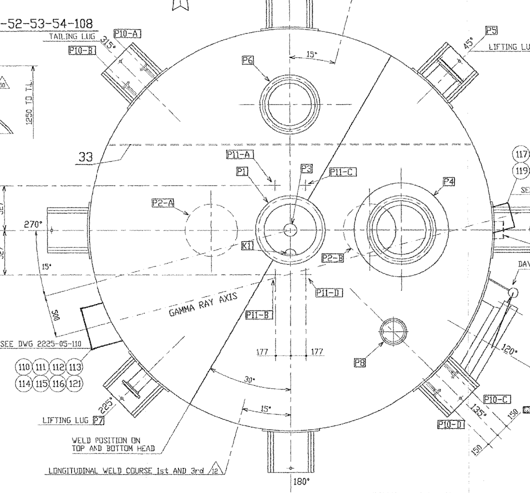

FOR INSULATION SUPPORT SEE DWG 2225-05-000 SH.2
97-98-99
100-101
'Z'
SEALING SURFACE OF AGITATOR NOZZLE TO BE SQUARE WITH VERTICAL AXIS OF VESSEL WITHIN 1/4°
1480
1300
10-23-24
47-48-50
22
27
26
25
2:1 ELL.HEAD. 4700 ID×24 THK. MIN. AFTER COLD FORMING IN TWO PIECES.
11
12
28
29
1
40-91-106
P10-A
P10-B
P10-C
P10-D
'H'
33
2580 TO C.L.
2680
1004
36
34
35
37
31
38
P7
P5
▽6580
▽5500
ø5630
ø4700
2500 (3rd COURSE)
2500 (2nd COURSE)
2500 (1st COURSE)
3
HOT CHAMBER AROUND THE VESSEL
FOR EXTERNAL COILS SEE DWG 2225-05-000 SH.3
90-91
92-93
109
9
8
7
6
DAVIT
M1
57-58-59
NAME PLATE
▽1500
104
'W'
105
HOLE ø76
5
55
39
2
64
14
21
20
13
41-42-43
44-45-46
40-91
15-16-17-18-19
K1
P1-A
P1-B
P2-A
P2-B
FOR INSULATION SUPPORT SEE DWG 2225-05-000 SH.2
94-95-96-97-98
2:1 ELL.HEAD. 4700 ID×16 THK. MIN. AFTER COLD FORMING IN TWO PIECES.
FOR EXTERNAL COILS SEE DWG 2225-05-000 SH.3
10185
7500
6580
5500
15700 FROM GROUND
1160
1325
1270
1230
1271 (HEAD)
1119.5 (P2-A/B)
1400
291.5
953
T.L.
W.L.
V.L.

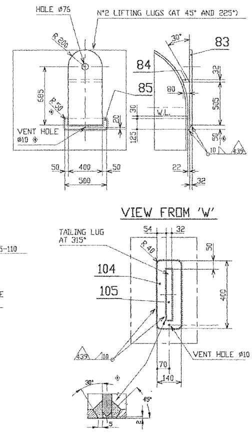
(✱) THESE DIMENSIONS ARE MANDATORY

AGITATOR DATA	'15 V 003'	
AGITATION POWER	38.4	kW
ROTATION SPEED	11	RPM
STATIC VERTICAL LOAD	~107.2	kN
STATIC OVERTURNING MOMENT	~9	kN m


1700
51-52-53-54-108
TAILING LUG
31
32
30
P8
1250 TO T.L.

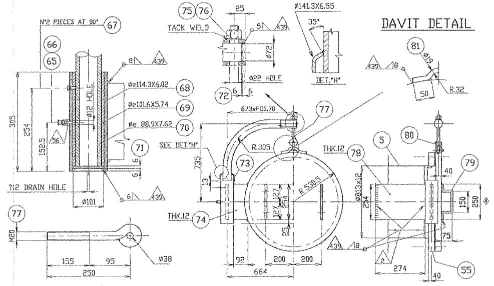
VIEW FROM 'Z'


N
0°
90°
180°
270°
12 LONGITUDINAL WELD COURSE 2nd
LIFTING LUG P5
45°
P6
P4
P3
P1
P11-A
P11-C
P11-D
P11-B
P2-A
P2-B
K1
33
(117)(118)(122)
(119)(120)(123)
SEE DWG 2225-05-110
NAME PLATE POSITION
DAVIT
GAMMA RAY AXIS
SEE DWG 2225-05-110
(110)(111)(112)(113)
(114)(115)(116)(121)
LIFTING LUG P7
225°
WELD POSITION ON TOP AND BOTTOM HEAD
LONGITUDINAL WELD COURSE 1st AND 3rd 12
P10-A
P10-B
P10-C
P10-D
M1
120°
135°
315°
TAILING LUG
177
527
15°
30°

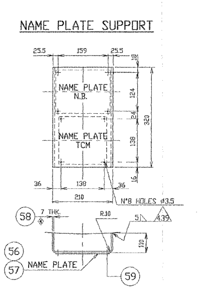

HOLE ø75
N°2 LIFTING LUGS (AT 45° AND 225°)
83
84
85
VENT HOLE ø10
400
500
505
VIEW FROM 'W'
TAILING LUG AT 315°
104
105
VENT HOLE ø10
400
140

SPIRAL WOUND Ti/PTFE GLASS FILLED 25% WITH Ti INTERNAL RING AND 316L S.S. EXTERNAL RING (4.44mm THK)

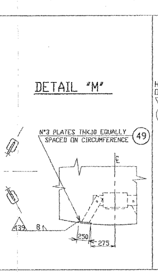
DAVIT DETAIL


N°2 PIECES AT 90° (67)
(75)(76)
TACK WELD
ø141.3X6.55
(66)
(65)
(68)
(69)
(70)
(71)
(72)
(73)
(74)
(77)
(78)
(79)
(80)
(81)
(5)
(55)
ø114.3X6.02
ø101.6X5.74
ø88.9X7.62
ø22 HOLE
DET."H"
SEE DET."H"
R.305
R.32
ø12 DRAIN HOLE
ø101
ø38
THK.12
THK.12
664
250
155
95

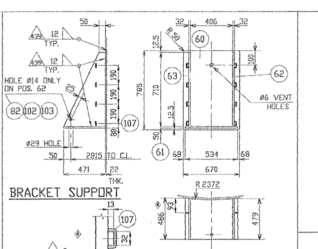
NAME PLATE SUPPORT

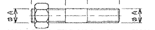

NAME PLATE N.B.
NAME PLATE TCM
255
159
N°8 HOLES ø3.5
7 THK.
(58)
(56)
(57)
NAME PLATE
(59)
R10

DETAIL 'M'


N°3 PLATES THK.10 EQUALLY SPACED ON CIRCUMFERENCE (49)
R.40 (TYP)
275

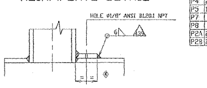
BRACKET SUPPORT


HOLE ø14 ONLY ON POS. 62
(82)(102)(103)
ø29 HOLE
2815 TO C.L.
(60)
(61)
(62)
(63)
(107)
ø6 VENT HOLES
670
534
R 2372
486
479
3 TYP.



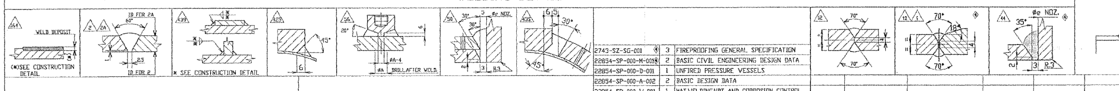
NOZZLE MARK	A	B	C	D	E	GASKET DN	POS.
P1	1 1/4" 8UN	225	45	110	70	24"-150Lb RF	10-23-24
P2-A	1 1/4" 8UN	170	45	70	55	28"-150Lb RF	41-42-43
P2-B	1 1/4" 8UN	170	45	70	55	28"-150Lb RF	41-42-43
P3	3/4" 10UNC	110	30	50	30	6"-150Lb RF	44-45-46
P6	1 1/8" 8UN	165	40	60	65	20"-150Lb RF	47-48-50
K1	1/2" 13UNC	70	20	30	20	11/2"-150Lb RF	16-17-18

REINF.PLATE DETAIL


HOLE ø1/8" ANSI B1.20.1 NPT
6
439

NOZ.	D.N.	POS.
M1	32"	39
P4	24"	27
P5	10"	36
P7	6"	38
P8	6"	32
P2A	28"	64 ◇4
P2B	28"	64 ◇4

WELDING DETAIL


164
WELD DEPOSIT
(✱)SEE CONSTRUCTION DETAIL
2
2A
ID FOR 2A
ID FOR 2
60°
2.5
439
✱ SEE CONSTRUCTION DETAIL
425
45°
6
56
20°
øA-4
øA
DRILL AFTER WELD.
50
30°
5
øe NOZ.
3
R.3
435
6.5
30°
45°
12
70°
12
5
18
70°
44
35°
øe NOZ.

POS.	DESCRIPTION		N° PIECES	MATERIAL	SYMB.	DIMENSIONS	NOTES
123	EX SCREW	VITE T.E.	8	CARBON STEEL	○	M20 LG.50	P
122	EX NUTS	DADI ES. A.	8	CARBON STEEL	○	M20	P
◇4 121	ANGLE BAR	ANGOLARE	2	CARBON STEEL	○	40x40x4 L=8500	
◇4 120	BRACKET	SUPPORTO	1	304 S.S.	◐	SEE DWG 2225-05-110	
◇4 119	BRACKET	SUPPORTO	1	304 S.S.	◐	SEE DWG 2225-05-110	
◇4 118	EX SCREW	VITE T.E.	16	CARBON STEEL	○	M16 LG.70	P
◇4 117	EX NUTS	DADI ES. A.	16	CARBON STEEL	○	M16	P
◇4 116	EX SCREW	VITE T.E.	30	CARBON STEEL	○	M10 LG.25	P
◇4 115	EX NUTS	DADI ES. A.	30	CARBON STEEL	○	M10	P
◇4 114	PLATE	PIATTO	7	SA 240 TP304	◐	40x2 LG.500	
◇4 113	PLATE	PIATTO	2	304 S.S.	◐	100x4 LG.240~	
◇4 112	PLATE	PIATTO	6	304 S.S.	◐	100x4 LG.230~	
◇4 111	PLATE	PIATTO	2	304 S.S.	◐	100x4 LG.340~	
◇4 110	PLATE	PIATTO	6	304 S.S.	◐	100x4 LG.330~	
109	LINING M1	RIVESTIMENTO	1	SA 240-S31803	◐	SEE DWG.2225-05-000 SH.5	
108	LINING P8	RIVESTIMENTO	1	SA 240-S31803	◐	SEE DWG.2225-05-000 SH.5	
◇4 107	BEND LUG	SUPPORTO	64	SA 36	○	ø6.35	
◇4 106	FASTENING	LEGACCIO	500	CARBON STEEL	○	ø2x350	
105	TAILING LUG	GOLFARE	1	SA 240-S31803	◐	THK.32 300x260	
104	REINFORCING	RINFORZO	1	SA 240-S31803	◐	THK.22 400x140	
103	WASHER	ROSETTA	2	304 S.S.	○	THK.3 ø24/13	
102	EX. NUT	DADO ES. ALTO	2	304 S.S.	○	M12 6H	
101	RING	ANELLO	1	SA 516 GR.60	○	ø5028/4842 THK.5	
100	PLATE	PIATTO	18	SA 240-S31803	◐	120x50x8	
99	RING	ANELLO	1	SA 516-60	○	ID 5028x50x5	
98	ROD	TONDO	2	SA 36	○	ø6.35 L=15750~	
97	ROD	TONDO	134	SA 36	○	ø6.35 L=25.4	
96	RING	ANELLO	1	SA 516 GR.60	○	ø4988/4838 THK.5	
95	RING	ANELLO	1	SA 516 GR.60	○	ID 4988x50x5	
94	PLATE	PIATTO	18	SA 240-S31803	◐	105x50x8	
◇4 93	EX. NUT	DADO ES. ALTO	280	304 S.S.	○	M8 6H	
◇4 92	COLLAR	COLLARE	140	SA 516 GR.60	○	SEE DWG 2225-05-000 SH.3	
◇4 91	PIPE	TUBO	4	SA 106 GR.B	◐	ø33.4x3.38 LG.105 MT CAD.	
◇4 90	ROD	TONDO	280	304 S.S.	○	ø20x47	
◇4 89	WASHER	ROSETTA	300	SA 36	○	25x25/ø7/2 THK	
◇4 88	EX. NUT	DADO ES. ALTO	150	304 S.S.	○	M6 6H	
◇4 87	ROD	TONDO	150	304 S.S.	○	ø15x65	
86	WIRE	RETE	1	CARBON STEEL	○	WIRE ø2-MESH 22	
85	REINFORCING	RINFORZO	2	SA 240-S31803	◐	THK.22 500x125	
84	PLATE	PIATTO	2	SA 240-S31803	◐	THK.32 400x80	
83	LIFTING LUG	ORECCHIA	2	SA 516 GR.70	○	THK.32 885x400	
82	SCREW	VITE T.E.S.	2	304 S.S.	○	M12 6g L=65	
81	ROD	TONDO	[illegible]	SA 36	○	ø16	
80	ANCH.SHACKLE	GRILLO	1	FORGET STEEL	○	ø1/2" STD.	
79	HANDLE	MANIGLIA	2	SA 36	○	ø16x400	
78	PLATE	SOSTEGNO	1	SA 240-S31803	○	THK.12 274x254	
77	EYEBOLT	TIR. OCCHIO	1	SA 36	○	M20 6g	
76	EX. NUT	DADO ES. ALTO	1	SA 36	○	M20 6H	
75	WASHER	ROSETTA	1	SA 36	○	ø37/22 THK.3	
74	PLATE	PIATTO	1	SA 516 GR.60	○	THK.12 254x92	
73	CAP	CAPPELLOTTO	1	SA 403 WP304	○	ø141.3x6.55	
72	DISK	DISCO	1	SA 516 GR.60	○	ø72x6	
71	DISK	DISCO	1	SA 240 TP.304	○	ø101x6	
70	PIPE	TUBO	1	SA 106 GR.B	○	ø88.9x7.62	
69	PIPE	TUBO	1	CHLORINATED POLYVINYL CHLORIDE	○	ø101.6x5.74	
68	PIPE	TUBO	1	SA 312 TP.304	○	ø114.3x6.02	
67	EX. SCREW	VITE T.E.S.	2	304 S.S.	○	ø3/8" 16UNC-2A L=20	
66	GREASE FITT.	INGRASSATORE	1	304 S.S.	○	ø1/8" STD.	
65	COUPLING	MANICOTTO	1	304 S.S.	○	ø1/8" 3000 LB.	
64	REINFORCING	RINFORZO	2	SA 240-S31803	◐	THK.22	
◇4 63	RIB	NERVATURA	8	SA 516 GR.70	○	THK.32 710x479	
◇4 62	RIB	NERVATURA	8	SA 516 GR.70	○	THK.32 710x479	
◇4 61	BASE	BASE	8	SA 516 GR.70	○	THK.50 534x486	
60	REINFORCING	RINFORZO	8	SA 240-S31803	◐	THK.22 785x670	
◇4 59	RIVET	RIBATTINO	8	304 S.S.	◐	ø3	
58	NAME PL.SUPP.	PORTA TARGA	1	SA 240-S31803	◐	SEE DETAIL	
57	NAME PL. TCM.	TARGA	1	304 S.S.	○	SEE DWG. 2225-05-057	
56	NAME PL. N.B.	TARGA	1	304 S.S.	○	SEE DWG. 2225-05-056	
55	FLANGE M1	FLANGIA	1	SA 105+ UNS S31803 WELD DEPOSIT	◐	ø32" 150 LB. RF	
54	EX. NUT	DADO ES. ALTO	16	SA 194-2H	◐	ø3/4" 10UNC-2B	P
53	STUD	TIRANTE	8	SA 193-B7	◐	ø3/4" 10UNC-2A L=110	P
52	GASKET P8	GUARNIZIONE	1	▨	◐	ø6" 150 LB. RF	P
51	BLIND FL. P8	FL. CIECA	1	SA 105+ UNS S31803 WELD DEPOSIT	◐	ø6" 150 LB. RF	
50	EX. NUT P6	DADO ES. ALTO	20	SA 194-2H	◐	ø1 1/8" 8UN-2B	P
◇4 49	PLATE	PIASTRA	3	SA240-S31803	◐	THK.10	
◇4 48	BOLT P6	PRIGIONIERO	20	SA 193-B7	◐	ø1 1/8" 8UN-2A L=165	P
47	GASKET P6	GUARNIZIONE	1	▨	○	ø20" 150 LB. RF	P
46	EX. NUT P3	DADO ES. ALTO	8	SA 194-2H	◐	ø3/4" 10UNC-2B	P
◇4 45	BOLT P3	PRIGIONIERO	8	SA 193-B7	◐	ø3/4" 10UNC-2A L=110	P
44	GASKET P3	GUARNIZIONE	1	▨	○	ø6" 150 LB. RF	P
◇4 43	EX. NUT P2A/B	DADO ES. ALTO	56	SA 194-2H	◐	ø1 1/4" 8UN-2B	P
◇4 42	BOLT P2A/B	PRIGIONIERO	56	SA 193-B7	◐	ø1 1/4" 8UN-2A L=170	P
41	GASKET P2A/B	GUARNIZIONE	2	▨	○	ø28" 150 LB. RF	P
40	FLANGE	FLANGIA	8	SA 105	◐	ø1" 150 LB. WN.RF	
39	REINFORCING	RINFORZO	1	SA 240-S31803	◐	THK.22	
38	REINFORCING	RINFORZO	1	SA 240-S31803	◐	THK.22	
37	PIPE P7	TUBO	1	SA 790-S31803	◐	ø168.3x10.95	
36	REINFORCING	RINFORZO	1	SA 240-S31803	◐	THK.22	
35	FLANGE P5	FLANGIA	1	SA 105+ UNS S31803 WELD DEPOSIT	◐	ø10" 150 L.B. SO.RF	
34	PIPE P5	TUBO	1	SA 240-S31803	◐	THK.12	
33	BAFFLE	DIAFRAMMA	1	SA 240-S31803	◐	THK.12	
32	REINFORCING	RINFORZO	1	SA 240-S31803	◐	THK.22	
31	FLANGE P7/P8	FLANGIA	2	SA 105+ UNS S31803 WELD DEPOSIT	◐	ø6" 150 LB. SO.RF	
30	PIPE P8	TUBO	1	SA 790-S31803	◐	ø168.3x10.95	
29	BAFFLE	DIAFRAMMA	1	SA 240-S31803	◐	THK.12	
28	PLATE	PIATTO	8	SA 240-S31803	◐	THK.12	
27	REINFORCING	RINFORZO	1	SA 240-S31803	◐	THK.22	
26	FLANGE P4	FLANGIA	1	SA 105+ UNS S31803 WELD DEPOSIT	◐	ø24" 150 LB. SO.RF	
25	PIPE P4	TUBO	1	SA 240-S31803	◐	THK.12	
24	EX. NUT P1	DADO ES. ALTO	20	SA 194-2H	◐	ø1 1/4" 8UN-2B	P
23	BOLT P1	PRIGIONIERO	20	SA 193-B7	◐	ø1 1/4" 8UN-2A L=225	P
◇4 22	PAD P1	MASSELLO	1	SA 266 CL.2+ UNS S31803 WELD DEPOSIT	◐	ø24" 150 LB. RF	
21	LINING	RIVESTIMENTO	1	SA 240-S31803	◐	THK.8	
◇4 20	PAD P3	MASSELLO	1	SA 266 CL.2+ UNS S31803 WELD DEPOSIT	◐	ø6" 150 LB. RF	
19	PAD K1	MASSELLO	1	SA 182 F51 S31803	◐	ø1 1/2" 150 LB. RF	
18	EX. NUT K1	DADO ES. ALTO	4	SA 194-2H	◐	ø1/2" 13UNC-2B	P
17	BOLT K1	PRIGIONIERO	4	SA 193-B7	◐	ø1/2" 13UNC-2A L=70	P
16	GASKET K1	GUARNIZIONE	1	▨	○	ø1 1/2" 150 LB. RF	P
15	BLIND FLANGE	FL. CIECA	1	SA 182 F51 UNS S31803	◐	ø1 1/2" 150 LB. RF	
14	LINING	RIVESTIMENTO	2	SA 240-S31803	◐	THK.8	
◇4 13	PAD P2 A/B	MASSELLO	2	SA 266 CL.2+ UNS S31803 WELD DEPOSIT	◐	ø28" 150 LB. RF	
12	LINING	RIVESTIMENTO	1	SA 240-S31803	◐	THK.8	
◇4 11	PAD P6	MASSELLO	1	SA 266 CL.2+ UNS S31803 WELD DEPOSIT	◐	ø20" 150 LB. RF	
10	GASKET P1	GUARNIZIONE	1	▨	○	ø24" 150 LB. RF	P
9	BLIND FLANGE	FL. CIECA	1	SA 105+ UNS S31803 WELD DEPOSIT	◐	ø32" 150 LB. RF	
8	GASKET M1	GUARNIZIONE	1	▨	○	ø32" 150 LB. RF	P
7	STUD	TIRANTE	28	SA 193-B7	◐	ø1 1/2" 8UN-2A L=290	P
6	EX. NUT	DADO ES. ALTO	56	SA 194-2H	◐	ø1 1/2" 8UN-2B	P
5	PIPE	TRONCHETTO	1	SA 240-S31803	◐	ø813x12	
4	COURSE	VIROLA	1	SA 240-S31803	◐	THK.22	
3	COURSE	VIROLA	2	SA 240-S31803	◐	THK.22	
2	ELL. HEAD	FONDO ELL.	1	SA 240-S31803	◐	THK.16	G
1	ELL. HEAD	FONDO ELL.	1	SA 240-S31803	◐	THK.24	G

MATERIAL LIST

MATERIALS TEST SYMBOL		THICKNESSES TOLERANCE	
⊛	MATERIAL TESTED BY OFFICIAL AUTHORITY	PLATES:	-0.25 mm
◐	MATERIAL WITH MANUFACTURER CERTIFICATE	PIPES:	-12.5%
○	MATERIAL WITHOUT CERTIFICATE	HEADS:	SEE NOTE (G)

DESIGN DATA

	SIDE	SHELL	COIL	
DESIGN CODES		ASME SECT. VIII DIV. 1 1992		
CODE 'U' STAMP		YES	NO	
INSPECTION AUTHORITY		ABS IV	—	
PRESSURE (GAUGE) DESIGN	bar (g)	2	8 & FULL VACUUM	
PRESSURE (GAUGE) OPERATING	bar (g)	0.6	5	
PRESSURE (GAUGE) EXTERNAL	bar (g)	—	—	
HYDROTEST IN VERTICAL (SHOP/FIELD)	bar (g)	◇4 14.8/11.7	12	
HYDROTEST IN HORIZONTAL (SHOP)	bar (g)	15.3	—	
PNEUMATIC TEST	bar (g)	—	—	
M.A.P. (NEW AND COLD)	bar (g)	10.5	—	
M.A.W.P. (HOT AND CORR.)	bar (g)	7.8	—	
TEMPERATURE DESIGN	°C	160	180	
TEMPERATURE OPERATING	°C	135	158	
TEMPERATURE FULL VACUUM CONDITION	°C	—	100	
MINIMUM DESIGN METAL TEMPERATURE		+8°C AT 8 bar (g)	+8°C AT 8 bar (g)	
CORROSION ALLOWANCE	mm	2	1	
FLUID TYPE		CH3COOH+WATER+BY PROD.	STEAM+WATER	
FLUID PHYSICAL STATE				
FLUID SPECIFIC GRAVITY	kg/m³	947	1000	
FLUID CAPACITY	m³	~157.3	~0.0625x4	
LIQUID LEV. FOR MECHANICAL DESIGN(ABOVE BOTTOM T.L.)	mm			
JOINTS EFFICIENCY SHELL		0.85	—	
JOINTS EFFICIENCY HEADS		1	—	
OUT OF ROUND	%	ACCORDING TO ASME CODE UG-80		
INSULATION	TYPE/THK.	MINERAL WOOL/80		
FIREPROOFING		◇4 YES-50 mm THK	—	
WIND PRESSURE	SEE BECHTEL SPEC.22854-SP-000	ASCE 7-88 'EXPOSURE C'		0
SEISMIC ZONE	-M-001 Rev.2 PARA 4	ASCE 7-88 'ZONE 1'		0

LOADS AT BASE		OPERATING	HYDROTEST	EARTHQUAKE
VERTICAL LOAD	kN	2040	2127	2040
SHEAR	kN	28.7	7.2	118.7
MOMENT	kN·m	71.2	39.6	238.2

SUPPLY WEIGHT (MASS)	~ 35870 kg	LOCATION	OUTDOOR
WEIGHT FULL OF WATER	~ 193420 kg	SADDLES MOVEMENT	— mm
SURFACES (ON FIELD)			
INSULATION (MEDIUM SURFACE)	~ 180 m²		
SHEETS FOR INSULATION JACKETING	~ 190 m²		
FINAL PAINTING (CARBON STEEL PARTS)	~ 16 ◇4 m²		

PAINTING (ON WORK SHOP) (ACC. TO SPC. N°2743-YW-SG-001 ISSUE 5 ◇4

- FOR CARBON STEEL PARTS: SANDBLASTING SA 2 1/2 AND PAINTING WITH ONE COAT OF INORGANIC ZINC SILICATE 75 MICRONS D.F.T.
- FOR STAINLESS STEEL INTERNAL PARTS: SEE NOTE 'EE'.
- FOR STAINLESS STEEL EXTERNAL PARTS: PICKLING BY PASTE ON EXTERNAL WELDING AND PROTECT WITH TECTIL

ZONE RESERVED FOR APPROVAL STAMPS

FINAL
7/1/97

ITEM		PIECES	DN	SERVICE	FLANGE RATING	FLANGE TYPE	FLANGE FACING	NOZZLE O.D.	NOZZLE THK.	REINF. PAD O.D.	REINF. PAD THK.	NOTES
K1		1	1 1/2"	SPARE	ANSI 150 LB	PAD	RF	127	43.5	—	—	3
P11	A÷D	4	1"	CONDENSATE OUTLET	ANSI 150 LB	WN	RF	33.4	3.38	—	—	2
P10	A÷D	4	1"	STEAM INLET	ANSI 150 LB	WN	RF	33.4	3.38	—	—	2
P8		1	6"	SPARE	ANSI 150 LB	SO	RF	168.3	10.95	310	22	3
P7		1	6"	LIQUID INLET	ANSI 150 LB	SO	RF	168.3	10.95	310	22	
P6		1	20"	REBOILER RETURN ◇4	ANSI 150 LB	PAD	RF	698	99	—	—	6
P5		1	10"	VAPOUR FROM 15E005	ANSI 150 LB	SO	RF	273	12	500	22	
P4		1	24"	VAPOUR OUT	ANSI 150 LB	SO	RF	610	12	1120	22	
P3		1	6"	DRAIN ◇4	ANSI 150 LB	PAD	RF	280	65	—	—	5
P2	A÷B	2	28"	LIQUID OUTLET ◇4	ASME B16.47 150 LB	PAD	RF	927	113.5	1100	22	4
P1		1	24"	AGITATOR MOUNT ◇4	ANSI 150 LB	PAD	RF	813	106.5	—	—	
M1		1	32"	MANHOLE	ASME B16.47 150 LB	SO	RF	813	12	1210	22	1

LIST OF CONNECTIONS

NOTES

1) WITH BLIND FLANGE AND DAVIT
2) NOZZLES OF EXTERNAL HEATING COILS
3) WITH BLIND FLANGE
4) WITH 700 I.D.
5) WITH 150 I.D. ◇4
6) WITH 500 I.D.

FLANGES SEALING SURFACE FINISHING

SERRATED SPIRAL FINISH ACCORDING TO ANSI B16.5 WITH RESULTING ROUHNESS
SHEEL SIDE 125÷250 µin. AARH ◇4
COIL SIDE 125÷250 µin. AARH

NUMBER	ISSUE	TITLE
2743-SZ-SG-001 ◇4	3	FIREPROOFING GENERAL SPECIFICATION
22854-SP-000-M-001 ◇4	2	BASIC CIVIL ENGINEERING DESIGN DATA
22854-SP-000-D-001	1	UNFIRED PRESSURE VESSELS
22854-SP-000-A-002	2	BASIC DESIGN DATA
22854-SP-000-W-001	1	MAT.WELDING,NDT AND CORROSION CONTROL
2743-VB-FP-001	3	EQUIPMENT GENERAL NOTES
2743-CD-MR-002	2	MATERIAL REQUISITION
2743-CD-DX-153 1/2	6	TECNIMONT DRAWING
DU PONT SG-1S	1	GENERAL FABRICATION REQUIREMENTS
2743-YW-SG-001	5	SHOP PAINTING SPEC.
DU PONT SG14.1 S	1	CLEANLINESS REQUIRM. FOR S.S. EQUIPMENTS
◇4 2225-05-110	1	RADIOATTIVE LEVEL INSTRUMENT SUPP. DRAWING
2225-05-500	1	SHIPPING DRAWING
2225-05-057	1	TCM NAME PLATE
2225-05-056	1	ASME NAME PLATE
2225-05-000 SH.5	2	NOZZLES DRAWING
2225-05-000 SH.4	3	NOZZLES DRAWING
2225-05-000 SH.3	2	COILS
2225-05-000 SH.2	2	INSULATION SUPPORTS DRAWING
2225-05-000 SH.1	4	ASSEMBLY DRAWING

DRAWINGS AND SPECIF. REFERENCE

POSITION	WELDING PROCESS	FILLER METALS	N° WPS	N° PQR
SEE DOC. NUMBER 2225.00-WB-001				

WELDING PROCESS
SMAW: SHIELDED METAL-ARC WELDING
GTAW: GAS TUNGSTEN-ARC WELDING
SAW: SUBMERGED-ARC WELDING
GMAW: GAS METAL-ARC WELDING
FCAW: FLUX CORED-ARC WELDING

WELDING DESCRIPTIONS

	SIDE	SHELL	COIL	NOTES
IMPACT TEST		SEE NOTE 5		
TEST COUPONS FOR WELDED HEADS		NOT REQUIRED		
PRODUCTION TEST COUPON		NOT REQUIRED		
TEST CATEGORY		—		
UT: ULTRASONIC EXAMINATION		SEE DOC. NUMBER 2225.01-IT-05		
MT: MAGNETIC PARTICLE EXAMINATION		SEE DOC. NUMBER 2225.01-IT-05		
PT: LIQUID PENETRANT EXAMINATION		SEE DOC. NUMBER 2225.01-IT-05		
RT: RADIOGRAPHIC EXAMINATION	SHELL	SPOT	—	(1)
RT: RADIOGRAPHIC EXAMINATION	HEADS	100%	—	(1)
PWHT: POSTWELD HEAT TREATMENT		NONE	NONE	

NOTES
(1) RX 100% ON LONGITUDINAL WELD OF NOZZLES FROM PLATE

WELDING EXAMINATIONS AND PWHT

FF) FOR STAINLESS STEEL WELDING AND OVERLAY, THE FERRITE CONTENT SHALL BE IN THE RANGE FROM 30 TO 70% ◇4
EE) STAINLESS STEEL INTERNAL SURFACES SHALL BE CLEANED AS PER SPECIFICATION DUPONT SG14.1S
DD) HYDRAULIC TEST PERFORMED USING WATER WITH A MAX 30 P.P.M. OF CHLORIDE AND TEMPERATURE MINIMUM OF 7°C.
CC) WELD DEPOSIT SHALL BE INSPECTED ACCORDING TO PARA D52 OF APPENDIX 'D' SPECIF. 22854-SP-000-D-001 REV.1
~~BB) BASE METAL WELDED JOINT SHALL BE INSPECTED AS PER CODE PRIOR TO CLAD RESTORATION WITH WELD DEPOSIT.~~ ◇4
AA) DYE PENETRANT SHALL BE CARRIED OUT AS FOLLOW :
◇4 - 100% ON WELDS OF NOZZLES TO SHELL OR HEADS.
- 100% ON WELDS OF ALL OTHER ATTACHEMENTS TO PRESSURE PARTS.

FABRICATION NOTES

8) IF NOZZLE NECKS ARE OBTAINED FROM PLATE, THE SAME SHALL BE 100% RADIOGRAPHED ON LONGITUDINAL JOINTS.
7) MATERIALS FOR PRESSURE PARTS AND IN CONTACT WITH PROCESS FLUID SHALL BE ACCORDING TO SPECIFIC. 2743-VB-FP-001 REV.03 PARAS '2.c' AND '2.h' AND '2.i' ◇4
6) MATERIALS FOR PRESSURE PARTS SHALL BE ACCORDING TO ASME II PART 'A' ED. 1992+94 ADD. ◇4
5) MINIMUM DESIGN METAL TEMPERATURE = 8°C : IMPACT TEST NOT REQUIRED ACC. TO ASME VIII DIV.1 ED. 1992+94 ADD. PARAS UCS66a) AND UHA 51(a)
4) CARBON STEEL MATERIALS FOR PRESSURE PARTS SUPPLIED IN NORMALIZED CONDITIONS.
3) CARBON STEEL MATERIALS FOR PRESSURE PARTS WITH CARB. CONT. 0.25% MAX.
~~2) NON ASBESTOS CARBON GRAPHITE FIBER WITH SBR BINDER KLINGER C4500 (SE T... (COIL SIDE GASKET MAT.)~~
1) SPIRAL WOUND Ti/PTFE GLASS FILLED 25% WITH Ti INTERNAL RING AND 316L S.S. EXTERNAL RING (4.44 mm THK.)(SHELL SIDE GASKET MAT.)

MATERIAL NOTES

Q) FOR WIND AND EARTHQUAKE SEE ALSO SPECIFICATIONS 22854-SP-000-A-002 Rev.2 PARA 3.5 AND 4.5 AND TABLES 1-2
P) BESIDES THE INSTALLED MATERIALS AT SHOP SHALL BE SUPPLIED THE FOLLOWINGS SPARE PARTS.
EXTERNAL PARTS:
-N° 2 SETS OF GASKETS FOR MAIN FLANGES CONNECTING DIFFERENT SECTIONS OF THE EQUIPMENT
-N° 2 SET OF GASKETS FOR EACH MANHOLE OR BLIND FLANGE
-STUD BOLTS AND NUTS: 10% WITH A MINIMUM OF 2 PIECES FOR EACH CONNECTION TYPE.
INTERNAL PARTS:
-BOLTS,NUTS,CLAMPS AND GASKETS: 10% WITH A MINIMUM OF 10 PIECES FOR EACH CONNECTION TYPE.
O) NOZZLE FLANGE CONTACT FACES MUST BE PROTECTED WITH MARINE PLYWOOD OR METAL COVERS COMPLETE OF RUBBER GASKET OR MALLEABLE OILED CLOTH.
N) BEFORE SHIPPING THE UNIT MUST BE CLEANED INTERNALLY DRAINED AND DRIED.
M) ALL UNQUOTED WELDS MUST HAVE SIDES EQUAL TO THE LOWER THICKNESS OF THE PLATES TO WELD.
L) FOR ALL REINFORCING PADS PROVIDE ONE 1/8" ANSI B1.20.1 NPT DIA. HOLE. PADS TO BE AIR TESTED AT 2 bar (g) AFTER THE PRESSURE MUST BE REDUCED TO 0.5 bar (g) AND ALL WELDS MUST BE TESTED FOR LEAKS WITH SOAP SOLUTION. VENT HOLES WILL BE LEFT OPEN AFTER TESTING. THE HOLES MUST BE FILLED WITH GREASE.
J) ALL INTERNAL AND EXTERNAL PARTS WELDED TO THE SHELL SHALL BE OF THE SAME MATERIAL WHICH CONSTITUTES THE SECTION OF THE SHELL WHERE THE PARTS WILL BE WELDED.
H) FLANGES ACCORDING TO STD. ANSI B16.5 - COUPLINGS ACCORDING TO ANSI B16.11 FULL LENGTH TYPE PER ANSI B1.20.1 TAPER PIPE THREADED - PIPES: CARBON STEEL ACCORDING TO ANSI B36.10 (SEAMLESS); STAINLESS STEEL PER ANSI B36.19 - PIPE FITTINGS ACCORDING TO ANSI B16.9.
G) ALL THICKNESSES SHOWN ON DRAWING EXCEPT FOR ELLIPTICAL HEADS ARE NOMINAL (FOR ELLIPTICAL HEADS ARE THE MINIMUM AFTER FORMING).
F) ALL REMOVABLE INTERNALS SHALL PASS THROUGH A MANHOLE SIZE (789 I.D.).
E) TRAY ELEVATIONS ARE REFERRED TO TOP OF SUPPORT RING.
D) ALL ELEVATIONS ARE MEASURED FROM BOTTOM TANGENT LINE.
C) UNLESS OTHERWISE INDICATED NOZZLE PROJECTIONS ARE MEASURED FROM EQUIPMENT CENTERLINE TO CONTACT FLANGE FACINGS.
B) UNLESS OTHERWISE INDICATED ALL GIRTH FLANGES AND FLANGE CONNECTIONS BOLT HOLES MUST BE STAGGERED TO MAIN AXIS OF THE EQUIPMENT.
A) UNLESS OTHERWISE NOTED ALL DIMENSIONS ARE IN MILLIMETERS.

GENERAL NOTES

REV No.	DATE	DESCRIPTION	DRAWN UP	CHECKED	APPROVED

SCALE: JOB No.

الشركة العربية للألياف الصناعية ابن رشد
ARABIAN INDUSTRIAL FIBERS Co.(IBN RUSHD)
YANBU SAUDI ARABIA

IBN RUSHD PTA PLANT
YANBU SAUDI ARABIA
350,000 MT/Y PTA PLANT

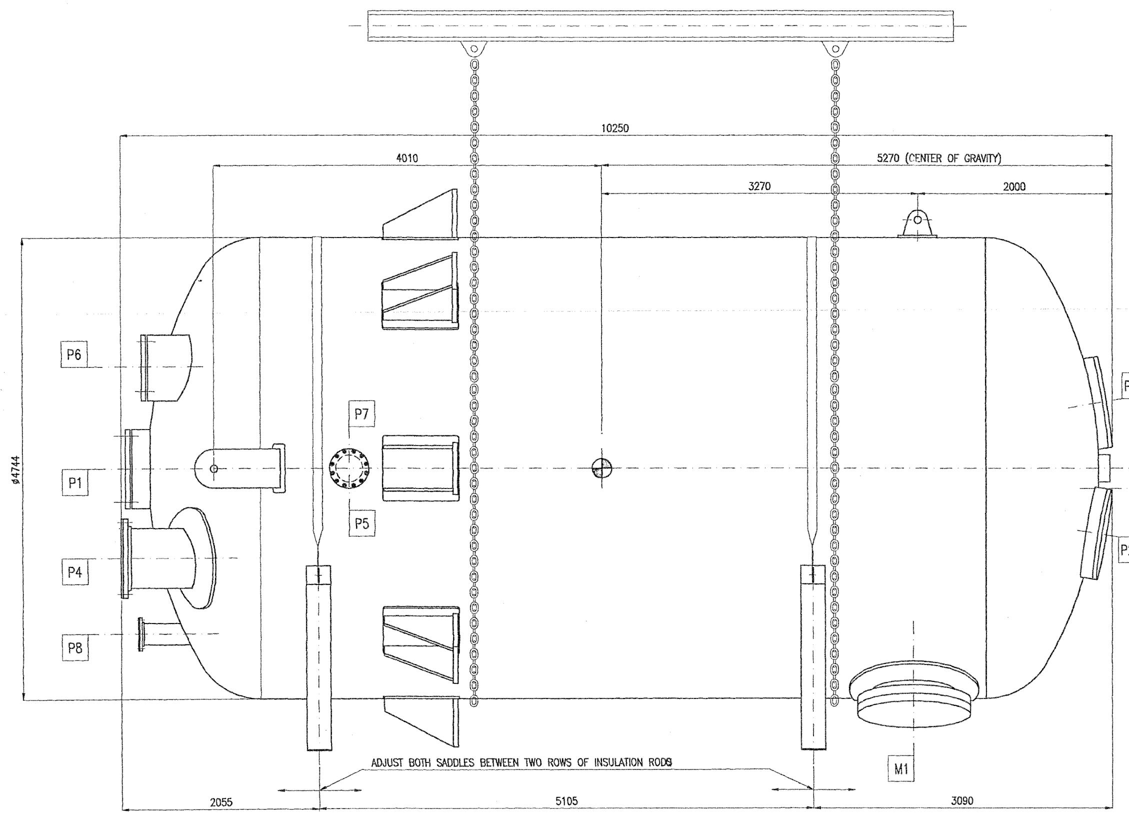
Plant Unit | DRAWING No. | SHEET | REVISION

ISSUE	DESCRIPTION	DRAWN UP	APPROVED	DATE
4	EMISSIONE FINALE FINAL ISSUE	FEDERICI	SILVESTRI	09-10-96
3	MODIFICATO SECONDO I COMMENTI TCM MODIFIED AS TCM COMMENTS	AZZARETTO	SILVESTRI	07-08-96
2	EMESSO PER APPROVAZIONE ISSUE FOR APPROVAL	AZZARETTO	SILVESTRI	23-05-96
1	EMESSO PER APPROVAZIONE ISSUE FOR APPROVAL	BOTTI C.	MURGIA	15-01-96

MANUFACTURER'S TRADE MARK: FBM HUDSON	MANUFACTURER'S DRAWING N°: 2225-05-000 SH.1	ISSUE: 1 2 3 4		TECNIMONT
YEAR: 1996	JOB: 2225	N° PIECES: 1	WORK NUMBER: 96/1047/01	SCALE: /
PLANT: PTA-YANBU SAUDI ARABIA		ITEM: 15 D 003		
SERVICE: STRIPPER STILL POT (ASSEMBLY DRAWING)				
DRAWN UP: AZZARETTO U.	APPROVED: MURGIA G.	DATE: 23-05-96		
PURCHASER: TECNIMONT		NOT TO BE REPRODUCED WHOLE DWG. PART NOR EMPLOYED FOR ANY PURPOSE OTHER THAN SPECIFICALLY PERMITTED WRITING.		
PURCHASER ORDER: W 040295 NG	MATERIAL REQUISITION: 2743-CD-MR-002			

CLIENT: ARABIAN INDFIBERS CO.LTD
CLIENT REF.: IBN RUSHD
PLANT LOCATION: YANBU SAUDI ARABIA
IDENTIFICATION CODE: JOB 2743 | C | D | V | D | N° 153
SHEET 001 | ISSUE 04

MR 2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5270 (CENTER OF GRAVITY)
3270
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P6
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P4
P8
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P5
P2A
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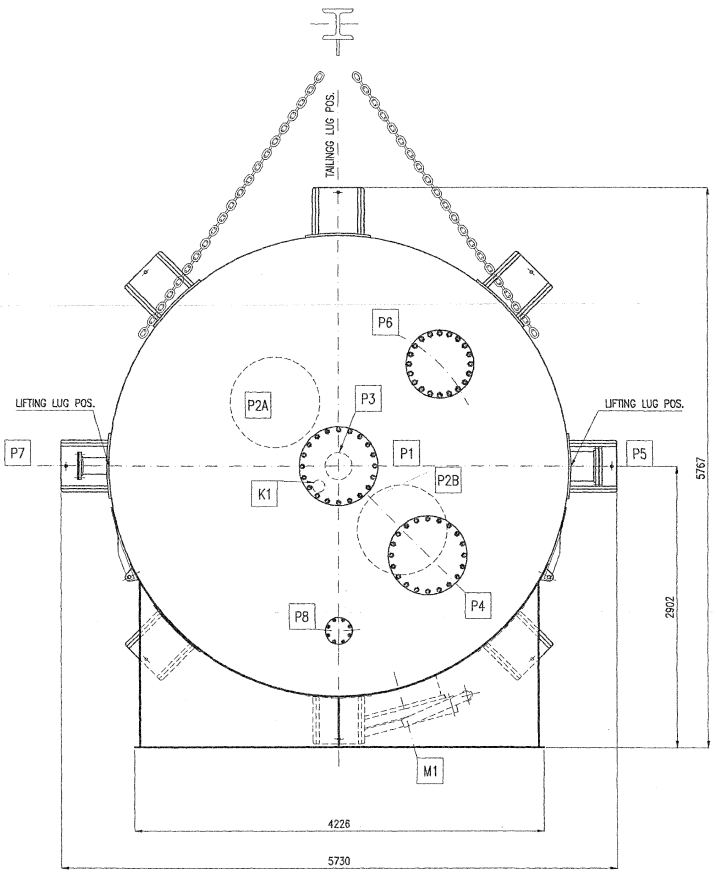
K1
P2B
M1
ADJUST BOTH SADDLES BETWEEN TWO ROWS OF INSULATION RODS
2055
5105
3090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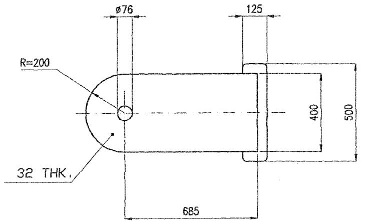
ø76
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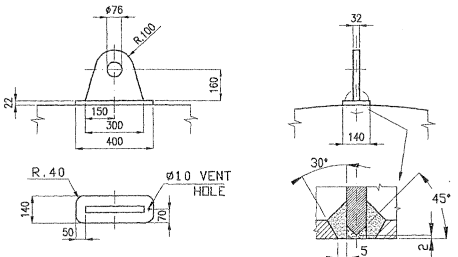
32 THK.
685

LIFTING LUGS DETAIL


ø76
R.100
22
160
150
300
400
R.40
ø10 VENT HOLE
140
50
70
32
140
30°
45°
5
2

TAILING LUG DETAIL

FINAL

7/1/97

4	PROTEZIONE CON AZOTO: NO	NITROGEN FILLED: NO	7		
3	I SERPENTINI DOVRANNO ESSERE MONTATI IN CANTIERE	*THE COILS SHALL BE MOUNTED IN FIELD*	6	RIMUOVERE I TONDI IN CORRISPONDENZA DELLE *SELLE PER IL TRASPORTO.* I TONDI RIMOSSI VERRANNO MONTATI IN CANTIERE	REMOVE THE RODS IN CORRISPONDENCE OF THE SPIPPING SADDLES. THE REMOVED RODS SHALL BE MOUNTED IN FIELD.
2	CHIUDERE TUTTI I BOCCHELLI CON DISCHI IN ACC. AL CARBONIO E PROTEGGERE LA SEDE GUARNIZIONE CON GUARNIZIONE IN ASB. FREE	ALL NOZZLES SHALL BE CLOSED WITH *C.S. DISK. SEAL GASKET SURFACES* SHALL BE PROTECTED BY ASB. FREE GASKETS	5	CONTRASSEGNARE IN OFFICINA I PUNTI DI IMBRAGAGGIO CHE DEVONO ESSERE ASSOLUTAMENTE RISPETTATI AL MOMENTO DEL SOLLEVAMENTO	MARK THE SLIDING POINTS IN SHOP. THEY SHALL BE ABSOLUTELY OBSERVED DURING LIFTING
1	MARCARE IL BARICENTRO CON VERNICE NERA *INDELEBILE*	MARK THE GRAVITY CENTER WITH *BLACK INDELIBLE PAINT*			

NOTE GENERALI – GENERAL NOTES

APPARECCHIO VUOTO EMPTY UNIT
35870 Kg
PESI – WEIGHT

Pos.	Description	Q.ty	Material	Dimensions
6				
5				
4				
3				
2	CLAMP	2	A-36	
1	LUG	2	A-36	THK=10

REV No.	DATE	DESCRIPTION	DRAWN UP	CHECKED	APPROVED

SCALE: JOB No.

