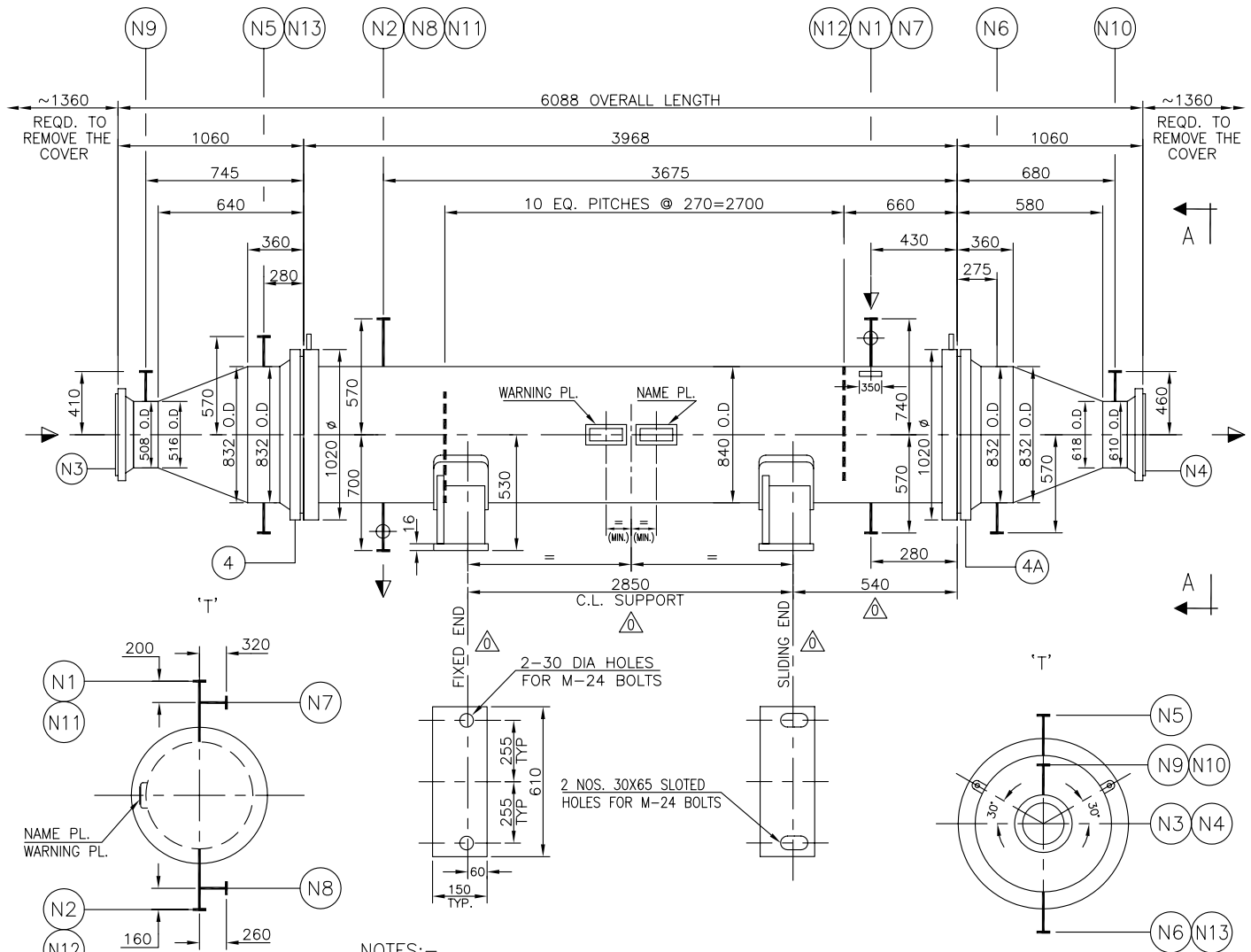




NOTES:-

1. THIS UNIT HAS BEEN DESIGNED FOR PIPING LOADS AS PER SKETCH NO 6907-051-EE-SK-1001, REV.0
2. SMOOTH FINISH TO 125 AARH.
3. DESIGN FOR SHELL & TUBE AVG. METAL TEMPERATURE OF
 - i) 101.55° AND 85° RESPECTIVELY FOR NORMAL OPERATION.
 - ii) 102.7°C AND 102.7°C RESPECTIVELY FOR SHELL SIDE START UP OPERATION.
4. MDMT:
TUBE SIDE : -150°C
SHELL SIDE : -29°C
5. CS SHELL AND SS 304L TUBESHEET SHALL BE WELDED BY USING ER 309L/E 309L ELECTRODE.