الشركة العربية للألياف الصناعية ابن رشد
ARABIAN INDUSTRIAL FIBERS Co.(IBN RUSHD)
YANBU SAUDI ARABIA

IBN RUSHD PTA PLANT
YANBU SAUDI ARABIA
350,000 MT/Y PTA PLANT

Plant Unit	DRAWING No.	SHEET	REVISION

ISSUE	DESCRIPTION	DRAWN UP	APPROVED	DATE
3				
2				
1	EMESSO PER COSTRUZIONE ISSUED FOR CONSTRUCTION	MONTAGNESE	SILVESTRI	11-09-96

MANUFACTURER'S TRADE MARK: FBM HUDSON

MANUFACTURER'S DRAWING N° 2225-05-500

ISSUE 1

YEAR	JOB	N° PIECES	WORK NUMBER	SCALE
1996	2225-05	1	96/1047/01	1:25

PLANT PTA-YANBU SAUDI ARABIA

ITEM 15 D 003

SERVICE STRIPPER STILL POT (SHIPPING DRAWING)

DRAWN UP MONTAGNESE

APPROVED MURGIA G.

DATE 11-09-96

PURCHASER TECNIMONT

PURCHASER ORDER W040295 NG

MATERIAL REQUISITION 2743-CD-MR-002

NOT TO BE REPRODUCED WHOLE DWG. PART NOR ENPLOYED FOR ANY PURPOSE OTHER THAN SPECIFICALLY PERMITTED WRITING.

TECNIMONT

CLIENT ARABIAN IND.FIBERS CO.LTD

CLIENT REF. IBN RUSHD

PLANT LOCATION YANBU SAUDI ARABIA

IDENTIFICATION CODE

JOB				E	C	T		N°		
2	7	4	3	C	D	V	D	1	5	3

SHEET 006 ISSUE 01

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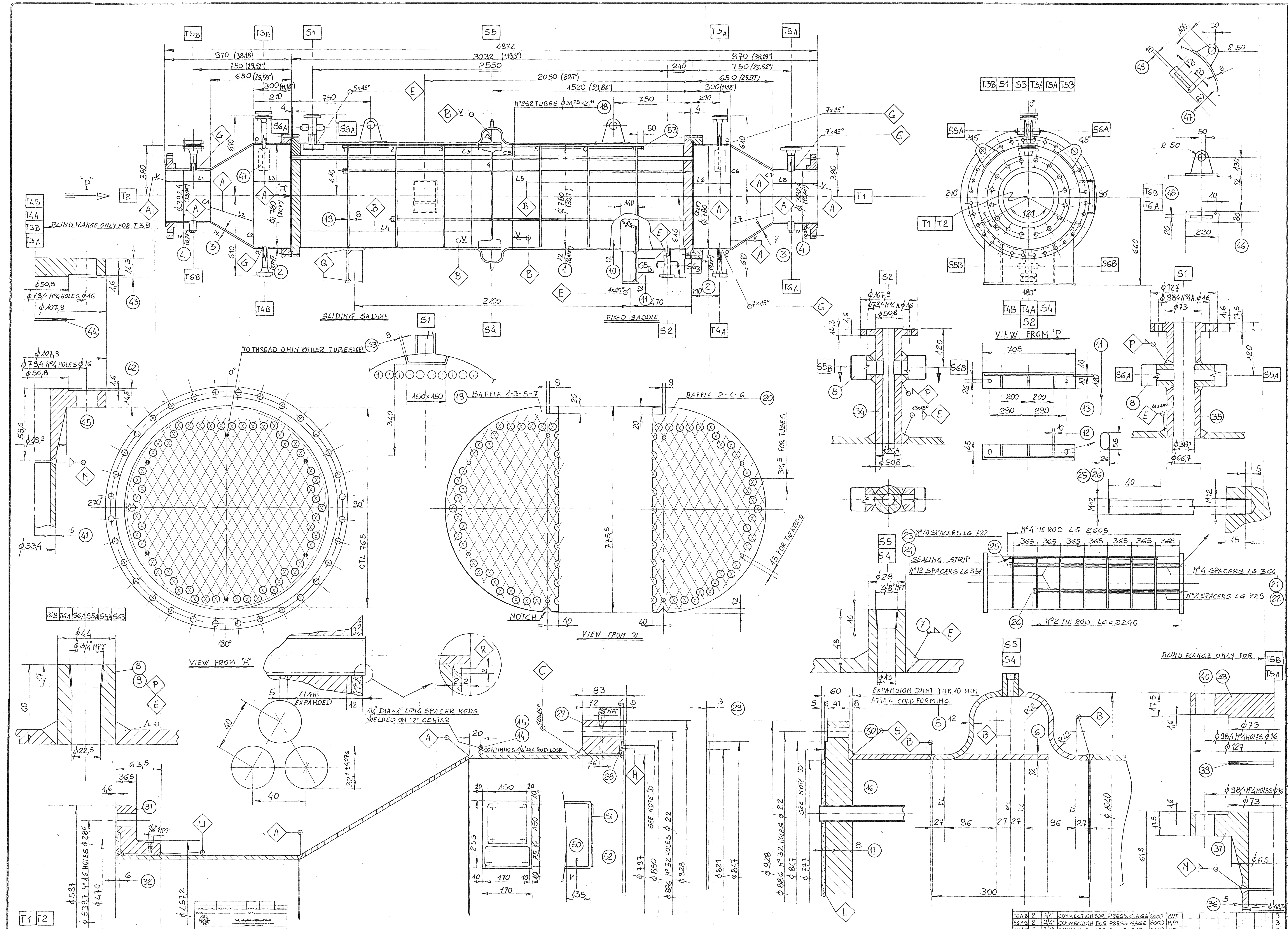
FOR EXCHANGER



REV No. | DATE | DESCRIPTION | DRAWN UP | CHECKED | APPROVED
SCALE | JOB No.
ARABIAN INDUSTRIAL FIBERS Co. (IBN RUSHD) YANBU SAUDI ARABIA
IBN RUSHD PTA PLANT
YANBU SAUDI ARABIA
350,000 MT/Y PTA PLANT
Plant Unit | DRAWING No. | SHEET | REVISION

POSITION	DESCRIPTION	N° PIECES	MATERIAL	SYMBOLISM	DIMENSIONS	NOTES
				○		
				○		
54				○		
53	SEALING STRIP	1	SA 285 Gr.C	○	⧸ 20×8	
52	NAME PLATE CLIENT	1	SA 240 304	○	THK.2	
51	NAME PLATE "ASME"	1	SA 240 304	○	THK.2	
50	NAME PLATE SUPPORT	1	SA 516 Gr.60	○	THK. 5	
49	LIFTING LUG	4	SA 285 Gr.C	○	THK. 15	
48	LIFTING LUG	2	SA 285 Gr.C	○	THK. 20	
47	REINFORCING PLATE	4	SA 240 316L	◐	THK. 8	
46	REINFORCING PLATE	2	SA 516 Gr. 60	◐	230×80×12	
45	BOLTS WITH 2 NUTS	4+2	SA 193 B7/A 194 2H	◐	1/2" UNC ×80	
44	GASKETS	1+2	SPIRAL WOUND 316L/PTFE WITH 316L INT. RING/C.S.E.R.	○	DN 1" ANSI 150# RF	
43	BLIND FLANGE	1	SA 182 F 316L	◐	DN 1" ANSI 150 bl. RF	
42	FLANGE DN1"	4	SA 182 F 316L	◐	DN 1" ANSI 150 WN RF	
41	NOZZLE DN 1"	4	SA 312 TP 316L	◐	ϕ33,4×5	
40	BOLTS WITH 2 NUTS	4+2	SA 193 B7/A 194 2H	◐	1/2" UNC×80	
39	GASKETS	1+2	SPIRAL WOUND 316L/PTFE WITH 316L INT. RING/C.S. EX.R.	○	DN 1 1/2" ANSI 150# RF	
38	BLIND FLANGE	1	SA 182 F 316L	◐	DN 1 1/2" ANSI 150 bl. RF	
37	FLANGE DN 1 1/2"	2	SA 182 F 316L	◐	DN 1 1/2" ANSI 150 WN RF.	
36	NOZZLE DN 1 1/2"	2	SA 312 TP 316L	◐	ϕ48,3×5	
35	FLANGE	1	SA 105	◐	DN 1 1/2" ANSI 150# LWN RF.	
34	FLANGE	1	SA 105	◐	DN 1" ANSI 150# LWN RF.	
33	IMPING. PLATE	1	SA 516 Gr. 60	○	THK. 8	
32	FLANGE LINING	2	WELD DEP. 316L	○	THK. 6	
31	FLANGE	2	SA 105	◐	DN 16" ANSI 150# SO RF	
30	BOLTS WITH 2 NUTS	64+6	SA 193 B7/A 194 2H	◐	ϕ3/4" UNC×190	
29	GASKETS	2+4	DOUBLE JACKETED AISI 316L WITH CER. FIB/Gr. IN.	○	ϕ847/821×3	
28	FLANGE LINING	2	WELD. DEP. 316L	◐	THK. 6	
27	MAIN FLANGE	2	SA 105	◐	ϕ928×83	
26	TIE RODS WITH 2 NUTS	2	SA 36	○	ϕ12	
25	TIE RODS WITH 2 NUTS	4	SA 36	○	ϕ12	
24	SPACERS	12	SA 312 TP 304	○	ϕ21,3×2×357	
23	SPACERS	10	SA 312 TP 304	○	ϕ21,3×2×722	
22	SPACERS	2	SA 312 TP 304	○	ϕ21,3×2×729	
21	SPACERS	4	SA 312 TP 304	○	ϕ21,3×2×364	
20	BAFFLES	3	SA 285 Gr C	○	THK. 8	
19	BAFFLES	4	SA 285 Gr.C	○	THK. 8	
18	TUBES	292	SA 213 TP 316L	◐	ϕ31,75×2,11 L=3050	
17	TUBESHEETS LINING	2	WELD. DEPOS. 316L	◐	THK. 8	
16	TUBESHEETS	2	SA 266 CL.2	◐	ϕ928×52	
15	INSULATION SUPPORT	2	AISI 304	○	ROD ϕ6	
14	INSULATION SUPPORT	16	AISI 304	○	ROD ϕ6	
13	REINFORCINGS	2	SA 285 Gr.C	○	THK. 10	
12	REINFORCINGS	6	SA 285 Gr.C	○	THK. 10	
11	BASE PLATE	2	SA 285 Gr.C	○	705×120×12	
10	REINFORCING PLATE	2	SA 516 Gr-60	◐	140×12	
9	COUPLING WITH PLUG	2	SA 182 F 316L	◐	DN 3/4" 6000 B1 20.1	
8	COUPLING WITH PLUG	4	SA 105	◐	DN 3/4" 6000 B1 20.1	
7	COUPLING WITH PLUG	2	SA 105	◐	DN 3/8" 6000 B1 20.1	
6	INTERNAL SHELL	1	SA 516 Gr.60	◐	THK. 12	
5	EXPANSION JOINT	2	SA 516 Gr.70	◐	THK. 12	
4	NOZZLE DN 16"	2	SA 240 316L	◐	THK. 7	
3	CONICAL RED.	2	SA 240 316L	◐	THK. 7	
2	SHELL HEAD	2	SA 240 316L	◐	THK. 7	
1	SHELL	2	SA 516 Gr.60	◐	THK. 12	

MATERIAL LIST

MATERIALS TEST SYMBOL		THICKNESSES TOLERANCE	
◉	MATERIAL TESTED BY OFFICIAL AUTHORITY	PLATES:	−0,25 mm
◐	MATERIAL WITH MANUFACTURER CERTIFICATE	PIPES:	−12,5%
○	MATERIAL WITHOUT CERTIFICATE	HEADS:	SEE NOTE (G)

DESIGN DATA

SIDE			SHELL		TUBES		NOTES
DESIGN CODES			ASME SECT. VIII DIV. 1 ED. 95 AD. '95				
TEMA CLASS			C				
CODE "U" STAMP			YES		YES		
INSPECTION AUTHORITY			LR INSURANCE				
PRESSURE (GAUGE) DESIGN	(PSI)	bar (g)	(116)	8/F.V.	(29)	2,0	
OPERATING	(PSI)	bar (g)	(63,8)	4,4	(0,72)	0,049	
EXTERNAL	(PSI)	bar (g)		/		/	
HYDROTEST IN WORKSHOP	(PSI)	bar (g)	(319)	22	(331)	22,83	
HYDROTEST IN FIELD	(PSI)	bar (g)	(203)	14	(245)	16,9	
M.A.P. (NEW AND COLD)	(PSI)	bar (g)	(284,9)	19,65	(220,6)	15,22	
M.A.W.P. (HOT AND CORR.)	(PSI)	bar (g)	(213,1)	14,7	(163,4)	11,27	
TEMPERATURE DESIGN	°F	°C	(356)	180	(356)	180	
OPERATING	°F	°C	(311)	155	(307,4)	153	
TUBE START-UP WALL-TEMP.	°F (PSI)	°C	(46,4 at 0)	8 at 0 barg	(104 at 29)	40 at 2 barg	
TUBESHEETS DESIGN	°F	°C	(356)	180	(356)	180	
MINIMUM DESIGN METAL TEMPERATURE			8 °C AT 8 bar		8 °C AT 2 bar		
CORROSION ALLOWANCE		mm	3		1,5		
FLUID TYPE			RECOVERY STEAM		RECICLE GAS		
PHYSICAL STATE			VAP. / LIQ		VAP		
SPECIFIC GRAVITY		kg/m³	/ 1000		1,15		
CAPACITY		m³	0,72		1,09		
NUMBER OF PASSES			1		1		
JOINTS EFFICENCY	SHELL		0,85		1		
	HEADS						
INSULATION		TYPE/THK.	MIN. WOOL 80		MIN. WOOL 50		
FIREPROOFING			NONE				
LOCATION			OUTDOOR				
WIND PRESSURE			ASCE 7.88 "EXPOSURE C"				
SEISMIC ZONE			ASCE 7.88 "ZONE 1"				
SHELL START-UP WALL TEMP. (°F PSI)		°C	(311 at 116)	155 at 8 barg	(311 at 0)	155 at 0 barg	

LOADS AT BASE		OPERATING	HYDROTEST	EARTHQUAKE
VERTICAL LOAD	kN	41,4	55,5	41,4
SHEAR	kN	2,6	0,63	2,34
MOMENT	kNm	1,66	0,43	1,55

SUPPLY WEIGHT (MASS)	3570	kg	BUNDLE WEIGHT		kg
WEIGHT FULL OF WATER	5380	kg	SADDLES MOVEMENT	5	mm
SURFACES (IN FIELD)			PAINTING (IN WORK SHOP): SANDBLASTING: GRADE SA 2,5 INORGANIC ZINC SILICATE COATING PRIMER (1×75 μm) FOR STAINLESS STEEL EXTERNAL PART: PICKLING BY PASTE ON WELDINGS AND PROTECT BY TECTYL		
INSULATION (MEDIUM SURFACE)	13	m²			
SHEETS FOR INSULATION JACKETING	14,5	m²			
FINAL PAINTING (CARBON STEEL PARTS)	2	m²			

ZONE RESERVED FOR APPROVAL STAMPS

ISSUE	DESCRIPTION	DRAW.	DATE	T.M.	DATE	Q.C.M.	DATE
4	ISSUED FINAL		18/11/96	Del Maso	18/11/96		18/11/96
3	ISSUED FINAL	Se	17/09/96	Del Maso	17/09/96		17/09/96
2	CORRECT AS COMMENT	Se	17/07/96		25/07/96		02/09/96
1	ISSUED FOR APPROVAL	Se	2/05/96		10/06/96		11/06/96

ITEM	PIECES	DN	SERVICE	FLANGE RATING	FLANGE TYPE	FLANGE FACING	NOZZLE O.D.	NOZZLE THK.	REINF. PAD O.D.	REINF. PAD THK.	NOTES
T6A-B	2	3/4"	CONNECTION FOR PRESS. GAGE	6000	NPT						3
S6A-B	2	3/4"	CONNECTION FOR PRESS. GAGE	6000	NPT						3
S5A-B	2	3/4"	CONNECTION FOR TEMPERAT.	6000	NPT						3
S5	1	3/8"	VENT	6000	NPT						3
S4	1	3/8"	DRAIN	6000	NPT						3
S2	1	1"	SHELL-OUT	150#	LWN	RF					
S1	1	1 1/2"	SHELL-IN	150#	LWN	RF					2
T5B	1	1 1/2"	THERMOWELL	150#	WN	RF	48,3	5	/	/	1
T5A	1	1 1/2"	THERMOWELL	150#	WN	RF	48,3	5	/	/	
T4A-B	2	1"	DRAIN	150#	WN	RF	33,4	5	/	/	
T3B	1	1"	VENT	150#	WN	RF	33,4	5	/	/	1
T3A	1	1"	VENT	150#	WN	RF	33,4	5	/	/	
T2	1	16"	TUBE OUT	150#	SO	RF	406,4	7	/	/	
T1	1	16"	TUBE IN	150#	SO	RF	406,4	7	/	/	

LIST OF CONNECTIONS

NOTES
1) WITH BLIND FLANGE
2) WITH IMPING. PLATE
3) WITH PLUG

FLANGES SEALING SURFACE FINISHING
NOZZLE FLANGE SURFACE FINISHING
SHELL SIDE: 125÷500 μin AARH
TUBE SIDE: 125÷250 μin AARH

NUMBER	ISSUE	TITLE
2743CESG330	1	FLANGES TYPE
ASME/ANSI B16.5		FLANGES TYPE
2743VEFP001	2	HEAD EXCANGERS GEN. NOTES
DU-PONT GSE		HEAT EXCANGER INSTALLAT.
2743-CE-DX-151	3	SETTING PLAN
2743-CE-MR-015	2	MATERIAL REQUISITION
9585		ASSEMBLING DRAWING
9648		TRANSPORTATION SCKETCH
9647		WELDING MAP

DRAWINGS AND SPECIF. REFERENCE

POSITION	WELDING PROCESS	FILLER METALS	N° WPS	N° PQR
R	GTAW	AWS A5.9 ER316L	S167/A	P039
Q	SMAW	AWS A5.1 E7018-1	S34/A	2823
P-S	GTAW+SMAW	AWS A5.18 ER70S-3 AWS A5.1 E7018	S162/A	P034
N	GTAW+SMAW	AWS A5.9 ER316L AWS A5.4 E316-16	S110/A	P008
H-L-T	GMAW+GMAW	AWS A5.9 ER309L AWS A5.9 ER316L	157/A	P030
G	SMAW	AWS A5.9 ER316L	S19/A	2147
E	SMAW	AWS A5.1 E7018-1	S34/C	2823
C-U	SMAW	AWS A5.4 E309Mo16	S35/A	2824
B	SMAW+SAW	AWS A5.1 E7018-1 AWS A5.17 EH12K	S156/A	P029
A	SMAW+SAW	AWS A5.4 E316L-15 AWS A5.9 ER316L	S21/A	2149

WELDING PROCESS
SMAW: SHIELDED METAL-ARC WELDING
GTAW: GAS TUNGSTEN-ARC WELDING
SAW : SUBMERGED-ARC WELDING
GMAW: GAS METAL-ARC WELDING
FCAW: FLUX CORED-ARC WELDING

WELDING DESCRIPTIONS

SIDE		SHELL	TUBES	NOTES
TEST COUPONS FOR WELDED HEADS				
PRODUCTION TEST COUPON				
TEST CATEGORY				
UT: ULTRASONIC EXAMINATION				
MT: MAGNETIC PARTICLE EXAMINATION				
PT: LIQUID PENETRANT EXAMINATION		100%	100%	
RT: RADIOGRAPHIC EXAMINATION	SHELL	SPOT 15%	100%	1
	HEADS			
PWHT: POSTWELD HEAT TREATMENT		EXP. JOINT	NO	

NOTES
1) EXP. JOINT 100%

WELDING EXAMINATIONS AND PWHT

S) TOLLERANCES ACCORDING TO TECNIMONT STD. 300.99/95
R) APPLICABLE STANDARD B1.20.1-83/B16.5-88/B16.11-91/B36.10-94/B16.9-93
Q) TUBE SIDE MECHANICAL STABILITY CHECKED FOR ADDITIONAL DESIGN CONDITION AS FOLLOWS: DES. PRESS. 9 BARG A DES. TEMP. 100 °C
P) BESIDES THE INSTALLED MATERIALS AT SHOP SHALL BE SUPPLIED THE FOLLOWINGS SPARE PARTS:
- N° 2 SETS OF GASKETS FOR GIRTH FLANGES.
- N° 1 SETS OF GASKETS FOR EACH BLIND FLANGE.
- STUD BOLTS AND NUTS: 10% WITH A MINIMUM OF 2 PIECES FOR EACH CONNECTION TYPE.

O) NOZZLE FLANGE CONTACT FACES MUST BE PROTECTED WITH MARINE PLYWOOD OR METAL COVERS COMPLETE OF RUBBER GASKET OR MALLEABLE OILED CLOTH.
N) BEFORE SHIPPING THE UNIT MUST BE CLEANED INTERNALLY DRAINED AND DRIED.
M) ALL UNQUOTED WELDS MUST HAVE SIDES EQUAL TO THE LOWER THICKNESS OF THE PLATES TO WELD.
L) FOR ALL REINFORCING PADS PROVIDE ONE 1/8" ANSI B1.20.1/83 NPT DIA. HOLE. PADS TO BE AIR TESTED AT 2 bar (g); AFTER THE PRESSURE MUST BE REDUCED TO 0.5 bar (g) AND ALL WELDS MUST BE TESTED FOR LEAKS WITH SOAP SOLUTION. VENT HOLES WILL BE LEFT OPEN AFTER TESTING. THE HOLES MUST BE FILLED WITH GREASE.
I) ALL INTERNAL AND EXTERNAL PARTS WELDED TO THE SHELL SHALL BE OF THE SAME MATERIAL WHICH CONSTITUTES THE SECTION OF THE SHELL WHERE THE PARTS WILL BE WELDED.
H) FLANGES ACCORDING TO STD. ANSI B16.5/88 - COUPLINGS ACCORDING TO ANSI B16.11/91 FULL LENGTH TYPE PER ANSI B1.20.1-83 TAPER PIPE THREADED - PIPES: CARBON STEEL ACCORDING TO ANSI B36.10/94 (SEAMLESS); STAINLESS STEEL PER ANSI B36.19 - PIPE FITTINGS ACCORDING TO ANSI B16.9.-93
G) ALL THICKNESSES SHOWN ON DRAWING EXCEPT FOR ELLIPTICAL HEADS ARE NOMINAL (FOR ELLIPTICAL HEADS AND EXPANSION JOINTS ARE THE MINIMUM AFTER FORMING).
F) THE EVENTUAL CORROSION IN THE PROJECT DATA IS NOT TO BE APPLIED TO THE BUNDLE TUBES FOR WHICH IS ZERO.
E) TUBE HOLES EDGES IN BAFFLES TO BE CHANFERED.
D) GIRTH FLANGES AND TUBESHEETS SEALING SURFACE SHALL HAVE SMOOTH FINISH WITH A CENTER LINE AVERAGE Ra−2,0 μm (80 μin) PER ANSI B46−1.
C) UNLESS OTHERWISE INDICATED NOZZLE PROJECTIONS ARE MEASURED FROM EQUIPMENT CENTERLINE TO CONTACT FLANGE FACINGS.
B) UNLESS OTHERWISE INDICATED, ALL GIRTH FLANGES AND FLANGE CONNECTIONS BOLT HOLES MUST BE STAGGERED TO MAIN AXIS OF THE EQUIPMENT.
A) UNLESS OTHERWISE NOTED ALL DIMENSIONS ARE IN MILLIMETERS.

FF) MINIMUM THICKNESS OF WELDING DEPOSIT ON FLANGES FACE, AFTER MACHINING, SHALL BE 1,5 TIMES THE CLADDING THICKNESS WITH 4 mm AS MINIMUM.
EE) STAILESS STEEL INTERNAL SURFACE SHALL BE CLEANED AS PER SPECIFICATION DUPONT SG.14.1.S.
DD) HYDRAULIC TEST PERFORMED USING WATER WITH A MAX. 50 P.P.M. OF CHLORIDE AND TEMPERATURE MINIMUM OF 7 °C.
CC) WELD DEPOSIT SHALL BE INSPECTED ACCORDING TO PARA D5.2 OF APPENDIX "D" SPECIF. 22854-SP-000-D-001 REV.1.
BB) BASE METAL WELDED JOINT SHALL BE INSPECTED AS PER CODE PRIOR TO CLAD RESTORATION WITH WELD DEPOSIT.
AA) DYE PENETRANT SHALL BE CARRIED OUT AS FOLLOW:
- 100% ON WELDS OF NOZZLES TO SHELL OR HEADS
- 10% ON WELDS OF ALL OTHER ATTACHEMENTS TO PRESSURE PARTS

FABRICATION NOTES

7) MATERIALS FOR PRESSURE PARTS AND IN CONTACT WITH PROCESS FLUID SHALL BE ACORDING TO SPECIF. 2743-VB-FB-001 REV. 03 PARA "1B" AND "2B".
6) MATERIAL FOR PRESSURE PARTS SHALL BE ACCORDING TO ASME II PART. "A" ED. 1995./ADD. 95
5) MINIMUN DESIGN METAL TEMPERATURE = 8 °C: IMPACT TEST NOT REQUIRED ACC. TO ASME VIII DIV. 1 ED. 1995 ADD. 95 PARA UCS (66) AND UHA 51 (a).
4) CARBON STEEL MATERIALS FOR PRESSURE PARTS SUPPLIED IN NORMALIZED CONDITIONS.
3) CARBON STEEL MATERIALS FOR PRESSURE PARTS WITH CARBON CONT. 0,25%

1) 4.44 THK. GASKET SPIRAL WOUND 316L S.S./PTFE GLASS FILLED 25% WITH 316L S.S. INTERNAL RING AND C.S. EXT. RING (SHELL SIDE GASKET MATERIAL).

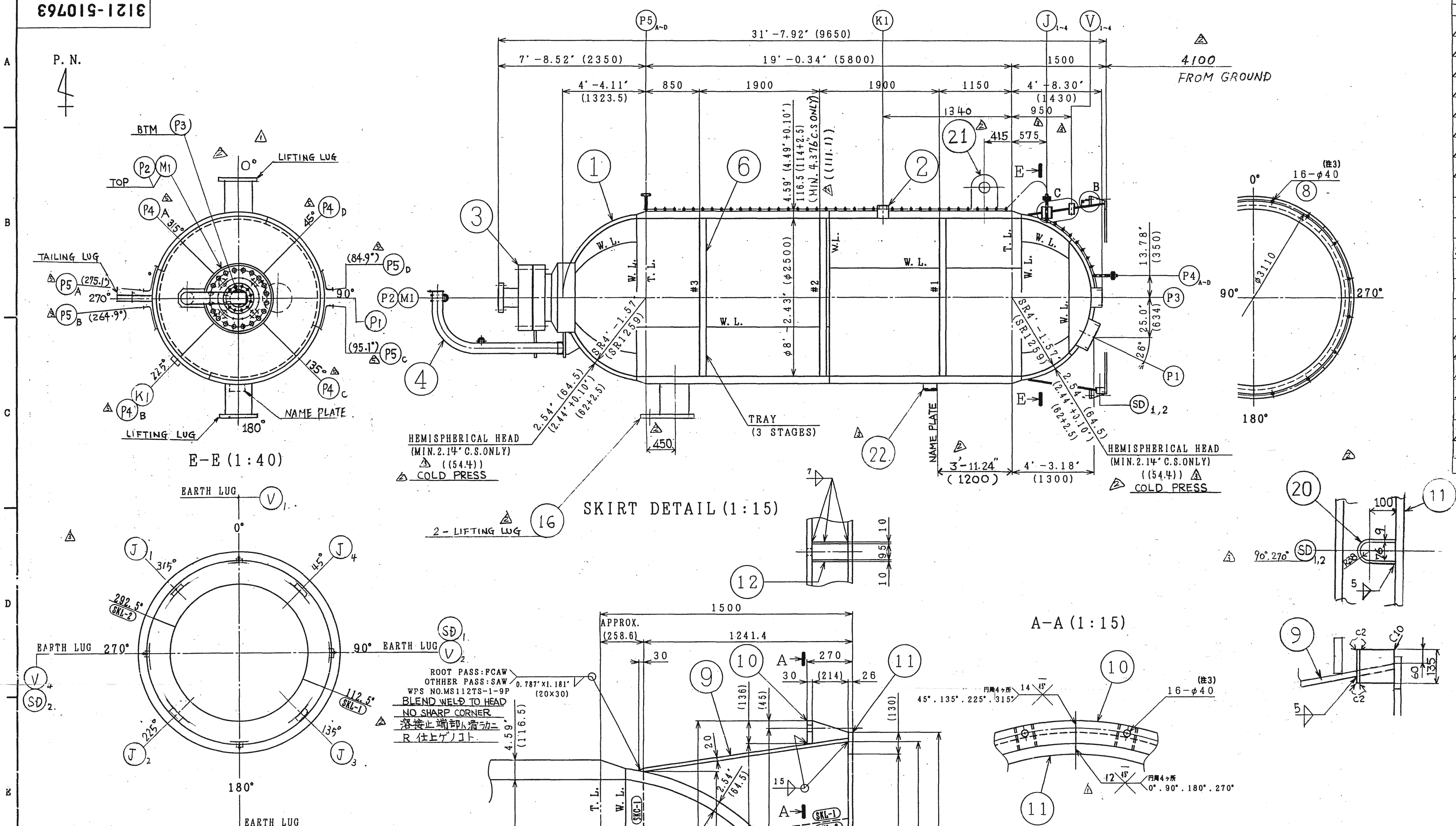
MATERIAL NOTES

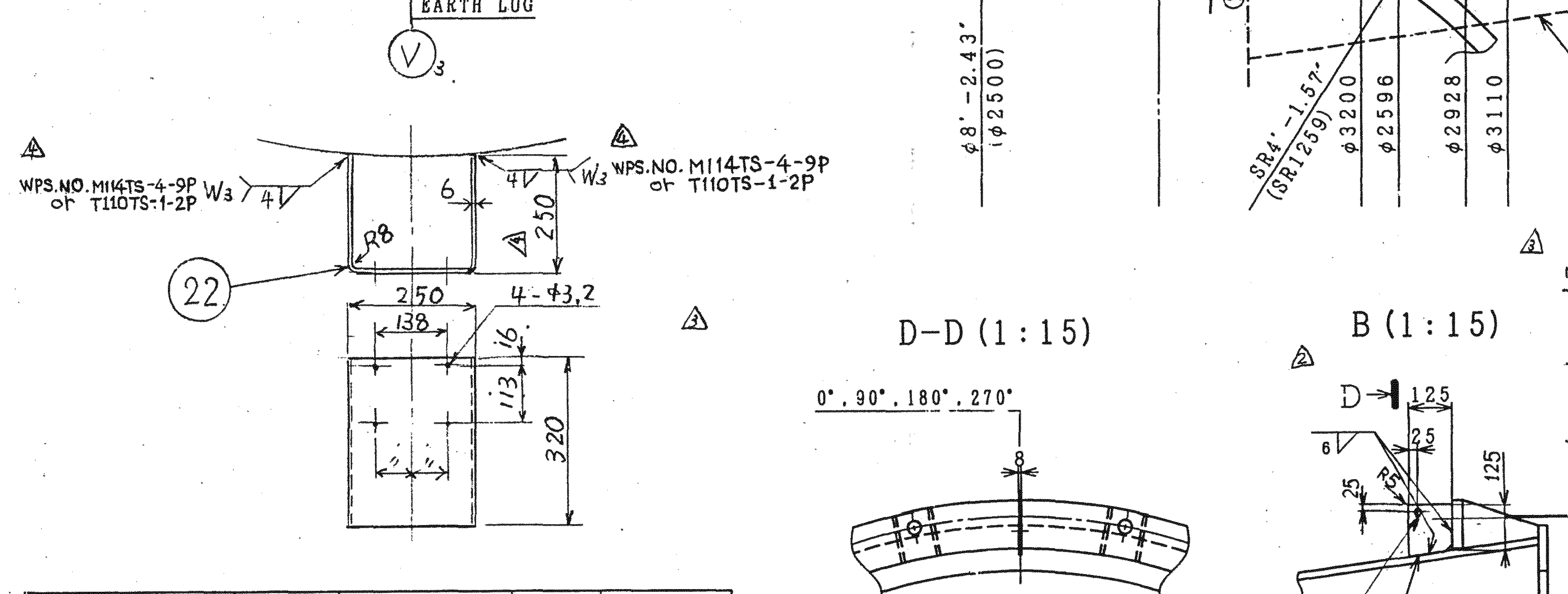
GENERAL NOTES

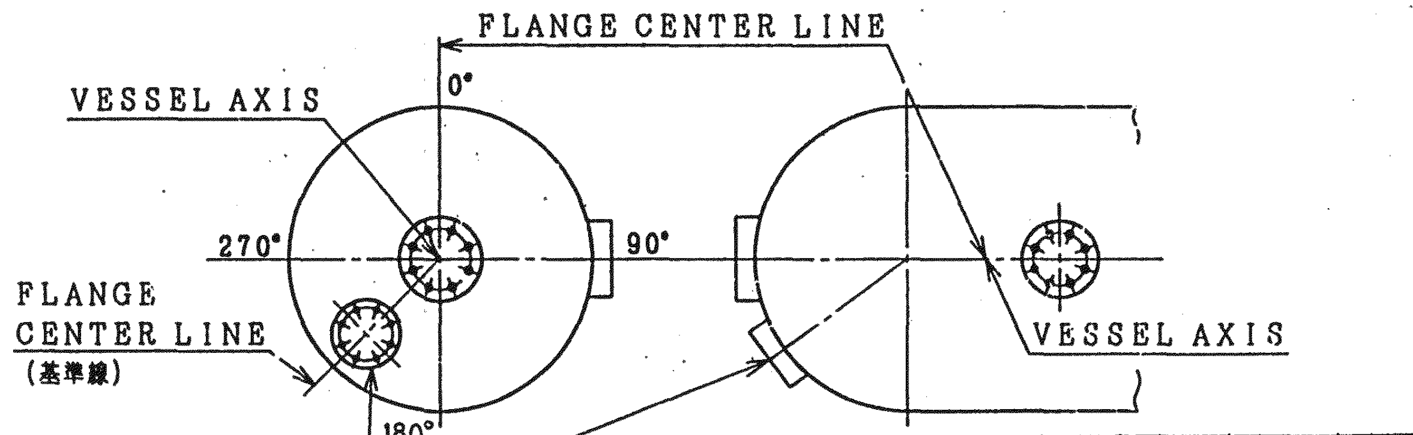
MANUFACTURER'S TRADE MARK: DETTIN S.p.A. SCHIO ITALY			MANUFACTURER'S DRAWING N° 9646 ISSUE 1 2 3 4		TECNIMONT CLIENT ARABIAN IND. FIBERS CO. LTD CLIENT REF. IBN RUSHD	
YEAR 1996	JOB 98	N° PIECES 1	WORK NUMBER 866	SCALE 1:10	PLANT LOCATION YANBU SAUDI ARABIA	
PLANT PTA-YANBU SAUDI ARABIA			ITEM 15E001		IDENTIFICATION CODE JOB 2743 E C C E T V D N° 151	
SERVICE TA DRYER RECYCLE GAS HEATER						
TYPE BEM HORIZ.			SURFACE m² 88			
DRAWN UP Se 2/05/96	TM 10/06/96		QCM 11/06/96		SHEET 2	ISSUE 4
PURCHASER TECNIMONT			NOT TO BE REPRODUCED WHOLE DWG. PART NOR ENPLOYED FOR ANY PURPOSE OTHER THAN SPECIFICALLY PERMITTED WRITING.			
PURCHASER ORDER W040326NG	MATERIAL REQUISITION 2743-CE-MR-015					

3121-510763

P. N. 4


31'-7.92" (9650)
7'-8.52" (2350)
19'-0.34" (5800)
1500
4'-4.11" (1323.5)
850
1900
1900
1150
4'-8.30" (1430)
1340
950
415
575
4100 FROM GROUND
HEMISPHERICAL HEAD (MIN. 2.14" C.S. ONLY) (54.41) COLD PRESS
TRAY (3 STAGES)
W. L.
T. L.
#3
#2
#1
φ8'-2.43" (φ2500)
SR4'-1.57 (SR1259)
3'-11.24" (1200)
4'-3.18" (1300)
450
NAME PLATE
2-LIFTING LUG
SKIRT DETAIL (1:15)
E-E (1:40)
BTM
TOP
LIFTING LUG
TAILING LUG
NAME PLATE
EARTH LUG
A-A (1:15)
16-φ40
φ3110
1500
1241.4
APPROX. (258.6)
ROOT PASS: FCAW
OTHERR PASS: SAW
WPS NO. MS112TS-1-9P
BLEND WELD TO HEAD
NO SHARP CORNER
溶接止端部ハ滑ラカニ
R 仕上ゲノコト
φ2596
φ2928
φ3110
φ2800
φ2950
φ3060


WPS. NO. M114TS-4-9P or T110TS-1-2P
250
138
4-φ3.2
320
D-D (1:15)
0°. 90°. 180°. 270°
B (1:15)


FLANGE CENTER LINE
VESSEL AXIS
FLANGE CENTER LINE (基準線)
VESSEL AXIS
INCLINING NOZZLE (傾キノズル)
0°
90°
270°
180°

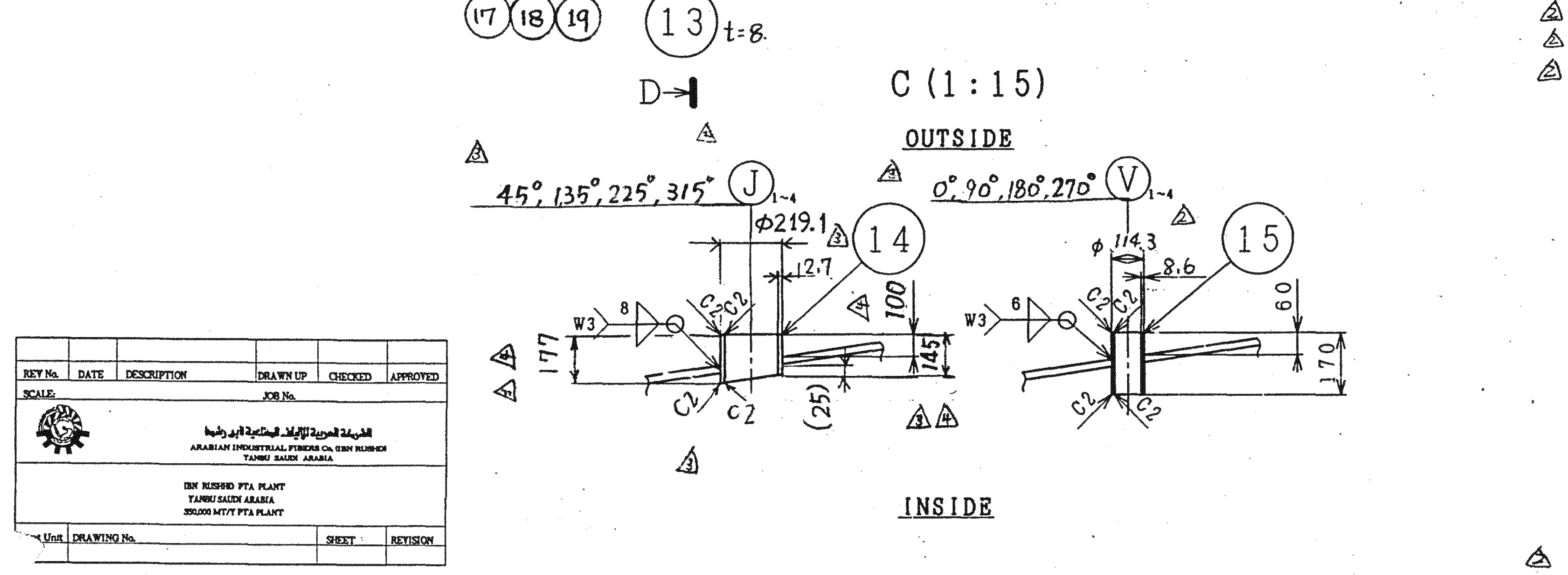
GROUP & QTY. D	C	B	A	REV. SYM.	SHOP 部署	PT. NO. 品番	NAME OF PARTS 部品名	CLASS CODE 類別コード		DWG. NO. (STD. PT. CODE) 図番(型番)	MATERIAL 材料
		B	A			1	SHELL&HEAD			1-510754	ASSEMBLY
		C	A+B			2	NOZZLE			1-510756	〃
	D	C	A+B			3	MANHOLE			1-510759	〃
			A+B	△3 △2		4	MANHOLE DAVIT			2-508858	〃
			A+B+C+D+E	△3 △2		5	HEATING COIL			1-510761	〃
	C		A+B	△3 △2		6	TRAY			2-508856	〃
		B	A+C	△3 △2		7	LUGS			1-510762	〃
		B	A			8	TEMPLATE			2-508857	ASSEMBLY
2				△1	SBP	9	SKIRT				SA516Gr70
4				△4	SB	10	SUPPORT RING				SA516Gr70
4				△1	SB	11	BASE PLATE				SA516Gr70
32					SB	12	RIB				SA516Gr70
4					SB	13	EARTH LUG				SUS304
4				△2	SB	14	COIL OPENING				SA106GrB
4				△2	SB	15	VENT				SA106GrB
			A	△3		16	LIFTING LUG			1-510762	ASSEMBLY
		4J		△3 △2		17	BOLT ½-13UNC×40				SUS304
		4E		△3 △2		18	NUT ½-13UNC				SUS304
		4		△2	GQ	19	F-WASHER M12				SUS304
2				△2	SB	20	SKIRT DRAIN				SA516Gr70
			A	△3		21	TAILING LUG			1-510762	ASSEMBLY
1				△3	SP	22	NAME PLATE SADDLE				SA516Gr70
A				△3		23	NAME PLATE			2-715993	SUS304

NOTES

1. THE DESIGN, FABRICATION, INSPECTION AND TESTING SHALL COMPLY WITH REQUIREMENTS OF THE CODE AND PURCHASER. △5
2. REFER TO SHEET NO. "96C01021 Rev. 2" FOR N. D. E. PROCEDURE AND DIMENSIONAL TOLERANCE.
3. HYDRO'C TEST SHOULD BE DONE AT MIN. 76.4°F (24.7℃) TEMP. △2
4. SHELL DESIGN PRESS.: F.V. at 212°F & 1450.746 psiG (F.V. at 100℃ & 102kg/cm²G, 100barG)
   COIL DESIGN PRESS.: 217.56 psiG (15.30kg/cm²G, 15barG) △2
5. IMPACT TEST TOP & BOTTOM HEADS: NONE
   SHELL : YES △1 △2
   (REFER TO DOCUMENT NO. DVK-M37-V505 Rev. 3 "DESIGN CALCULATION") △3
6. LOCATION OF FLANGE BOLT HOLE SHALL BE AS FOLLOWING SKETCH.

△3

7. MAX. ALLOWABLE WORKING PRESSURE
   1452.13 PSIG (100.14 barG) AT 600.8°F
   MAX. ALLOWABLE PRESSURE
   1460.57 psiG (100.73 barG) AT 76.4°F
8. HYDRO'C TEST PRESSURE
   1) SHOP HYD. TEST (BASE ON M.A.P)
   2187.3 PSIG (153.9 kg/cm², 150.8 barG) AT HORIZONTAL POSITION.
   2) FIELD HYD. TEST (BASE ON M.A.W.P)
   2178.2 psiG (150.22 barG) AT VARTICAL POSITION.


C (1:15)
OUTSIDE
45°, 135°, 225°, 315°
0°, 90°, 180°, 270°
φ219.1
φ114.3
INSIDE

VESSEL DESIGN DATA

SECTION		SHELL	COIL
REQ'D NO.		1 SET	
△2 CONTAINING CAPACITY		37.4 m³	0.038×4 m³
△2 FLUID NAME (LETHAL SUBSTANCES)		TA + WATER (NONE)	HOT OIL (NONE)
△2 FLUID DENSITY		840 kg/m³	805 kg/m³
CODE		ASME SECT. Ⅷ DIV. 1 1995 EDITION (NO ADDENDA)	
DESIGN	PRESS.	NOTE 4	NOTE 4
	TEMP.	600.8° F (316℃)	644° F (340℃)
△2 OPERATING	PRESS.	1065.99psiG (74.95kg/cm², 73.5barG)	72.52psiG (5.1kg/cm², 5barG)
	TEMP.	545° F (285℃)	600.8° F (316℃)
△2 TEST PRESS.	HYDRO'C	△3 NOTE 8	326.3 psiG (22.95kg/cm²G, 22.5barG)
	PNEUM'C	N/A	N/A
POST WELD H. T.		YES	NONE
RADIOGRAPH		FULL	FULL
JOINT EFFICIENCY		1.00	1.00
CORR. ALLOWANCE		OUTSIDE 0mm INSIDE 0.08" (2) mm (T1)	OUTSIDE 0mm INSIDE 0.04" (1.0) mm
INSPECTION AUTHORITY		AI	—
CODE STAMP		YES	NONE
△2 INSULATION (BY OTHER)		CELLULAR GLASS/170 mm THK.	
△2 PAINTING		AS PER (HTC) SPEC. NO. DVE-M37-V009	
△2 SURFACE FINISH (INT.)		ACCORDING TO DUPONT Spec. SWIP – 100% IRON FREE	
CORR. INHIBITOR		NONE	
SCREW THREAD		UNIFIED SCREW	
WEIGHT	EMPTY (VESSEL ONLY)	158733LB (72000kg)	
	OPERATING	—	
	TESTING	239643LB (108700kg)	
SPARE (S)		AS PER SPARE PARTS LIST	
ACCESSORIES		TEMPLATE FOR FOUNDATION	
SAFETY VALVE		PRESSURE RELIEF VALVE TO BE PROVIDED AND INSTALLED ON PIPING CONNECTING WITH NOZZLE (P2) BY USER	
VACUUM LEAK TEST		NONE	
MIN DESIGN METAL TEMP.		46.4° F (8℃)	46.4° F (8℃)
IMPACT TESTING		NOTE 5	—
N. D. E	UT	NOTE 2	—
	MT		
	PT		
MAX. ALLOWABLE WORKING PRESSURE		△3 NOTE 7.	
△2 INSTALLATION		OUTDOOR	

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T									
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S	3								
Q	2								
[illegible]	2								
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ヤ									
ス									
ヨ	△2	SD1,2	76×100	2	—	—	SKIRT DRAIN		
ア									
エ		V1~4 △2	4"	4	—	—	SKIRT VENT		
ト		J1~4	6"	4	—	—	P4A~D OPENING		
カ		K1 △2	2"	1	PAD-LF	ANSI 900#	TEMPERATURE CONNECTION	1450	
運ム		M1	24"	1	LWN-LF	ANSI 900#	MANHOLE		W/B. FL & DAVIT
								△2	
O		P5A~D	1"	4	WN-RF	ANSI 300#	HOT OIL OUTLET	1650	
G		P4A~D	1"	4	WN-RF	ANSI 300#	HOT OIL INLET		
ケ	/	P3	4"	1	PAD-LF	ANSI △2 900#	DRAIN		VALVE用
輪	/	P2	8"	1	LWN-LF	ANSI 900#	LIQUID OUTLET		
抜管	1	P1	8"	1	PAD-LF	ANSI 900#	FEED INLET		VALVE用
設	2	MARK	SIZE	REQ'D	NECK	RATING	SERVICE	PROJ. C. L. TO FACE	REMARKES
合計		NOZZLE SCHEDULE							

ASME

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MANUFACTURER'S TRADE MARK: Hitachi, Ltd. Tokyo Japan		MANUFACTURER'S DRAWING N°: 3121-510763 ISSUE 0 1 2 3 4 5			TECNIMONT
YEAR 1996	JOB 91907	N° PIECES 1	WORK NUMBER 81827	SCALE 1:40	CLIENT ARABIAN IND. FIBERS CO., LTD. CLIENT REF. IBN RUSHD PLANT LOCATION YANBU SAUDI ARABIA
PLANT PTA-YANBU SAUDI ARABIA			ITEM 22D001		IDENTIFICATION CODE JOB 2743 E C T N° C D V D 2 2 1
SERVICE PTA FEED DISSOLVER					
DRAWN UP T.YANAGI	APPROVED T.TAKATA		DATE SEP. 30 1996		SHEET 004 ISSUE 04
PURCHASER TECNIMONT		NOT TO BE REPRODUCED WHOLE DWG. PART NOR ENPLOYED FOR ANY PURPOSE OTHER THAN SPECIFICALLY PERMITTED WRITING.			
PURCHASER ORDER W040255NG	MATERIAL REQUISITION 2743CR-MR-005				

SYM. 記号	ZONE 区域	REVISIONS 来歴	DATE 年月日	REVD. 訂正	CHKD. 審査	APPD. 承認	RE. DWG.	RE. O. D.	RE. D. B.
△5		ADDED NOZZLE ORI. FOR HEATING COIL. REVISED REV.NO. OF DESIGN CALCU. AND N.D.T PROCEDURE.	96.09.30	T.YANAGI H.MIZUKI	96-10-01 S.MORITA	96.10.01 T.TAKATA			
△4		REVISED DIMENSION OF PARTS No. 22, 14 ADD. WPS No. FOR PART NO. 22	96.08.26	Y.NAKATANI H.MIZUKI	96-08-13 S.MORITA	96.08.17 T.TAKATA	/	/	0821
△3		REVISED MIN THK' OF HEAD ADD DIMENSION OF PART No. 14 ADD. NOZZLE ORI. J1~4, V1~4, SD1,2 ADD. PART No. 22, 23 ADD. MAX. ALLOWABLE WORKING PRESS. ADD. TEST PRESS.	96-07-12	Y.NAKATANI	96-07-17 S.MORITA 96-07-18 Y.MIZUSEKI	96-07-19 H.AKAYS	/	/	0721
△2		REVISED VESSEL DESIGN DATA ADD. SHELL MIN. THK. ADD. EARTH LUG ADD. SKIRT DRAIN	96.05.29 96-05-29	S.MORITA H.MIZUKI	96-06-01 H.AKAYS 96-05-31 Y.MIZUSEKI	96-06-03 T.TAKATA	/	/	0620
△1		REVISED DOCU. REV No. ADDED NOZZLE ORI. REVISED DIMENSION OF WELD.	96-04-17	H.MIZUKI Y.NAKATANI	96-04-17 Y.MIZUSEKI 96-04-17 S.MORITA	96.04.18 T.TAKATA	/	/	0419

Z2303	092	C	96
Z2303	091	B	96
Z2303	018	A+D	96
GROUP 作業			

REF. DWG. NO.

D.B. 96-04-08

REMARKS

DWN.	S.YAMAGIF Y.NAKATANI	96-03-28	PROJECTION
CHKD.	H.MIZUKI	96-03-29	
	S.MORITA Y.MIZUSEKI	96-03-29 96-03-29	SCALE 1:40 REGD. '96.04.08 入庫
APPD.	T.TAKATA	96-03-29	

Hitachi, Ltd.
Tokyo Japan

TITLE
22D001
SHELL ASSEMBLY

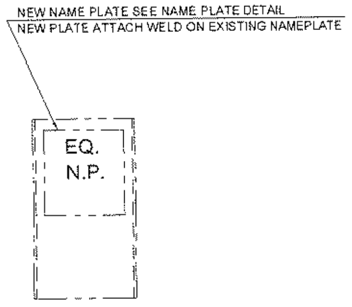
KASADO WORKS DWG. NO.
3121-510763
REV. 5

Existing Drawing

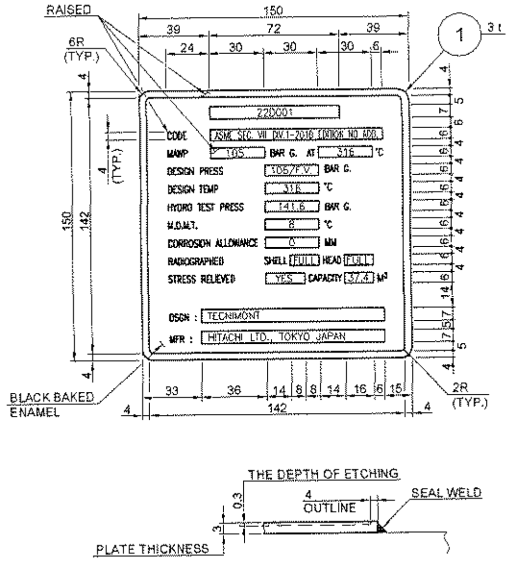
BILL OF MATERIAL

NO.	DESCRIPTION	MATERIAL	Q'TY	REMARK
	NAME PLATE			
1	PLATE 31 X 150 X 150	SA-240-304	1	

2A


NEW NAME PLATE SEE NAME PLATE DETAIL
NEW PLATE ATTACH WELD ON EXISTING NAMEPLATE
EQ.
N.P.

NAME PLATE BRACKET


RAISED
6R (TYP.)
150
39
72
39
24
30
30
30
6
① 3 t
4 (TYP.)
150
142
4
22D001
CODE
ASME SEC. VIII DIV.1-2010 EDITION NO ADD.
MAWP
105
BAR G.
AT
316
°C
DESIGN PRESS
105/F.V.
BAR G.
DESIGN TEMP
316
°C
HYDRO TEST PRESS
141.6
BAR G.
M.D.M.T.
8
°C
CORROSION ALLOWANCE
0
MM
RADIOGRAPHED
SHELL
FULL
HEAD
FULL
STRESS RELIEVED
YES
CAPACITY
37.4
M³
DSGN :
TECNIMONT
MFR :
HITACHI LTD., TOKYO JAPAN
4
5
7
6
6
4
6
4
5
4
5
4
5
4
6
4
6
4
6
4
6
14
7
5
7
5
4
BLACK BAKED ENAMEL
33
36
14
8
8
14
16
6
15
4
142
4
2R (TYP.)
THE DEPTH OF ETCHING
0.3
4
OUTLINE
SEAL WELD
3
PLATE THICKNESS

DETAIL OF NAME PLATE

- ALL THE SURFACES EXCEPT OUTLINE, LETTERS AND BLOCKS TO BE ENTERED LETTERS SHALL BE ETCHED 0.3 mm IN DEPTH.
- THE ETCHED PARTS SHALL BE COATED BY BAKING BLACK ENAMEL.
- THE RAISED SURFACES SHALL BE POLISHED BY BUFFING.
- LETTERS SHALL BE 4 mm HIGH ROUND GOTHIC STYLE BY ETCHING.

MASTER
28-Apr
2013
CTCI

FOR CONSTRUCTION.

GENERAL NOTES :

1. EXISTING VESSEL 22D001 ASSEMBLY DRAWING REFER TO "TECNIMONT" DWG. NO: 2743CEVD221-01-04.
2. FOR PTA DEBOTTLE NECK(DBN) PROJECT, EXISTING VESSEL 22D001 TO BE DESIGN PRESSURE CHANGED FROM 100 BARG TO 105 BARG. THE MECHANICAL STRENGTH VERIFICATION IS BASED ON ASME SECTION VIII DIV.1 2010 EDITION.
3. THE VESSEL 22D001 TO BE FIELD HYDROSTATIC TESTED AT MINIMUM TEST PRESSURE 141.6 BARG MEASURED AT TOP OF VESSEL AND PRESSURE HOLDING AT MINIMUM 30 MINIUTES.
4. HYDROSTATIC TEST WATER SHALL BE POTABLE WHOSE CHLORIDE CONTENT BE LESS THAN 50 PPM.
5. VESSEL DESIGN CONDITION BE UPDATED AS :
   DESIGN PRESSURE: 105+FV. Barg, OPERATING PRESSURE: 80.1 Barg.
   DESIGN TEMP.: 316 °C, OPERATING TEMP.: 288 °C.
6. THE VESSLE END USER SHALL PROVIDE RELEVANT HISTORY INSPECTION RECORD IN ACCORDANCE WITH NBIC CODE PART 3 CLAUSE 3.4.2 PRIOR TO APPLICATION OF ASME R-STAMP.

IR-II PTA DBN Project

CTCI Corp.

Project No. : 10E0542A01

Req. No. : 10P0542A01-EB0A.03

STATUS CODE	ENGINEER	DEPT.	DATE
A	Kuo		28-Apr-2013

COMMENT STATUS CODE

☑ A – Approved, work can be proceeded.
☐ AW – Approved,with comments. Revise per comments and re-submit. Work may proceed.
☐ B – Disapproved, vendor need to resubmit before starting manufacture.
☐ I – For Information Only

Submit / Resubmit within _______ Days

Note: Release of drawings in no way absolves vendors from responsibility for their accuracy, or for the design, construction and performance of the equipment.

REV.	DESCRIPTION	BY	CHK.	APPR.	PROJ. APPR.	DATE
2A	REVISED AS SHOWN	Kuo	Wong	Yang	Su	28/04 2012
2	CONSTRUCTION	Yang	Wong	Yang	Su	15/06 2012
1	FOR ISSUE APPROVAL	Miao	Wong	Yang	Su	10/11 2011
0	FOR INTERNAL ISSUE	CHIAO	Wong	WTY	Su	27/06 2011

سابك
sabic
Saudi Basic Industries Corporation
Engineering and Project Management
Jubail, Kingdom of Saudi Arabia

ابن رشد
ibn rushd
Arabian Industrial Fibers Company

中鼎工程股份有限公司
CTCI CORPORATION

FOR
IBN RUSHD-II PROJECT

TITLE
22D001
PTA FEED DISSOLVER

DBN Drawing

CERTIFIED FOR CONSTRUCTION
BY ____________
DATE ____________

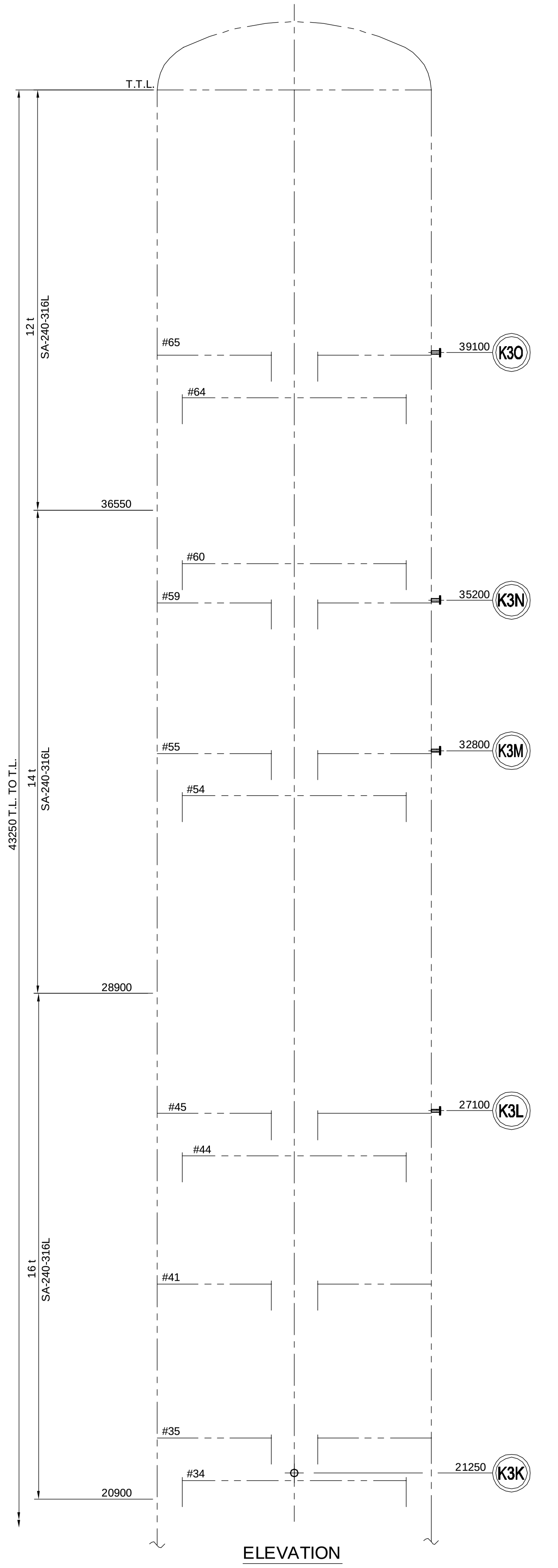
	DWG.	DSGN	CHK.	APPR.
BY	CHIAO	CHIAO	Wong	WTY
DATE	10/06/11	10/06/11	19/06/11	20/06/11

IR PROJ NO.	IR DRAWING NO.	SHT.
---	---	1 OF 1

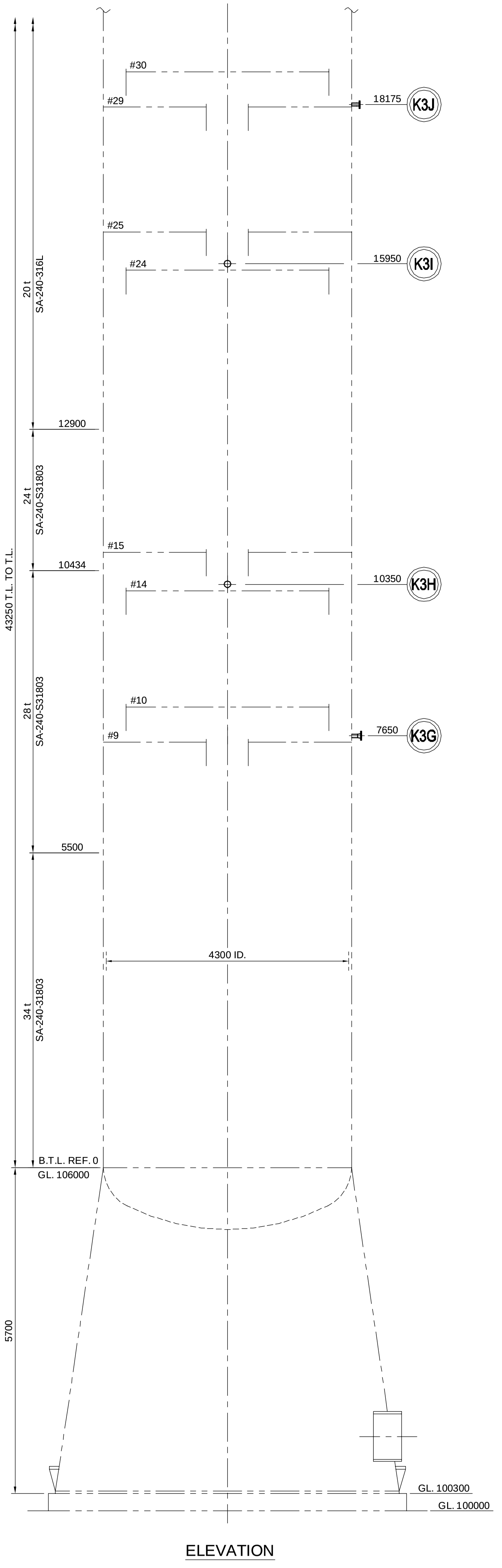
CTCI PROJ NO.	CTCI DRAWING NO.	REV.
10E0542A01	XE38-22D001-001	2A

CAD FILE NAME	22D001-S001.DWG	DWG. SIZE	A1
		SCALE	

CPC
CN
EN
PS
C
P
PC
PM
DATE


T.T.L.
12 t
SA-240-316L
36550
14 t
SA-240-316L
28900
16 t
SA-240-316L
20900
43250 T.L. TO T.L.
#65
#64
#60
#59
#55
#54
#45
#44
#41
#35
#34
39100
K3O
35200
K3N
32800
K3M
27100
K3L
21250
K3K

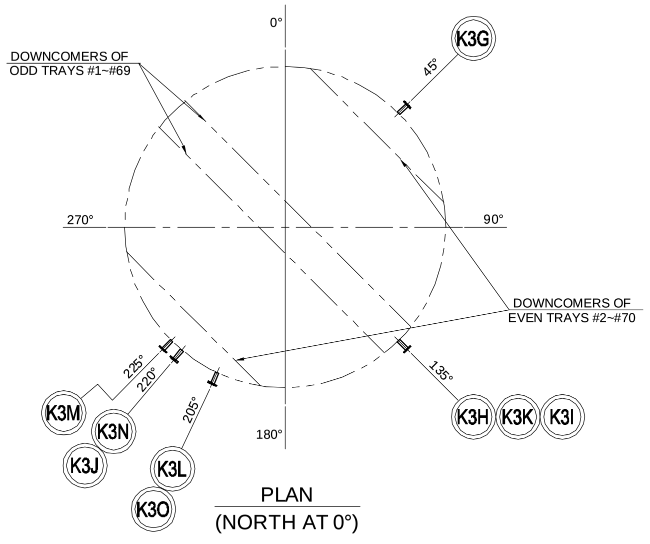
ELEVATION


#30
#29
#25
#24
#15
#14
#10
#9
18175
K3J
15950
K3I
10350
K3H
7650
K3G
20 t
SA-240-316L
24 t
SA-240-S31803
28 t
SA-240-S31803
34 t
SA-240-31803
43250 T.L. TO T.L.
12900
10434
5500
4300 ID.
B.T.L. REF. 0
GL. 106000
5700
GL. 100300
GL. 100000

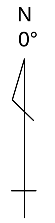
ELEVATION

NOZZ.NO.	QTY	SIZE	RATING & FACE	NOZZLE NECK	PROJECTION	DESCRIPTION	REMARKS
K3G~O	9	1-1/2"	150# LWN. RF.	---	200	TEMPERATURE	NEW ADDED

NOZZLE SCHEDULE

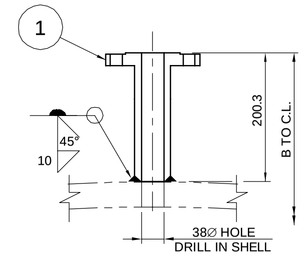

0°
90°
180°
270°
45°
135°
205°
220°
225°
DOWNCOMERS OF
ODD TRAYS #1~#69
DOWNCOMERS OF
EVEN TRAYS #2~#70
K3G
K3H
K3K
K3I
K3M
K3N
K3J
K3L
K3O

PLAN
(NORTH AT 0°)



BILL OF MATERIAL

NO.	DESCRIPTION	MATERIAL	Q'TY	REMARK
	NOZ. "K3G, K3H"			
1	FLANGE 1-1/2" X 150 # LWN. RF.	SA-182-F51-S31803	2	NOTE 12
	NOZ. "K3I~K3O"			
1	FLANGE 1-1/2" X 150 # LWN. RF.	SA-182-F316L	7	


1
200.3
B TO C.L.
45°
10
38Ø HOLE
DRILL IN SHELL

NOZZEL NO.	B
K3G	2378
K3H	2378
K3I , K3J	2370
K3K , K3L	2366
K3M , K3N	2364
K3O	2362

K3G K3H K3I K3J
K3K K3L K3M K3N K3O

DETAIL OF NOZZLE
1-1/2"-150#

AS BUILT

PMI: PROGRAM MATERIAL IDENTIFICATION		YES		
UT: ULTRASONIC EXAMINATION		–		
MT: MAGNETIC PARTICLE EXAMINATION		–		
PT: LIQUID PENETRANT EXAMINATION		YES		(1)
RT: RADIOGRAPHIC EXAMINATION	SHELL	SPOT		
	HEADS/ SHELL	FULL		
PWHT: POSTWELD HEAT TREATMENT		–		
	SIDE	SHELL SIDE	JACKET OR COIL	NOTES

NOTES
1. P.T. 100 % ON WELD OF NOZZLE TO SHELL & HEAD.

REV.	DESCRIPTION	BY	CHK.	APPR.	PROJ. APPR.	DATE
5	AS BUILT	Yang	Wong	Yang	Su	10/09 2013
4	REV. AS SHOWN	Yang	Wong	Yang	Su	31/01 2013
3	REV. AS SHOWN	Lin	Wong	Yang	Su	15/10 2012
2	CONSTRUCTION	Yang	Wong	Yang	Su	15/06 2012
1	FOR ISSUE APPROVAL	Ray	Wong	Yang	Su	20/02 2012
0	FOR APPROVAL	C.Y. MIAO	Wong	WTY	Su	27/06 2011

GENERAL NOTES:
1. ORIGINAL DESIGN DATA AND INFORMATION REFER TO "TECNIMONT" DWG. NO.: 2743CCVD061-001~007 & 2743CCVD061-009~017 & 2743CCVD061-030~043 & 2743CCVD061-050~058.
2. ASME "R" STAMP IS REQUIRED.
3. NOZZLE PROJECTION ARE MEASURED FROM VESSEL OUTSIDE TO EXTREME STEEL FACE OF FLANGE.
4. ALL DIMENSIONS ARE IN MM UNLESS OTHERWISE SPECIFIED.
5. NOZZEL BOLT HOLES TO STRADDLE NATURE CENTER LINE OF VESSEL EXCEPT AS NOTED.
6. ELEVATION AND DIMENSIONS ARE FROM REFERENCE TANGENT LINE EXCEPT AS NOTED.
7. HYDROSTATIC TEST IS PRACTICALLY NOT POSSIBLE TO UTILIZED ON THE EQUIPMENT POST MODIFICATION WORK AND NDE MUST BE CONDUCTED INSTEAD OF HYDROSTATIC TEST AS PER NBIC CODE PARA 4.4.2.5C 2007 EDITION.
8. PIM/ PICKLINE/ PASSIVATION OF 316LS.S. & S31803 WELD IS REQUITED.
9. N.D.T. PER DESIGN CODE.
10. THE DESIGN CODE OF MODIFICATION WORKS FOR THIS EQUIPMENT IS BASED ON ASME SECTION VIII Div.1 1995 EDITION.
11. DESIGN PRESSURE: 2 Barg, OPERATING PRESSURE: 1.01/1.46 Barg. **(TOP/BTM.)** DESIGN TEMP.: 160 °C, OPERATING TEMP.: 88/122 °C. **(TOP/BTM.)**
12. IMPACT TEST PER UHA-51.
13. INSULATION THICKNESS: 80 mm

CTCI Corp.Ltd
IR-II PTA DBN Project

Project No. :	10E0542A01
Req. No. :	10P0542A01-EB0A.03

STATUS CODE	ENGINEER	DEPT.	DATE

COMMENT STATUS CODE:
☐ A – Approved, work can be proceeded.
☐ AW – Approved, with comments. Revise per comments and re-submit. Work may proceed.
☐ B – Disapproved, vendor need to resubmit before starting manufacture.
☐ I – For Information Only

Submit / Resubmit within _______ Days

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Saudi Basic Industries Corporation
Engineering and Project Management
Jubail, Kingdom of Saudi Arabia

ابن رشد
ibn rushd
Arabian Industrial Fibers Company

中鼎工程股份有限公司
CTCI CORPORATION

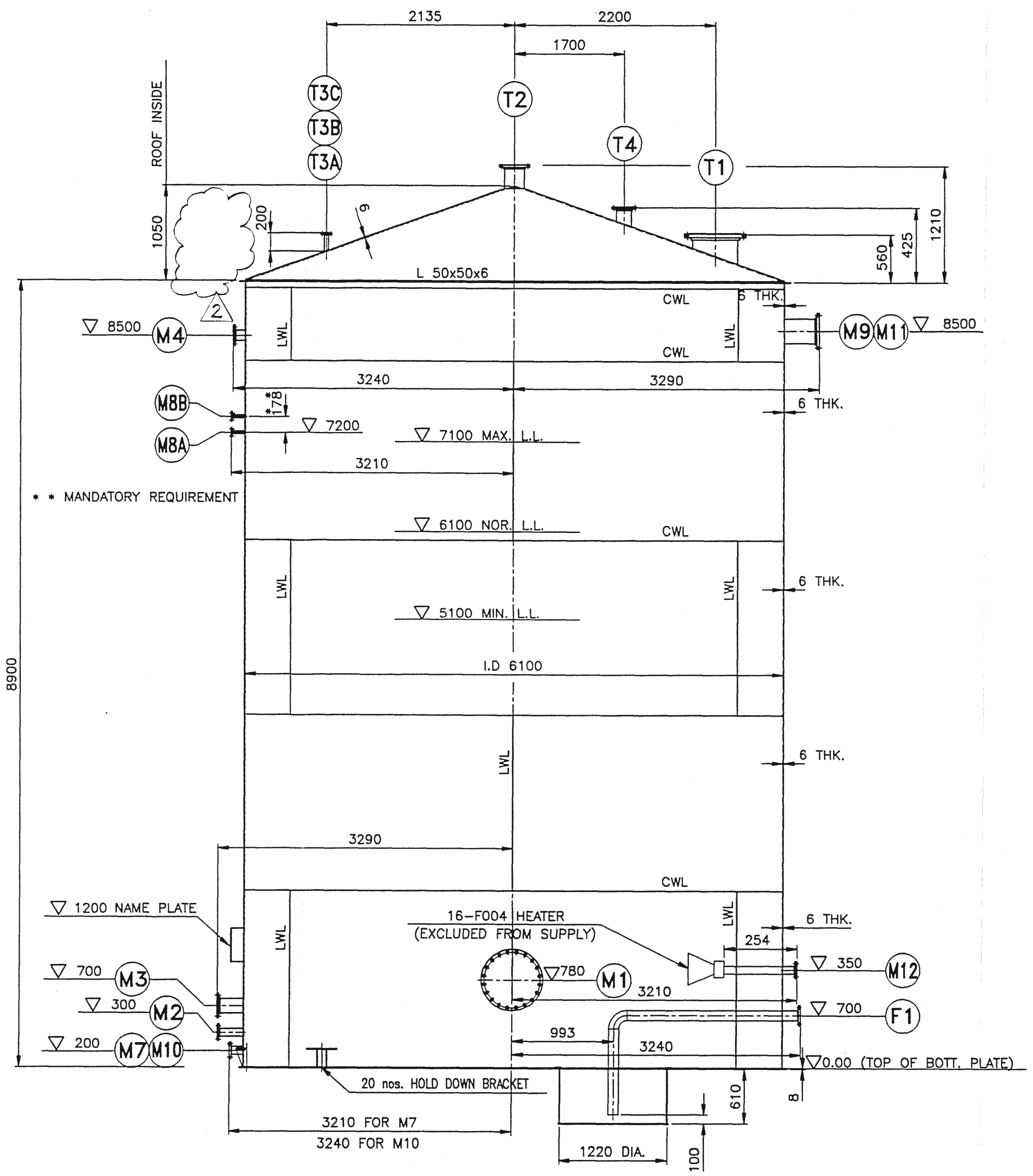
FOR
IBN RUSHD–II PROJECT

TITLE
16C001
DEHYDRATION TOWER

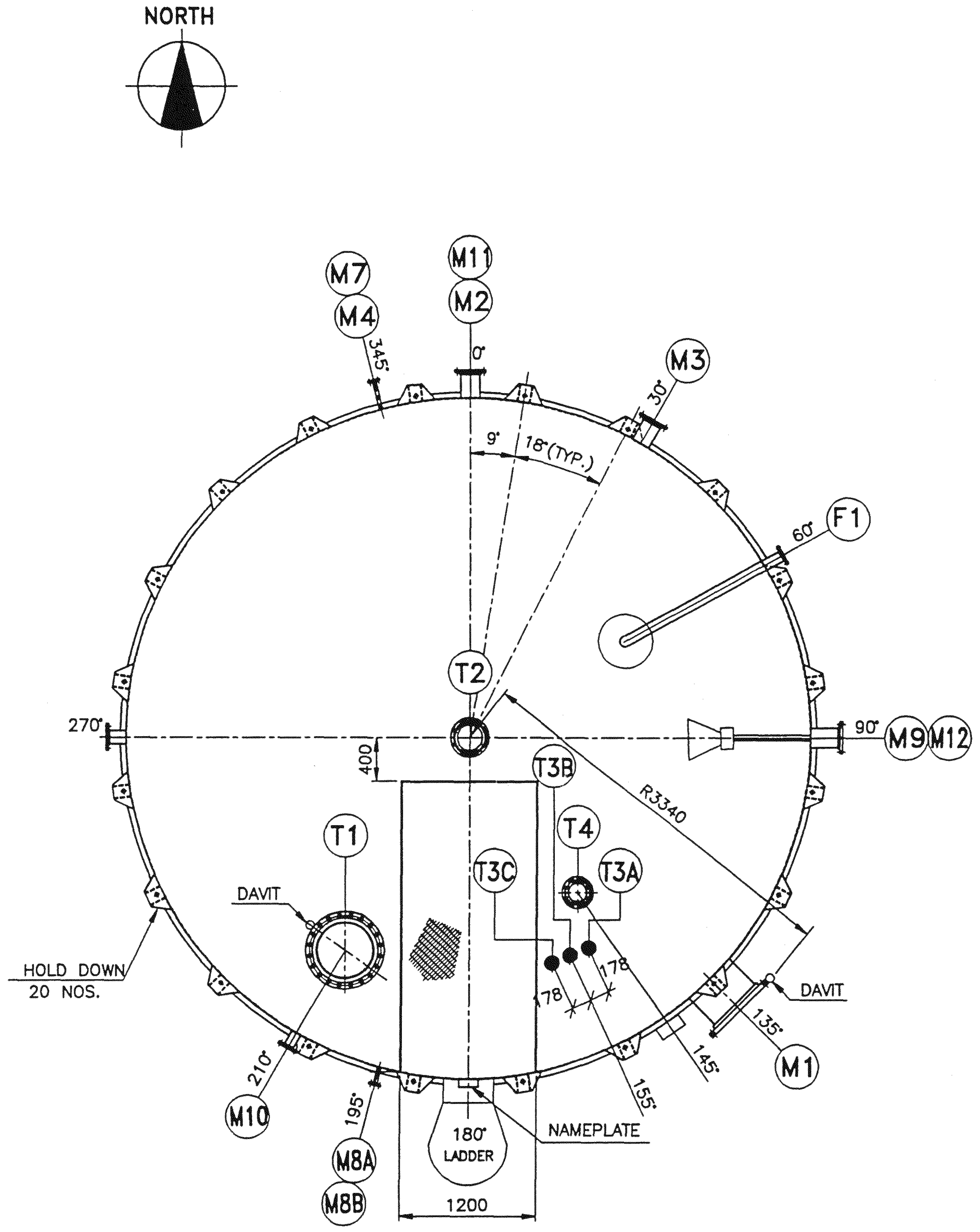
CERTIFIED FOR CONSTRUCTION		DWG.	DSGN.	CHK.	APPR.
BY ______	BY	C.Y. MIAO	C.Y. MIAO	Wong	WTY
DATE ______	DATE	24/05/'11	24/05/'11	31/05/'11	31/05/'11

IR PROJ NO. ---	IR DRAWING NO. ---	SHT. 1 OF 1
CTCI PROJ NO. 10E0542A01	CTCI DRAWING NO. XE38-16C001-001	REV. 5
CAD FILE NAME	16C001-S001.DWG	DWG. SIZE A1 SCALE

CPC	CN	EN	PS	EQ	I	E	C	P	PE	PM	DATE



ELEVATION



ORIENTATION

AS FINAL

AS FINAL

R) PAINTING IN SITE
INTERNAL SURFACES : ACC. TO 2743-VZ-SG 003
EXTERNAL SURFACES : ACC. TO 2743-YW-SG 002

Q) TECHNIMONT TO PROVIDE THE DETAILED DESIGN OF INSULATION RING SUPPORT, LOCATION & SPACING.

P) ALL INTERNAL & EXTERNAL FILLET WELDS SHALL BE ROUNDED (GRIND) SMOOTHLY FOR PROPER PAINTING ON THE SURFACE.

O) GASKET – NON ASBESTOS SYNTETIC FIBER WITH MATERIAL REINZ AFM 30, 1.6mm thk., ANSI R.F. CLASS 150.

N) BESIDES THE INSTALLED MATERIALS AT SHOP SHALL BE SUPPLIED THE FOLLOWINGS SPARE PARTS,
EXTERNAL PARTS:
- –NO. 2 SETS OF GASKETS FOR MAIN FLANGES CONNECTING DIFFERENT SECTIONS OF THE EQUIPMENT
- –NO. 2 SETS OF GASKETS FOR EACH MANHOLE OR BLIND FLANGE
- –STUD BOLTS AND NUTS: 10% WITH A MINIMUM OF 2 PIECES FOR EACH CONNECTION TYPE.

INTERNAL PARTS:
- –BOLTS,NUTS,CLAMPS AND GASKETS: 10% WITH A MINIMUM OF 10 PIECES FOR EACH CONNECTION TYPE.

M) NOZZLE FLANGE CONTACT FACES MUST BE PROTECTED WITH MARINE PLYWOOD OR METAL COVERS COMPLETE OF RUBBER GASKET OR MALLEABLE OILED CLOTH.

L) BEFORE SHIPPING THE UNIT MUST BE CLEANED INTERNALLY DRAINED AND DRIED.

K) ALL UNQUOTED WELDS MUST HAVE SIDES EQUAL TO THE LOWER THICKNESS OF THE PLATES TO WELD.

J) FOR ALL REINFORCING PADS PROVIDE ONE 1/8" ANSI B1.20.1 NPT DIA. HOLE. PADS TO BE AIR TESTED AT 2 bar (g); AFTER THE PRESSURE MUST BE REDUCED TO 0.5 bar (g) AND ALL WELDS MUST BE TESTED FOR LEAKS WITH SOAP SOLUTION. VENT HOLES WILL BE LEFT OPEN AFTER TESTING. THE HOLES MUST BE FILLED WITH GREASE.

I) ALL INTERNAL AND EXTERNAL PARTS WELDED TO THE SHELL SHALL BE OF THE SAME MATERIAL WHICH CONSTITUTES THE SECTION OF THE SHELL WHERE THE PARTS WILL BE WELDED.

H) FLANGES ACCORDING TO STD. ANSI B16.5 – COUPLINGS ACCORDING TO ANSI B16.11 FULL LENGTH TYPE PER ANSI B1.20.1 TAPER PIPE THREADED – PIPES: CARBON STEEL ACCORDING TO ANSI B36.10 (SEAMLESS); STAINLESS STEEL PER ANSI B 36.19 – PIPE FITTINGS ACCORDING TO ANSI B16.9.

G) ALL THICKNESSES SHOWN ON DRAWING EXCEPT FOR ELLIPTICAL HEADS ARE NOMINAL (FOR ELLIPTICAL HEADS ARE THE MINIMUM AFTER FORMING).

F) ALL REMOVABLE INTERNALS SHALL PASS THROUGH A MANHOLE SIZE (482.6 I.D.).

E) TRAY ELEVATIONS ARE REFERRED TO TOP OF SUPPORT RING.

D) ALL ELEVATIONS ARE MEASURED FROM BOTTOM TANGENT LINE.

C) UNLESS OTHERWISE INDICATED NOZZLE PROJECTIONS ARE MEASURED FROM EQUIPMENT CENTERLINE TO CONTACT FLANGE FACINGS.

B) UNLESS OTHERWISE INDICATED,ALL GIRTH FLANGES AND FLANGE CONNECTIONS BOLT HOLES MUST BE STAGGERED TO MAIN AXIS OF THE EQUIPMENT.

A) UNLESS OTHERWISE NOTED ALL DIMENSIONS ARE IN MILLIMETERS.

GENERAL NOTES

FOR VESSELS

DRAWINGS AND SPECIF. REFERENCE

NUMBER	ISSUE	TITLE
2743-CD-SE164	1	TECNIMONT DATA SHEET
DUPONT G15A		STORAGE TANK STEEL
2743-YW-SG002	1	SITE PAINTING (EXT. SURFACES)
2743-YW-SG003	1	SITE PAINTING (INT. SURFACES)
2743-CD-MR25	2	MATERIAL REQUISITION
22854-SP-000-F001	2	STORAGE TANK
DUPONT G8A		S.S. STORAGE TANK
ZHI-1064-P01-0003-002	1	SHELL PLATE DEVELOPMENT & WELD DETAILS
ZHI-1064-P01-0003-003	1	ROOF & BOTTOM PLATE DEVELOPMENT PLAN
ZHI-1064-P01-0003-004	1	NOZZLE DETAILS & NAME PLATE DETAIL
ZHI-1064-P01-0003-005	1	NOZZLE DETAILS

WELDING DESCRIPTIONS

POSITION	WELDING PROCESS	FILLER METALS	N? WPS	N? PQR
SEE WELD MAP				

WELDING PROCESS
SMAW: SHIELDED METAL-ARC WELDING
GTAW: GAS TUNGSTEN-ARC WELDING
SAW : SUBMERGED-ARC WELDING
GMAW: GAS METAL-ARC WELDING
FCAW: FLUX CORED-ARC WELDING

WELDING EXAMINATIONS AND PWHT

	SIDE	SHELL	JACKET OR COIL	NOTES
TEST COUPONS FOR WELDED HEADS		-		
PRODUCTION TEST COUPON		-		
TEST CATEGORY		-		
UT: ULTRASONIC EXAMINATION		API 650		
MT: MAGNETIC PARTICLE EXAMINATION		API 650		
PT: LIQUID PENETRANT EXAMINATION		API 650		
RT: RADIOGRAPHIC EXAMINATION	SHELL	-		
	HEADS	-		
PWHT: POSTWELD HEAT TREATMENT		-		

NOTES

LIST OF CONNECTIONS

ITEM	PIECES	DN	SERVICE	FLANGE RATING	FLANGE TYPE	FLANGE FACING	NOZZLE O.D.	NOZZLE THK.	REINF. PAD O.D.	REINF. PAD THK.	NOTES
T4	1	6"	SPARE	150#	S.O	R.F	168.3	10.97	381	6	2
T3C	1	1 1/2"	LEVEL GAUGE	150#	S.O	R.F	48.3	3.68	–	–	
T3B	1	1 1/2"	LEVEL GAUGE	150#	S.O	R.F	48.3	3.68	–	–	
T3A	1	1 1/2"	LEVEL GAUGE	150#	S.O	R.F	48.3	3.68	–	–	
T2	1	8"	VENT	150#	S.O	R.F	219.1	12.70	460	6	
T1	1	20"	MANHOLE (ROOF)	150#	S.O	R.F	508.0	12.70	1067	6	1
F1	1	4"	BOTTOM DRAIN	150#	S.O	R.F	114.3	8.56	305	6	4
M12	1	2"	STEAM FOR INT. HEATER	150#	S.O	R.F	60.3	5.54	–	–	3
M11	1	6"	SPARE	150#	S.O	R.F	168.3	10.97	400	6	2
M10	1	3"	LEVEL INDICATOR	150#	S.O	R.F	88.9	7.62	267	6	
M9	1	10"	OVERFLOW	150#	S.O	R.F	273.1	12.70	584	6	
M8B	1	2"	HIGH LEVEL SWITCH	150#	S.O	R.F	60.3	5.54	–	–	
M8A	1	2"	HIGH LEVEL SWITCH	150#	S.O	R.F	60.3	5.54	–	–	
M7	1	1.5"	TEMPERA. CONTROLLER	150#	S.O	R.F	48.3	5.08	–	–	
M4	1	4"	RECYCLE FROM 16G007/017	150#	S.O	R.F	114.3	8.56	305	6	
M3	1	8"	LIQUID OUTLET	150#	S.O	R.F	219.1	12.70	483	6	
M2	1	6"	LIQUID INLET (NaOH SOL.)	300#	S.O	R.F	168.3	10.97	400	6	
M1	1	20"	MANHOLE (SHELL)	150#	S.O	R.F	508.0	12.70	1168	6	1

NOTES
1. WITH BLIND FLANGE AND DAVIT.
2. WITH BLIND FLANGE.
3. WITH 60.3 O.D 5.54 THK. INTERNAL PIPE.
4. WITH 114.3 O.D 8.56THK. INTERNAL DRAW OFF SUMP.(SEE DRG.)