TYPE OF EXCH. AEL CONE (H)

SERVICE:- BLOWDOWN SUPER HEATER

SHELL PER UNIT- ONE
NO. OF UNIT- ONE

DESIGN DATA					NOZZLE DATA							
			SHELL SIDE	TUBE SIDE	NOZZLE MARK	SIZE N.B./O.D. (INCH./mm)	ANSI CLASS	SCH / THK (mm)	TYPE FACING	PAD W X T (mmXmm)	FLG. FACE FINISH	DESIGNATION
DESIGN PRESSURE Kg/cm ² g			44.6/FV	34.3	N1	12"	600	12.00	WNRF	100X20	NOTE2	SHELL INLET
DESIGN TEMPERATURE °C			204	-150/65	N2	4"	600	11.10	WNRF	50X20	NOTE2	SHELL OUTLET
HYD. TEST PRESSURE Kg/cm ² g			57.98	44.6	N3	20"	600	—	WNRF	—	NOTE2	CHANNEL INLET
FLUID CIRCULATED			METHANOL	BLOWDOWN VAPOUR	N4	24"	600	—	WNRF	—	NOTE2	CHANNEL OUTLET
NO. OF PASSES			ONE	ONE	N5	1.5"	600	15.87	LWNRF	—	NOTE2	CHANNEL VENT+BF
WORKING PRESSURE Kg/cm ² g			2.63	2.55	N6	1.5"	600	15.87	LWNRF	—	NOTE2	CHANNEL DRAIN+BF
WORKING TEMP. (IN/OUT) °C			102.7/100.4	-142.8/5.0	N7/N8	1.5"	600	160	WNRF	—	NOTE2	MP CONN.+BF
CORROSION ALLOWANCE mm			3.0	NIL	N9/N10	1.5"	600	15.87	LWNRF	—	NOTE2	MP CONN.+BF
STRESS RELIEVING			—	—	N11	2"	600	160	WNRF	—	NOTE2	SHELL VENT+BF
RADIOGRAPHY			FULL	FULL	N12	2"	600	160	WNRF	—	NOTE2	SHELL DRAIN+BF
JOINT EFFICIENCY			1.0	1.0	N13	2"	600	16.66	LWNRF	—	NOTE2	TO BLOWDOWN HEADER
INSULATION (MW) mm			25 (IH)	180 (IC)								
0	08.07.10	ISSUED FOR PURCHASE		A.R	RR/PB	AKG						
A	15.01.10	ISSUED FOR BIDS/ENGG.		A.ROY	RR/PB	AKG			EMPTY WEIGHT (Kg.)		~8000	
NO.	DATE	REVISION		BY	CHKD.	APPD. BY			WT. FULL OF WATER (Kg.)		~11000	



ENGINEERS INDIA LTD.
STATIC EQUIPMENT DEPT.
KOLKATA

SETTING PLAN FOR
ITEM NO.: 11-EE-018
PROJECT:- BPCL, LAKWA UNIT:- C2+RECOVERY

DRAWING NO.
6907-11N-16-46-4037
SHT 1 OF 2

REV.
0

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F-0540-101 REV. 2 A4-210X297

MECHANICAL DETAILS

ITEM NO	11N-EE-018	TEMA CLASS R	9TH EDITION.	ASME SEC.VIII DIV.1 (2007) EDITION+ADDENDA	1		
SIZE	800 X 4000	TYPE	AEL (H) ;	CONNECTED IN -	STACKING NO	2	
DUTY/UNIT	1.9550*1.10	MMKcal/hr	SURFACE AREA /	SHELL 155.0 Sqm	NO. OF UNITS- ONE	SHELLS/UNIT ONE	3