FLANGES SEALING SURFACE FINISHING
SERRATED CONCENTRIC OR SERRATED SPIRAL FINISH ACCORDING TO ANSI B16.5 WITH RESULTING ROUGHNESS AARH 125 – 250 IN. (ANSI B46.1)

MATERIAL LIST

POSITION	DESCRIPTION	NO. PIECES	MATERIAL	SYMBOLS	DIMENSIONS	NOTES
				○		
				○		
				○		
	STEEL SHAPE		DIN 17100 ST 37-2	○		
	INTERNALS		ASTM A 516 GR 70	○		
	GASKET		REFER TO GEN. NOTES	○		
	NUTS		ASTM A 194 GR 2H	○		
	BOLTS		ASTM A 193 GR B7	○		
	NOZ. NECKS (PIPES)		ASTM A 106 GR B	○		
	NOZ. NECKS (PLATE)		ASTM A 516 GR 70	○		
	FLANGES		ASTM A 105	○		
	BOTTOM PLATES		ASTM A 516 GR 70	○		
	ROOF PLATES/PADS		ASTM A 516 GR 70	○		
	SHELL PLATES/PADS		ASTM A 516 GR 70	○		

MATERIALS TEST SYMBOL		THICKNESSES TOLERANCE	
○	MATERIAL TESTED BY OFFICIAL AUTHORITY	PLATES:	–0,25 mm
⊕	MATERIAL WITH MANUFACTURER CERTIFICATE	PIPES:	–12,5%
○	MATERIAL WITHOUT CERTIFICATE	HEADS:	SEE NOTE (G)

DESIGN DATA

		SIDE	SHELL	JACKET OR COIL	NOTES
DESIGN CODES			API 650		
CODE "U" STAMP					
INSPECTION AUTHORITY			TECHNIMONT + BECHTEL		
PRESSURE (GAUGE)	DESIGN	bar (g)	+500/–50 mm $H\ 0_2$		
	OPERATING	bar (g)	ATM		
	EXTERNAL	bar (g)			
	HYDROTEST IN VERTICAL	bar (g)	FULL OF WATER		
	HYDROTEST IN HORIZONTAL	bar (g)	–		
	PNEUMATIC TEST	bar (g)	–		
TEMPERATURE	DESIGN	°C	100		
	OPERATING	°C	80		
MINIMUM DESIGN METAL TEMPERATURE			°C AT bar (g)		
CORROSION ALLOWANCE		mm	2		
FLUID	TYPE		CAUSTIC SODA (SOL. 5')		
	PHYSICAL STATE		LIQUID		
	SPECIFIC GRAVITY	kg/m³	1050		
	CAPACITY	m³	250		
LIQUID LEV. FOR MECHANICAL DESIGN (ABOVE BOTTOM T.L.)		mm			
JOINTS EFFICIENCY	SHELL		0.85		
	HEADS		–		
OUT OF ROUND		%	0.4		
INSULATION		TYPE/THK.	MINERAL WOOL/60		
FIREPROOFING			–		
WIND PRESSURE	AS PER BECHTEL SPEC.		ASCE 7.88 EXPOSURE C		
SEISMIC ZONE	22854-SP-000-M-001		ASCE 7.88 ZONE1		

2

LOADS AT BASE		OPERATING	HYDROTEST	EARTHQUAKE
VERTICAL LOAD	KN/M LENGTH OF WALL	2900	2700	2900
SHEAR	kN/M	36	9	240
MOMENT	kN-m	170	43	1020

SUPPLY WEIGHT (MASS)	14,094	kg	LOCATION	OUTDOOR
WEIGHT FULL OF WATER	274,194	kg	SADDLES MOVEMENT	mm
SURFACES (IN FIELD)			PAINTING (IN WORK SHOP)	SEE NOTE "Q"
INSULATION (MEDIUM SURFACE)	BY OTHERS	m²		
SHEETS FOR INSULATION JACKETING	BY OTHERS	m²		
FINAL PAINTING (CARBON STEEL PARTS)	450	m²		

ZONE RESERVED FOR APPROVAL STAMPS

ISSUE	DESCRIPTION	DRAWN UP	CHECKED	APPROVED
6	REVISED AS PER CLIENT COMMENTS	edd	ABD	ABD
5	REVISED AS PER CLIENT COMMENTS	Rene	ABD	ABD
4	REVISED AS PER CLIENT COMMENTS	Edd	RBU	ABD
3	REVISED AS PER CLIENT COMMENTS	Rene	RBU	ABD
2	FOR APPROVAL	Rene	RBU	ABD
1	PRELIMINARY	PGS	RBU	ABD

MANUFACTURER'S TRADE MARK: AL ZAMIL HEAVY IND. LTD.
MANUFACTURER'S DRAWING Nº: ZHI-1064-P01-0001-001
ISSUE: A B C 0 1
TECNIMONT
CLIENT: ARABIAN IND. FIBERS CO. LTD.
CLIENT REF.: IBN RUSHD
YEAR: 1996
JOB: P01-1064/95
Nº PIECES:
WORK NUMBER: ZHI-1064-P01-0003-001
SCALE: 1:40
PLANT LOCATION: YANBU SAUDI ARABIA
PLANT: PTA-YANBU SAUDI ARABIA
ITEM: 16F004
SERVICE: CAUSTIC SODA SOLUTION STORAGE TANK
IDENTIFICATION CODE: JOB 2743 E C C T D V NO. D164
DRAWN UP:
APPROVED:
DATE:
SHEET 001 ISSUE 6
PURCHASER: TECNIMONT
NOT TO BE REPRODUCED WHOLE DWG. PART NOR EMPLOYED FOR ANY PURPOSE OTHER THAN SPECIFICALLY PERMITTED WRITING.
PURCHASER ORDER: TECNIMONT
MATERIAL REQUISITION: 2743-CD-MR 025

REVISION	DESCRIPTION OF CHANGE	DATE	DRAWN	CHECKED	APPROVED
2	REVISED AS PER CLIENT'S COMMENTS, ISSUED AS FINAL	28SEP96	edd		ABD
1	HOLD NOZZLES (T3A-C & M12) ORIENTATION & PROJECTION RELEASED AS PER CLIENT APPROVAL	2AUG96	Rene	ABD	ABD
0	REVISED AS PER CLIENT COMMENTS	13JUL96	Edd	RBU	ABD
C	REVISED AS PER CLIENT COMMENTS	5JUNE96	Rene	RBU	ABD
B	For Approval	10APR96	Rene	RBU	ABD
A	PRELIMINARY	26.02.96	PGS	RBU	ABD

CLIENT:
TECNIMONT

MANUFACTURER:
AL ZAMIL HEAVY INDUSTRIES LTD.
MAIN OFFICE JEDDAH: TEL. 699 2411 (4 LINES),FAX:699 2420
P.O. BOX:13169 JEDDAH 21493 S.A. TELEX: 603703 ZHILRD SJ

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TITLE:
"GENERAL ARRANGEMENT"

CAUSTIC SODA SOL. STORAGE TANK

16F004

DESIGNED:	CHECKED:	APPROVED:
RBU		ABD
DRAWN:	**CONTRACT No. (J.O.No.)**	**TOTAL CONSTRUCTION WEIGHT**
PGS/Rene	P01-1064/95	-

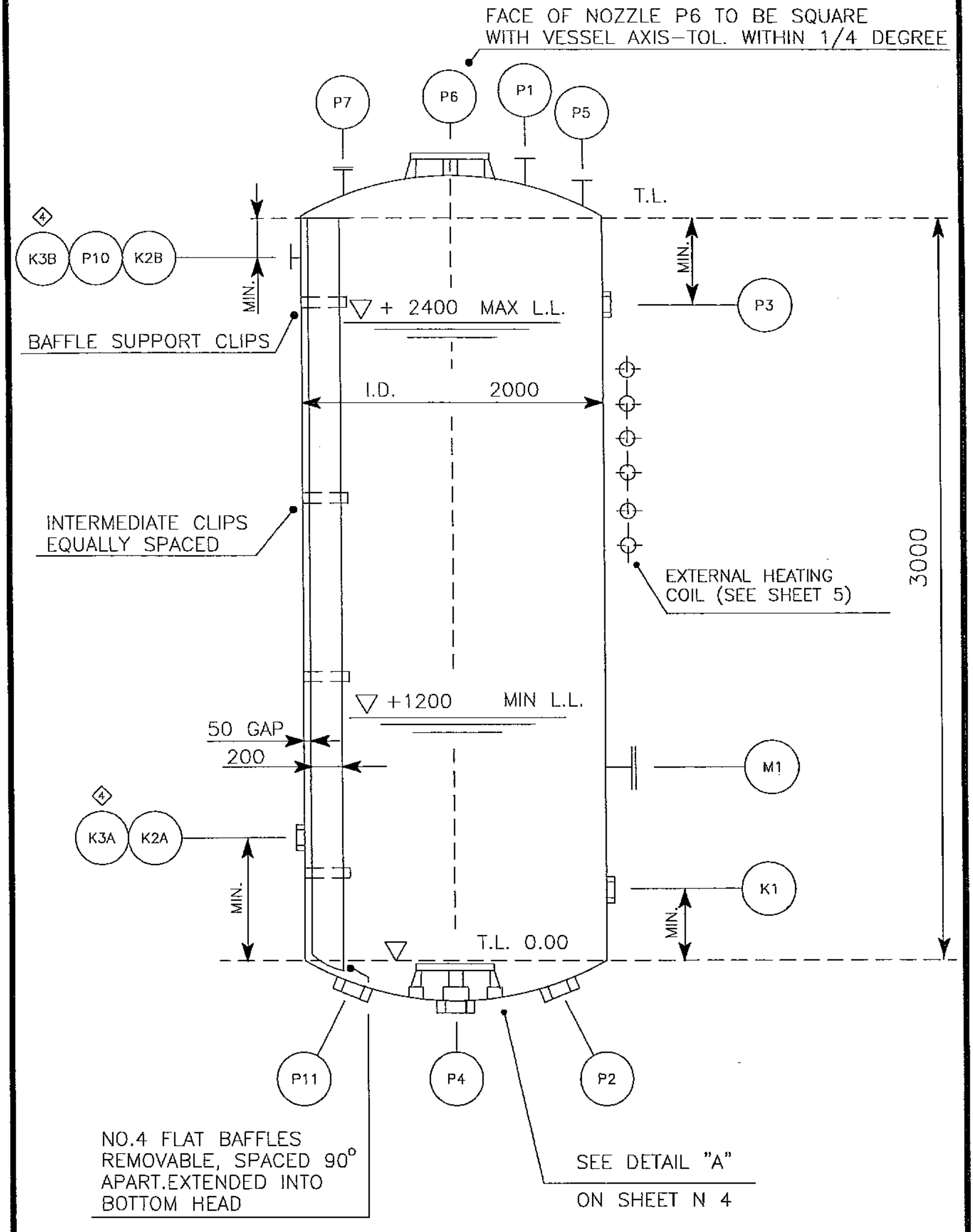
SCALE	DRAWING No.	REV.	SIZE
1:40	ZHI-1064-P01-0003-001	2	A1

ACAD-DWG\TECHNIMONT\P07-1064\16F004\0003-001

VALID FOR FIELD ASSEMBLY

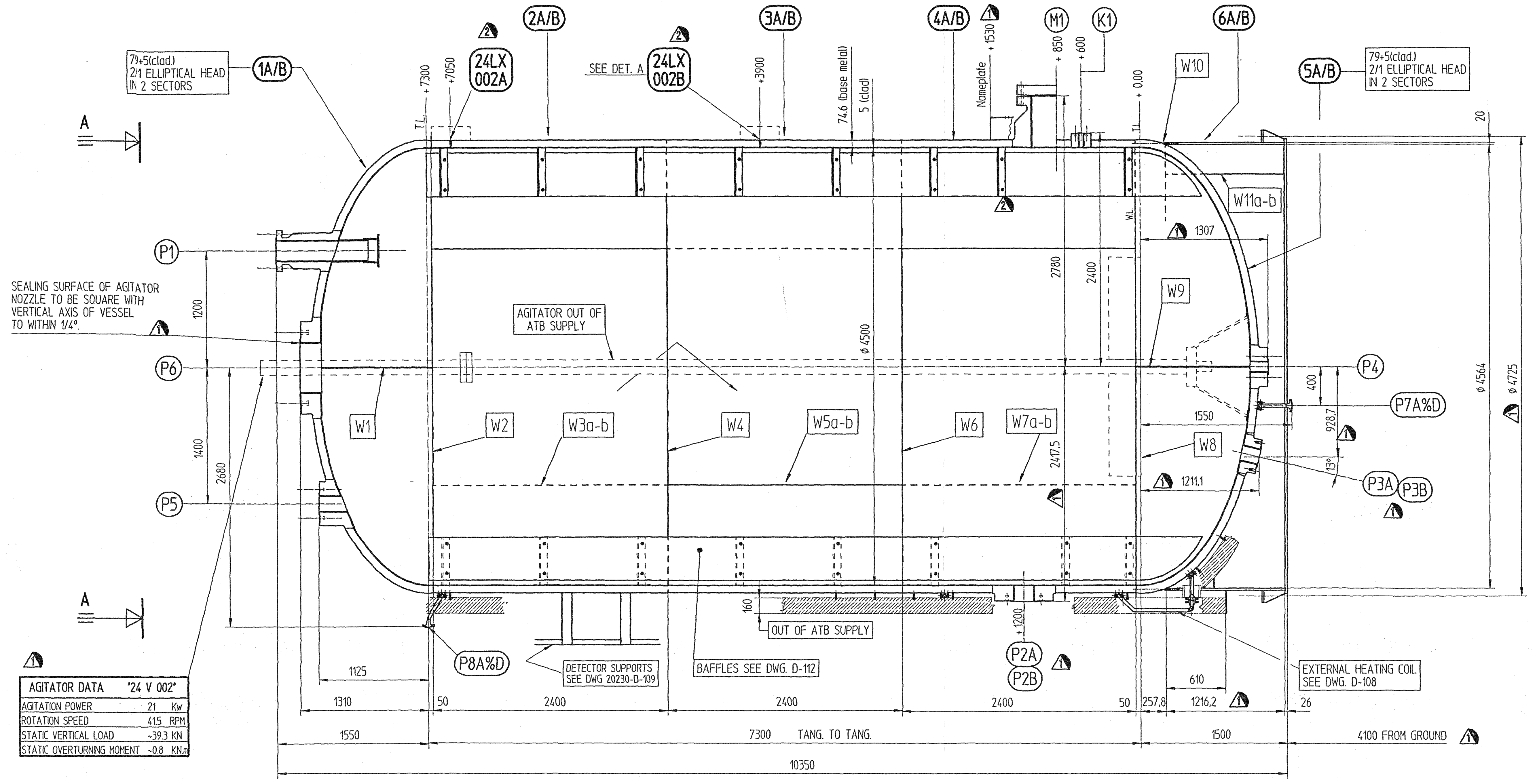
26.09.96

TECNIMONT	19D002 RECOVERY SOLID SLURRY TANK SKETCH			CODICE IDENTIFICAZIONE Identification code COMM-Job E C T N° 2743 V D F P 192
	IMP. PTA YANBU Plant SAUDI ARABIA	RIF. CLIENTE Client ref. IBN RUSHD	COMPANY IDENTIFICATION CODE DS-019-A-301	FOGLIO Sheet 003 EM. Issue 04

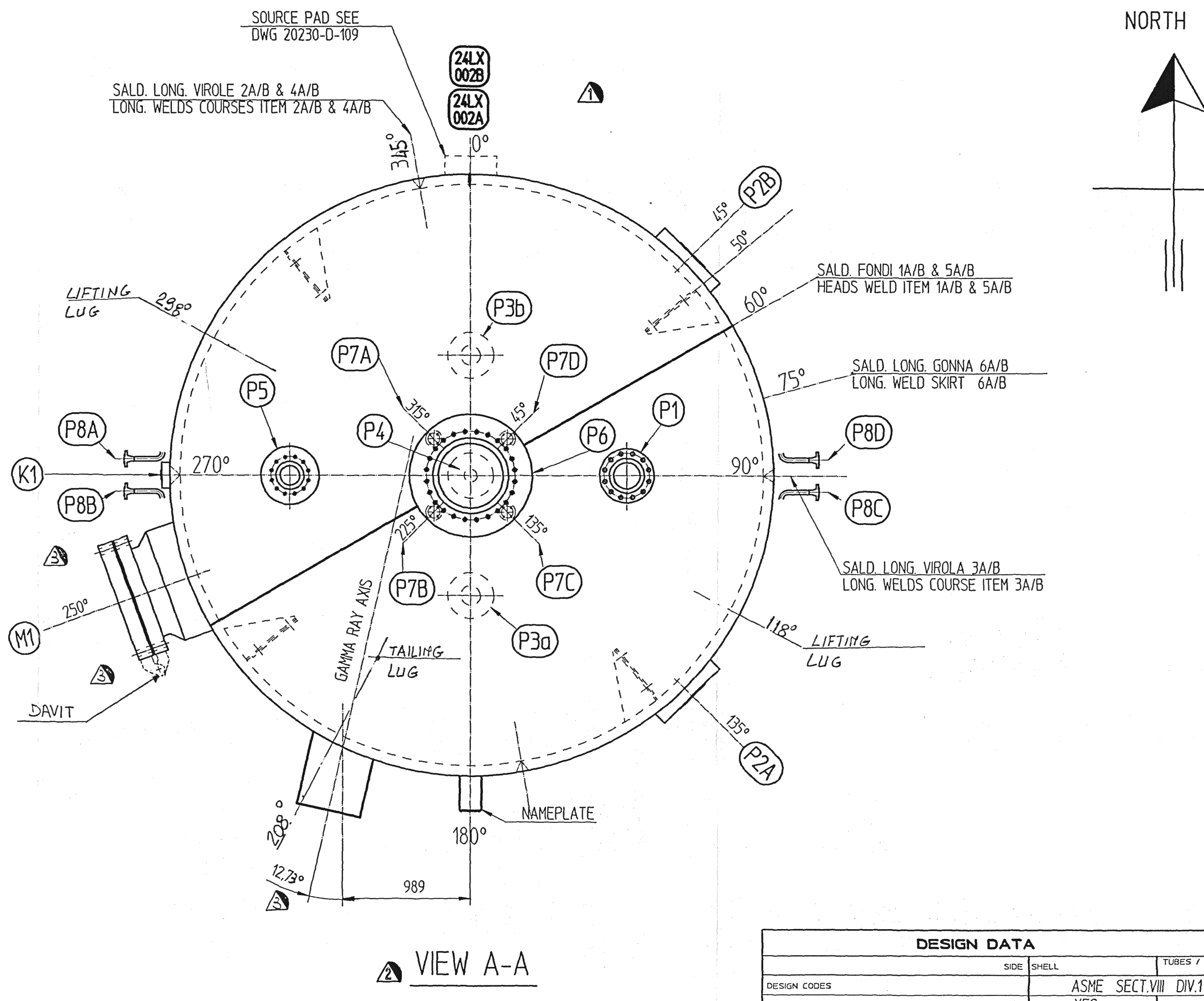

FACE OF NOZZLE P6 TO BE SQUARE WITH VESSEL AXIS-TOL. WITHIN 1/4 DEGREE
P7
P6
P1
P5
T.L.
4
K3B
P10
K2B
MIN.
MIN.
P3
+ 2400 MAX L.L.
BAFFLE SUPPORT CLIPS
I.D. 2000
INTERMEDIATE CLIPS EQUALLY SPACED
EXTERNAL HEATING COIL (SEE SHEET 5)
3000
+1200 MIN L.L.
50 GAP
200
M1
4
K3A
K2A
MIN.
K1
MIN.
T.L. 0.00
P11
P4
P2
NO.4 FLAT BAFFLES REMOVABLE, SPACED 90° APART.EXTENDED INTO BOTTOM HEAD
SEE DETAIL "A" ON SHEET N 4

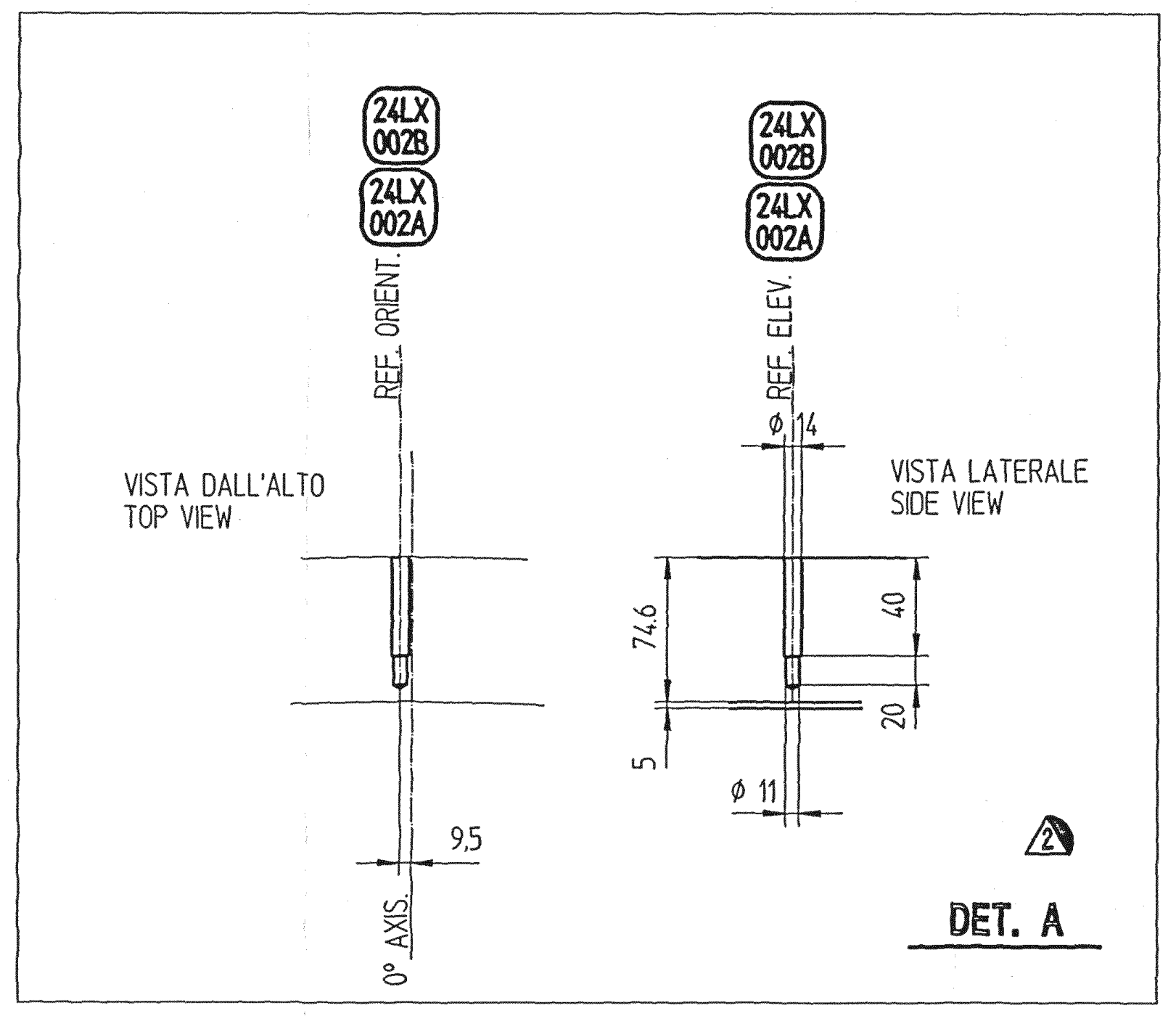
disclosed to others, nor used for any purpose other than that for which it is specifically furnished without the prior written consent of Tecnimont.

PUO' ESSERE RIPRODOTTO, COPIATO O MOSTRATO A TERZI, NE' USATO PER NESSUNO SCOPO DIVERSO DA QUELLO PER IL QUALE E' STATO SPECIFICATAMENTE FORNITO SENZA PREVIA AUTORIZZAZIONE SCRITTA DELLA TECNIMONT.



AGITATOR DATA	"24 V 002"
AGITATION POWER	21 Kw
ROTATION SPEED	41.5 RPM
STATIC VERTICAL LOAD	~39.3 KN
STATIC OVERTURNING MOMENT	~0.8 KN.m





FONDI SEMIELLITTICI MARCA 1 & 5 IN DUE PEZZI
VIROLE MARCA 2A/B-3A/B-4A/B CON DUE SALDATURE LONGITUDINALI
GONNA MARCA 6A/B CON DUE SALDATURE LONGITUDINALI

SEMIELLIP. HEAD ITEM 1 & % 5 IN TWO PIECES
COURSES ITEM 2A/B-3A/B-4A/B WITH TWO LONGITUDINAL WELDS
SKIRT ITEM 6A/B WITH TWO LONGITUDINAL WELDS

COSTRUCTION NOTES - NOTE COSTRUTTIVE

1) - COSTRUIRE N° 1 REACTTORE
- ONE REACTOR BE SUPPLIED.

2) - GLI SPESSORI INDICATI A DISEGNO SI INTENDONO MINIMI DOPO FORMATURA E LAVORAZIONE MECCANICA.
- THE THICKNESSES SHOWN ON DRAWING ARE MINIMUM AFTER FORMING AND MACHINING.

3) - TOLLERANZE - TOLERANCES : ASME CODE Sect. VIII Div. 1 AND - DUPONT SPC NR SG 1S .

4) - QUALIFICA SALDATURE E SALDATORI IN ACCORDO AL CODICE ASME IX.
- WELD AND WELDERS QUALIFICATION ACCORDING TO ASME IX.

5) - I FONDI SARANNO STAMPATI A CALDO E LE VIROLE CALANDRATE A FREDDO.
- HEADS SHALL BE HOT FORMED AND COURSES SHALL BE COLD ROLLED.

6) - PER PROCEDIMENTI DI SALDATURA (W.P.S.) VED. WELDING DATA BOOK 20230-SA-01.
- FOR WELDING PROCEDURE SPECIF. (W.P.S.) SEE WELDING DATA BOOK 20230-SA-01.

7) - ATB SERIAL NR. 18880

REV No.	DATE	DESCRIPTION	DRAWN UP	CHECKED	APPROVED

SCALE: JOB No.

الشركة العربية للألياف الصناعية ابن رشد
ARABIAN INDUSTRIAL FIBERS Co, (IBN RUSHD)
YANBU SAUDI ARABIA

IBN RUSHHD PTA PLANT
YANBU SAUDI ARABIA
350,000 MT/Y PTA PLANT

Plant Unit	DRAWING No.	SHEET	REVISION

REV.	DATE	DESCRIPTION	DRAWN	CHECKED	APPROVED
3	14-JAN 97	FINAL ISSUE	14-01-97 BOLPAGNI	14/1/97 ARRIGHI	15/1/97 PERINI
2	26 JUN 96	MODIFIED WHERE SHOWN WITH △2	26 JUN 96 BOLPAGNI	26 JUN 96 ARRIGHI	26 JUN 96 F.PERINI
1	16 Apr 96	MODIFIED WHERE SHOWN WITH △1	16 Apr 96 BOLPAGNI	16 Apr 96 ARRIGHI	16 Apr 96 F.PERINI
0	08 feb 96	FIRST ISSUE	08 feb 96 A.G.	08 feb 96 ARRIGHI	08 feb 96 F.PERINI

FOR VESSEL

GENERAL NOTES - NOTE GENERALI

1)- Tutte le sporgenze e le dimensioni delle flange sono riferite alla faccia di flangia.
- All flange projections and dimensions are to flange face.

2)- Tutte le quote in alzato sono misurate dalla Linea di Tangenza Inferiore (BTM.T.L.).
- *All elevations are measured from Bottom Tangent Line (BTM.T.L.).*

3)- La posizione dei bocchelli in alzato e' schematica; per l'esatto orientamento attenersi solamente a quanto indicato nella VISTA "A-A".
- Position of nozzles in elevation is schematic; for correct orientations see only VIEW "A-A".

4)- Tutti i fori delle flange e dei bocchelli e quelli per i bulloni di ancoraggio sono sfalsati rispetto agli assi principali del Vessel, salvo dove diversamente indicato.
- All bolt holes of flanges, nozzles and anchor bolts shall straddle natural centerlines, unless where shown otherwise.

5)- Flange per bocchelli secondo ANSI B16.5 tipo RF.
- Flanges for nozzles according to ANSI B16.5 type RF.

6)- Finitura facce di flangia in accordo a quanto indicato nei Disegni ATB n° 20230-D-103 / 104 / 105.
- Flange face finishing according to ATB Drawings n° 20230-D-103 / 104 / 105.

7)- Filettature Bulloni e Dadi in accordo all' ANSI B1.1.
- Bolts and Nuts thread according to ANSI B1.1.

8)- I tiranti esterni saranno protetti con "MOLYCOTE".
- External Stud Bolts shall be coated with "MOLYCOTE".

9)- Accessori Interni:
a) I "baffles" saranno costruiti e montati all' interno della colonna da ATB prima della prova idraulica.
b) La superficie di tenuta del bocchello P6 dovra' essere normale all'asse del vessel, max errore 1/4°
- Internals:
a) Internal baffles shall be fabricated and installed inside the vessel by ATB before hydrotest.
b) *Sealing surface of agitator nozzle P6 to be square with vertical axis of vessel to within 1/4°.*

10)- Accessori esterni:
a) N° 1 Maschera di posizionamento per le mazzette di fondazione imballata e spedita in cantiere entro il 30/06/96
- External Fittings:
a) One Base Ring Template shall be packed and shipped in field within 30/06/96

11)- Spedizione:
a) Le superfici interne ed esterne del vessel dovranno essere pulite e libere da "grease, weld spatter, scale, slag" e da qualsiasi altra sostanza estranea. La pulizia interna non dovra' essere eseguita con sostanze contenenti cloruri.
b) *Finitura superfici esterne: per sabbiatura, verniciatura e marcatura attenersi a quanto indicato nel Disegno di spedizione n° 20230-D-113.*
c) Le superfici lavorate di macchina saranno protette con MOLYCOTE e/o RUST VETO 342.
d) Tutte le aperture non provviste di coperchio saranno chiuse per la spedizione con coperchi metallici, guarnizione in neoprene e bulloni come indicato nel Disegno di spedizione.
e) Le parti da spedire sciolte sono elencate nel Disegno di spedizione.
f) Durante la spedizione il reattore sara' pressurizzato con AZOTO.
- Shipping:
a) Internal and external surfaces of Vessel shall be cleaned and free from grease, weld spatter, scale, slag and any other foreign matter. No cleaning agent containing chlorides will be used on austenitic stainless steel.
b) *External surface finishing: for sandblasting, painting and marking see Shipping Dwg. 20230-D-113.*
c) All machined surfaces shall be coated with MOLYCOTE and/or RUST VETO 342.
d) All openings without cover shall be closed for shipping with steel cover, neoprene gasket and bolts, as per Shipping Drawing.
e) For loose parts see list on Shipping Drawing.
f) *During shipping the reactor shall be pressurized with NITROGEN.*

12)- a) Guarnizioni: - n° 1 serie per prova idraulica e spedizione.
- *n° 2 serie come scorta.*
b) Bulloni esterni: - n° 1 serie come indicato nel Dis. ATB n° 20230-D-102 per prova idraulica ed esercizio.
- 10% come parti di scorta.
- a) Gaskets: - One set for Hydrotest and Shipping.
- Two sets for Spare.
b) External Bolts: - One set as shown on ATB Dwg.n° 20230-D-102 for Hydrotest and Service
- 10% as spare parts.

13)- P.W.H.T. sara' eseguito a norma, senza alterare le proprieta' del rivestimento interno.
- Post weld heat treatment shall be performed according to code, without altering internal lining material properties.

14)- Limiti di accettabilita' dei difetti in accordo con spec.TM 300.7-Rx3 class (solo per tubi di riscald. esterni).
- Limits of acceptability of defects according to spec.TM 300.7-Rx3 class (for external heating coils only).

ELENCO PROCEDURE ATB APPLICABILI - LIST OF APPLICABLE PROCEDURES

- SPEC. N° 20230 PF.05	:	HOT FORMING OF HEAD.
- SPEC. N° 20230 PF.20	:	HYDROTEST PROCEDURE.
- SPEC. N° 20230 PC.50	:	R.T. EXAMINATION OF WELDS.
- SPEC. N° 20230 PC.55	:	U.T. EXAMINATION OF WELDS.
- SPEC. N° 20230 PC.60	:	BONDING PROCEDURE
- SPEC. N° 20230 PC.70	:	DYE PENETRANT EXAMINATION.
- SPEC. N° 20230 PC.77	:	WELD PRODUCTION TEST PLATES.
- SPEC. N° 20230 PF.10	:	PWHT PROCEDURE
- SPEC. N° 20230 PF.25	:	INT, CLEANING & PAINTING
- SPEC. N° 20230 PF.30	:	NITROGEN PRESS. PROCEDURE

MATERIALI - MATERIALS

1)- Mantello - Shell Fondi - Heads	: ASME SA 264 BASE METAL SA 516 M GR 70 CLADDING SA 240 TP 321
2)- Bocchelli fucinati - Forged Nozzles	: ASME SA 105 + 321 S.S. WELD DEPOSIT
3)- Gonna - Skirt	: ASME SA 516 GR 60
4)- Serpentino - Heating coil	: ASME SA 106 GR B / SA 105
5)- Anello di base gonna, Scatole ancoraggio e Tailing Lug - Skirt Base Ring, Chairs and Tailing Lug	: ASME SA 516 Gr.60 (or equivalent)
6)- Interni (saldati) Lamiera - Internals (welded) Plate	: ASME SA 240 TP 321
7)- Interni (non saldati) Internals (not welded)	: ASME SA 240 TP 304L
8)- Accessori esterni > Lamiera - External Fittings Plate	: ASME SA 516 GR 70 : (welded to shell)
9)- Bulloni in pressione - Pressure Bolting	: ASME SA 193 B7/ SA 194-2H
10)- Bulloni interni - Internal Bolting	: ASME SA 193-B8 / SA 194-8
11)- Guarnizioni in pressione - Pressure Gaskets	: SPIRAL WOUND 321 SS /GRAPHITE WITH 321 S.S. INTERNAL RING AND CARBON STEEL EXT. RING.
12)- Guarnizioni serpentino. - Coils Gaskets	: SPIRAL WOUND 316 SS /GRAPHITE WITH 316 S.S. INTERNAL RING AND CARBON STEEL EXT. RING.

TOT. WEIGHT = 98312 Kg

ITEM	DESCRIPTION	MATERIAL	N°	UNIT WEIGHT (kg)	
6A/B	SKIRT COURSE	ASME SA 516 GR 60	1	2758	
5A/B	BTM ELLIPTICAL HEAD	ASME SA 264/516 GR 70/321	1	15662	
4A/B	SHELL COURSE	ASME SA 264/516 GR 70/321	1	21410	
3A/B	SHELL COURSE	ASME SA 264/516 GR 70/321	1	21410	
2A/B	SHELL COURSE	ASME SA 264/516 GR 70/321	1	21410	
1A/B	TOP ELLIPTICAL HEAD	ASME SA 264/516 GR 70/321	1	15662	

DRAWINGS AND SPECIF. REFERENCE

NUMBER	ISSUE	TITLE
2743 CD-MR-035	1	MATERIAL REQUISITION
2743 CD-DX-242	2	TECNIMONT DRAWINGS
DUPONT SG-1-S BECHTEL SP-000-D-001	93 1	GENERAL FABRICATION REQUIREMENTS
2743 YW-SG-001	5	PAINTING SPECIFICATION
2743 SZ-SG-001 2743 SZ-SG-003	1 1	FIREPROOFING GENERAL SPECIFICATION
20230-D-113	1	SHIPPING DRAWING
20230-D-112	1	INTERNAL DETAILS
20230-D-111	1	DAVITS FOR MANHOLES
20230-D-110	1	NAMEPLATE AND SUPPORT
20230-D-109	0	INSULATION SUPPORTS AND EXTERNAL DETAILS
20230-D-108	0	INSULATION SUPPORTS AND EXTERNAL DETAILS
20230-D-107	1	LIFTING AND TAILING LUG
20230-D-106	1	SKIRT
20230-D-105	1	TEMPLATE
20230-D-104	0	
20230-D-103	3	NOZZLE DETAILS
20230-D-102	2	WELDING DETAILS (AND ND EXAMINATION)
20230-D-101	2	ASSEMBLY AND NOTES

LIST OF CONNECTIONS

ITEM	PIECES	DN	SERVICE	FLANGE RATING	FLANGE TYPE	FLANGE FACING	NOZZLE O.D.	NOZZLE THK.	REINF. PAD O.D.	REINF. PAD THK.	NOTES
P8A÷D	4	1"	HOT OIL OUTLET	300#	WN	RF	33.4	4.55			3
P7A÷D	4	1"	HOT OIL INLET	300#	WN	RF	33.4	4.55			3
P6	1	20"	AGITATOR MOUNT	300#	PAD	RF	950	217.5			
P5	1	6"	SPARE	600#	PAD	RF	450	142.5			1
P4	1	100 I.D.	DRAIN	600#	PAD	RF	350	117.5			
P3A÷B	2	150 I.D.	SLURRY OUTLET	600#	PAD	RF	355.6	95.3			
P2A÷B	2	200 I.D.	FEED INLET	600#	PAD	RF	600	192.5			
P1	1	8"	VAPOURS OUTLET	600#	WN	RF	369.1	75.5			4
K1	1	1-1/2"	TEMPERATURE CONNECTION	600#	PAD	RF	200	72.5			
M1	1	530 I.D. MIN.	MANHOLE	BY MFR	BY MFR	RF	890	172.5			2

NOTES
1) WITH BLIND FLANGE.
2) WITH BLIND FLANGE AND DAVIT.
3) NOZZLES OF EXTERNAL HEATING COILS
4) WITH INTERNAL BAFFLE

FLANGES SEALING SURFACE FINISHING
SERRATED CONCENTRIC OR SERRATED SPIRAL FINISH ACCORDING TO ANSI B 16.5 WITH RESULTING ROUGHNESS AARH
SHELL SIDE = 63 ÷ 125 min.
COIL SIDE = 125 ÷ 250 min.

DESIGN DATA

			SHELL	TUBES / EXTERNAL HEATING COILS	NOTES
DESIGN CODES			ASME SECT.VIII DIV.1 1995 EDIT.		
CODE "U" STAMP			YES	--	
INSPECTION AUTHORITY			ASME INS./CLIENT		
PRESSURE (GAUGE)	DESIGN	bar (g)	38 / FULL VACUUM	15	
	OPERATING	bar (g)	22.5	5	
	EXTERNAL	bar (g)	--	--	
	HYDROTEST IN VERTICAL	bar (g)	58	22.5	
	HYDROTEST IN HORIZANTAL	bar (g)	58	23.4	
	PNEUMATIC TEST	bar (g)	--	--	
	M.A.P. (NEW AND COLD)	bar (g)	38.3		
	M.A.W.P. (HOT AND CORR.)	bar (g)	38.3		
TEMPERATURE	DESIGN	°C	255 / 100 FOR F.V.	340	
	OPERATING	°C	227	316	
MINIMUM DESIGN METAL TEMPERATURE			8 °C AT 38 bar (g)	8 °C AT 15 bar (g)	
CORROSION ALLOWANCE		mm	ALL 321 S.S. LINING	1	
FLUID	TYPE		PTA + WATER	HOT OIL	
	PHYSICAL STATE		LIQUID	LIQUID	
	SPECIFIC GRAVITY	kg/m³	947	805	
	CAPACITY	m³	~140	~0.026x4	
LIQUID LEV. FOR MECHANICAL DESIGN(ABOVE BOTTOM T.L.)		mm			
JOINTS EFFICENCY	SHELL		1	1	
	HEADS		1	--	
OUT OF ROUND		%	ACCORDING TO ASME CODE UG 80		
INSULATION		TYPE/THK.	CELLULAR GLASS / 160 MM		
FIREPROOFING			YES	--	
WIND PRESSURE	SEE BECHTEL SPEC.22854-SP-000-M-001 Rev.2 PARA 4		ASCE 7-88 "EXPOUSURE C"		
SEISMIC ZONE			ASCE 7-88 "ZONE 1"		
POSTWELD HEAT TREATMENT			YES	NONE	13)
RADIOGRAPHY			100%	100%	14)

LOADS AT BASE		OPERATING	HYDROTEST	EARTHQUAKE
VERTICAL LOAD	kN	2782	2857	2782
SHEAR	kN	59	15	160
MOMENT	kN m	487	134	1555

SUPPLY WEIGHT (MASS)	~111000	kg	LOCATION	OUTDOOR
WEIGHT FULL OF WATER	~251105	kg	SADDLES MOVEMENT	-- mm
SURFACES (IN FIELD)			PAINTING (IN WORK SHOP)	
INSULATION (MEDIUM SURFACE)	~ 176	m²		
SHEETS FOR INSULATION JACKETING	~ 184	m²		
FINAL PAINTING (CARBON STEEL PARTS)	~ 62	m²		

FINAL

ATB Caldereria S.p.A
BRESCIA
ITALIA

COMMITTENTE	CONSULENTE	COMM. (JOB)
IBN RUSHD	TECNIMONT	20230

24 D 002
SECOND PTA CRYSTALLIZER

INSIEME E NOTE - ASSEMBLY AND NOTES

DISEGNATO	APPROVATO	SCALA	DISEGNO NR. (DRAWING NR.)	REV.
A.G.	F.PERINI	1:25	2 0 2 3 0 D 1 0 1	3
VERIFICATO ARRIGHI	DATA 08 JAN 96			

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ZONE RESERVED FOR APPROVAL STAMPS

ASME STAMP U
Pressure vessel Div. 1

ISSUE	DESCRIPTION	DRAWN UP	APPROVED	DATE
4	ISSUED AS FINAL	ARRIGHI	F. PERINI	14/1/97
3	THIRD ISSUE	ARRIGHI	F. PERINI	26/6/96
2	SECOND ISSUED FOR APPROVAL	ARRIGHI	F.PERINI	16/5/96
1	ISSUED FOR APPROVAL	ARRIGHI	F.PERINI	08-02-96

MANUFACTURER'S TRADE MARK
ATB Caldereria S.p.A BRESCIA ITALIA
MANUFACTURER'S DRAWING N° 20230-D-101
ISSUE ~~1~~ ~~2~~ 3

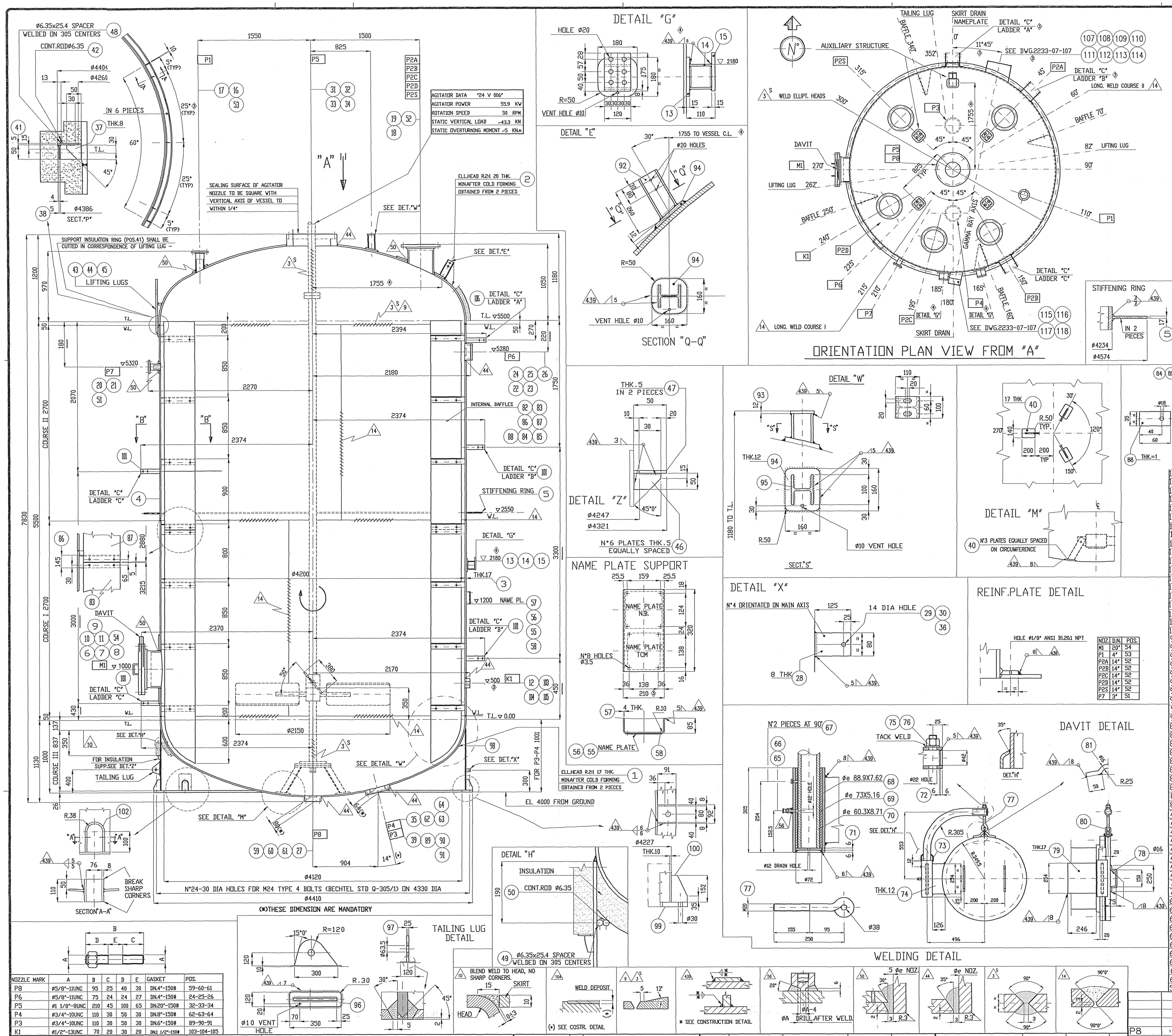
YEAR	JOB	N° PIECES	WORK NUMBER	SCALE
1996	20230	1	18880	1:25

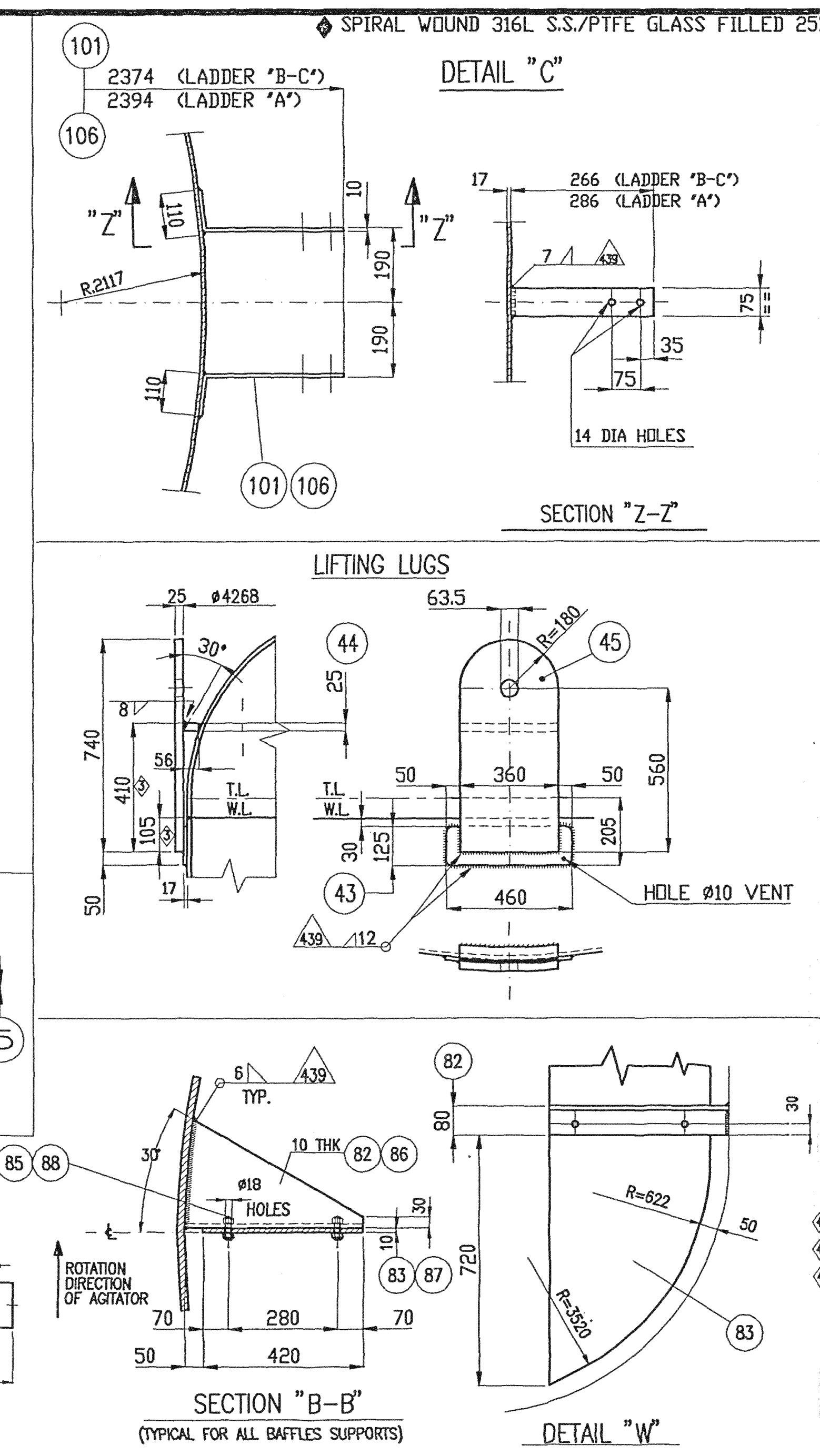
PLANT PTA-YANBU SAUDI ARABIA
ITEM
SERVICE SECOND PTA CRISTALLIZER
TYPE
SURFACE m²
DRAWN UP ARRIGHI
APPROVED F. PERINI
DATE 08-02-96
PURCHASER TECNIMONT
NOT TO BE REPRODUCED WHOLE DWG. PART NOR ENPLOYED FOR ANY PURPOSE OTHER THAN SPECIFICALLY PERMITTED WRITING.
PURCHASER ORDER W040325 NG
MATERIAL REQ. 2743CDMR035

TECNIMONT
CLIENT ARABIAN IND.FIBERS CO.LTD
CLIENT REF. IBN RUSHD
PLANT LOCATION YANBU SAUDI ARABIA
IDENTIFICATION CODE

JOB				E	C	T		N°		
2	7	4	3	C	D	V	D	2	4	2

SHEET 0 0 1 ISSUE 0 4


DETAIL "G"
DETAIL "E"
SECTION "Q-Q"
ORIENTATION PLAN VIEW FROM "A"
DETAIL "Z"
NAME PLATE SUPPORT
DETAIL "W"
DETAIL "M"
DETAIL "X"
REINF.PLATE DETAIL
DAVIT DETAIL
DETAIL "H"
TAILING LUG DETAIL
SECTION "A-A"
WELDING DETAIL
LIFTING LUGS
SUPPORT INSULATION RING (POS.41) SHALL BE CUTTED IN CORRESPONDENCE OF LIFTING LUG
SEALING SURFACE OF AGITATOR NOZZLE TO BE SQUARE WITH VERTICAL AXIS OF VESSEL TO WITHIN 1/4"
AGITATOR DATA "24 V 006"
AGITATOR POWER 55.9 KW
ROTATION SPEED 50 RPM
STATIC VERTICAL LOAD -43.3 KN
STATIC OVERTURNING MOMENT -5 KNm
ELL.HEAD R24 20 THK. MINAFTER COLD FORMING OBTAINED FROM 2 PIECES
ELL.HEAD R24 17 THK. MINAFTER COLD FORMING OBTAINED FROM 2 PIECES
N°24-30 DIA HOLES FOR M24 TYPE 4 BOLTS (BECHTEL STD Q-305/1) ON 4330 DIA
(*)THESE DIMENSION ARE MANDATORY
EL 4000 FROM GROUND
COURSE I 2700
COURSE II 2700
COURSE III 837
ø6.35x25.4 SPACER WELDED ON 305 CENTERS
BLEND WELD TO HEAD, NO SHARP CORNERS.
(*) SEE COSTR. DETAIL
* SEE CONSTRUCTION DETAIL
øA DRILL.AFTER WELD.



◆ SPIRAL WOUND 316L S.S./PTFE GLASS FILLED 25% WITH 316L S.S.INTERNAL RING AND CARBON STEEL EXTERNAL RING(4.44mmTHK.)

POS.	DESCRIPTION		N° PIECES	MATERIAL	SYMB.	DIMENSIONS	NOTES
58	RIVET	RIBATTINI	8	AISI 304	○	ø3	
57	N.PL.SUPP.	SUPP.TARGA	1	SA 240 TP.304	◐	SEE DETAIL	
56	N.PLATE	TARGA DATI	1	AISI 304	○	SEE DWG 2233-07-056	
55	N.PLATE	TARGA DATI	1	AISI 304	○	SEE DWG.2233-07-055	
54	REINF.PL.	P. DI RINF.	1	SA 240 TP.304	◐	ø940/518 17 THK.	
53	REINF.PL.	P. DI RINF.	1	SA 240 TP.304	◐	ø210/120 20 THK.	
52	REINF.PL.	P. DI RINF.	5	SA 240 TP.304	◐	ø650/362 20 THK.	
51	REINF.PL.	P. DI RINF.	1	SA 240 TP.304	◐	ø160/96 17 THK.	
50	ROD	TONDO	1	SA 36	○	ø6.35x13200LG.	
49	ROD	TONDO	43	SA 36	○	ø6.35x25.4 LG.	
48	ROD	TONDO	45	SA 36	○	ø6.35x25.4 LG.	
47	RING	ANELLO	1	SA 516-60	○	ø4321/4247x5	
46	PLATE	PIATTI	6	SA 240 TP.304	◐	50x30x5	
45	LUG	ORECCHIA	2	SA 516-60	○	740X360X25	
44	RIB	NERVATURA	2	SA 240 TP.304	◐	56X360X25	
43	REINF.PL.	P.DI RINF.	2	SA 240 TP.304	◐	125X460X17	
42	ROD	TONDO	1	SA 36	○	ø6.35x13800 LG.	
41	RING	ANELLO	1	SA 516 GR.60	○	øe4404/4260 5THK.	
40	PLATE	PIATTO	3	SA 240 TP.304	○	200x140 17THK.	
39	PAD P3	MASSELLO	1	SA 266CL.2+ 304 S.S. WELD DEPOSIT	◐	ø6" 150# RF	
38	RING	ANELLO	1	SA 516 GR.60	○	øe4396x50 THK.5	
37	PLATE	PIATTO	18	SA 240 TP.304	○	50x50 THK.8	
36	EX.NUT	DADO ES.A.	8	304 S.S.	○	M12	
35	PAD P4	MASSELLO	1	SA 266CL.2+ 304 S.S. WELD DEPOSIT	◐	ø8" 150# RF	
34	EX.NUTS	DADI ES.A.	20	SA 194 GR.2H	◐	ø1-1/8"-8UN-2B	P
33	STUDS	TIRANTE	20	SA 193 GR.B7	◐	ø1-1/8"-8UN-2A L=210	P
32	GASKET P5	GUARNIZ.	1	◆	◐	ø20" 150#	P
31	PAD P5	MASSELLO	1	SA 266CL.2+ 304 S.S. WELD DEPOSIT	◐	ø20" 150# RF	
30	WASHER	RONDELLA	8	304 S.S.	○	ø13x24 UNI 6592	
29	EX.SCREW	VITE T.E.	4	304 S.S.	○	M12x40	
28	PLATE	PIATTO	4	SA 240 TP.304	○	80x125 8THK.	
27	PAD P8	MASSELLO	1	SA 182 F304	◐	ø4" 150# RF	
26	EX.NUTS	DADI ES.A.	8	SA 194 GR.2H	◐	ø5/8" 11UNC-2B	P
25	STUDS	TIRANTE	8	SA 193 GR.B7	◐	ø5/8" 11UNC-2A L=85	P
24	GASKET P6	GUARNIZ.	1	◆	◐	ø4" 150#	P
23	BL.FL.P6	FL.CIECA	1	SA 182 F304	◐	ø4" 150# RF	
22	PAD P6	MASSELLO	1	SA 182 F304	◐	ø4" 150# RF	
21	PIPE P7	TUBO	1	SA 312 TP.304	◐	ø3"SCHED.80	
20	FLANGE P7	FLANGIA	1	SA 182 F.304	◐	ø3"150# SO-RF	
19	PIPE P2A+D/S	TUBO	5	SA 240 TP.304	◐	ø14" THK.12.7	
18	FLANGE P2A+D/S	FL.	5	SA 105+ 304 S.S. WELD DEPOSIT	◐	ø14" 150# SO-RF	
17	PIPE P1	TUBO	1	SA 312 TP.304	◐	ø4"SCHED.80	
16	FLANGE P1	FLANGIA	1	SA 182 GR.F304	◐	ø4"150# SO-RF	
15	PLATE	PIATTO	2	SA 516 GR.70	○	175x120x15THK.	
14	BEAM	PROFILATO	2	SA 36	○	HEA 120 L=80	
13	REINF.PL.	PIAT.DI RINF.	2	SA 240 TP.304	◐	180x180x15THK.	
12	PAD K1	MASSELLO	1	SA 182 F304	◐	ø1 1/2" 150#	
11	FLANGE M1	FLANGIA	1	SA 105+ 304 S.S. WELD DEPOSIT	◐	ø20"150# SO-RF	
10	PIPE M1	TUBO	1	SA 240 TP.304	◐	ø20" 10 THK.	
9	BL.FL.	FL.CIECA	1	SA 105+ 304 S.S. WELD DEPOSIT	◐	ø20"150#-RF	
8	GASKET M1	GUARNIZ.	1	◆	◐	ø20"150# RF	P
7	STUDS	TIRANTI	20	SA 193 GR.B7	◐	ø1 1/8"8UN-2A L=180	P
6	EX.NUTS	DADI ES.A.	40	SA 194 GR.2H	◐	ø1 1/8"8UN-2B	P
5	RING	ANELLO	1	SA 240 TP.304	◐	ø4574/4234 THK.17	
4	COURSE II	VIROLA	1	SA 240 TP.304	◐	I.D.4200 H.2700 THK.17	
3	COURSE I	VIROLA	1	SA 240 TP.304	◐	I.D.4200 H.2700 THK.17	
2	ELL.HEAD	FONDO EL.	1	SA 240 TP.304	◐	I.D. 4200 THK.20	G
1	ELL.HEAD	FONDO EL.	1	SA 240 TP.304	◐	I.D. 4200 THK.17	G

POS.	DESCRIPTION		N° PIECES	MATERIAL	SYMB.	DIMENSIONS	NOTES
118	EX SCREW	VITE T.E.	16	CARBON STEEL	○	M16 LG.70	
117	EX NUTS	DADI ES. A.	16	CARBON STEEL	○	M16	
116	BRACKET	SUPPORTO	1	304 S.S.	◐	SEE DETAIL	
115	BRACKET	SUPPORTO	1	304 S.S.	◐	SEE DETAIL	
114	EX SCREW	VITE T.E.	20	CARBON STEEL	○	M10 LG.25	
113	EX NUTS	DADI ES. A.	20	CARBON STEEL	○	M10	
112	ANGLE BAR	ANGOLARE	2	CARBON STEEL	○	40x40x4 L=5500	
111	PLATE	PIATTO	5	SA 240 TP304	◐	40x2 LG.500	
110	PLATE	PIATTO	3	304 S.S.	◐	100x4 LG.165	
109	PLATE	PIATTO	2	304 S.S.	◐	100x4 LG.185	
108	PLATE	PIATTO	2	304 S.S.	◐	100x4 LG.305	
107	PLATE	PIATTO	3	304 S.S.	◐	100x4 LG.285	
106	LADDER "A" SUPP.	SUPP.SCALE	2	SA 240 TP304	◐	SEE DETAIL "C"	
105	EX.NUTS K1	DADO ES.A.	4	SA 194 GR.2H	◐	ø1/2" 13UNC-2B	P
104	BOLTS K1	TIRANTE	4	SA 193 GR.B7	◐	ø1/2" 13UNC-2A L=70	P
103	GASKET K1	GUARNIZ.	1	◆	◐	ø1 1/2" 150# RF	P
102	DRAIN	DRENAGGIO	2	SA 516 GR.60	○	SEE DETAIL	
101	LADDER "B-C" SUPP.	SUPP.SCALE	8	SA 240 TP.304	◐	SEE DETAIL "C"	
100	RIB	NERVATURA	48	SA 516 GR.60	○	SEE DETAIL	
99	RING	ANELLO	1	SA 516 GR.60	○	ø4410/4120 THK.26	
98	COURSE III	VIROLA	1	SA 240 TP.304	◐	I.D.4207x837 THK.10	
97	LUG	ORECCHIA	1	SA 240 TP.304	◐	SEE DETAIL	
96	REINF.PL.	PIAT.DI RINF.	1	SA 240 TP.304	◐	350x120x10	
95	SECTION	PROFILATO	4	FE 360 BUNI7070	○	HEA100 UNI5397	
94	REINF.PL.	PIAT.DI RINF.	5	SA 240 TP.304	◐	160x160 THK.12	
93	PLATE	PIATTO	4	SA 516 GR.60	○	100x110 12 THK.	
92	SECTION	PROFILATE	1	FE 360 BUNI7070	○	HEA 100 UNI 5397	
91	GASKET P3	GUARNIZ.	1	◆	◐	ø6" 150#	P
90	EX.NUT P3	DADO ES.A.	8	SA 194 GR.2H	◐	ø3/4" 10UNC-2B	P
89	STUD P3	TIRANTE	8	SA 193 GR.B7	◐	ø3/4" 10UNC-2A L=110	P
88	STOP PLATES	PIAS.SICUREZZA	64	SA 240 TP.304	○	35X60X1	
87	INT.BAF.	PIATTI INT.	4	SA 240 TP.304	◐	420X2880X10	
86	PLATES	PIATTI	4	SA 240 TP.304	◐	10 THK.SEE DETAIL "W"	
85	EX.NUTS	DADI ES.A.	64	SA 194 GR.8M	◐	M16 6H	
84	EX. SCREW	VITE T.E.	64	SA 193 B8M	◐	M16X60-6g	
83	INT.BAF.	PIATTI INT.	4	SA 240 TP.304	◐	420X3215X10	
82	PLATES	PIATTI	24	SA 240 TP.304	◐	10 THK.SEE DETAIL "W"	
81	ROD	TONDO	1	SA 36	○	ø16	
80	ANCH.SHACKLE	GRILLO	1	FORGED STEEL	○	ø1/2"STD.	
79	PLATE	PIATTO	1	SA 240 TP.304	◐	246X254X12	
78	HANDLE	MANIGLIA	2	SA 36	○	ø16	
77	EXE.BOLT	TIR.CON OCCHIO	1	SA 36	○	M20X250	
76	EX.NUT	DADO ES.A.	1	SA 36	○	M20 6H	
75	WASHER	RONDELLA	1	SA 36	○	ø37/22 3 THK.	
74	PLATE	PIATTO	1	SA 516 GR.60	○	126X254X12	
73	CAP	FONDELLO	1	SA 403 WP.304	○	ø3 1/2" X 5 THK.	
72	DISK	DISCO	1	SA 516 GR.60	○	ø42 THK.6	
71	DISK	DISCO	1	SA 240 TP.304	○	ø72 THK.6	
70	PIPE	TUBO	1	SA 106 GR.B	○	ø60.3x8.71	
69	PIPE	TUBO	1	CLORINATED POLYVINYL CHLORIDE	○	ø2 1/2" SCH.40	
68	PIPE	TUBO	1	SA 312 TP.304	○	ø3" SCH.X.S.	
67	EX.SCREW	VITE T.E.	2	304 S.S.	○	ø3/8"16UNC-2A L=20	
66	GREASE FITT.	INGR.	1	304 S.S.	○	ø1/8"STD.	
65	HALF COUP.	MEZZO MAN.	1	304 S.S.	○	ø1/8"3000#	
64	GASKET P4	GUARNIZ.	1	◆	◐	ø8" 150#	P
63	EX.NUT P4	DADO ES.A.	8	SA 194 GR.2H	◐	ø3/4" 10UNC-2B	P
62	STUD P4	TIRANTE	8	SA 193 GR.B7	◐	ø3/4" 10UNC-2A L=110	P
61	GASKET P8	GUARNIZ.	1	◆	◐	ø4" 150#	P
60	EX.NUT P8	DADO ES.A.	8	SA 194 GR.2H	◐	ø5/8" 11UNC-2B	P
59	STUD P8	TIRANTE	8	SA 193 GR.B7	◐	ø5/8" 11UNC-2A L=95	P

MATERIAL LIST

MATERIALS TEST SYMBOL		THICKNESSES TOLERANCE	
●	MATERIAL TESTED BY OFFICIAL AUTHORITY	PLATES:	−0,25 mm
◐	MATERIAL WITH MANUFACTURER CERTIFICATE	PIPES:	−12,5%
○	MATERIAL WITHOUT CERTIFICATE	HEADS:	SEE NOTE (G)

DESIGN DATA

		SIDE	SHELL	JACKET OR COIL	NOTES
DESIGN CODES			ASME VIII DIV.1 − 1995 ED.		
CODE "U" STAMP			YES		
INSPECTION AUTHORITY			ABS IV		
PRESSURE (GAUGE)	DESIGN	bar (g)	6/F.V.		
	OPERATING	bar (g)	3.3		
	EXTERNAL	bar (g)	−		
	HYDROTEST IN VERTICAL (SHOP/FIELD)	bar (g)	11.9/9.4		
	HYDROTEST IN HORIZANTAL (SHOP)	bar (g)	12.3		
	PNEUMATIC TEST	bar (g)	−		
	M.A.P. (NEW AND COLD)	bar (g)	8.8		
	M.A.W.P. (HOT AND CORR.)	bar (g)	6.3		
TEMPERATURE	DESIGN	°C	170		
	OPERATING	°C	100		
	FULL VACUUM CONDITION		100		
MINIMUM DESIGN METAL TEMPERATURE			8 °C AT 6 bar (g)		
CORROSION ALLOWANCE		mm	1.5		
FLUID	TYPE		PTA CRYSTALS/WATER		
	PHYSICAL STATE		LIQUID		
	SPECIFIC GRAVITY	kg/m³	1076		
	CAPACITY	m³	~95.8		
LIQUID LEV. FOR MECHANICAL DESIGN(ABOVE BOTTOM T.L.)		mm			
JOINTS EFFICENCY	SHELL		0.85		
	HEADS		1.0		
OUT OF ROUND		%	ACCORDING TO ASME CODE UG−80		
INSULATION		TYPE/THK.	MINERAL WOOL 60THK.		
FIREPROOFING			NO		
WIND PRESSURE	SEE BECHTEL SPEC.22854−SP−		ASCE 7−88 "EXPOSURE C"		Q
SEISMIC ZONE	−000−M−001 REV.2 PARA 4		ASCE 7−8 "ZONE 1"		Q

LOADS AT BASE		OPERATING	HYDROTEST	EARTHQUAKE
VERTICAL LOAD	kN	1430	1350	1430
SHEAR	kN	28	7	81
MOMENT	kN·m	110	28	410

SUPPLY WEIGHT (MASS)	~21000 kg	LOCATION	OUTDOOR
WEIGHT FULL OF WATER	~116800 kg	SADDLES MOVEMENT	mm
SURFACES (IN FIELD)		PAINTING (IN WORK SHOP)	
INSULATION (MEDIUM SURFACE)	~118 m²		
SHEETS FOR INSULATION JACKETING	~120 m²		
FINAL PAINTING (CARBON STEEL PARTS)	~16 m²		

PAINTING (IN WORK SHOP)
- FOR CARBON STEEL PARTS: SANDBLASTING SA 2 1/2 AND PAINTING WITH ONE COAT OF INORGANIC ZINC SILICATE 75 MICRON D.F.T.
- FOR STAINLESS STEEL INTERNAL PARTS: SEE NOTE "EE"
- FOR STAINLESS STEEL EXTERNAL PARTS: PICKLING BY PASTE ON EXTERNAL WELDING AND PROTECT BY TECTIL

ZONE RESERVED FOR APPROVAL STAMPS

FINAL
25/2/97

REV No.	DATE	DESCRIPTION	DRAWN UP	CHECKED	APPROVED

SCALE: JOB No.

ARABIAN INDUSTRIAL FIBERS Co.(IBN RUSHD)
YANBU SAUDI ARABIA

IBN RUSHD PTA PLANT
YANBU SAUDI ARABIA
350,000 MT/Y PTA PLANT

Plant Unit	DRAWING No.	SHEET	REVISION

ISSUE	DESCRIPTION	DRAWN UP	APPROVED	DATE
4	REVISIONATO DOVE INDICATO − EMISSIONE FINALE REVIS. AS INDICATED − FINAL ISSUE	FEDERICI	SILVESTRI	10-12-96
3	EMISSIONE FINALE FINAL ISSUE	FEDERICI	SILVESTRI	19-11-96
2	EMESSO PER APPROVAZIONE ISSUED FOR APPROVAL	BOTTI	SILVESTRI	20-09-96
1	EMESSO PER APPROVAZIONE ISSUED FOR APPROVAL	BOTTI	SILVESTRI	18-04-96

MANUFACTURER'S TRADE MARK: FBM HUDSON

MANUFACTURER'S DRAWING N°: 2233−07−000 SH.1
ISSUE: 1 2 3 4

TECNIMONT
CLIENT: ARABIAN IND.FIBERS CO.LTD
CLIENT REF.: IBN RUSHD
PLANT LOCATION: YANBU SAUDI ARABIA

YEAR	JOB	N° PIECES	WORK NUMBER	SCALE
1996	2233−07	1	96/1065/01	/

PLANT: PTA−YANBU SAUDI ARABIA
ITEM: 24 D 006
SERVICE: PTA RESLURRY TANK (ASSEMBLY DRAWING)
DRAWN UP: BOTTI
APPROVED: SILVESTRI
DATE: 18−04−96
PURCHASER: TECNIMONT
PURCHASER ORDER: W 040596 CE
MATERIAL REQUISITION: 2743−CD−MR−027

NOT TO BE REPRODUCED WHOLE DWG. PART NOR ENPLOYED FOR ANY PURPOSE OTHER THAN SPECIFICALLY PERMITTED WRITING.

IDENTIFICATION CODE									
JOB				E	C	T		N°	
2	7	4	3	C	D	V	D	2 4	6

SHEET 0 0 1 ISSUE 0 4

LIST OF CONNECTIONS

ITEM	PIECES	DN	SERVICE	FLANGE RATING	FLANGE TYPE	FLANGE FACING	NOZZLE O.D.	NOZZLE THK.	REINF. PAD O.D.	REINF. PAD THK.	NOTES
P8	1	4"	DRAIN	150#	PAD	RF	229	64.5			5
P7	1	3"	WATER INLET	150#	SO	RF	88.9	7.62	160	17	
P6	1	4"	SPARE	150#	PAD	RF	229	63.5			1−6
P5	1	20"	AGITATOR MOUNT	150#	PAD	RF	698	99			7
P4	1	8"	SLURRY OUTLET	150#	PAD	RF	343	71.5			3
P3	1	6"	SLURRY OUTLET	150#	PAD	RF	280	65			4
P2A÷D/S	5	14"	SOLID INLET	150#	SO	RF	355.6	12.7	650	20	
P1	1	4"	VAPORS VENT	150#	SO	RF	114.3	8.56	210	20	
K1	1	1½"	TEMPERATURE CONN.	150#	PAD	RF	127	43.5			
M1	1	20"	MANHOLE	150#	SO	RF	508	10	940	17	2

NOTES
1) WITH BLIND FLANGE
2) WITH 480 I.D. MIN., BLIND FLANGE AND DAVIT
3) WITH 200 $^{+1}_{-0}$ I.D.
4) WITH 150 $^{+1}_{-0}$ I.D.
5) WITH 100 $^{+1}_{-0}$ I.D.
6) WITH 102 I.D.
7) WITH 500 I.D.

FLANGES SEALING SURFACE FINISHING
- SERRATED SPIRALFINISH ACCORDING TO ANSI B16.5
- WITH RESULTING ROUGHNESS AARH SHELL SIDE = 63 ÷ 125 μin AARH

WELDING EXAMINATIONS AND PWHT

SIDE		SHELL	JACKET OR COIL	NOTES
IMPACT TEST		SEE NOTE 5		
TEST COUPONS FOR WELDED HEADS		NOT REQURED		
PRODUCTION TEST COUPON		NOT REQURED		
TEST CATEGORY				
UT: ULTRASONIC EXAMINATION		SEE DOC.NR.2233.01−IT−007		
MT: MAGNETIC PARTICLE EXAMINATION				
PT: LIQUID PENETRANT EXAMINATION				
RT: RADIOGRAPHIC EXAMINATION	SHELL	SPOT	−−	(1)
	HEADS	100%	−−	(1)
PWHT: POSTWELD HEAT TREATMENT		NONE	−−	

NOTES
1) RX 100% ON LONGITUDINAL WELD OF NOZZLE FROM PLATE

WELDING DESCRIPTIONS

FOR WELDING PROCEDURE SPECIFICATION SEE WELDING BOOK N.2233−00−WB−01

POSITION	WELDING PROCESS	FILLER METALS	N° WPS	N° PQR

WELDING PROCESS
SMAW: SHIELDED METAL−ARC WELDING
GTAW: GAS TUNGSTEN−ARC WELDING
SAW : SUBMERGED−ARC WELDING
GMAW: GAS METAL−ARC WELDING
FCAW: FLUX CORED−ARC WELDING

DRAWINGS AND SPECIF. REFERENCE

NUMBER	ISSUE	TITLE
2743−VB−FB−001	3	EQUIPMENT GENERAL NOTES
2284−SP−000−A−002	2	BASIC DESIGN DATA
2284−SP−000−W−001	1	MATL. WELD NDT & CORROSION CONTROL.
2284−SP−000−M−001	1	BASIC CIVIL ENGG. DESIGN DATA
2743−XI−DU−001	2	AUXILIARY STRUCTURE
2743−CD−DX−246	5	SETTING PLAN
2743−CD−MR−027	2	MATERIAL REQUISITION
SG−1S (DUPONT)	1	GENERAL FABRICATION REQUIREMENTS
22854−SP−000−D−001	1	UNFIRED PRESSURE VESSEL
2743−YW−SG−001	5	SHOP PAINTING SPEC
SG14.1 S	1	CLEANLINESS REQ.FOR STNL STEEL EQUIPM.
2233−07−107	1	RADIOACTIVE LEVEL INSTR. SUPP.
2233−07−500	1	SHIPPING DRAWING
2233−07−056	1	NAME PLATE TECNIMONT DRAWING
2233−07−055	1	NAME PLATE N.B. DRAWING
2233−07−000 SH.1	4	ASSEMBLY DRAWING

GENERAL NOTES

R) MINIMUM THICKNESS OF WELDING DEPOSIT ON FLANGE FACE, AFTER MACHINING SHALL BE 1.5 TIMES THE CLADDING THICKNESS WITH 4mm AS MINIMUM.
Q) FOR WIND AND EARTQUAKE SEE ALSO SPECIFICATION 22854−SP−000−A−002 REV 2 PARA 3.5 AND 4.6 AND TABLES 1−2
P) BESIDES THE INSTALLED MATERIALS AT SHOP SHALL BE SUPPLIED THE FOLLOWINGS SPARE PARTS.
EXTERNAL PARTS:
−N° 2 SETS OF GASKETS FOR MAIN FLANGES CONNECTING DIFFERENT SECTIONS OF THE EQUIPMENT
−N° 2 SET OF GASKETS FOR EACH MANHOLE OR BLIND FLANGE
−STUD BOLTS AND NUTS: 10% WITH A MINIMUM OF 2 PIECES FOR EACH CONNECTION TYPE.
INTERNAL PARTS:
−BOLTS,NUTS,CLAMPS AND GASKETS: 10% WITH A MINIMUM OF 10 PIECES FOR EACH CONNECTION TYPE.
O) NOZZLE FLANGE CONTACT FACES MUST BE PROTECTED WITH MARINE PLYWOOD OR METAL COVERS COMPLETE OF RUBBER GASKET OR MALLEABLE OILED CLOTH.
N) BEFORE SHIPPING THE UNIT MUST BE CLEANED INTERNALLY DRAINED AND DRIED.
M) ALL UNQUOTED WELDS MUST HAVE SIDES EQUAL TO THE LOWER THICKNESS OF THE PLATES TO WELD.
L) FOR ALL REINFORCING PADS PROVIDE ONE 1/8" ANSI B1.20.1 NPT DIA. HOLE. PADS TO BE AIR TESTED AT 0.5 bar (g); AND ALL WELDS MUST BE TESTED FOR LEAKS WITH SOAP SOLUTION. VENT HOLES WILL BE LEFT OPEN AFTER TESTING. THE HOLES MUST BE FILLED WITH GREASE.
I) ALL INTERNAL AND EXTERNAL PARTS WELDED TO THE SHELL SHALL BE OF THE SAME MATERIAL WHICH CONSTITUTES THE SECTION OF THE SHELL WHERE THE PARTS WILL BE WELDED.
H) FLANGES ACCORDING TO STD. ANSI B16.5 − COUPLINGS ACCORDING TO ANSI B16.11 FULL LENGTH TYPE PER ANSI B1.20.1 TAPER PIPE THREADED − PIPES: CARBON STEEL ACCORDING TO ANSI B36.10 (SEAMLESS); STAINLESS STEEL PER ANSI B36.19 − PIPE FITTINGS ACCORDING TO ANSI B16.9.
G) ALL THICKNESSES SHOWN ON DRAWING EXCEPT FOR ELLIPTICAL HEADS ARE NOMINAL (FOR ELLIPTICAL HEADS ARE THE MINIMUM AFTER FORMING).
F) ALL REMOVABLE INTERNALS SHALL PASS THROUGH A MANHOLE SIZE (480 I.D.).
E) TRAY ELEVATIONS ARE REFERRED TO TOP OF SUPPORT RING.
D) ALL ELEVATIONS ARE MEASURED FROM BOTTOM TANGENT LINE.
C) UNLESS OTHERWISE INDICATED NOZZLE PROJECTIONS ARE MEASURED FROM EQUIPMENT CENTERLINE TO CONTACT FLANGE FACINGS.
B) UNLESS OTHERWISE INDICATED,ALL GIRTH FLANGES AND FLANGE CONNECTIONS BOLT HOLES MUST BE STAGGERED TO MAIN AXIS OF THE EQUIPMENT.
A) UNLESS OTHERWISE NOTED ALL DIMENSIONS ARE IN MILLIMETERS.

NOZZLE MARK	A	B	C	D	E	GASKET	POS.
P8	ø5/8"−11UNC	95	25	40	30	DN.4"−150#	59−60−61
P6	ø5/8"−11UNC	75	24	24	27	DN.4"−150#	24−25−26
P5	ø1 1/8"−8UNC	210	45	100	65	DN.20"−150#	32−33−34
P4	ø3/4"−10UNC	110	30	50	30	DN.8"−150#	62−63−64
P3	ø3/4"−10UNC	110	30	50	30	DN.6"−150#	89−90−91
K1	ø1/2"−13UNC	70	20	30	20	DN.1 1/2"−150#	103−104−105

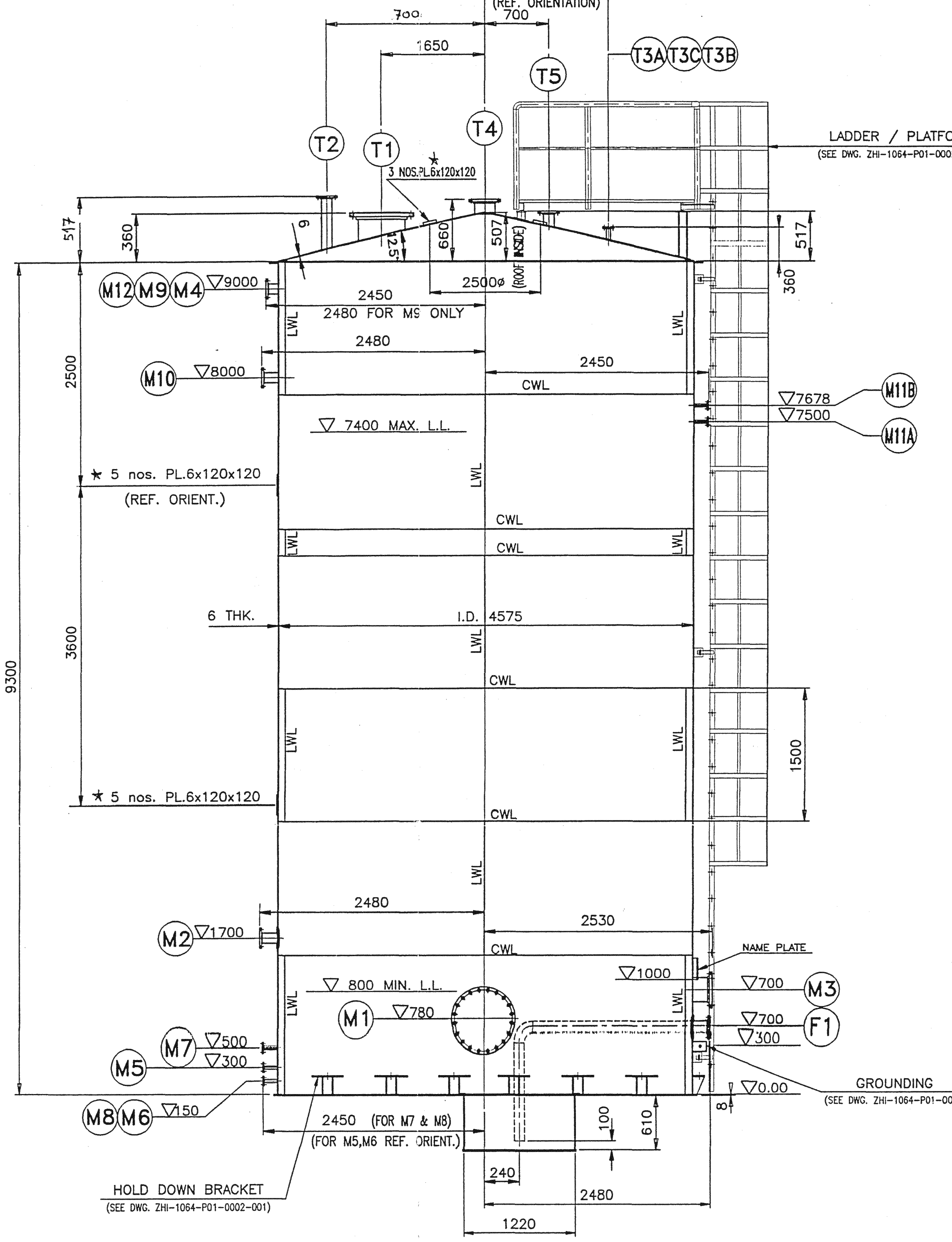
FABRICATION NOTES

FF) FOR STAINLESS STEEL WELDING AND OVERLAY, THE FERRITE CONTENT SHALL BE IN THE RANGE FROM 3 TO 10%
EE) STAINLESS STEEL INTERNAL SURFACES SHALL BE CLEANED AS PER SPECIFICATION DUPONT SG.14.1.S.
DD) HYDRAULIC TEST PERFORMED USING WATER WITH A MAX. 50 P.P.M. OF CHLORIDE AND TEMPERATURE MINIMUM OF 7°C.
CC) WELD DEPOSIT SHALL BE INSPECTED ACCORDING TO PARA D5.2 OF APPENDIX "D" SPECIF. 22854−SP−000−D−001 REV.1
~~BB) BASE METAL WELDED JOINT SHALL BE INSPECTED AS PER CODE PRIOR TO CLAD RESTORATION WITH WELD DEPOSIT.~~
AA) DYE PENETRANT SHALL BE CARRIED OUT AS FOLLOW :
− 100% ON WELDS OF NOZZLES TO SHELL OR HEADS.
− 100% ON WELDS OF ALL OTHER ATTACCHEMENTS TO PRESSURE PARTS.

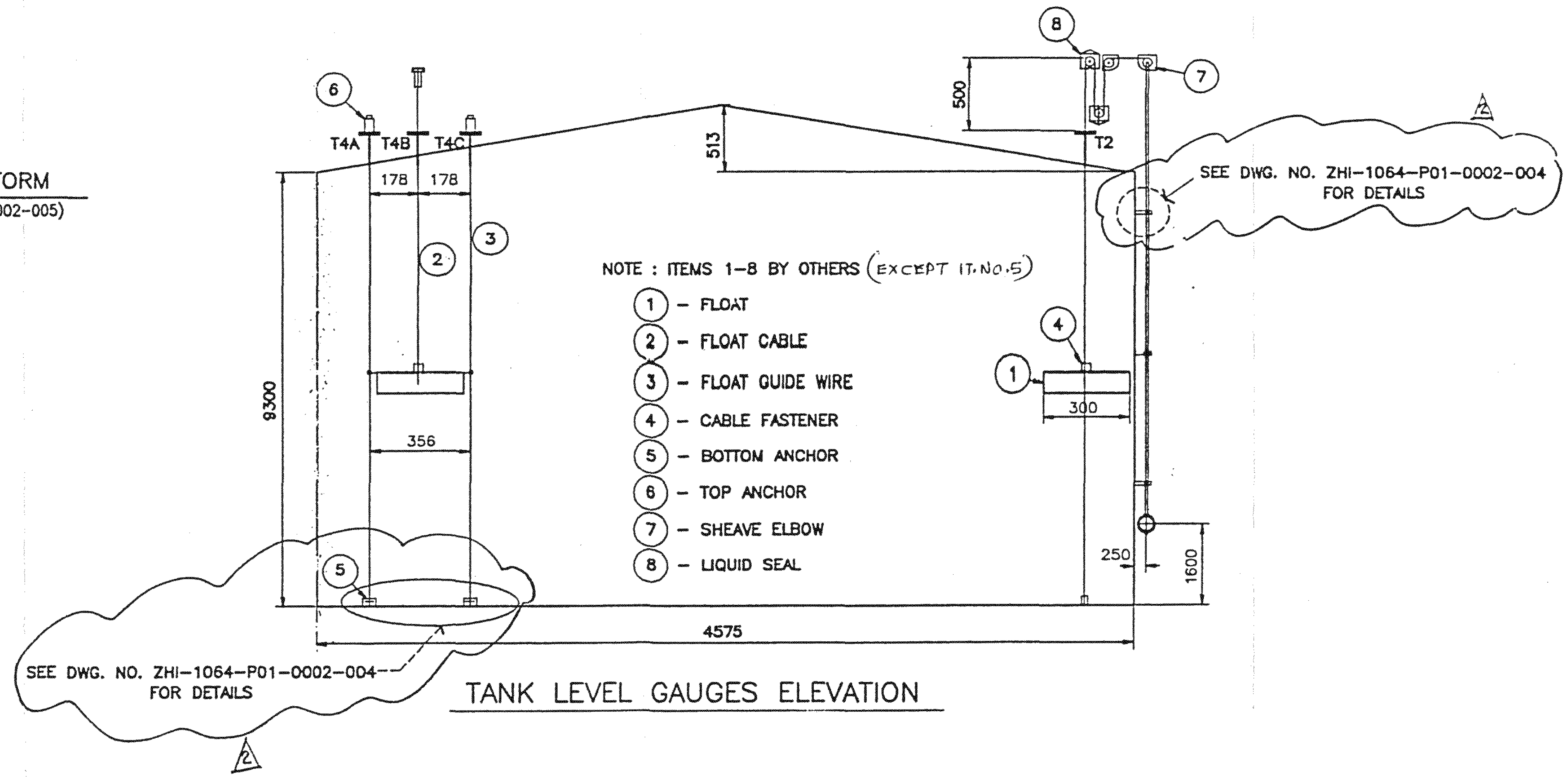
MATERIAL NOTES

7) MATERIALS FOR PRESSURE PARTS AND IN CONTACT WITH PROCESS FLUID SHALL BE ACCORDING TO SPECIFIC. 2743−VB−FP−001 REV.03 PARAS "1.d"
6) MATERIALS FOR PRESSURE PARTS SHALL BE ACCORDING TO ASME II PART."A" ED. 1992 + 1994 ADD.
5) MINIMUM DESIGN METAL TEMPERATURE = 8°C. : IMPACT TEST NOT REQUIRED ACC. TO ASME VIII DIV.1 PARAS UCS(66a) AND UHA 51(a)
4) CARBON STEEL MATERIALS FOR PRESSURE PARTS SUPPLIED IN NORMALIZED CONDITIONS.
3) CARBON STEEL MATERIALS FOR PRESSURE PARTS WITH CARB. CONT. 0.25% MAX.
~~2) NON ASBESTOS CARBON GRAPHITIC FIBER WITH SBR BINDER KLINGER C4500 (1.6 THK)=(COIL SIDE GASKET MAT.)~~
1) SPIRAL WOUND 316 L S.S./PTFE GLASS FIELD 25% WITH 316 L S.S. INTERNAL RING AND CARBON STEEL EXTERNAL RING (4.44 mm THK.)

FOR VESSELS


1372.5
(REF. ORIENTATION)
700
700
1650
T5
T3A T3C T3B
T2
T1
T4
3 NOS.PL.6x120x120
LADDER / PLATFORM
(SEE DWG. ZHI-1064-P01-0002-005)
517
360
6
660
507 (ROOF INSIDE)
125
2500ø
517
360
M12 M9 M4 ▽9000
2450
2480 FOR M9 ONLY
2480
LWL
M10 ▽8000
2450
CWL
▽7678 M11B
▽7500 M11A
▽ 7400 MAX. L.L.
2500
★ 5 nos. PL.6x120x120
(REF. ORIENT.)
CWL
CWL
6 THK.
I.D. 4575
9300
3600
CWL
1500
★ 5 nos. PL.6x120x120
CWL
2480
2530
M2 ▽1700
CWL
NAME PLATE
▽1000
▽700 M3
▽ 800 MIN. L.L.
M1 ▽780
▽700 F1
▽300
M7 ▽500
▽300
M5
▽0.00
GROUNDING CLIP
(SEE DWG. ZHI-1064-P01-0002-001)
M8 M6 ▽150
8
100
610
2450 (FOR M7 & M8)
(FOR M5,M6 REF. ORIENT.)
240
2480
1220
HOLD DOWN BRACKET
(SEE DWG. ZHI-1064-P01-0002-001)

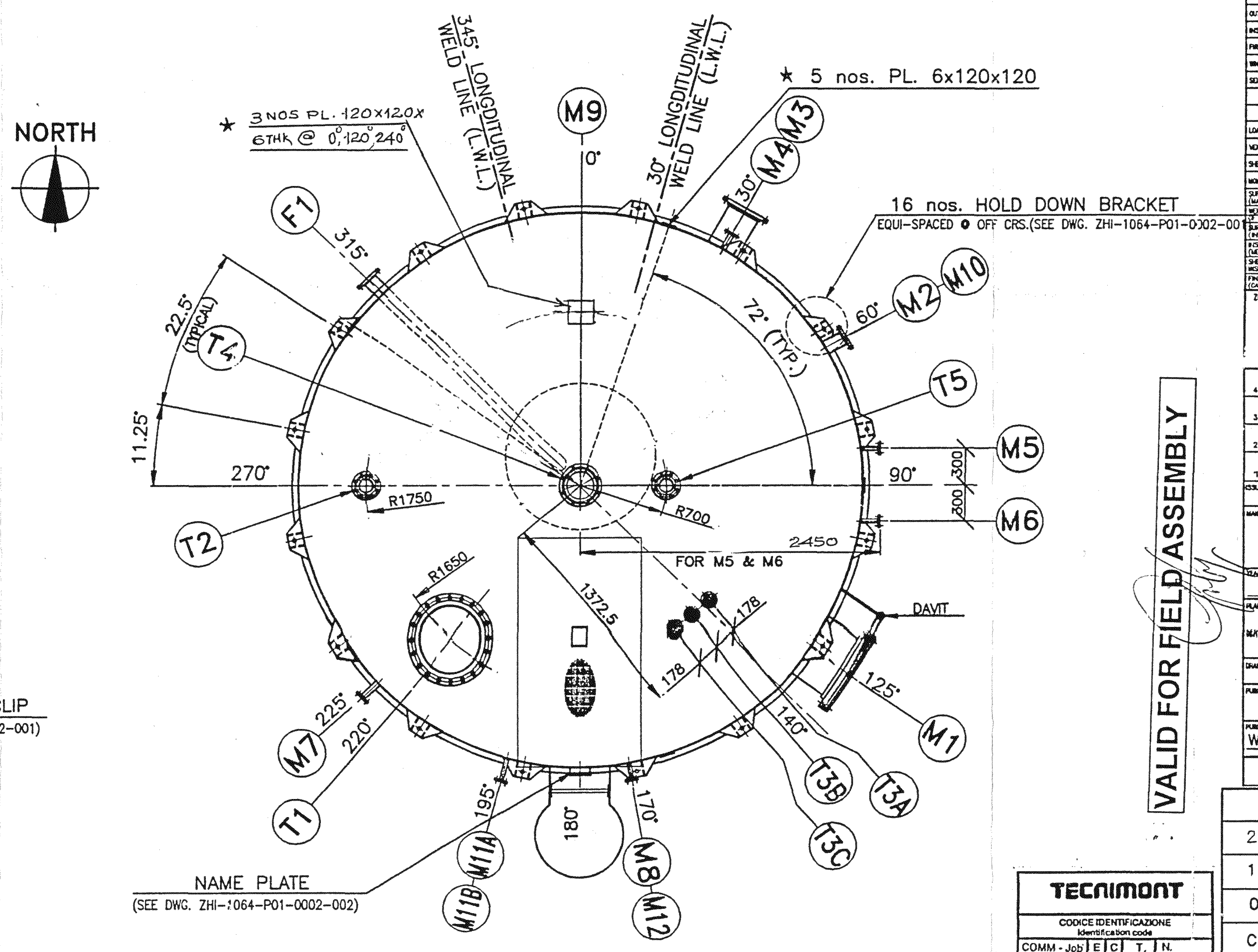
ELEVATION


6
T4A T4B T4C
178 178
513
8
500
7
T2
SEE DWG. NO. ZHI-1064-P01-0002-004
FOR DETAILS
2
3
9300
356
4
300
250
1600
5
4575
SEE DWG. NO. ZHI-1064-P01-0002-004
FOR DETAILS

NOTE : ITEMS 1-8 BY OTHERS (EXCEPT IT.NO.5)

1. – FLOAT
2. – FLOAT CABLE
3. – FLOAT GUIDE WIRE
4. – CABLE FASTENER
5. – BOTTOM ANCHOR
6. – TOP ANCHOR
7. – SHEAVE ELBOW
8. – LIQUID SEAL

TANK LEVEL GAUGES ELEVATION


NORTH
345° LONGITUDINAL WELD LINE (L.W.L.)
★ 3 NOS PL. 120x120x 6THK @ 0°,120°,240°
M9
0°
30° LONGITUDINAL WELD LINE (L.W.L.)
★ 5 nos. PL. 6x120x120
M4 M3
30°
F1
315°
16 nos. HOLD DOWN BRACKET
EQUI-SPACED @ OFF CRS.(SEE DWG. ZHI-1064-P01-0002-001)
22.5° (TYPICAL)
T4
72° (TYP.)
60°
M2 M10
11.25°
T5
270°
90°
M5
300
300
M6
T2
R1750
R700
2450
FOR M5 & M6
R1650
1372.5
178
178
DAVIT
M7
225°
220°
140°
125°
M1
T1
195°
180°
170°
T3B
T3A
T3C
M11A
M11B
M8
M12
NAME PLATE
(SEE DWG. ZHI-1064-P01-0002-002)

ORIENTATION

★ PAD PLATES FOR WATER SPRAY SYSTEM PROTECTION.

GENERAL NOTES

Q) SPIRAL WOUND 316L/PTFE GLASS FILLED 25% WITH 316L INTERNAL RING AND C.S EXTERNAL RING 4.44mm THK. DIMENSIONS SHALL BE AS PER API 601

P) BESIDES THE INSTALLED MATERIALS AT SHOP SHALL BE SUPPLIED THE FOLLOWINGS SPARE PARTS,
EXTERNAL PARTS:
- 2 SETS OF GASKETS FOR MAIN FLANGES CONNECTING DIFFERENT SECTIONS OF THE EQUIPMENT
- 2 SETS OF GASKETS FOR EACH MANHOLE OR BLIND FLANGE
- STUD BOLTS AND NUTS: 10% WITH A MINIMUM OF 2 PIECES FOR EACH CONNECTION TYPE.

INTERNAL PARTS:
- BOLTS,NUTS,CLAMPS AND GASKETS: 10% WITH A MINIMUM OF 10 PIECES FOR EACH CONNECTION TYPE.

O) NOZZLE FLANGE CONTACT FACES MUST BE PROTECTED WITH MARINE PLYWOOD OR METAL COVERS COMPLETE OF RUBBER GASKET OR MALLEABLE OILED CLOTH.

N) BEFORE SHIPPING THE UNIT MUST BE CLEANED INTERNALLY DRAINED AND DRIED.

M) ALL UNQUOTED WELDS MUST HAVE SIDES EQUAL TO THE LOWER THICKNESS OF THE PLATES TO WELD.

L) FOR ALL REINFORCING PADS PROVIDE ONE 1/8" ANSI B1.20.1 NPT DIA. HOLE. PADS TO BE AIR TESTED AT 2 bar (g); AFTER THE PRESSURE MUST BE REDUCED TO 0.5 bar (g) AND ALL WELDS MUST BE TESTED FOR LEAKS WITH SOAP SOLUTION. VENT HOLES WILL BE LEFT OPEN AFTER TESTING. THE HOLES MUST BE FILLED WITH GREASE.

I) ALL INTERNAL AND EXTERNAL PARTS WELDED TO THE SHELL SHALL BE OF THE SAME MATERIAL WHICH CONSTITUTES THE SECTION OF THE SHELL WHERE THE PARTS WILL BE WELDED.

H) FLANGES ACCORDING TO STD. ANSI B16.5 – COUPLINGS ACCORDING TO ANSI B16.11 FULL LENGTH TYPE PER ANSI B1.20.1 TAPER PIPE THREADED – PIPES: CARBON STEEL ACCORDING TO ANSI B36.10 (SEAMLESS); STAINLESS STEEL PER ANSI B 36.19 – PIPE FITTINGS ACCORDING TO ANSI B16.9.

G) ALL THICKNESSES SHOWN ON DRAWING EXCEPT FOR ELLIPTICAL HEADS ARE NOMINAL (FOR ELLIPTICAL HEADS ARE THE MINIMUM AFTER FORMING).

F) ALL REMOVABLE INTERNALS SHALL PASS THROUGH A MANHOLE SIZE (478 I.D.).

E) TRAY ELEVATIONS ARE REFERRED TO TOP OF SUPPORT RING.

D) ALL ELEVATIONS ARE MEASURED FROM BOTTOM TANGENT LINE.

C) UNLESS OTHERWISE INDICATED NOZZLE PROJECTIONS ARE MEASURED FROM EQUIPMENT CENTERLINE TO CONTACT FLANGE FACINGS.

B) UNLESS OTHERWISE INDICATED,ALL GIRTH FLANGES AND FLANGE CONNECTIONS BOLT HOLES MUST BE STAGGERED TO MAIN AXIS OF THE EQUIPMENT.

A) UNLESS OTHERWISE NOTED ALL DIMENSIONS ARE IN MILLIMETERS.

FOR VESSELS

DRAWINGS AND SPECIF. REFERENCE

NUMBER	ISSUE	TITLE
2743-CD-SE 162	1	TECNIMONT DATA SHEET
2743-YW-SG 002	1	SITE PAINTING
2743-CD-MR 25	2	MATERIAL REQUISTION
22854-SP-000-F001	2	STORAGE TANK
DUPONT G8A		S.S. STORAGE TANK
ZHI-1064-P01-002-001	0	SHELL , ROOF & BOTTOM PL. DEV. PLAN
ZHI-1064-P01-002-002	0	ROOF & SHELL MANHOLE DETAILS/NAMEPLATE
ZHI-1064-P01-002-003	0	NOZZLE DETAILS
ZHI-1064-P01-002-004	0	COIL DETAILS

WELDING DESCRIPTIONS

POSITION	WELDING PROCESS	FILLER METALS	N? WPS	N? PQR
		SEE WELD MAP		

WELDING PROCESS
SMAW: SHIELDED METAL-ARC WELDING
GTAW: GAS TUNGSTEN-ARC WELDING
SAW : SUBMERGED-ARC WELDING
GMAW: GAS METAL-ARC WELDING
FCAW: FLUX CORED-ARC WELDING

WELDING EXAMINATIONS AND PWHT

	SIDE	SHELL	JACKET OR COIL	NOTES
TEST COUPONS FOR WELDED HEADS		–		
PRODUCTION TEST COUPON		–		
TEST CATEGORY		–		
UT: ULTRASONIC EXAMINATION		API 650		
MT: MAGNETIC PARTICLE EXAMINATION		API 650		
PT: LIQUID PENETRANT EXAMINATION		API 650		
RT: RADIOGRAPHIC EXAMINATION	SHELL	API 650		
	HEADS			
PWHT: POSTWELD HEAT TREATMENT		–		

NOTES

LIST OF CONNECTIONS

ITEM	PIECES	DN	SERVICE	FLANGE RATING	FLANGE TYPE	FLANGE FACING	NOZZLE O.D.	NOZZLE THK.	REINF. PAD O.D.	REINF. PAD THK.	NOTES
T5	1	4"	SPARE	150#	S.O	R.F	114.3	6.02	280	6	2
T4	1	8"	VENT	150#	S.O	R.F	219.1	8.18	457	6	
T3C	1	1 1/2"	LEVEL GUAGE	150#	S.O	R.F	48.3	3.68	–	–	
T3B	1	1 1/2"	LEVEL GUAGE	150#	S.O	R.F	48.3	3.68	–	–	
T3A	1	1 1/2"	LEVEL GUAGE	150#	S.O	R.F	48.3	3.68	–	–	
T2	1	4"	VACUUM BREAKER CONN.	150#	S.O	R.F	114.3	6.02	280	6	
T1	1	20"	MANHOLE/EMERGENCY	150#	S.O	R.F	508.0	5.54	1067	6	3
F1	1	4"	BOTTOM DRAIN	150#	S.O	R.F	114.3	6.02	305	6	4
M12	1	2"	BALANCING	150#	S.O	R.F	60.3	3.91	–	–	6
M11B	1	2"	LEVEL SWITCH	150#	S.O	R.F	60.3	3.91	–	–	
M11A	1	2"	LEVEL SWITCH	150#	S.O	R.F	60.3	3.91	–	–	
M10	1	4"	LIQUID INLET FROM B.L	150#	S.O	R.F	114.3	6.02	305	6	
M9	1	4"	SPARE	150#	S.O	R.F	114.3	6.02	305	6	2
M8	1	2"	LEVEL CONTROLLER	150#	S.O	R.F	60.3	3.91	–	–	6
M7	1	1.5"	TEMPERATURE CONN.	150#	S.O	R.F	48.3	3.68	–	–	
M6	1	1"	CONDENSATE OUTLET	150#	W.N	R.F	33.4	4.55	–	–	5
M5	1	1"	STEAM INLET	150#	W.N	R.F	33.4	4.55	–	–	5
M4	1	1.5"	RECYCLE FROM 16G003/013	150#	S.O	R.F	48.3	3.68	–	–	
M3	1	10"	LIQUID OUTLET	150#	S.O	R.F	273.1	9.27	584	6	
M2	1	4"	LIQUID INLET FROM 16G001/011	150#	S.O	R.F	114.3	6.02	305	6	
M1	1	20"	MANHOLE	150#	S.O	R.F	508.0	5.54	1168	6	1

NOTES

1. WITH BLIND FLANGE AND DAVIT.
2. WITH BLIND FLANGE.
3. TO BE COUPLED WITH AN EMERGENCY MANHOLE.(BY OTHERS)
4. WITH 114.3 O.D 8.56THK. INTERNAL DRAW OFF SUMPO.(SEE DRG.)
5. WITH INTERNAL HEATING COIL.
6. WITH BLIND FLANGE DRILLED FOR ø33.4 PIPE WELDED IN FIELD.

FLANGES SEALING SURFACE FINISHING: SERRATED CONCENTRIC OR SERRATED SPIRAL FINISH ACCORDING TO ANSI B16.5 WITH RESULTING ROUGHNESS AARH 125 – 250 μ". (ANSI B46.1)

TECNIMONT

CODICE IDENTIFICAZIONE
Identification code

COMM - Job	E	C	T.	N.

FOGLIO Sheet		EM Issue	

MATERIAL LIST

POSITION	DESCRIPTION	NO. PIECES	MATERIAL	SYMBOLS	DIMENSIONS	NOTES
	ANCHOR CHAIR		ASTM A 240 TP 316L	○		
	COIL PIPE		ASTM A 312 TP 316L	○		
	COIL FLANGE		ASTM A 182 F 316L	○		
	INTERNALS		SS TYPE 316 L	○		
	GASKET (SHELL)		SEE NOTE – Q	○		
	NUTS		ASTM A 194 GR 2H	○		
	BOLTS (EXT.)		ASTM A 193 GR B7	○		
	BOLTS & NUTS (INT.)		316L SS	○		
	NOZ. NECKS (PIPES)		ASTM A 312 TP 316L	○		
	NOZ. NECKS (PLATE)		ASTM A 240 TP 316L	○		
	FLANGES		ASTM A 182 F 316L	○		
	BOTTOM PLATES		ASTM A 240 TP 316L	○		
	ROOF PLATES/PAD		ASTM A 240 TP 316L	○		
	SHELL PLATES/PAD		ASTM A 240 TP 316L	○		

MATERIALS TEST SYMBOL		THICKNESSES TOLERANCE	
○	MATERIAL TESTED BY OFFICIAL AUTHORITY	PLATES:	–0,25 mm
⊕	MATERIAL WITH MANUFACTURER CERTIFICATE	PIPES:	–12.5%
◯	MATERIAL WITHOUT CERTIFICATE	HEADS:	SEE NOTE (G)

DESIGN DATA

	SIDE	SHELL	COIL	NOTES
DESIGN CODES		API 650		
CODE "U" STAMP				
INSPECTION AUTHORITY		TECNIMONT + BECHTEL		
PRESSURE (GAUGE) DESIGN	bar (g)	+500/–50 mm H₂0	8/–14.5 AT 100°C	
PRESSURE (GAUGE) OPERATING	bar (g)	ATM	5	
PRESSURE (GAUGE) EXTERNAL	bar (g)			
PRESSURE (GAUGE) HYDROTEST IN VERTICAL	bar (g)	FULL OF WATER	12	
PRESSURE (GAUGE) HYDROTEST IN HORIZONTAL	bar (g)	–		
PRESSURE (GAUGE) PNEUMATIC TEST	bar (g)	–		
TEMPERATURE DESIGN	°C	120	180	
TEMPERATURE OPERATING	°C	90	158	
MINIMUM DESIGN METAL TEMPERATURE		°C AT bar (g)		
CORROSION ALLOWANCE	mm	1.5	1.5	
FLUID TYPE		ACETIC ACID	STEAM/WATER	
FLUID PHYSICAL STATE		LIQUID		
FLUID SPECIFIC GRAVITY	kg/m³	960	1000	
FLUID CAPACITY	m³	150		
LIQUID LEV. FOR MECHANICAL DESIGN(ABOVE BOTTOM T.L.)	mm			
JOINTS EFFICIENCY SHELL		0.85	1.0	
JOINTS EFFICIENCY HEADS		–		
OUT OF ROUND	%	0.55		
INSULATION	TYPE/THK.	MINERAL WOOL	/ 60mm	
FIREPROOFING		–		
WIND PRESSURE SEE BECHTEL SPEC.		ASCE7.88 EXPOSURE C		
SEISMIC ZONE 22854.SP.000.M.001		ASCE7.88 ZONE 1		

LOADS AT BASE		OPERATING	HYDROTEST	EARTHQUAKE
VERTICAL LOAD	kN	1600	1700	1600
SHEAR	kN	28	7	150
MOMENT	kN-m	120	30	550

SUPPLY WEIGHT (MASS)	10,721 kg	LOCATION	OUTDOOR
WEIGHT FULL OF WATER	163,603 kg	SADDLES MOVEMENT	mm
SURFACES (IN FIELD)		PAINTING (IN FIELD)	
INSULATION (MEDIUM SURFACE)	m²	AS PER STD. 2743-YW-SG-002	
SHEETS FOR INSULATION JACKETING	m²		
FINAL PAINTING (CARBON STEEL PARTS)	m²		

ZONE RESERVED FOR APPROVAL STAMPS

ISSUE	DESCRIPTION	DRAWN UP	CHECKED	APPROVED
4	REVISED AS PER CLIENT COMMENTS	Rene	ABD	ABD
3	REVISED AS PER CLIENT COMMENTS	MGV	RBU	ABD
2	FOR APPROVAL	PGS	RBU	ABD
1	PRELIMINARY	PGS	RBU	ABD

MANUFACTURER'S TRADE MARK: AL ZAMIL HEAVY IND. LTD.		MANUFACTURER'S DRAWING NO.: ZHI-1064-P01-0002-000		TECNIMONT	
		ISSUE		CLIENT: ARABIAN IND. FIBERS CO LTD.	
				CLIENT REF.: IBN RUSHD	
YEAR: 1996	JOB: P01-1064/95	NO. PIECES: 1	WORK NUMBER: P01–1064	SCALE: 1:35	PLANT LOCATION: YANBU SAUDI ARABIA
PLANT: PTA-YANBU SAUDI ARABIA		ITEM: 16F002		IDENTIFICATION CODE: JOB 2743 E C C D T V D NO. 162	
SERVICE: DEHYDRATED SOLVENT TANK					
DRAWN UP: PGS	APPROVED: ABD	DATE: 26.02.96		SHEET: 001	ISSUE: 5
PURCHASER: TECNIMONT		NOT TO BE REPRODUCED WHOLE DWG. PART NOR EMPLOYED FOR ANY PURPOSE OTHER THAN SPECIFICALLY PERMITTED WRITING.			
PURCHASER ORDER: W040355 NG	MATERIAL REQUISITION: 2743-CD-MR 025				

DELIVERED 29 SEP 1996

AS FINAL

VALID FOR FIELD ASSEMBLY

REVISION	DESCRIPTION OF CHANGE	DATE	DRAWN	CHECKED	APPROVED
2	AS FINAL	29SEP96	Rene	ABD	ABD
1	PROJECTION OF T2 REVISED FR. 290 TO 700 & ORIENTATION OF F1 & M3 REVISED.	01SEPT96	Rene	ABD	ABD
0	ISSUED FOR FABRICATION REVISED AS PER CLIENT COMMENTS	18AUG96	Rene	ABD	ABD
C	REVISED AS PER CLIENT COMMENTS	13.06.96	MGV	RBU	ABD
B	FOR APPROVAL	31.03.96	PGS	RBU	ABD
A	PRELIMINARY	26.02.96	PGS	RBU	ABD

CLIENT:

TECNIMONT

MANUFACTURER:

AL ZAMIL HEAVY INDUSTRIES LTD.
MAIN OFFICE JEDDAH: TEL. 699 2411 (4 LINES),FAX:699 2420
P.O. BOX:13169 JEDDAH 21493 S.A. TELEX: 603703 ZHILRD SJ

THIS DRAWING IS SOLE PROPERTY OF AL ZAMIL HEAVY INDUSTRIES LTD. AND CANNOT BE USED OR PRODUCED IN ANY MANNER WITHOUT PROPER AUTHORIZATION.

TITLE:

"GENERAL ARRANGEMENT"

DEHYDRATED SOLVENT TANK

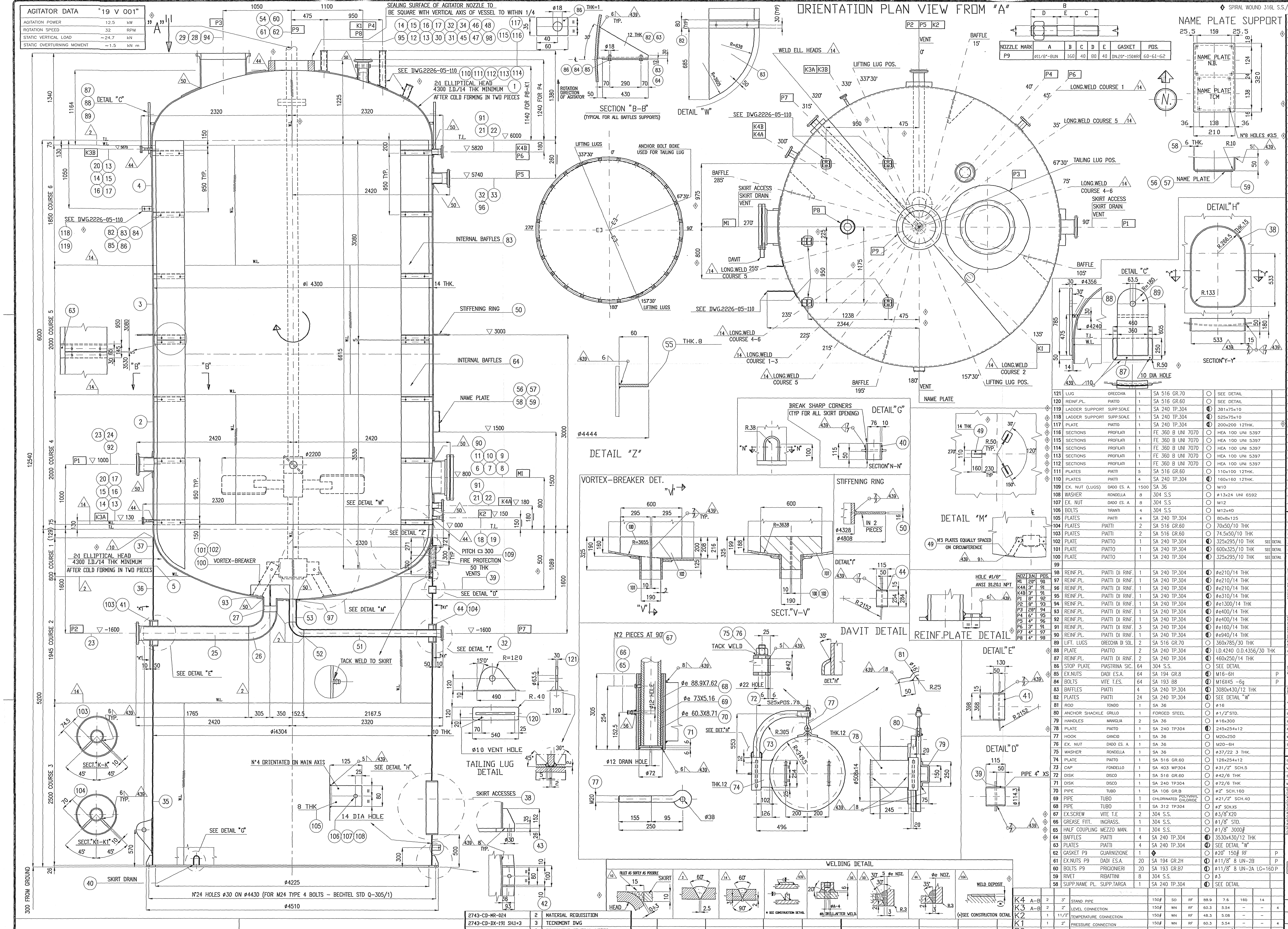
16F002

DESIGNED:	CHECKED:	APPROVED:
RBU	RBU	ABD
DRAWN:	CONTRACT No. (J.O.No.)	TOTAL CONSTRUCTION WEIGHT
MGV	P01–1064/95	-

SCALE	DRAWING No.	REV.	SIZE
1:35	ZHI-1064-P01-0002-000	2	A1

ACAD–DWG\TECHNIMONT\P07–1064\16F002\0002–000

AGITATOR DATA	"19 V 001"	
AGITATION POWER	12.5	kW
ROTATION SPEED	32	RPM
STATIC VERTICAL LOAD	~24.7	kN
STATIC OVERTURNING MOMENT	~1.5	kN m



◆ SPIRAL WOUND 316L S.S./PT FE GLASS FILLED 25% WITH 316L S.S.INT.RING AND CARBON STEEL EXT.RING (4.44mm THK.)

NOZZLE MARK	A	B	C	D	E	GASKET	POS.
P9	ø11/8"-8UN	160	40	80	40	DN.20"-150#RF	60-61-62

MATERIAL LIST

POS.	DESCRIPTION	DESCRIPTION	N° PIECES	MATERIAL	SYMB.	DIMENSIONS	NOTES
121	LUG	ORECCHIA	1	SA 516 GR.70	○	SEE DETAIL	
120	REINF.PL.	PIATTO	1	SA 516 GR.60	○	SEE DETAIL	
119	LADDER SUPPORT	SUPP.SCALE	1	SA 240 TP.304	◐	381x75x10	
118	LADDER SUPPORT	SUPP.SCALE	1	SA 240 TP.304	◐	525x75x10	
117	PLATE	PIATTO	1	SA 240 TP.304	◐	200x200 12THK.	
116	SECTIONS	PROFILATI	1	FE 360 B UNI 7070	○	HEA 100 UNI 5397	
115	SECTIONS	PROFILATI	1	FE 360 B UNI 7070	○	HEA 100 UNI 5397	
114	SECTIONS	PROFILATI	1	FE 360 B UNI 7070	○	HEA 100 UNI 5397	
113	SECTIONS	PROFILATI	1	FE 360 B UNI 7070	○	HEA 100 UNI 5397	
112	SECTIONS	PROFILATI	1	FE 360 B UNI 7070	○	HEA 100 UNI 5397	
111	PLATES	PIATTI	5	SA 516 GR.60	○	110x100 12THK.	
110	PLATES	PIATTI	4	SA 240 TP.304	◐	160x160 12THK.	
109	EX. NUT (LUGS)	DADO ES. A.	1500	SA 36	○	M10	
108	WASHER	RONDELLA	8	304 S.S	○	ø13x24 UNI 6592	
107	EX. NUT	DADO ES. A.	8	304 S.S	○	M12	
106	BOLTS	TIRANTI	4	304 S.S	○	M12x40	
105	PLATES	PIATTI	4	SA 240 TP.304	○	80x8x125	
104	PLATES	PIATTI	2	SA 516 GR.60	○	70x50/10 THK	
103	PLATES	PIATTI	2	SA 516 GR.60	○	74.5x50/10 THK	
102	PLATE	PIATTO	1	SA 240 TP.304	◐	325x295/10 THK	SEE DETAIL
101	PLATE	PIATTO	1	SA 240 TP.304	◐	600x325/10 THK	SEE DETAIL
100	PLATE	PIATTO	1	SA 240 TP.304	◐	325x295/10 THK	SEE DETAIL
99							
98	REINF.PL.	PIATTI DI RINF.	1	SA 240 TP.304	◐	øe210/14 THK	
97	REINF.PL.	PIATTI DI RINF.	1	SA 240 TP.304	◐	øe210/14 THK	
96	REINF.PL.	PIATTI DI RINF.	1	SA 240 TP.304	◐	øe210/14 THK	
95	REINF.PL.	PIATTI DI RINF.	1	SA 240 TP.304	◐	øe310/14 THK	
94	REINF.PL.	PIATTI DI RINF.	1	SA 240 TP.304	◐	øe1300/14 THK	
93	REINF.PL.	PIATTI DI RINF.	1	SA 240 TP.304	◐	øe400/14 THK	
92	REINF.PL.	PIATTI DI RINF.	1	SA 240 TP.304	◐	øe400/14 THK	
91	REINF.PL.	PIATTI DI RINF.	3	SA 240 TP.304	◐	øe160/14 THK	
90	REINF.PL.	PIATTI DI RINF.	1	SA 240 TP.304	◐	øe940/14 THK	
89	LIFT. LUGS	ORECCHIA DI SOL.	2	SA 516 GR.70	○	360x785/30 THK	
88	PLATE	PIATTO	2	SA 240 TP.304	◐	I.D.4240 O.D.4356/30 THK	
87	REINF.PL.	PIATTI DI RINF.	2	SA 240 TP.304	◐	460x250/14 THK	
86	STOP PLATE	PIASTRINA SIC.	64	304 S.S.	○	SEE DETAIL	
85	EX.NUTS	DADI ES.A.	64	SA 194 GR.8	◐	M16-6H	P
84	BOLTS	VITE T.ES.	64	SA 193 B8	◐	M16X45 -6g	P
83	BAFFLES	PIATTI	4	SA 240 TP.304	◐	3080x430/12 THK	
82	PLATES	PIATTI	24	SA 240 TP.304	◐	SEE DETAIL "W"	
81	ROD	TONDO	1	SA 36	○	ø16	
80	ANCHOR SHACKLE	GRILLO	1	FORGED STEEL	○	ø1/2"STD.	
79	HANDLES	MANIGLIA	2	SA 36	○	ø16x300	
78	PLATE	PIATTO	1	SA 240 TP304	◐	245x254x12	
77	HOOK	GANCIO	1	SA 36	○	M20x250	
76	EX. NUT	DADO ES. A.	1	SA 36	○	M20-6H	
75	WASHER	RONDELLA	1	SA 36	○	ø37/22 3 THK.	
74	PLATE	PIATTO	1	SA 516 GR.60	○	126x254x12	
73	CAP	FONDELLO	1	SA 403 WP304	○	ø31/2" SCH.5	
72	DISK	DISCO	1	SA 516 GR.60	○	ø42/6 THK	
71	DISK	DISCO	1	SA 240 TP304	○	ø72/6 THK	
70	PIPE	TUBO	1	SA 106 GR.B	○	ø2" SCH.160	
69	PIPE	TUBO	1	CHLORINATED POLYVINYL CHLORIDE	○	ø21/2" SCH.40	
68	PIPE	TUBO	1	SA 312 TP304	○	ø3" SCH.XS	
67	EX.SCREW	VITE T.E	2	304 S.S.	○	ø3/8"X20	
66	GREASE FITT.	INGRASS.	1	304 S.S.	○	ø1/8" STD.	
65	HALF COUPLING	MEZZO MAN.	1	304 S.S.	○	ø1/8" 3000#	
64	BAFFLES	PIATTI	4	SA 240 TP.304	◐	3530x430/12 THK	
63	PLATES	PIATTI	4	SA 240 TP.304	◐	SEE DETAIL "W"	
62	GASKET P9	GUARNIZIONE	1	◆	○	ø20" 150# RF	P
61	EX.NUTS P9	DADI ES.A.	20	SA 194 GR.2H	◐	ø11/8" 8 UN-2B	P
60	BOLTS P9	PRIGIONIERI	20	SA 193 GR.B7	◐	ø11/8" 8 UN-2A LG=160	P
59	RIVET	RIBATTINI	8	304 S.S.	○	ø3	
58	SUPP.NAME PL.	SUPP.TARGA	1	SA 240 TP.304	◐	SEE DETAIL	
57	NAME PLATE TMC	TARGA DATI	1	304 S.S.	○	SEE DWG 2226-05-057	
56	NAME PLATE N.B.	TARGA DATI	1	304 S.S.	○	SEE DWG 2226-05-056	
55	RING	ANELLO	1	SA 240 TP.304	○	≠60x8 LG.13773	
54	PAD P9	MASSELLO	1	SA 266 CL.2+ 304 S.S. WELD DEPOSIT	◐	ø20"150# PAD-RF	
53	PIPE P7	TUBO	1	SA 312 TP.304	◐	ø4"SCHED.XS	
52	ELBOW	CURVA	1	SA 403 WP.304	◐	ø4"L.R.SCHED.XS	
51	PIPE P7	TUBO	1	SA 312 TP.304	◐	ø4"SCHED.XS	
50	RING	ANELLO	1	SA 240 TP.304	◐	øi4328/øe4808/16 THK	
49	PLATES	PIATTI	3	SA 240 TP.304	◐	SEE DETAIL "M"	
48	BLIND FL.P8	FL.CIECA	1	SA 182 F 304	◐	ø4" 150# RF	
47	GASKET	GUARNIZIONE	1	◆	◐	ø4" 150# RF	P
46	STUDS P8	TIRANTI	8	SA 193 GR.B7	◐	ø5/8" 11 UNC-2A L=100	P
45	EX.NUTS	DADI ES.A.	16	SA 194 GR.2H	◐	ø5/8" 11 UNC-2B	P
44	OPENING NOZ.P7	APERTURA	1	SA 516 GR.60	○	SEE DETAIL "I"	
43	SKIRT BASE	BASE GONNA	1	SA 516 GR.60	○	øi4225/øe4510/26 THK	
42	RIB	NERVATURE	48	SA 516 GR.60	○	152x93/10 THK	
41	OPENING NOZ.P2	APERTURA	1	SA 516 GR.60	○	SEE DETAIL "E"	
40	SKIRT DRAIN	DREN.GONNA	2	SA 516 GR.60	○	SEE DETAIL "G"	
39	VENTS	SFIATI	4	SA 106 GR.B	○	SEE DETAIL "D"	
38	SKIRT ACCESS	ACC.GONNA	2	SA 516 GR.60	○	SEE DETAIL "H"	
37	COURSE 1	VIROLA	1	SA 240 TP.304	◐	øi4304x600/10 THK	N°2
36	COURSE 2	VIROLA	1	SA 516 GR.60	○	øi4304x1945/10 THK	
35	COURSE 3	VIROLA	1	SA 516 GR.60	○	øi4304x2500/10 THK	
34	PIPE P8	TUBO	1	SA 312 TP.304	◐	ø4"SCHED.XS	
33	PIPE P5	TUBO	1	SA 312 TP.304	◐	ø4"SCHED.XS	
32	FL.P5-P7-P8	FLANGE	3	SA 182 F 304	◐	ø4"150#SO-RF	
31	PIPE P4	TUBO	1	SA 312 TP.304	◐	ø6"SCHED.XS	
30	FLANGE P4	FLANGIA	1	SA 105+ 304 S.S. WELD DEPOSIT	◐	ø6"150# SO-RF	
29	PIPE P3	TUBO	1	SA 240 TP.304	◐	ø28"-14 THK	
28	FLANGE P3	FLANGIA	1	SA 105+ 304 S.S. WELD DEPOSIT	◐	ø28"ASME B16.47 150#WN-RF	
27	PIPE P2	TUBO	1	SA 312 TP.304	◐	ø8"SCHED.XS	
26	ELBOW	CURVA	1	SA 403 WP 304	◐	ø8"L.R.SCHED XS	
25	PIPE P2	TUBO	1	SA 312 TP.304	◐	ø8"SCHED.XS	
24	PIPE P1	TUBO	1	SA 312 TP 304	◐	ø8"SCHED.XS	
23	FLANGE P1-P2	FLANGE	2	SA 105+ 304 S.S. WELD DEPOSIT	◐	ø8"150# SO-RF	
22	PIPE K4A%B-P6	TUBO	3	SA 312 TP.304	◐	ø3"SCHED.XS	
21	FLANGE K4A%B-P6	FLANGIA	3	SA 182 F 304	◐	ø3" 150# SO-RF	
20	PIPE K3A%B	TUBO	2	SA 312 TP.304	◐	ø2"SCHED.XS	
19	FLANGE K2	FLANGIA	1	SA 182 F 304	◐	ø 1 1/2" 150# WN-RF	
18	PIPE K2	TUBO	1	SA 312 TP.304	◐	ø1 1/2"SCHED.XS	
17	BLIND FLANGE	FL.CIECA	3	SA 182 F 304	◐	ø2"150#	
16	GASKET K1-K3A%B	GASKET	3	◆	◐	ø2"150#-RF	P
15	STUDS K1-K3A%B	TIRANTI	12	SA 193 GR.B7	◐	ø5/8" 11 UNC-2A L=90	P
14	EX.NUTS K1-K3A%B	DADI ES.A.	24	SA 194 GR.2H	◐	ø5/8" 11 UNC-2B	P
13	FLANGE K1-K3A%B	FLANGE	3	SA 182 F304	◐	ø2"WN-RF 150#	
12	PIPE K1	TUBO	1	SA 312 TP.304	◐	ø2"SCHED.XS	
11	FLANGE M1	FLANGIA	1	SA 105+ 304 S.S. WELD DEPOSIT	◐	ø20"150# SO-RF	
10	PIPE M1	TUBO	1	SA 240 TP.304	◐	ø20"-14 THK	
9	BLIND FLANGE	FL.CIECA	1	SA 105+ 304 S.S. WELD DEPOSIT	◐	ø20"150# RF	
8	GASKET M1	GUARNIZ.	1	◆	◐	ø20"150#-RF	P
7	STUDS M1	TIRANTI	20	SA 193 GR.B7	◐	ø1 1/8"8 UN-2A L=180	P
6	EX.NUTS M1	DADI ES.A.	40	SA 194 GR.2H	◐	ø1 1/8"8 UN-2B	P
5	ELL.HEAD	FONDO ELL.	1	SA 240 TP.304	◐	øi4300/14 THK	
4	COURSE 6	VIROLA	1	SA 240 TP.304	◐	øi4300x1850/14 THK	N°2
3	COURSE 5	VIROLA	1	SA 240 TP.304	◐	øi4300x2000/14 THK	N°3
2	COURSE 4	VIROLA	1	SA 240 TP.304	◐	øi4300x2000/14 THK	N°2
1	ELL.HEAD	FONDO ELL.	1	SA 240 TP.304L	◐	øi4300/14 THK	

MATERIALS TEST SYMBOL		THICKNESSES TOLERANCE	ASME II-PART."A" 1992 ED.+94 ADD.
●	MATERIAL TESTED BY OFFICIAL AUTHORITY	PLATES:	-0,25 mm
◐	MATERIAL WITH MANUFACTURER CERTIFICATE	PIPES:	-12,5%
○	MATERIAL WITHOUT CERTIFICATE	HEADS:	SEE NOTE (G)

DESIGN DATA

		SIDE	SHELL	COIL	NOTES
DESIGN CODES			ASME SECT. VIII DIV. 1 1992 ED.+94 ADD.		
CODE "U" STAMP			YES		
INSPECTION AUTHORITY			ABS IV		
PRESSURE (GAUGE)	DESIGN	bar (g)	2 &F.V.		
	OPERATING	bar (g)	-0.84		
	EXTERNAL	bar (g)	—		
	HYDROTEST IN VERTICAL (SHOP/FIELD)	bar (g)	9.2/7.5	◇4	
	HYDROTEST IN HORIZANTAL (SHOP)	bar (g)	9.6	◇4	
	PNEUMATIC TEST	bar (g)	—		
	M.A.P. (NEW AND COLD)	bar (g)	7.1		
	M.A.W.P. (HOT AND CORR.)	bar (g)	5.0		
TEMPERATURE	DESIGN	°C	140		
	OPERATING	°C	55		
	FULL VACUUM CONDITION	°C	100		
MINIMUM DESIGN METAL TEMPERATURE			+8°C AT 2 bar (g)		
CORROSION ALLOWANCE		mm	1		
FLUID	TYPE		PTA CRYSTALS/WATER		
	PHYSICAL STATE		LIQUID		
	SPECIFIC GRAVITY	kg/m³	986		
	CAPACITY	m³	~108		
LIQUID LEV. FOR MECHANICAL DESIGN(ABOVE BOTTOM T.L.)		mm			
JOINTS EFFICENCY	SHELL		0.85		
	HEADS		1		
OUT OF ROUND		%	ACCORDING TO ASME CODE UG-80		
INSULATION		TYPE/THK.	NONE		
FIREPROOFING			YES-50 mm THK		
WIND PRESSURE	SEE BECHTEL SPEC.22854-SP-000		ASCE 7-88 "EXPOSURE C"		Q
SEISMIC ZONE	-M-001 Rev.2 PARA 4		ASCE 7-88 "ZONE 1"		Q

LOADS AT BASE		OPERATING	HYDROTEST	EARTHQUAKE
VERTICAL LOAD	kN	1508	1523	1508
SHEAR	kN	46	11.5	79
MOMENT	kN·m	344	86	666

SUPPLY WEIGHT (MASS)	~23200 kg	LOCATION OUTDOOR
WEIGHT FULL OF WATER	~131200 kg	SADDLES MOVEMENT — mm
SURFACES (IN FIELD)		PAINTING : (IN WORK SHOP) (ACCORDING TO SPC N° 2743-YW-SE-001 ISSUE 5) - FOR CARBON STEEL PARTS: SANDBLASTING SA 2 1/2 AND PAINTING WITH ONE COAT OF INORGANIC ZINC SILICATE 75 MICRONS D.F.T. - FOR STAINLESS STEEL INTERNAL PARTS: SEE NOTE "EE" - FOR STAINLESS STEEL EXTERNAL PARTS: PICKLING BY PASTE ON EXTERNAL WELDING AND PROTECT BY TECTIL
INSULATION (MEDIUM SURFACE)	0 m²	
SHEETS FOR INSULATION JACKETING	0 m²	
FINAL PAINTING (CARBON STEEL PARTS)	~154 m²	

ZONE RESERVED FOR APPROVAL STAMPS

FINAL

Sil 17/1/97

REV No.	DATE	DESCRIPTION	DRAWN UP	CHECKED	APPROVED

SCALE: JOB No.

ARABIAN INDUSTRIAL FIBERS Co.(IBN RUSHD)
YANBU SAUDI ARABIA

IBN RUSHD PTA PLANT
YANBU SAUDI ARABIA
350,000 MT/Y PTA PLANT

Plant Unit | DRAWING No. | SHEET | REVISION

ISSUE	DESCRIPTION	DRAWN UP	APPROVED	DATE
4	EMISSIONE FINALE FINAL ISSUE	BOTTI	SILVESTRI	19-08-96
3	MODIF. COME INDICATO DAL CLIENTE MODIF. AS INDICATED BY CUSTOMER	FEDERICI	SILVESTRI	18-06-96
2	EMESSO PER APPROVAZIONE ISSUED FOR APPROVAL	BOTTI	SILVESTRI	30-04-96
1	EMESSO PER APPROVAZIONE ISSUED FOR APPROVAL	AZZARETTO	MURGIA	15-01-96

MANUFACTURER'S TRADE MARK: FBM HUDSON
MANUFACTURER'S DRAWING N°: 2226-05-000 SH.1
ISSUE: 1 2 3 4

YEAR	JOB	N° PIECES	WORK NUMBER	SCALE
1996	2226	1	96/1056/01	/

PLANT: PTA-YANBU SAUDI ARABIA
ITEM: 19 D 001
SERVICE: PTA MOTHER LIQUOR CRYSTALLIZER (ASSEMBLY DRAWING)
DRAWN UP: AZZARETTO
APPROVED: MURGIA G.
DATE: 15-01-96
PURCHASER: TECNIMONT
PURCHASER ORDER: W040285 NG
MATERIAL REQUISITION: 2743-CD-MR-024

NOT TO BE REPRODUCED WHOLE DWG. PART NOR ENPLOYED FOR ANY PURPOSE OTHER THAN SPECIFICALLY PERMITTED WRITING.

TECNIMONT
CLIENT: ARABIAN IND.FIBERS CO.LTD
CLIENT REF.: IBN RUSHD
PLANT LOCATION: YANBU SAUDI ARABIA

IDENTIFICATION CODE											
JOB				E	C	T		N°			
2	7	4	3	C	D	V	D	1	9	1	
SHEET				0	0	1	ISSUE	0	4		

LIST OF CONNECTIONS

ITEM	PIECES	DN	SERVICE	FLANGE RATING	FLANGE TYPE	FLANGE FACING	NOZZLE O.D.	NOZZLE THK.	REINF. PAD O.D.	REINF. PAD THK.	NOTES
K4 A-B	2	3"	STAND PIPE	150#	SO	RF	88.9	7.6	160	14	
K3 A-B	2	2"	LEVEL CONNECTION	150#	WN	RF	60.3	5.54	–	–	4
K2	1	11/2"	TEMPERATURE CONNECTION	150#	WN	RF	48.3	5.08	–	–	
K1	1	2"	PRESSURE CONNECTION	150#	WN	RF	60.3	5.54	–	–	4
P9	1	20"	AGITATOR MOUNT	150#	PAD	RF	698	99 ◇4	–	–	
P8	1	4"	SPARE	150#	SO	RF	114.3	8.56	210	14	1
P7	1	4"	DRAIN	150#	SO	RF	114.3	8.56	210	14	
P6	1	3"	19G001/011 RECYCLE	150#	SO	RF	88.9	7.6	160	14	
P5	1	4"	DRAIN FROM 19V100	150#	SO	RF	114.3	8.56	210	14	
P4	1	6"	CONDENSATE FROM 19E001	150#	SO	RF	168.3	10.95	310	14	
P3	1	28"	VAPOURS TO 19E001	150#	WN	RF	711	14	1300	14	5
P2	1	8"	LIQUID OUTLET	150#	SO	RF	219.1	12.7	400	14	3
P1	1	8"	MOTHER LIQUOR INLET	150#	SO	RF	219.1	12.7	400	14	
M1	1	20"	MANHOLE	150#	SO	RF	508	14	940	14	2

NOTES
1) WITH BLIND FLANGE.
2) WITH BLIND FLANGE AND DAVIT.
3) WITH VORTEX-BREAKER
4) WITH BLIND FLANGE DRILLED FOR 33.4 O.D. PIPE WELDED IN FIELD (TO SHOW DETAIL)
5) ACCORDING TO ASME B16.47

FLANGES SEALING SURFACE FINISHING: SERRATED SPIRAL FINISH WITH RESULTING ROUGHNESS 63÷125 μIN AARH

WELDING EXAMINATIONS AND PWHT

	SIDE	SHELL	COIL	NOTES
IMPACT TEST		SEE NOTE 5		
TEST COUPONS FOR WELDED HEADS		NOT REQUIRED		
PRODUCTION TEST COUPON		NOT REQUIRED		
TEST CATEGORY		–		
UT: ULTRASONIC EXAMINATION		SEE DOC. NR. 2226.01-IT-05		◇4
MT: MAGNETIC PARTICLE EXAMINATION				
PT: LIQUID PENETRANT EXAMINATION				
RT: RADIOGRAPHIC EXAMINATION	SHELL	SPOT		(1)
	HEADS	100%		(1)
PWHT: POSTWELD HEAT TREATMENT		NONE		

NOTES
(1) RX 100% ON LONGITUDINAL WELD OF NOZZLE FROM PLATE

WELDING DESCRIPTIONS

POSITION	WELDING PROCESS	FILLER METALS	N° WPS	N° PQR
SEE DOC. NR. 2226.00-WB-001				

WELDING PROCESS
SMAW: SHIELDED METAL-ARC WELDING
GTAW: GAS TUNGSTEN-ARC WELDING
SAW : SUBMERGED-ARC WELDING
GMAW: GAS METAL-ARC WELDING
FCAW: FLUX CORED-ARC WELDING

DRAWINGS AND SPECIF. REFERENCE

NUMBER	ISSUE	TITLE
2743-CD-MR-024	2	MATERIAL REQUISITION
2743-CD-DX-191 SH.1÷3	3	TECNIMONT DWG
2743-VB-FP-001	3	EQUIPMENT GENERAL NOTES
2743-YW-SG-001	5	SHOP PAINTING
2743-SZ-SG-001	3	FIREPROOFING GENERAL SPECIFIC.
22854-SP-000-A-002	2	BASIC DESIGN DATA
22854-SP-000-D-001	1	UNFIRED PRESSURE VESSELS
22854-SP-000-W-001	1	MAT.,WELDING,NDT AND CORROSION CONTROL
22854-SP-000-M-001	2	BASIC CIVIL ENGINEERING DESIGN DATA
DU-PONT SG 1 S	1	GENERAL FABRICATION REQUIREMENTS
DU-PONT SG 14.1 S	1	CLEANLINESS REQ.FOR STNL.STEEL EQUIPMENT.
2226-05-110	1	AUXILIARY STRUCTURE
2226-05-500	2	SHIPPING DRAWING
2226-05-400	1	TEMPLATE DRAWING
2226-05-057	2	TCM NAME PLATE
2226-05-056	2	ASME NAME PLATE
2226-05-000 SH.2	3	NOZZLE DRAWING
2226-05-000 SH.1	4	ASSEMBLY DRAWING

GENERAL NOTES

Q) FOR WIND AND EARTHQUAKE SEE ALSO SPECIFICATIONS 22854-SP-000-A-002 Rev.2 PARA 3.5 AND 4.6 AND TABLES 1-2
P) BESIDES THE INSTALLED MATERIALS AT SHOP SHALL BE SUPPLIED THE FOLLOWINGS SPARE PARTS.
EXTERNAL PARTS:
-N° 2 SETS OF GASKETS FOR MAIN FLANGES CONNECTING DIFFERENT SECTIONS OF THE EQUIPMENT
-N° 2 SET OF GASKETS FOR EACH MANHOLE OR BLIND FLANGE
-STUD BOLTS AND NUTS: 10% WITH A MINIMUM OF 2 PIECES FOR EACH CONNECTION TYPE.
INTERNAL PARTS:
-BOLTS,NUTS,CLAMPS AND GASKETS: 10% WITH A MINIMUM OF 10 PIECES FOR EACH CONNECTION TYPE.
O) NOZZLE FLANGE CONTACT FACES MUST BE PROTECTED WITH MARINE PLYWOOD OR METAL COVERS COMPLETE OF RUBBER GASKET OR MALLEABLE OILED CLOTH.
N) BEFORE SHIPPING THE UNIT MUST BE CLEANED INTERNALLY DRAINED AND DRIED.
M) *ALL UNQUOTED WELDS MUST HAVE SIDES EQUAL TO THE LOWER THICKNESS OF THE PLATES TO WELD.* ◇4
L) FOR ALL REINFORCING PADS PROVIDE ONE 1/8" ANSI B1.20.1 NPT DIA. HOLE. PADS TO BE AIR TESTED AT 0.5 bar (g) AND ALL WELDS MUST BE TESTED FOR LEAKS WITH SOAP SOLUTION. VENT HOLES WILL BE LEFT OPEN AFTER TESTING. THE HOLES MUST BE FILLED WITH GREASE.
I) ALL INTERNAL AND EXTERNAL PARTS WELDED TO THE SHELL SHALL BE OF THE SAME MATERIAL WHICH CONSTITUTES THE SECTION OF THE SHELL WHERE THE PARTS WILL BE WELDED.
H) FLANGES ACCORDING TO STD. ANSI B16.5 – COUPLINGS ACCORDING TO ANSI B16.11 FULL LENGTH TYPE PER ANSI B1.20.1 *TAPER PIPE THREADED – PIPES:* CARBON STEEL ACCORDING TO ANSI B36.10 (SEAMLESS); STAINLESS STEEL PER ANSI B36.19 – PIPE FITTINGS ACCORDING TO ANSI B16.9.
G) ALL THICKNESSES SHOWN ON DRAWING EXCEPT FOR ELLIPTICAL HEADS ARE NOMINAL (FOR ELLIPTICAL HEADS ARE THE MINIMUM AFTER FORMING).
F) ALL REMOVABLE INTERNALS SHALL PASS THROUGH A MANHOLE SIZE (480 I.D.).
E) TRAY ELEVATIONS ARE REFERRED TO TOP OF SUPPORT RING.
D) ALL ELEVATIONS ARE MEASURED FROM BOTTOM TANGENT LINE.
C) UNLESS OTHERWISE INDICATED NOZZLE PROJECTIONS ARE MEASURED FROM EQUIPMENT CENTERLINE TO CONTACT FLANGE FACINGS.
B) UNLESS OTHERWISE INDICATED,ALL GIRTH FLANGES AND FLANGE CONNECTIONS BOLT HOLES MUST BE STAGGERED TO MAIN AXIS OF THE EQUIPMENT.
A) UNLESS OTHERWISE NOTED ALL DIMENSIONS ARE IN MILLIMETERS.

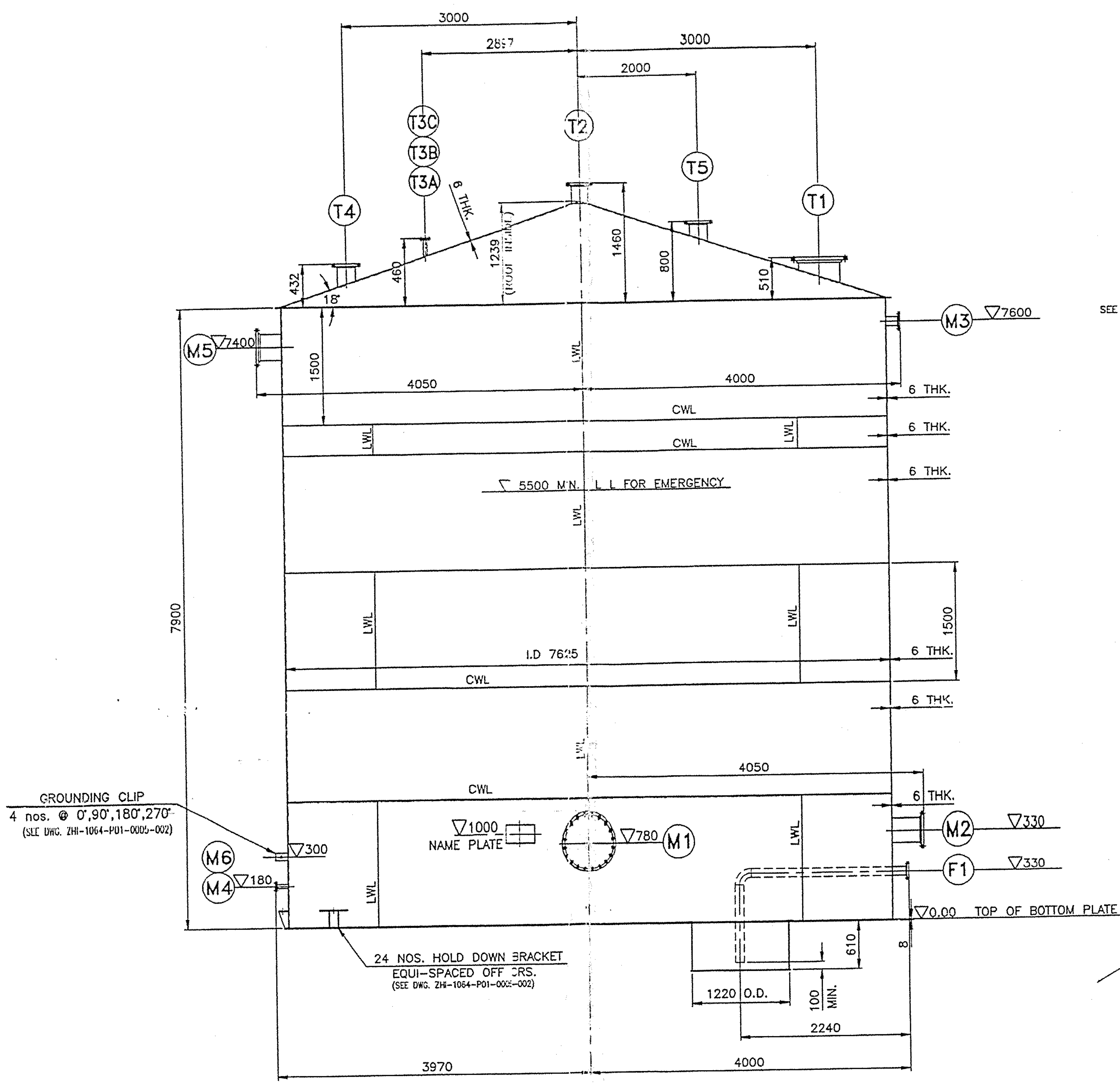
FABRICATION NOTES

FF) FOR STAINLESS STEEL WELDING AND OVERLAY, THE FERRITE CONTENT SHALL BE IN THE RANGE FROM 3 TO 10%
EE) STAINLESS STEEL INTERNAL SURFACES SHALL BE CLEANED AS PER SPECIFICATION DUPONT SG.14.1.S.
DD) HYDRAULIC TEST PERFORMED USING WATER WITH A MAX. 50 P.P.M. OF CHLORIDE AND TEMPERATURE MINIMUM OF 7°C.
CC) WELD DEPOSIT SHALL BE INSPECTED ACCORDING TO PARA D5.2 OF APPENDIX "D" SPECIF. 22854-SP-000-D-001 REV.1
~~BB) BASE METAL WELDED JOINT SHALL BE INSPECTED AS PER CODE PRIOR TO CLAD RESTORATION WITH WELD DEPOSIT.~~
AA) DYE PENETRANT SHALL BE CARRIED OUT AS FOLLOW : ◇4
- 100% ON WELDS OF NOZZLES TO SHELL OR HEADS.
- 100% ON WELDS OF ALL OTHER ATTACCHEMENTS TO PRESSURE PARTS. ◇4

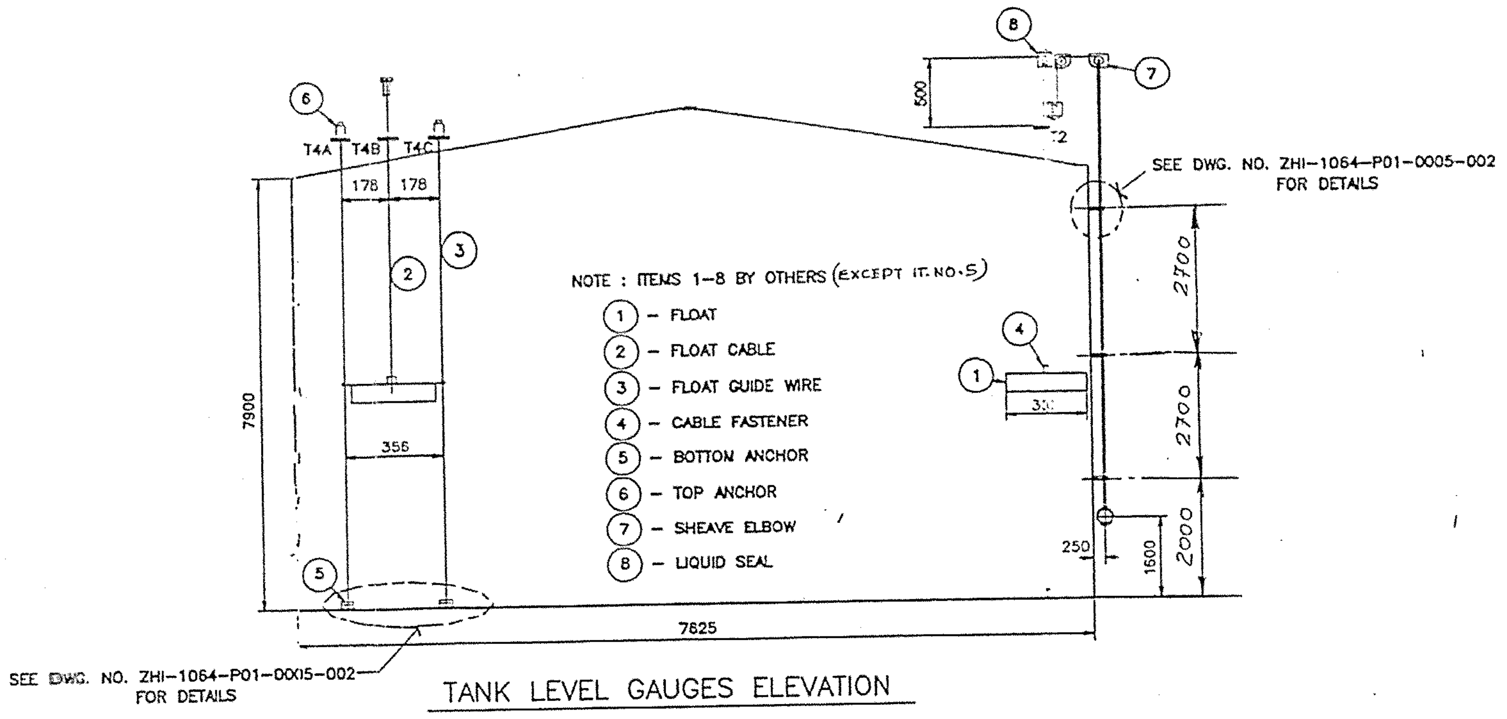
MATERIAL NOTES

8) IF NOZZLE NEEKS ARE OBTAINED FROM PLATE, THE SAME SHALL BE 100% RADIOGRAPHED ON LONGITUDINAL JOINTS.
7) *MATERIALS FOR PRESSURE PARTS AND IN CONTACT WITH PROCESS FLUID SHALL BE ACCORDING TO SPECIFIC. 2743-VB-FP-001 REV.03 PARAS "1.d"*
6) MATERIALS FOR PRESSURE PARTS SHALL BE ACCORDING TO ASME II PART."A" ED. 1992+94 ADD.
5) MINIMUM DESIGN METAL TEMPERATURE = 8°C. : IMPACT TEST NOT REQUIRED ACC. TO ASME VIII DIV.1 ED. 1992+ADD.94 PARAS UCS(66a) AND UHA 51(a)
4) CARBON STEEL MATERIALS FOR PRESSURE PARTS SUPPLIED IN NORMALIZED CONDITIONS.
3) CARBON STEEL MATERIALS FOR PRESSURE PARTS WITH CARB. CONT. 0.25% MAX.
~~2) NON ASBESTOS CARBON GRAPHITIC FIBER WITH SBR BINDER KLINGER C4500 (1.6 THK)=(COIL SIDE GASKET MAT.)~~
1) SPIRAL WOUND 316 L S.S./PTFE GLASS FILLED 25% WITH 316 L S.S. INTERNAL RING AND CARBON STEEL EXTERNAL RING (4.44 mm THK.)(SHELL SIDE GASKET MAT.) ◇4

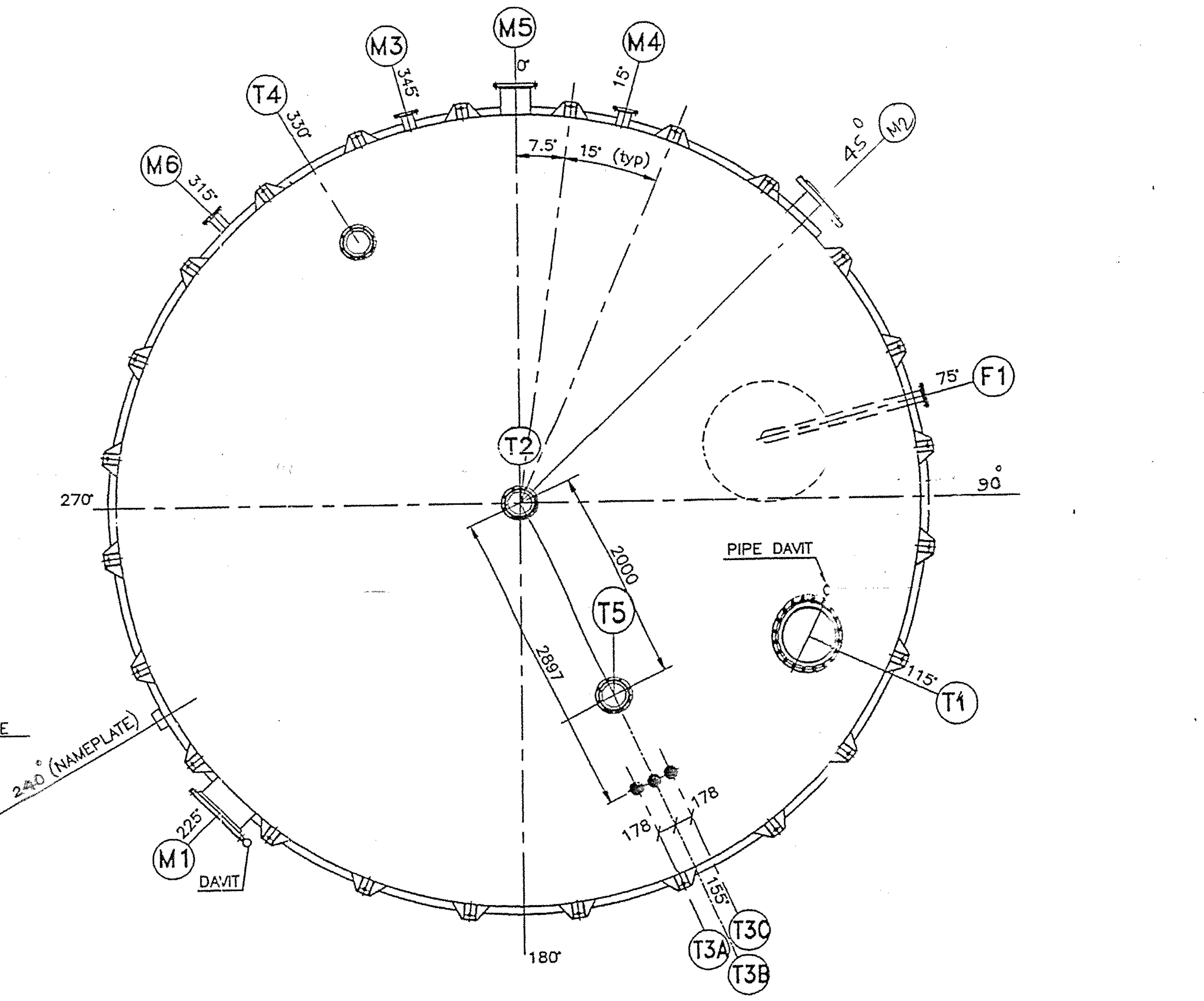
FOR VESSELS


3000
2897
3000
2000
T3C
T3B
T3A
T2
T5
T1
T4
6 THK.
432
18°
460
1239
1460
800
510
M5
∇7400
M3
∇7600
1500
LWL
4050
4000
6 THK.
CWL
6 THK.
LWL
CWL
∇ 5500 MIN. L.L FOR EMERGENCY
6 THK.
LWL
7900
LWL
LWL
1500
I.D 7625
6 THK.
CWL
6 THK.
4050
CWL
6 THK.
GROUNDING CLIP
4 nos. @ 0°,90°,180°,270°
(SEE DWG. ZHI-1064-P01-0005-002)
∇1000
NAME PLATE
∇780
M1
M2
∇330
F1
∇330
M6
∇300
M4
∇180
LWL
LWL
∇0.00 TOP OF BOTTOM PLATE
24 NOS. HOLD DOWN BRACKET
EQUI-SPACED OFF CRS.
(SEE DWG. ZHI-1064-P01-0005-002)
610
1220 O.D.
100 MIN.
2240
3970
4000

ELEVATION


6
T4A
T4B
T4C
176
178
2
3
7900
356
5
SEE DWG. NO. ZHI-1064-P01-0005-002
FOR DETAILS
7625
8
7
500
T2
SEE DWG. NO. ZHI-1064-P01-0005-002
FOR DETAILS
2700
4
1
2700
250
1500
2000
NOTE : ITEMS 1–8 BY OTHERS (EXCEPT IT. NO. 5)
1 – FLOAT
2 – FLOAT CABLE
3 – FLOAT GUIDE WIRE
4 – CABLE FASTENER
5 – BOTTOM ANCHOR
6 – TOP ANCHOR
7 – SHEAVE ELBOW
8 – LIQUID SEAL

TANK LEVEL GAUGES ELEVATION


M3
M5
M4
T4
345°
15°
330°
7.5°
15° (typ)
M6
315°
45°
M2
75°
F1
T2
270°
90°
2000
PIPE DAVIT
T5
115°
T1
2897
240° (NAMEPLATE)
225°
M1
DAVIT
178
178
155
T3C
T3A
T3B
180°

ORIENTATION

Q) SPIRAL WOUND 316L/PTFE GLASS FILLED 25% WITH 316L INTERNAL RING AND C.S EXTERNAL RING 4.44mm THK.

P) BESIDES THE INSTALLED MATERIALS AT SHOP SHALL BE SUPPLIED THE FOLLOWINGS SPARE PARTS,
EXTERNAL PARTS:
- –NO. 2 SETS OF GASKETS FOR MAIN FLANGES CONNECTING DIFFERENT SECTIONS OF THE EQUIPMENT
- –NO. 2 SETS OF GASKETS FOR EACH MANHOLE OR BLIND FLANGE
- –STUD BOLTS AND NUTS: 10% WITH A MINIMUM OF 2 PIECES FOR EACH CONNECTION TYPE.

INTERNAL PARTS:
- –BOLTS,NUTS,CLAMPS AND GASKETS: 10% WITH A MINIMUM OF 10 PIECES FOR EACH CONNECTION TYPE.

O) NOZZLE FLANGE CONTACT FACES MUST BE PROTECTED WITH MARINE PLYWOOD OR METAL COVERS COMPLETE OF RUBBER GASKET OR MALLEABLE OILED CLOTH.

N) BEFORE SHIPPING THE UNIT MUST BE CLEANED INTERNALLY DRAINED AND DRIED.

M) ALL UNQUOTED WELDS MUST HAVE SIDES EQUAL TO THE LOWER THICKNESS OF THE PLATES TO WELD.

L) FOR ALL REINFORCING PADS PROVIDE ONE 1/8" ANSI B1.20.1 NPT DIA. HOLE. PADS TO BE AIR TESTED AT 2 bar (g); AFTER THE PRESSURE MUST BE REDUCED TO 0.5 bar (g) AND ALL WELDS MUST BE TESTED FOR LEAKS WITH SOAP SOLUTION. VENT HOLES WILL BE LEFT OPEN AFTER TESTING. THE HOLES MUST BE FILLED WITH GREASE.

I) ALL INTERNAL AND EXTERNAL PARTS WELDED TO THE SHELL SHALL BE OF THE SAME MATERIAL WHICH CONSTITUTES THE SECTION OF THE SHELL WHERE THE PARTS WILL BE WELDED.

H) FLANGES ACCORDING TO STD. ANSI B16.5 – COUPLINGS ACCORDING TO ANSI B16.11 FULL LENGTH TYPE PER ANSI B1.20.1 TAPER PIPE THREADED – PIPES: CARBON STEEL ACCORDING TO ANSI B36.10 (SEAMLESS), STAINLESS STEEL PER ANSI B 36.19 – PIPE FITTINGS ACCORDING TO ANSI B16.9.

G) ALL THICKNESSES SHOWN ON DRAWING EXCEPT FOR ELLIPTICAL HEADS ARE NOMINAL (FOR ELLIPTICAL HEADS ARE THE MINIMUM AFTER FORMING).

F) ALL REMOVABLE INTERNALS SHALL PASS THROUGH A MANHOLE SIZE (478 I.D.).

E) TRAY ELEVATIONS ARE REFERRED TO TOP OF SUPPORT RING.

D) ALL ELEVATIONS ARE MEASURED FROM BOTTOM TANGENT LINE.

C) UNLESS OTHERWISE INDICATED NOZZLE PROJECTIONS ARE MEASURED FROM EQUIPMENT CENTERLINE TO CONTACT FLANGE FACINGS.

B) UNLESS OTHERWISE INDICATED,ALL GIRTH FLANGES AND FLANGE CONNECTIONS BOLT HOLES MUST BE STAGGERED TO MAIN AXIS OF THE EQUIPMENT.

A) UNLESS OTHERWISE NOTED ALL DIMENSIONS ARE IN MILLIMETERS.

GENERAL NOTES

FOR VESSELS

NUMBER	ISSUE	TITLE
2743-CD-SE 231	1	TECNIMONT DATA SHEET
2743-YW-SG 002	1	SITE PAINTING
2743-CD-MR 25	2	MATERIAL REQUISTION
22854-SP-000-F001	2	STORAGE TANK
DUPONT G8A		S.S. STORAGE TANK
ZH-1064-P01-0005-002	3	SHELL & ROOF PLATE DEV.
ZH-1064-P01-0005-003	3	NOZZLE DETAILS
ZH-1064-P01-0005-004	3	NOZZLE & NAME PLATE DETAILS

DRAWINGS AND SPECIF. REFERENCE

POSITION	WELDING PROCESS	FILLER METALS	N? WPS	N? PQR
		SEE WELD MAP		

WELDING PROCESS
- SMAW: SHIELDED METAL-ARC WELDING
- GTAW: GAS TUNGSTEN-ARC WELDING
- SAW : SUBMERGED-ARC WELDING
- GMAW: GAS METAL-ARC WELDING
- FCAW: FLUX CORED-ARC WELDING

WELDING DESCRIPTIONS

	SIDE	SHELL	JACKET OR COIL	NOTES
TEST COUPONS FOR WELDED HEADS		–		
PRODUCTION TEST COUPON		–		
TEST CATEGORY		–		
UT: ULTRASONIC EXAMINATION		API 650		
MT: MAGNETIC PARTICLE EXAMINATION		API 650		
PT: LIQUID PENETRANT EXAMINATION		API 650		
RT: RADIOGRAPHIC EXAMINATION	SHELL	API 650		
	HEADS			
PWHT: POSTWELD HEAT TREATMENT		–		

NOTES

WELDING EXAMINATIONS AND PWHT

ITEM	PIECES	DN	SERVICE	FLANGE RATING	FLANGE TYPE	FLANGE FACING	NOZZLE O.D.	NOZZLE THK.	REINF. PAD O.D.	REINF. PAD THK.	NOTES
T5	1	8"	SPARE	150#	S.O	R.F	219.1	8.18	457	6	2
T4	1	8"	WATER INLET	150#	S.O	R.F	219.1	8.18	457	6	
T3C	1	1/2"	LEVEL GAUGE	150#	S.O	R.F	48.3	3.68	–	–	
T3B	1	1/2"	LEVEL GAUGE	150#	S.O	R.F	48.3	3.68	–	–	
T3A	1	1/2"	LEVEL GAUGE	150#	S.O	R.F	48.3	3.68	–	–	
T2	1	10"	VENT	150#	S.O	R.F	273.1	9.27	584	6	
T1	1	20"	MANHOLE (ROOF)	150#	S.O	R.F	508.0	15.09	1067	6	1
F1	1	4"	BOTTOM DRAIN	150#	S.O	R.F	114.3	6.02	305	6	3
M6	1	2"	LEVEL CONTROLLER	150#	S.O	R.F	60.3	3.91	–	–	
M5	1	12"	OVERFLOW	150#	S.O	R.F	323.9	10.31	686	6	
M4	1	1.5"	TEMPERATURE CONN.	150#	S.O	R.F	48.3	3.68	–	–	
M3	1	4"	RECYCLE	150#	S.O	R.F	114.3	6.02	305	6	
M2	1	10"	OUTLET TO 23G001/011	150#	S.O	R.F	273.1	9.27	584	6	
M1	1	20"	MANHOLE (SHELL)	150#	S.O	R.F	508.0	15.09	1168	6	1

LIST OF CONNECTIONS

NOTES
1. WITH BLIND FLANGE AND DAVIT.
2. WITH BLIND FLANGE.
3. WITH 114.3 O.D 8.56THK. INTERNAL DRAW OFF SUMP.(SEE DRG.)

FLANGES SEALING SURFACE FINISHING: SERRATED CONCENTRIC OR SERRATED SPIRAL FINISH ACCORDING TO ANSI B16.5 WITH RESULTING ROUGHNESS AARH 125 – 250 IN. (ANSI B46.1)

POSITION	DESCRIPTION	N° PIECES	MATERIAL	SYMBOL	DIMENSIONS	NOTES
				○		
				○		
	ANCHOR CHAIR		ASTM A240 TP 304	○		
	INTERNALS		S S TYPE 304	○		
	GASKET		SEE NOTE–Q	○		
	NUTS		ASTM A 194 GR 2H	○		
	BOLTS (EXT.)		ASTM A 193 GR B7	○		
	BOLTS/NUTS (INT.)		S S TYPE 304	○		
	NOZ. NECKS (PIPES)		ASTM A 312 TP 304	○		
	NOZ. NECKS (PLATE)		ASTM A 240 TP 304	○		
	FLANGES		ASTM A 182 F 304	○		
	BOTTOM PLATES		ASTM A 240 TP 304	○		
	ROOF PLATES/PADS		ASTM A 240 TP 304	○		
	SHELL PLATES/PADS		ASTM A 240 TP 304	○		

MATERIAL LIST

MATERIALS TEST SYMBOL		THICKNESS TOLERANCE	
○	MATERIAL TESTED BY OFFICIAL AUTHORITY	PLATES	–0,25 mm
①	MATERIAL WITH MANUFACTURER CERTIFICATE	PIPES	–12,5%
◯	MATERIAL WITHOUT CERTIFICATE	HEADS	SEE NOTE (G)

DESIGN DATA

	SIDE	SHELL	JACKET OR COIL	NOTES
DESIGN CODES		API 650		
CODE "U" STAMP				
INSPECTION AUTHORITY		TECNIMONT + BECHTEL		
PRESSURE (bar g) DESIGN	bar (g)	+500/–50 mm H20		
OPERATING	bar (g)	ATM		
EXTERNAL	bar (g)			
HYDROTEST IN VERTICAL	bar (g)	FULL OF WATER		
HYDROTEST IN HORIZONTAL	bar (g)	—		
PNEUMATIC TEST	bar (g)	—		
TEMPERATURE DESIGN	°C	85		
OPERATING	°C	35		
MINIMUM DESIGN METAL TEMPERATURE		°C AT bar (g)		
CORROSION ALLOWANCE	mm	0.5		
FLUID TYPE		DEMI. WATER		
PHYSICAL STATE		LIQUID		
SPECIFIC GRAVITY	kg/m³	996		
CAPACITY	m³	350		
LIQUID LEVEL FOR MECHANICAL DESIGN ABOVE BOTTOM T.L.)	mm			
JOINTS EFFICIENCY	SHELL	0.85		
	HEADS	—		
OUT OF ROUND	%	0.33		
INSULATION	TYPE/THK.	—		
FIREPROOFING		—		
WIND PRESSURE SEE BECHTEL SPEC.		ASCE7.88 EXPOSURE C		
SEISMIC ZONE 22854.SP.000.M.001		ASCE7.88 ZONE 1		

LOADS AT BASE		OPERATING	HYDROTEST	EARTHQUAKE
VERTICAL LOAD	kN	2800	2900	2800
SHEAR	kN	36	9	230
MOMENT	kN-m	170	43	970

EMPTY WEIGHT (WEIGHT)	13000 kg	LOCATION	OUTDOOR
WEIGHT FULL OF WATER	363000 kg	SADDLES MOVEMENT	mm
SURFACES (IN FIELD)		PAINTING (IN WORK SHOP)	AS PER STD. 2743-YW-SG-002
INSULATION (EXTERNAL SURFACE)	m²		
SURFACES FOR INSULATION JACKETING	m²		
FINAL PAINTING (CARBON STEEL PARTS)	m²		

ZONE RESERVED FOR APPROVAL STAMPS

ISSUE	DESCRIPTION	DRAWN UP	CHECKED	APPROVED
1				
	REVISED AS PER CLIENT COMMENTS	Rene	RBU	ABD
2	FOR APPROVAL	PGS	RBU	ABD
1	PRELIMINARY	PGS	RBU	ABD

MANUFACTURER TRADE MARK: AL ZAMIL HEAVY IND. LTD.		MANUFACTURER DRAWING N°: ZH-1064-P01-0005-001		TECNIMONT
		ISSUE:		CLIENT: ARABIAN IND. FIBERS CO. LTD.
				CLIENT REF.: IBN RUSHD
YEAR: 1996	JOB: P01-1064	NO. PIECES: 1	WORK NUMBER: P01-1064 / SCALE: 1:40	PLANT LOCATION: YANBU SAUDI ARABIA
PLANT: FTA-YANBU SAUDI ARABIA		ITEM: 23F001		IDENTIFICATION CODE: JOB 2743 / E CD / T VD / NO. 231
SERVICE: PLANT DEMI. WATER TANK				
DRAWN UP: PGS	APPROVED: ABD	DATE: 26.02.96		SHEET: 001 / ISSUE: 4
PURCHASER: TECNIMONT		NOT TO BE REPRODUCED WHOLE (OR) PART NOR EMPLOYED FOR ANY PURPOSE OTHER THAN SPECIFICALLY PERMITTED (IN) WRITING.		
PURCHASE ORDER: W040355 NG	MATERIAL REQUISTION: 2743-CD-MR 025			

REVISION	DESCRIPTION OF CHANGE	DATE	DRAWN	CHECKED	APPROVED
3	AS FINAL	26SEPT96	Rene	ABD	ABD
2	HOLD NOZZLES ORIENTATION & PROJECTION RELEASED AS PER CLIENT COMMENTS	31JULY96	Rene	ABD	ABD
1	REVISED AS PER CLIENT COMMENTS	29JULY96	Rene	ABD	ABD
0	ISSUED FOR FABRICATION	29JUNE96	Rene	RBU	ABD
C	REVISED AS PER CLIENT COMMENTS	11JUNE96	Rene	RBU	ABD
B	For Approval	31.03.96	PGS	RBU	ABD
A	PRELIMINARY	26.02.96	PGS	RBU	ABD

CLIENT:

DELIVERED 29 SEP 1996

TECNIMONT

AS FINAL

MANUFACTURER:

AL ZAMIL HEAVY INDUSTRIES LTD.
MAIN OFFICE JEDDAH: TEL. 699 2411 (4 LINES).FAX: 699 2420
P.O. BOX: 13169 JEDDAH 21493 S.A. TELEX: 603703 ZHILRD SJ

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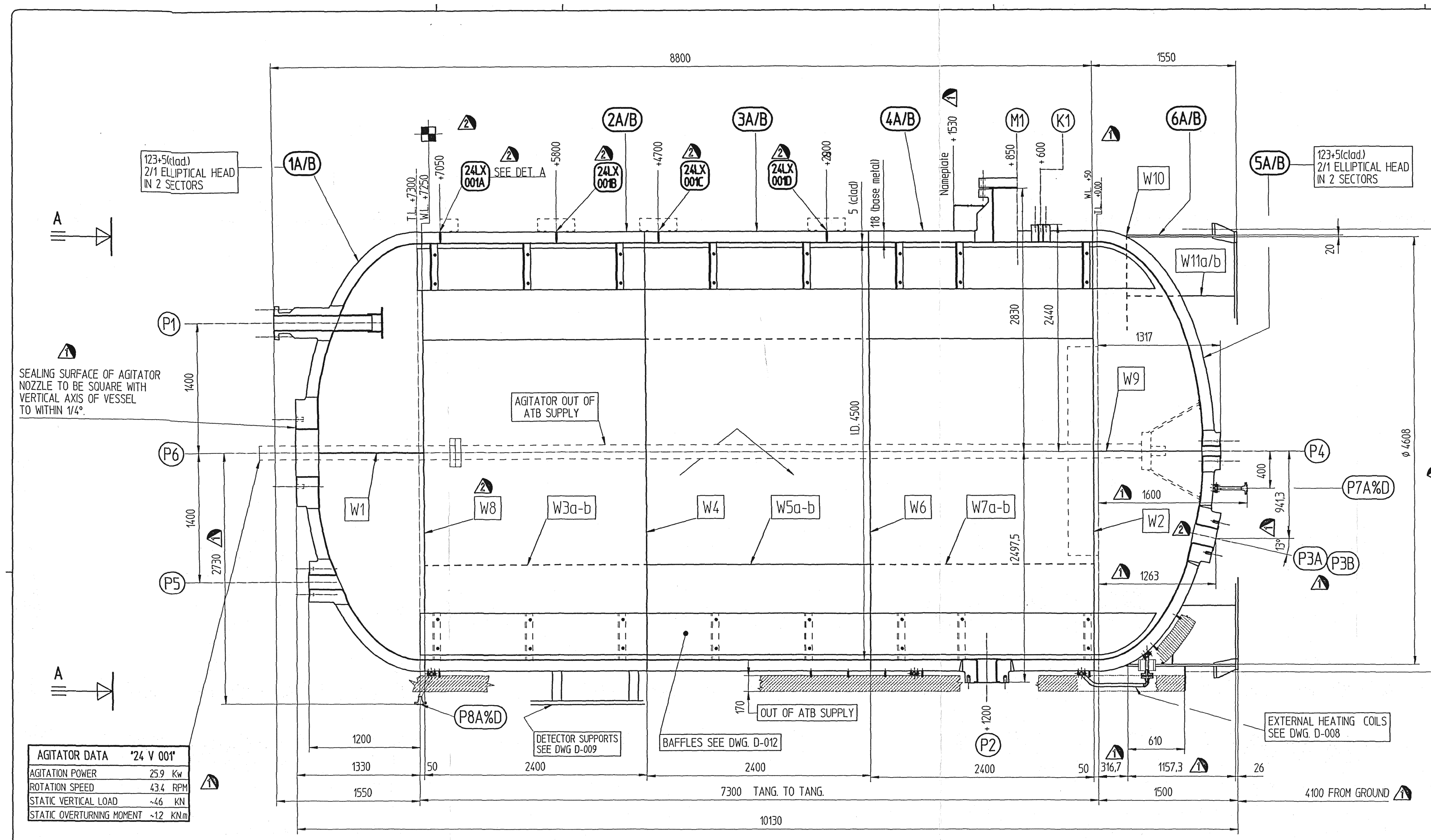
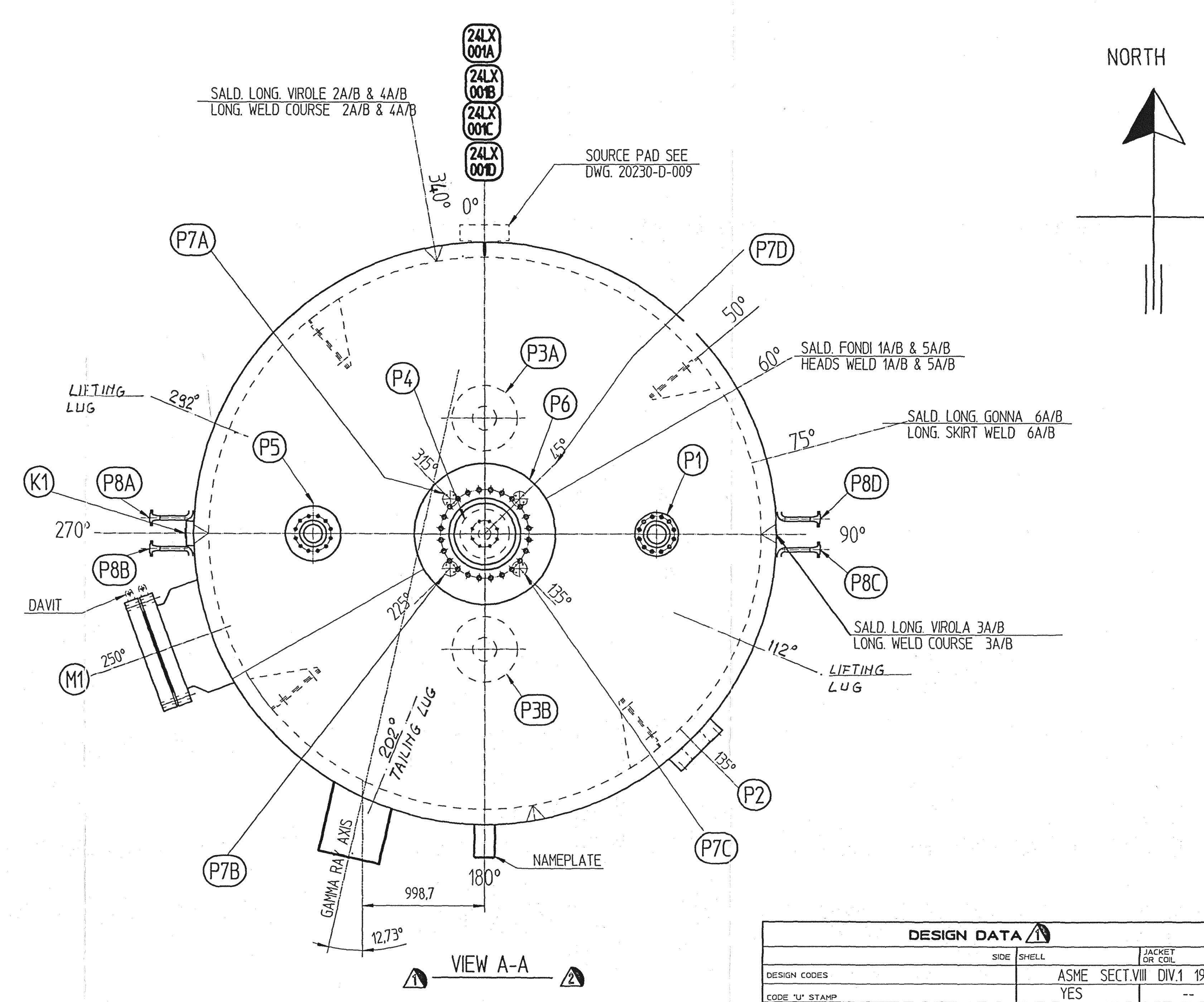
TITLE:
"GENERAL ARRANGEMENT"
PLANT DEMI. WATER TANK
23F001

DESIGNED:	CHECKED:	APPROVED:
RBU/PGS	ABD	ABD
DRAWN:	CONTRACT No. (J.O.No.)	TOTAL CONSTRUCTION WEIGHT
Rene	P01-1064/95	-

SCALE	DRAWING No.	REV.	SIZE
1:40	ZHI-1064-P01-0005-001	3	A1

VALID FOR FIELD ASSEMBLY



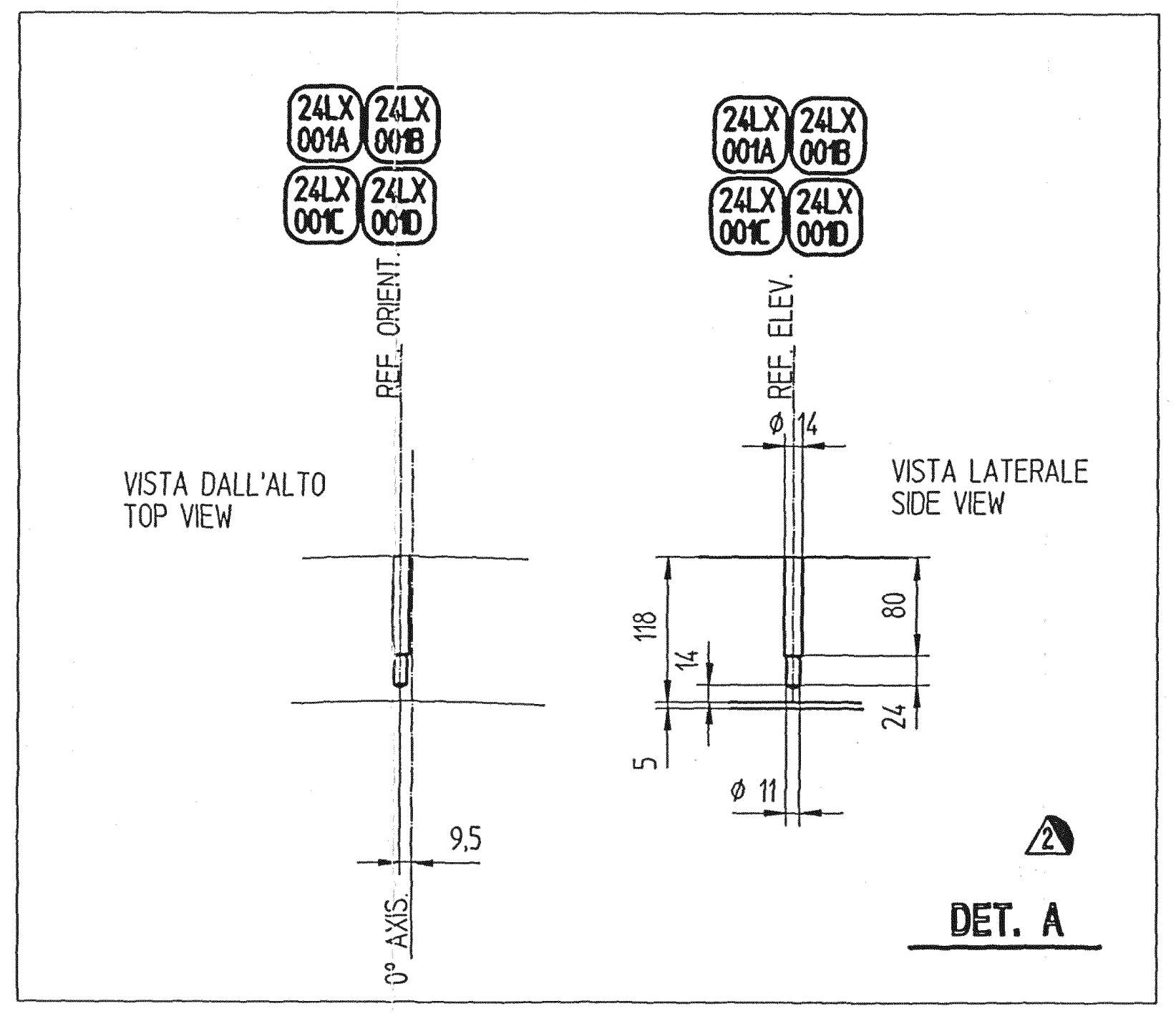


AGITATOR DATA	"24 V 001"
AGITATION POWER	25.9 Kw
ROTATION SPEED	43.4 RPM
STATIC VERTICAL LOAD	~46 KN
STATIC OVERTURNING MOMENT	~1.2 KN.m

FONDI SEMIELLITTICI MARCA 1 & 5 IN DUE PEZZI
VIROLE MARCA 2A/B-3A/B-4A/B CON DUE SALDATURE LONGITUDINALI
GONNA MARCA 6A/B CON DUE SALDATURE LONGITUDINALI

SEMIELLIP. HEAD ITEM 1 & % 5 IN TWO PIECES
COURSES ITEM 2A/B-3A/B-4A/B WITH TWO LONGITUDINAL WELDS
SKIRT ITEM 6A/B WITH TWO LONGITUDINAL WELDS

SALDATURA DA ESEGUIRE PRESSO LO STABILIMENTO DI PORTO MARGHERA.
WELD TO BE MAKE AT PORTO MARGHERA SHOP.



FINAL

COSTRUCTION NOTES - NOTE COSTRUTTIVE

1) - COSTRUIRE N° 1 REACTTORE
   - ONE REACTOR BE SUPPLIED.

2) - GLI SPESSORI INDICATI A DISEGNO SI INTENDONO MINIMI DOPO FORMATURA E LAVORAZIONE MECCANICA.
   - THE THICKNESSES SHOWN ON DRAWING ARE MINIMUM AFTER FORMING AND MACHINING.

3) - TOLLERANZE - TOLERANCES : ASME CODE Sect. VIII Div. 1 AND - 1 DUPONT SPEC NR SG 1 S

4) - QUALIFICA SALDATURE E SALDATORI IN ACCORDO AL CODICE ASME IX.
   - WELD AND WELDERS QUALIFICATION ACCORDING TO ASME IX.

5) - I FONDI SARANNO STAMPATI A CALDO E LE VIROLE CALANDRATE A FREDDO.
   - HEADS SHALL BE HOT FORMED AND COURSES SHALL BE COLD ROLLED.

6) - PER PROCEDIMENTI DI SALDATURA (W.P.S.) VED. WELDING DATA BOOK 20230-SA-01.
   - FOR WELDING PROCEDURE SPECIF. (W.P.S.) SEE WELDING DATA BOOK 20230-SA-01.

7) - ATB SERIAL NR. 18879

GENERAL NOTES - NOTE GENERALI

1)- Tutte le sporgenze e le dimensioni delle flange sono riferite alla faccia di flangia.
- All flange projections and dimensions are to flange face.

2)- Tutte le quote in alzato sono misurate dalla Linea di Tangenza Inferiore (BTM.T.L.).
- All elevations are measured from Bottom Tangent Line (BTM.T.L.).

3)- La posizione dei bocchelli in alzato e' schematica; per l'esatto orientamento attenersi solamente a quanto indicato nella VISTA "A-A".
- Position of nozzles in elevation is schematic; for correct orientations see only VIEW "A-A".

4)- Tutti i fori delle flange e dei bocchelli e quelli per i bulloni di ancoraggio sono sfalsati rispetto agli assi principali del Vessel, salvo dove diversamente indicato.
- All bolt holes of flanges, nozzles and anchor bolts shall straddle natural centerlines, unless where shown otherwise.

5)- Flange per bocchelli secondo ANSI B16.5 tipo RF, salvo bocchello P2.(LF)
- Flanges for nozzles according to ANSI B16.5 type RF, unless nozzle P2.(LF)

6)- Finitura facce di flangia in accordo a quanto indicato nei Disegni ATB n° 20230-D-003 / 004 / 005.
- Flange face finishing according to ATB Drawings n° 20230-D-003 / 004 / 005.

7)- Filettature Bulloni e Dadi in accordo all' ANSI B1.1.
- Bolts and Nuts thread according to ANSI B1.1.

8)- I tiranti esterni saranno protetti con "MOLYCOTE".
- External Stud Bolts shall be coated with "MOLYCOTE".

9)- Accessori Interni:
a) I "baffles" saranno costruiti e montati all' interno della colonna da ATB prima della prova idraulica.
b) La superficie di tenuta del bocchello P6 dovra' essere normale all'asse del vessel, max errore 1/4°
- Internals:
a) Internal baffles shall be fabricated and installed inside the vessel by ATB before hydrotest.
b) Sealing surface of agitator nozzle P6 to be square with vertical axis of vessel to within 1/4°.

10)- Accessori Esterni:
a) N° 1 Maschera di posizionamento per le mazzette di fondazione imballata e spedita in cantiere entro il 30/06/96
- External Fittings:
a) One Base Ring Template shall be packed and shipped in field within 30/06/96

11)- Spedizione:
a) Le superfici interne ed esterne del vessel dovranno essere pulite e libere da "grease, weld spatter, scale, slag" e da qualsiasi altra sostanza estranea. La pulizia interna non dovra' essere eseguita con sostanze contenenti cloruri.
b) Finitura superfici esterne: per sabbiatura, verniciatura e marcatura attenersi a quanto indicato nel Disegno di spedizione n° 20230-D-013.
c) Le superfici lavorate di macchina saranno protette con MOLYCOTE e/o RUST VETO 342.
d) Tutte le aperture non provviste di coperchio saranno chiuse per la spedizione con coperchi metallici, guarnizione in neoprene e bulloni come indicato nel Disegno di spedizione.
e) Le parti da spedire sciolte sono elencate nel Disegno di spedizione.
f) Durante la spedizione il vessel sara' pressurizzato con AZOTO.
- Shipping:
a) Internal and external surfaces of Vessel shall be cleaned and free from grease, weld spatter, scale, slag and any other foreign matter. No cleaning agent containing chlorides will be used on austenitic stainless steel.
b) External surface finishing: for sandblasting, painting and marking see Shipping Dwg. 20230-D-013.
c) All machined surfaces shall be coated with MOLYCOTE and/or RUST VETO 342.
d) All openings without cover shall be closed for shipping with steel cover, neoprene gasket and bolts, as per Shipping Drawing.
e) For loose parts see list on Shipping Drawing.
f) During the shipping vessel shall be pressurized with NITROGEN.

12)- a) Guarnizioni: - n° 1 serie per prova idraulica e spedizione.
- n° 2 serie come scorta.
b) Bulloni esterni: - n° 1 serie come indicato nel Dis. ATB n° 20230-D-002 per prova idraulica ed esercizio.
- 10% come parti di scorta.
- a) Gaskets: - One set for Hydrotest and Shipping.
- Two sets for Spare.
b) External Bolts: - One set as shown on ATB Dwg.n° 20230-D-002 for Hydrotest and Service
- 10% as spare parts.

1
13)- P.W.H.T. sara' eseguito a norma, senza alterare le proprieta' del rivestimento interno.
- Post weld heat treatment shall be performed according to code, without altering internal lining material properties.

14)- Limiti di accettabilita' dei difetti in accordo con spec.TM 300.7-Rx3 class (solo per tubi di riscald. esterni).
- Limits of acceptability of defects according to spec.TM 300.7-Rx3 class (for external heating coils only).

ELENCO PROCEDURE ATB APPLICABILI - LIST OF APPLICABLE PROCEDURES

- SPEC. N° 20230 PF.05 : HOT FORMING OF HEAD.
- SPEC. N° 20230 PF.20 : HYDROTEST PROCEDURE.
- SPEC. N° 20230 PC.50 : R.T. EXAMINATION OF WELDS.
- SPEC. N° 20230 PC.55 : U.T. EXAMINATION OF WELDS.
- SPEC. N° 20230 PC.60 : BONDING PROCEDURE
- SPEC. N° 20230 PC.70 : DYE PENETRANT EXAMINATION.
- SPEC. N° 20230 PC.77 : WELD PRODUCTION TEST PLATES.
- SPEC. N° 20230 PF.10 : PWHT PROCEDURE 2
- SPEC. N. 20230 PF.25 : INT. CLEANING & PAINTING
- SPEC. N. 20230 PF.30 : NITROGEN PRESS. PROCEDURE

MATERIALI - MATERIALS

1)- Mantello - Shell Fondi - Heads	: ASME SA 264 BASE METAL SA 516 M GR 70 CLADDING SA 240 TP 321
2)- Bocchelli fucinati - Forged Nozzles	: ASME SA 105 + 321 S.S. WELD DEPOSIT 1
3)- Gonna - Skirt	: ASME SA 516 GR 60
4)- Serpentino - Heating coil	: ASME SA 106 GR B / SA 105 1
5)- Anello di base gonna, Scatole ancoraggio e Tailing Lug - Skirt Base Ring, Chairs and Tailing Lug	: ASME SA 516 Gr.60 (or equivalent)
6)- Interni (saldati) Lamiera - Internals (welded) Plate	: ASME SA 240 TP 321
7)- Interni (non saldati) Internals (not welded)	: ASME SA 240 TP 304L
8)- Accessori esterni > Lamiera - External Fittings Plate	: ASME SA 516 GR 70 : (welded to shell)
9)- Bulloni in pressione - Pressure Bolting	: ASME SA 193 B7/ SA 194-2H
10)- Bulloni interni - Internal Bolting	: ASME SA 193-B8 / SA 194-8
11)- Guarnizioni in pressione - Pressure Gaskets	: SPIRAL WOUND 321 SS /GRAPHITE WITH 321 S.S. INTERNAL RING AND CARBON STEEL EXT. RING.
12)- Guarnizioni serpentino. 1 - Coils Gaskets	: SPIRAL WOUND 316 SS /GRAPHITE WITH 316 S.S. INTERNAL RING AND CARBON STEEL EXT. RING.
13)- Guarnizione bocchello P2 - Nozzle P2 Gasket	: SPIRAL WOUND 321 SS /GRAPHITE WITH 321 S.S. INTERNAL RING.

TOT. WEIGHT = 152872 Kg

ITEM	DESCRIPTION	MATERIAL	N°	UNIT WEIGHT (kg)	
6A/B	SKIRT COURSE	ASME SA 516 GR 60	1	2657	
5A/B	BTM ELLIPTICAL HEAD	ASME SA 264/516 GR 70/321	1	24625	
4A/B	SHELL COURSE	ASME SA 264/516 GR 70/321	1	33655	
3A/B	SHELL COURSE	ASME SA 264/516 GR 70/321	1	33655	
2A/B	SHELL COURSE	ASME SA 264/516 GR 70/321	1	33655	
1A/B	TOP ELLIPTICAL HEAD	ASME SA 264/516 GR 70/321	1	24625	

DRAWINGS AND SPECIF. REFERENCE

NUMBER	ISSUE	TITLE
2743 CD-MR-035	1	MATERIAL REQUISITION
2743 CD-DX-241	2	TECNIMONT DRAWINGS
DUPONT SG-1-S BECHTEL SP-000-D-001	93 1	GENERAL FABRICATION REQUIREMENTS
2743 YW-SG-001	3	PAINTING SPECIFICATION
2743 SZ-SG-001 2743 SZ-SG-003	1 1	FIREPROOFING GENERAL SPECIFICATION
20230-D-013	1	SHIPPING DRAWING
20230-D-012	2	INTERNAL DETAILS
20230-D-011	1	DAVITS FOR MANHOLES
20230-D-010	1	NAMEPLATE AND SUPPORT
20230-D-009	0	INSULATION SUPPORTS AND EXTERNAL DETAILS
20230-D-008	0	INSULATION SUPPORTS AND EXTERNAL DETAILS
20230-D-007	1	LIFTING TRUNNIONS
20230-D-006	2	SKIRT
20230-D-005	1	TEMPLATE
20230-D-004	0	
20230-D-003	2	NOZZLE DETAILS
20230-D-002	2	WELDING DETAILS (AND ND EXAMINATION)
20230-D-001	2	ASSEMBLY AND NOTES

1

LIST OF CONNECTIONS

ITEM	PIECES	DN	SERVICE	FLANGE RATING	FLANGE TYPE	FLANGE FACING	NOZZLE O.D.	NOZZLE THK.	REINF. PAD O.D.	REINF. PAD THK.	NOTES
P8A%D	4	1"	HOT OIL OUTLET	300#	WN	RF	33.4	4.55	--	--	3
P7A%D	4	1"	HOT OIL INLET	300#	WN	RF	33.4	4.55	--	--	3
P6	1	20"	AGITATOR MOUNT	600#	PAD	RF	1150	317.5	--	--	
P5	1	6"	SPARE	600#	PAD	RF	450	142.5	--	--	1
P4	1	100 I.D.	DRAIN	600#	PAD	RF	400	142.5	--	--	
P3A%B	2	200 I.D.	SLURRY OUTLET	600#	PAD	RF	550	167.5	--	--	
P2	1	200 I.D.	FEED INLET	900#	PAD	LF	469.9	127.5	--	--	
P1	1	6"	VAPOURS OUTLET	600#	LWN	RF	325.6	156.6	--	--	4
K1	1	1-1/2"	TEMPERATURE CONNECTION	600#	PAD	RF	200	72.5	--	--	
M1	1	530 I.D. MIN.	MANHOLE	BY MFR	BY MFR	RF	890	172.5	--	--	2

NOTES	FLANGES SEALING SURFACE FINISHING
1) WITH BLIND FLANGE. 2) WITH BLIND FLANGE AND DAVIT. 3) NOZZLES OF EXTERNAL HEATING COILS. 4) WITH INTERNAL BAFFLE.	SERRATED CONCENTRIC OR SERRATED SPIRAL FINISH ACCORDING TO ANSI B 16.5 WITH RESULTING ROUGHNESS AARH SHELL SIDE = 63 ÷ 125 min. COIL SIDE = 125 ÷ 250 min. 1

DESIGN DATA 1

	SIDE	SHELL	JACKET OR COIL	NOTES
DESIGN CODES		ASME SECT.VIII DIV.1 1995 EDIT.		
CODE "U" STAMP		YES	--	
INSPECTION AUTHORITY		ASME INSP./CLIENT		
PRESSURE (GAUGE) DESIGN	bar (g)	60 / FULL VACUUM	15	
PRESSURE (GAUGE) OPERATING	bar (g)	46.7	5	
PRESSURE (GAUGE) EXTERNAL	bar (g)	--	--	
PRESSURE (GAUGE) HYDROTEST IN VERTICAL	bar (g)	91	22.5	
PRESSURE (GAUGE) HYDROTEST IN HORIZANTAL	bar (g)	91	23.5	
PRESSURE (GAUGE) PNEUMATIC TEST	bar (g)	--	--	
PRESSURE (GAUGE) M.A.P. (NEW AND COLD)	bar (g)	60.4		
PRESSURE (GAUGE) M.A.W.P. (HOT AND CORR.)	bar (g)	60.4		
TEMPERATURE DESIGN	°C	280 / 100 FOR F.V.	340	
TEMPERATURE OPERATING	°C	261	316	
MINIMUM DESIGN METAL TEMPERATURE		8 °C AT 60 bar (g)	8 °C AT 15 bar (g)	
CORROSION ALLOWANCE	mm	ALL 321 S.S. LINING	1	
FLUID TYPE		PTA + WATER	HOT OIL	
FLUID PHYSICAL STATE		LIQUID	LIQUID	
FLUID SPECIFIC GRAVITY	kg/m³	891	805	
FLUID CAPACITY	m³	~140	~0.026x4	
LIQUID LEV. FOR MECHANICAL DESIGN(ABOVE BOTTOM T.L.)	mm			
JOINTS EFFICENCY	SHELL	1	1	
JOINTS EFFICENCY	HEADS	1	--	
OUT OF ROUND	%	ACCORDING TO ASME CODE UG 80		
INSULATION	TYPE/THK.	CELLULAR GLASS / 170 MM		
FIREPROOFING		YES	--	
WIND PRESSURE	SEE BECHTEL SPEC.22854-SP-000-M-001 Rev.2 PARA 4	ASCE 7-88 "EXPOUSURE C"		
SEISMIC ZONE		ASCE 7-88 "ZONE 1"		
POSTWELD HEAT TREATMENT		YES	NONE	13)
RADIOGRAPHY		100%	100%	14)

LOADS AT BASE		OPERATING	HYDROTEST	EARTHQUAKE
VERTICAL LOAD	kN	3404	3561	3404
SHEAR	kN	60	15	194
MOMENT	kNm	503	138	1870

SUPPLY WEIGHT (MASS) 2	~169300	kg	LOCATION	OUTDOOR
WEIGHT FULL OF WATER	~309300	kg	SADDLES MOVEMENT	- - mm
SURFACES (IN FIELD)			PAINTING (IN WORK SHOP)	
INSULATION (MEDIUM SURFACE)	~ 179	m²		
SHEETS FOR INSULATION JACKETING	~ 188	m²		
FINAL PAINTING (CARBON STEEL PARTS)	~ 60	m²		

ATB Caldereria S.p.A
BRESCIA ITALIA

COMMITTENTE	CONSULENTE	COMM. (JOB)
IBN RUSHD	TECNIMONT	20230

24 D 001
FIRST PTA CRYSTALLIZER

INSIEME E NOTE - ASSEMBLY AND NOTES

DISEGNATO	APPROVATO	SCALA	DISEGNO NR. (DRAWING NR.)	REV.
A.G.	F.PERINI	1:25	20230D001	3
VERIFICATO ARRIGHI	DATA 08 feb 96			

Questo disegno e' di proprieta' dell'ATB CALDERERIA S.p.A. e non puo' essere copiato, riprodotto o mostrato a terzi senza autorizzazione scritta.

ARCHIVIO '20230D001.

ZONE RESERVED FOR APPROVAL STAMPS

ASME STAMP U
Pressure vessel Div. 1

ISSUE	DESCRIPTION	DRAWN UP	APPROVED	DATE
4	ISSUED AS FINAL	ARRIGHI	F. PERINI	14/1/97
3	REISSUED FOR APPROVAL	ARRIGHI	F.PERINI	18-06-96
2	REISSUED FOR APPROVAL	ARRIGHI	F.PERINI	15-04-96
1	ISSUED FOR APPROVAL	ARRIGHI	F.PERINI	08-02-96

MANUFACTURER'S TRADE MARK: ATB Caldereria S.p.A BRESCIA ITALIA		MANUFACTURER'S DRAWING N°: 20230-D-001	ISSUE: ~~1~~ ~~2~~ ~~3~~ 4	TECNIMONT
YEAR: 1996	JOB: 20230	N° PIECES: 1	WORK NUMBER: 18879	SCALE: 1:25
PLANT: PTA-YANBU SAUDI ARABIA		ITEM: 24 D 001		
SERVICE: FIRST PTA CRYSTALLIZER				
TYPE:		SURFACE m²:		
DRAWN UP: ARRIGHI	APPROVED: F. PERINI	DATE: 08-02-96		
PURCHASER: TECNIMONT		NOT TO BE REPRODUCED WHOLE DWG. PART NOR ENPLOYED FOR ANY PURPOSE OTHER THAN SPECIFICALLY PERMITTED WRITING.		
PURCHASER ORDER: W040325 NG	MATERIAL REQUISITION 2743 CD MR 045			

CLIENT: ARABIAN IND.FIBERS CO.LTD
CLIENT REF. IBN RUSHD
PLANT LOCATION: YANBU SAUDI ARABIA

IDENTIFICATION CODE JOB	E	C	T	N°
2743	C	D	VD	241

SHEET 001 ISSUE 04

REV No.	DATE	DESCRIPTION	DRAWN UP	CHECKED	APPROVED

SCALE: JOB No.

الشركة العربية للألياف الصناعية ابن رشد
ARABIAN INDUSTRIAL FIBERS Co. (IBN RUSHD)
YANBU SAUDI ARABIA

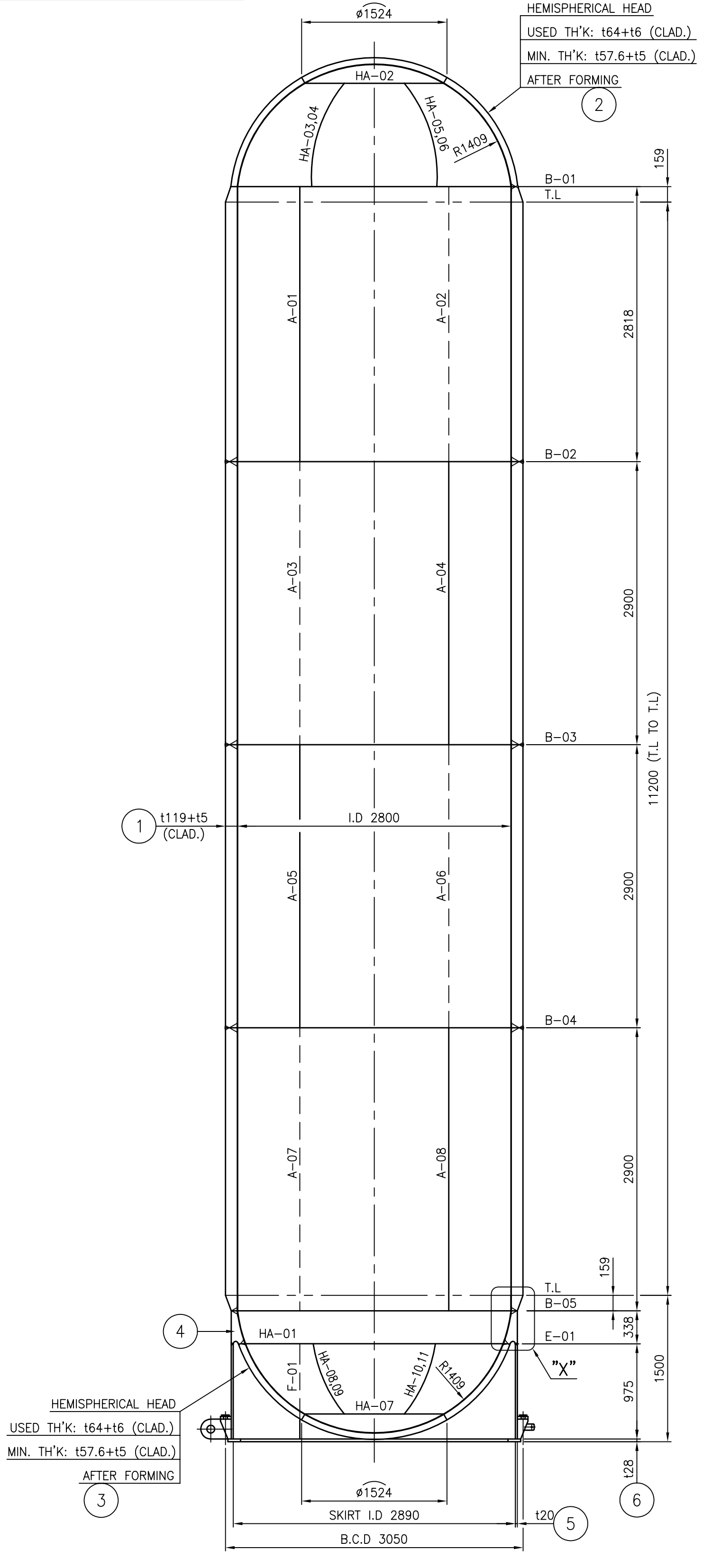
IBN RUSHHD PTA PLANT
YANBU SAUDI ARABIA
350,000 MT/Y PTA PLANT

Plant Unit	DRAWING No.	SHEET	REVISION

REV.	DATE	DESCRIPTION	DRAWN	CHECKED	APPROVED
3	13 JAN 97	FINAL ISSUE	13-01-97 BOLPAGNI	14/1/97 ARRIGHI	F. PERINI
2	20 JUN 96	MODIFIED WHERE SHOWN WITH 2	20 JUN 96 Bolpagni	20 JUN 96 ARRIGHI	20 JUN 96 F.PERINI
1	15 Apr 96	MODIFIED WHERE SHOWN WITH 1	15 Apr 96 Bolpagni	15 Apr 96 ARRIGHI	15 Apr 96 F.PERINI
0	08 feb 96	FIRST ISSUE	08 feb 96 A.G.	08 feb 96 ARRIGHI	08 feb 96 F.PERINI

FOR VESSEL

DWG NO. 11CTCI01-23D001-002


ø1524
HEMISPHERICAL HEAD
USED TH'K: t64+t6 (CLAD.)
MIN. TH'K: t57.6+t5 (CLAD.)
AFTER FORMING
2
HA-02
HA-03,04
HA-05,06
R1409
B-01
T.L
159
A-01
A-02
2818
B-02
A-03
A-04
2900
B-03
11200 (T.L TO T.L)
1
t119+t5 (CLAD.)
I.D 2800
A-05
A-06
2900
B-04
A-07
A-08
2900
159
T.L
B-05
E-01
338
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HA-01
"X"
F-01
HA-08,09
HA-10,11
R1409
HA-07
975
1500
HEMISPHERICAL HEAD
USED TH'K: t64+t6 (CLAD.)
MIN. TH'K: t57.6+t5 (CLAD.)
AFTER FORMING
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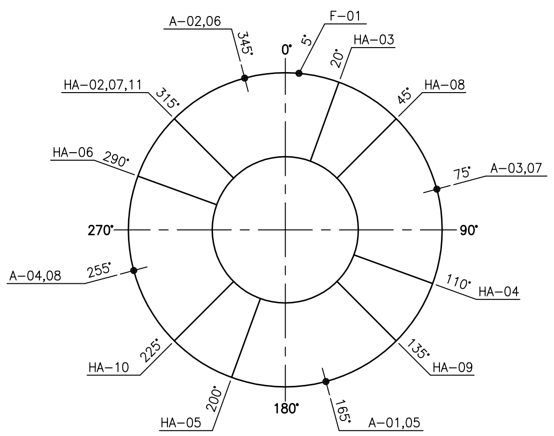
ø1524
SKIRT I.D 2890
B.C.D 3050
t20
5
t28
6

E L E V A T I O N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F-01
A-02,06
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HA-03
45°
HA-08
HA-02,07,11
315°
HA-06
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75°
A-03,07
270°
90°
A-04,08
255°
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HA-04
HA-10
225°
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HA-09
HA-05
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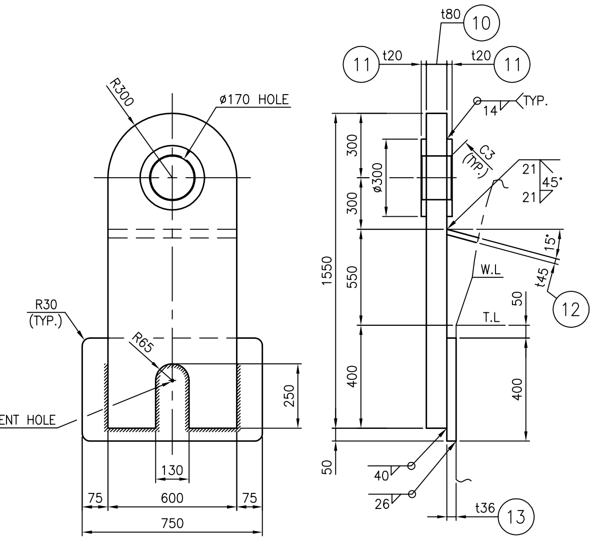
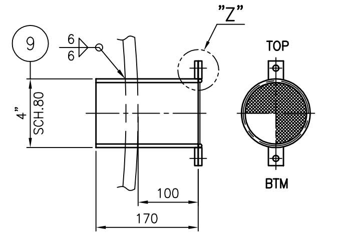
165°
A-01,05

SEAM ORIENTATION

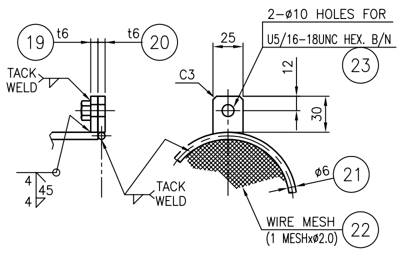

R300
ø170 HOLE
R30 (TYP.)
R65
1-ø10 VENT HOLE
250
130
75
600
75
750
t80 10
11 t20
t20 11
14 TYP.
C3 (TYP.)
21
45°
21
15°
300
ø300
300
1550
550
400
W.L
T.L
50
400
50
40
26
t45 12
t36 13

DETAIL OF LIFTING LUG

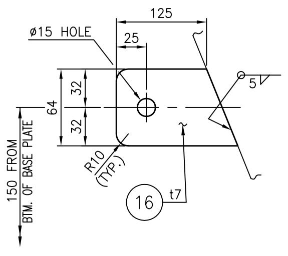

9
6
6
"Z"
4"
SCH.80
TOP
BTM
100
170

DETAIL OF SKIRT VENT

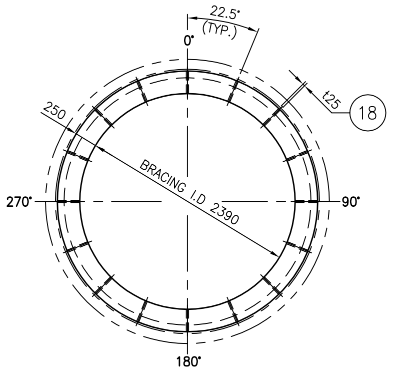
V1~4
4"


19 t6
t6 20
2-ø10 HOLES FOR
U5/16-18UNC HEX. B/N
23
25
C3
12
30
TACK WELD
ø6 21
4
4
45
TACK WELD
WIRE MESH
(1 MESHxø2.0)
22

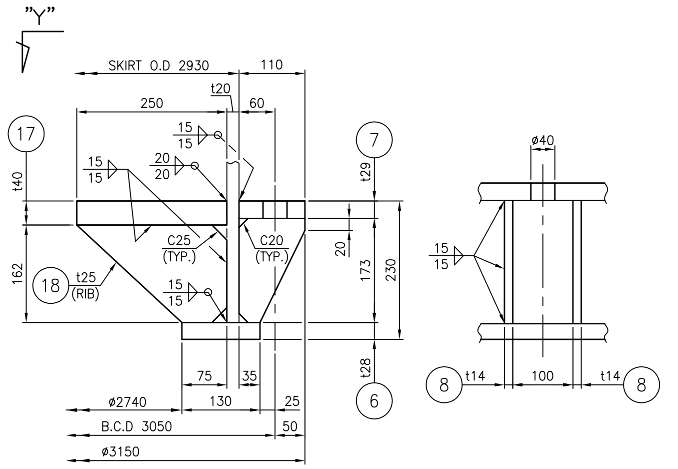
DETAIL "Z"


ø15 HOLE
125
25
5
64
32
32
R10 (TYP.)
150 FROM BTM. OF BASE PLATE
16
t7

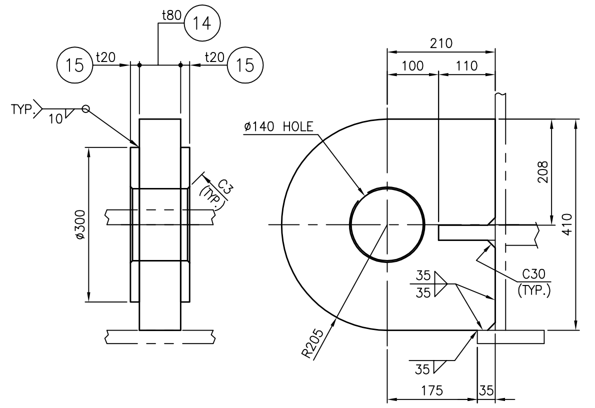
DETAIL OF EARTH LUG


22.5° (TYP.)
0°
250
t25
18
270°
BRACING I.D 2390
90°
180°

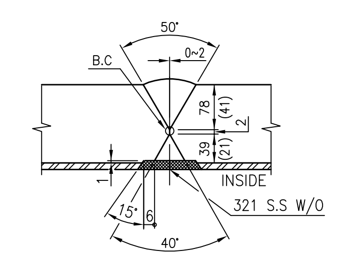
PLAN OF SKIRT BRACING
(VIEW 'Y")


"Y"
SKIRT O.D 2930
110
250
t20
60
17
15
15
20
20
7
t29
t40
15
15
C25 (TYP.)
C20 (TYP.)
20
173
230
162
18
t25 (RIB)
15
15
t28
75
35
130
25
50
6
ø2740
B.C.D 3050
ø3150
ø40
15
15
8
t14
100
t14
8

DETAIL OF ANCHOR CHAIR

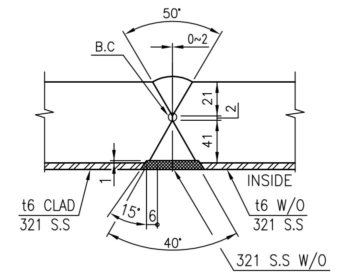

t80 14
15 t20
t20 15
TYP.
10
C3 (TYP.)
ø300
ø140 HOLE
210
100
110
208
410
35
35
C30 (TYP.)
R205
35
175
35

DETAIL OF TAILING LUG

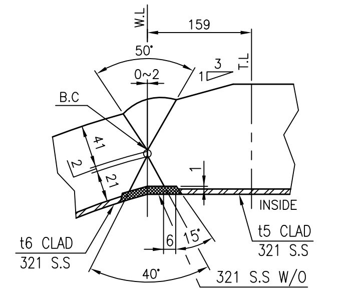

50°
B.C
0~2
78
(41)
39
(21)
2
1
INSIDE
15°
6
321 S.S W/O
40°

( ) DIM. FOR HA-02~11

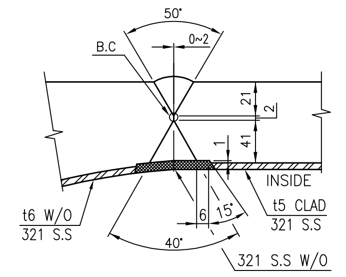
A-01~08/B-02~04/HA-02~11
JOINT NO.


50°
B.C
0~2
21
2
41
1
t6 CLAD
321 S.S
15°
6
INSIDE
t6 W/O
321 S.S
40°
321 S.S W/O

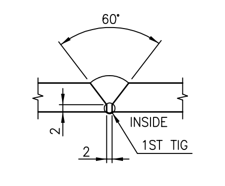
HA-01
JOINT NO.


W.L
159
50°
0~2
1
3
T.L
B.C
41
2
21
1
INSIDE
t6 CLAD
321 S.S
6
15°
t5 CLAD
321 S.S
40°
321 S.S W/O

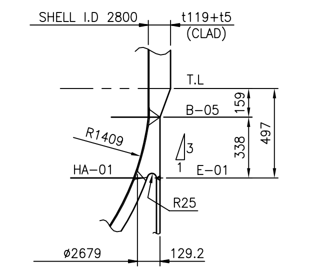
B-01
JOINT NO.


50°
B.C
0~2
21
2
41
1
t6 W/O
321 S.S
6
15°
INSIDE
t5 CLAD
321 S.S
40°
321 S.S W/O

B-05
JOINT NO.


60°
INSIDE
2
2
1ST TIG

E-01, F-01
JOINT NO.


SHELL I.D 2800
t119+t5 (CLAD)
T.L
B-05
159
338
497
R1409
HA-01
3
1
E-01
R25
ø2679
129.2

DETAIL "X"

IR-II PTA DBN Project

PROJECT NO. : 10E0542A01

Po NO. : 10P0542B01-F0008B

Req. NO. : 10P0542B01-EC0A.03 | Equip. Item NO. : 23D001

CTCI Doc. NO. : F0008B-DR-23-DA-5013

Vendor Doc. No. : 11CTCI01-23D001-002 | Rev. : 4

STATUS CODE	ENGINEER	DEPT.	DATE

COMMENT STATUS CODE
☐ A-Approved, work can be proceeded.
☐ AW-Approved with comments. Revise per comments and resubmit.
☐ B-Disapproved, vendor need to resubmit before manufacture.
☐ I-For information only
Submit/Resubmit within ___Calendar Days

Note: Release of drawings in no way absolves vendors from responsibility for their accuracy, or for design, construction and performance of the equipment.

FINAL

A S M E CODE STAMPED WORK (U)

NO.	NAME OF PART	MATERIAL	Q'TY	SPARE	DESCRIPTION
23	HEX. B/N	SA36	8		U5/16-18UNCx35L
22	WIRE MESH	304 S.S	4		1 MESHxø2.0
21	ROUND BAR	SA36	4		R.B ø6
20	COVER PLATE	SA283-C	8		t6
19	SUPPORT PLATE	SA283-C	8		t6
18	RIB	SA283-C	16		t25
17	SKIRT BRACING	SA283-C	1		t40
16	EARTH LUG	304 S.S	2		t7
15	RING PLATE	SA516-70N	2		t20
14	TAILING LUG	SA516-70N	1		t80
13	REINF. PAD	SA516-70N	2		t36
12	SUPPORT PLATE	SA516-70N	2		t45
11	RING PLATE	SA516-70N	4		t20
10	LIFTING LUG	SA516-70N	2		t80
9	SKIRT VENT	SA53-B	4		4" SCH.80
8	GUSSET	SA283-C	32		t14
7	COMPRESSION RING	SA516-60N	1		t29
6	BASE PLATE	SA516-60N	1		t28
5	LOWER SKIRT	SA516-70N	1		t20
4	UPPER SKIRT	SA266-4+321 S.S DEPO.	1		t338
3	HEAD (HEMISPHERICAL)	SA516-70N+321 S.S CLAD.	1		t64+t6
2	HEAD (HEMISPHERICAL)	SA516-70N+321 S.S CLAD.	1		t64+t6
1	SHELL	SA516-70N+321 S.S CLAD.	1		t119+t5

REV	DATE	DESCRIPTION	DWN	DSGN	CHK	APP'D
4	2012.05.25.	FINAL	ONE	I.G.HER	C.M.YANG	Y.D.CHO
3	2012.02.28.	BY OWNER COMMENT	ONE	I.G.HER	C.M.YANG	Y.D.CHO
2	2011.11.21.	BY OWNER COMMENT	ONE	I.G.HER	C.M.YANG	Y.D.CHO
1	2011.08.05.	BY OWNER COMMENT	ONE	I.G.HER	C.M.YANG	Y.D.CHO
0	2011.06.16.	ISSUED FOR APPROVAL	ONE	I.G.HER	C.M.YANG	Y.D.CHO

سابك sabic
Saudi Basic Industries Corporation
Engineering and Project Management
Jubail, Kingdom of Saudi Arabia

ابن رشد ibn rushd
Arabian Industrial Fibers Company

中鼎工程股份有限公司
CTCI CORPORATION

FOR
IBN RUSHD-II PTA DBN PROJECT

TITLE
23D001
HYDROGENATION REACTOR
DETAIL OF BODY

CERTIFIED FOR CONSTRUCTION		DWG.	DSGN.	CHK.	APPR.
BY ______	BY				
DATE ______	DATE				

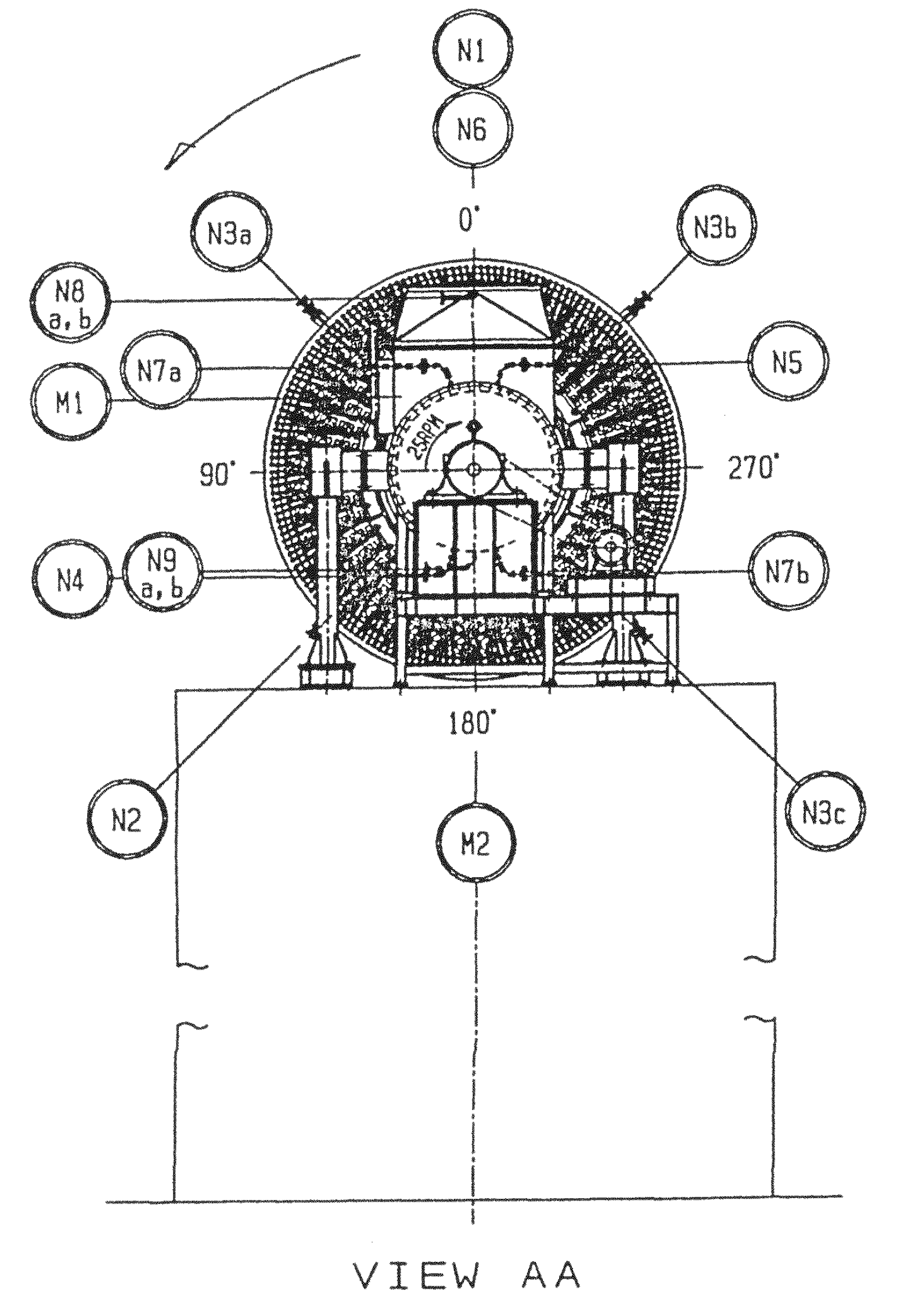
IR PROJ NO.	IR DRAWING NO.	SHT.
-	-	1/1

CTCI PROJ NO.	CTCI DRAWING NO.	REV.
10E0542A01	F0008B-DR-23-DA-5013	4

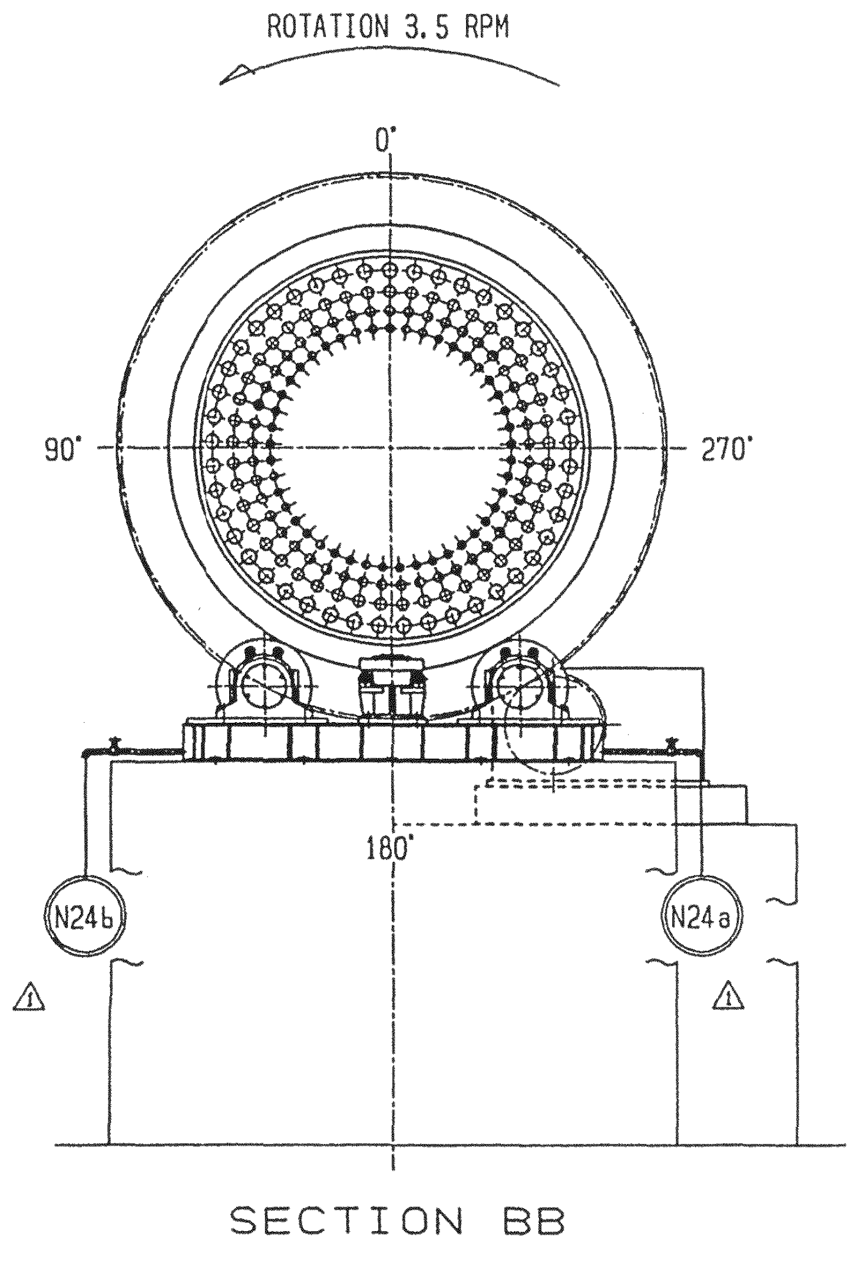
TSM TSM TECH CO., LTD.

CAD FILE NAME	11CTCI01-23D001-002	DWG. SIZE	A1
		SCALE	NONE

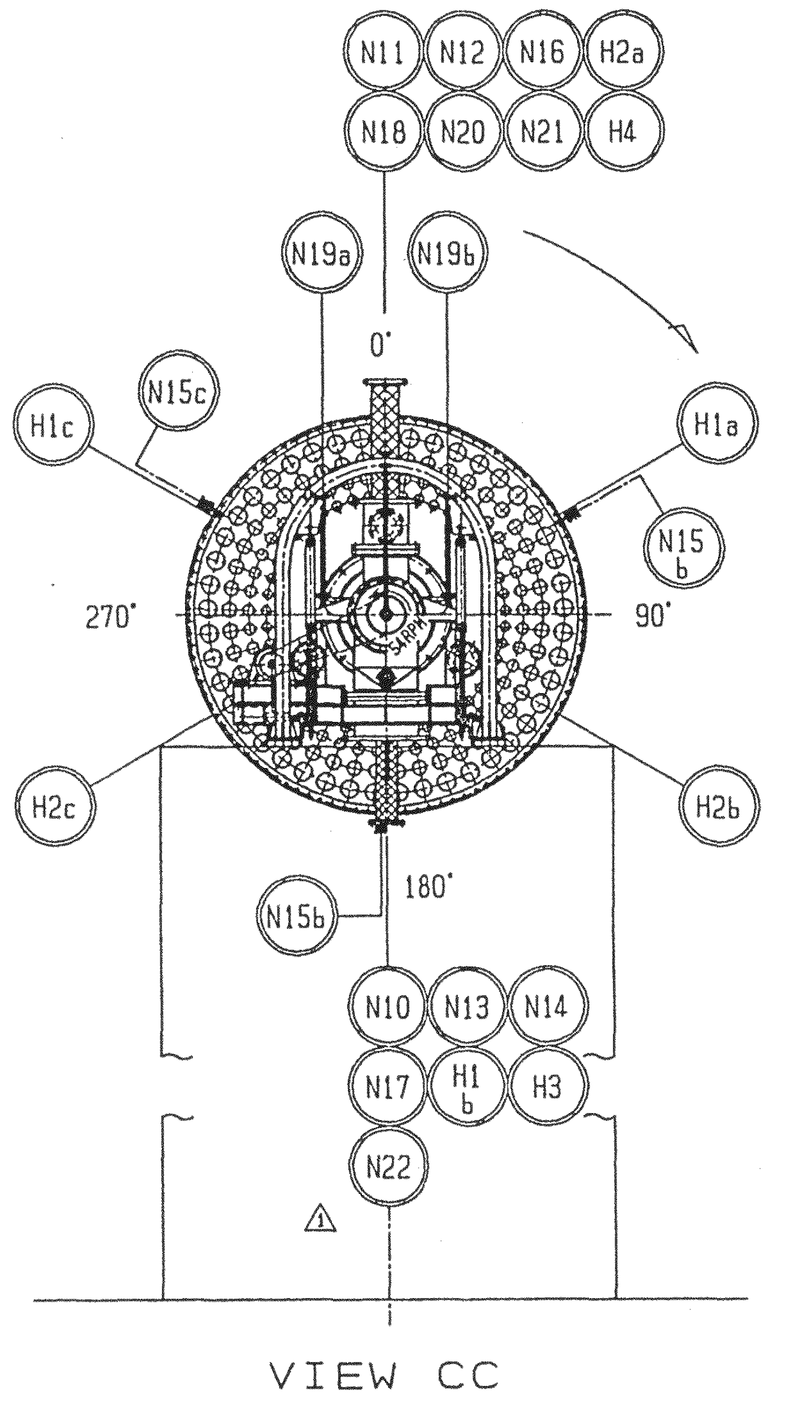
FEED END
DISCHARGE END
M1
N1
N7a
N5
N2
N3 a~c
N8b
N6
N9a
N9b
N4
N7b
M2
N24 a,b
N23 a,b
N15 a~c
H1 a~c
N13
N14
N17
H3
N22
H2 a~c
H4
N16
N12
N18
N19 a,b
N11
N20
N21
N10
*41119
*4858
*32500
*2748
*2110
*4400
*24400
*1500
*3700
*3761
*2470
*1291
3.5 RPM
ϕ3050
2/100 (HOR)
CENTER LINE OF DRYER
*36.5
*2165.4
3013.8
7089.9
7119.9
4614.9
4076.1
6632
4126.3
8752.9
7250.1
5500
1750.1
*1000
*1000 503
340
*650
1050
353
6506
5456
5505.6
EL ±0
A
B
C
GEARED MOTOR 15KWx4Px60Hzx380V
GEAR REDUCER
FLUID COUPLING
MOTOR 150KWx3300V 60Hz
GEARED MOTOR 5.5KWx4Px60Hzx380V
1653.7
40
6445.4
24431.6
6162.6
22
1870
37061.6
DATUM LINE (FOR N1)
DATUM LINE (FOR CARRIER MACHINE)


N1
N6
0°
N3a
N3b
N8 a,b
N7a
M1
N5
90°
270°
N4
N9 a,b
N7b
180°
N2
M2
N3c

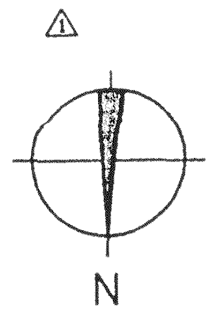
VIEW AA


ROTATION 3.5 RPM
0°
90°
270°
180°
N24b
N24a

SECTION BB


N11
N12
N16
H2a
N18
N20
N21
H4
N19a
N19b
0°
H1c
N15c
H1a
N15 b
270°
90°
H2c
H2b
N15b
180°
N10
N13
N14
N17
H1 b
H3
N22

VIEW CC



H4	6"	HAND HOLE	1	ANSI 150RF
H3	ϕ100	HAND HOLE (WITH CORE)	1	
H2a~c	6"	HAND HOLE	3	ANSI 150RF
H1a~c	ϕ200	HAND HOLE (WITH CORE)	3	
M2	ϕ500	MAN HOLE (WITH CORE)	1	
M1	ϕ500	MAN HOLE (WITH CORE)	1	
N24a, b	1"	DRAIN (THRUST BASE)	2	PT 1
N23a, b	1"	DRAIN (FREE BASE)	2	PT 1
N22	1½"	THERMO NOZZLE	1	ANSI 150RF
N21	3/4"	N_2 GAS INLET	1	ANSI 150RF
N20	3/4"	N_2 GAS INLET	1	ANSI 150RF
N19a, b	3/4"	N_2 GAS INLET	2	ANSI 150RF
N18	3/4"	COOLING WATER OUTLET	1	ANSI 150RF
N17	3/4"	COOLING WATER INLET	1	ANSI 150RF
N16	1/2"	MANUAL AIR VENT	1	ANSI 150RF
N15a~c	1/2"	DRAIN OUTLET	3	ANSI 150RF
N14	1/2"	DRAIN OUTLET	1	ANSI 150RF
N13	6"	CONDENSATE	1	ANSI 150RF
N12	8"	STEAM INLET	1	ANSI 150RF
N11	14"	CARRIER GAS INLET	1	ANSI 150RF
N10	20"	MATERIAL OUTLET	1	ANSI 150RF
N9a, b	3/4"	CONDENSATE	2	ANSI 150RF
N8a, b	3/4"	STEAM INLET	2	ANSI 150RF
N7a, b	1"	N_2 GAS INLET	2	ANSI 150RF
N6	3/4"	N_2 GAS INLET	1	ANSI 150RF
N5	3/4"	COOLING WATER OUTLET	1	ANSI 150RF
N4	3/4"	COOLING WATER INLET	1	ANSI 150RF
N3a~c	1/2"	AUTOMATIC AIR VENT	3	ANSI 150RF
N2	1/2"	MANUAL AIR VENT	1	ANSI 150RF
N1	ϕ1070	MATERIAL INLET (GAS OUTLET)	1	SEE DWG 560901
NO.	SIZE	SERVICE	QUANT	REMARKS

NOZZLE LIST

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ARABIAN INDUSTRIAL FIBERS CO. (IBN RUS

NOTE

1). DIMENSIONS WITH *MARK SHOW ONES MEASURED IN PARALLEL OR VERTICAL TO THE DRYER CENTER LINE.

部番 NO.	名称 PARTICULARS		材質 MAT'L	個数 QUANT.	摘要 REMARKS
承認 APRV'D BY	審査 CHECKED BY	審査 CHECKED BY	作製 DRAWN BY	日付 DATE DEC. 28 '95	
N. Sekido	K. Koike	T. Koike	T. Kato	尺度 SCALE 1/60	

図面名称 TITLE	24V020(24V025, 24V026) PTA DRYER (ϕ3050x32500L) GENERAL ASSEMBLY
納先 FOR	TECNIMONT (FOR SABIC)
図番 DRAWING NO.	560900 ②
	月島機械株式會社 TSUKISHIMA KIKAI CO., LTD.

NO. 1

680AA2	P95111-012	AA	1	1	1
	工事番号 JOB NO.	図面符号 DRAWG. MARK	1二必要ナ数量 UNIT PER ONE	製作数 QUANT	製作数量 UNIT TOTAL

NO.	日付 DATE	記事 DESCRIPTION	APP'R	CHK'D	DRAWN
2	AUG. 1 '96	REVISED AS MARK 2	M.S		T.K
1	MAY. 22 '96	REVISED AS MARK 1	N. S	K. K	T. K
0	DEC. 28 '95	NEW DRAWING FOR TECNIMONT			