DESCRIPTION	MATERIAL	DETAILS	Wt(Kg)	
SHELL	SA516Gr60	O.D. = 840.00 ; THK = 20.00		5
CHANNEL	SA240 Gr304L	O.D. = 832.00 ; THK = 16.00		6
LEFT CHANNEL CONE	SA240 Gr304L	O.D. = 832.00/516.00 ; THK = 16.00		7
RIGHT CHANNEL CONE	SA240 Gr304L	O.D. = 832.00/618.00 ; THK = 16.00		8
LEFT CHANNEL PORT	SA240 Gr304L	O.D. = 508.00 ; THK = 12.00		9
RIGHT CHANNEL PORT	SA240 Gr304L	O.D. = 610.00 ; THK = 12.00		10
TUBES	SA213 TP304L	O.D. = 25.00 ; THK = 2.00 MIN. LENGTH = 4000 NO= 515 PITCH (NOTE4)		11
TUBE SHEET	SA 965 F304L	DETAIL = 9 ; THK = 160 F =26. F1 = 0.		12
BAFFLES	SA240 Gr304L	TYPE= SINGLE SEG. ; THK= 6.; NO REQD.= 11 ; CUT = (NOTE4)		13

FLANGE NO.	TYPE	MATERIAL	A	BCD	B	Go	G1	H	T	GASKET DATA			BOLT DATA		Wt (Kg)
										O.D.(D)	WIDTH	TYPE	NO	BOLT DIA	
4 & 4A	2	SA965 F 304L	1020.0	952.0	800.0	16.00	29.	55.	100.	902.	13.	1	40	M30	14
															15
															16
															17
															18
															19

DESCRIPTION	GASKET MATL.	BOLTING MATERIAL.	DESCRIPTION	MATERIAL	REMARKS	Wt(Kg)
FLANGE 4 & 4A	(4.5)SP.WD. (NOTE7)	SA320GrB8 CL.2/SA194Gr8	IMP. PLATE	SA240 Gr304L	THK = 6.	20
SHELL NOZZLES.	SS316SP.WD. NOTE5	SA193GrB7/SA194Gr2H	TIE RODS	SA479Gr304L	DIA = (NOTE4); NOS.= (NOTE4)	21
CHANNEL NOZZ.	SS316SP.WD. NOTE6	SA320GrB8 CL.2/SA194Gr8	SPACERS	SA213TP304L	O.D. = (NOTE4); THK.= (NOTE4)	22
			SEALING STRIPS	SA240 Gr304L	WIDTH = (NOTE4); THK = (NOTE4); NOS.= (NOTE4)	23
			SADDLE PLATE	IS2062	DETAIL AS PER EIL STD 7-15-0004	24
			NAME PL /BKT.	SS/SA516Gr60	DETAIL AS PER EIL STD 7-15-0017	25
			WARNING PL./BKT.	SS/SA516Gr60	DETAIL AS PER EIL STD 7-15-0018	26
	SHELL SIDE.	CHANNEL SIDE.	Wt(Kg)			27
NOZZLE NECK	SA516Gr60/SA106Gr.B	SA182 F304L				28
NOZZLE FLGS.	SA105	SA182 F304L				29
PAD/WRAPPER PL.	SA516Gr60	SA240 Gr304L				30
GUSSET/LUGS	SA516Gr60	SA240 Gr304L				31
COUPLING/PLUGS	-	-				32
						33
						34

TEST RING- NO TEST FLANGE- NO TUBE TO TUBE SHEET JOINT- WELDED AS PER FIG.2 OF 6-15-0003

NOTES:-
1 ALL DIMENSIONS ARE IN mm. UNLESS OTHERWISE STATED
2 FOR CONSTRUCTIONAL DETAIL AND NOMENCLATURE REFER STD.. 7-15-0001,7-15-0002
3 ALL OVER ▽ FINISH REQUIRED UNLESS OTHERWISE STATED.
4 REFER GUIDELINES FOR PREPARING TUBE LAYOUT AND TUBE LAYOUT DRG NO. 6907-11-05-45-4018, REV.0
5 SPIRAL WOUND GASKETS FOR NOZZLES SHALL BE 4.5 THK WITH GRAFIL FILLER AND 3.2 THK CS OUTER RING. DIMENSIONS AS PER ANSI B16.20.
6 SPIRAL WOUND GASKETS FOR NOZZLES SHALL BE 4.5 THK. WITH GRAFIL FILLER AND 3.2 THK. SS316 OUTER/INNER RING DIMENSION AS PER ANSI B16.20.
7. SS304 SPWD GASKETS WITH GRAFIL FILLER AND SS304 INNER CENTERING RING.
8. EXCHANGER IS UNDER LOW TEMPERATURE SERVICE.

0	08.07.2010	ISSUED FOR PURCHASE	A.R	RR/PB	AKG		
A	15.01.2010	ISSUED FOR BIDS/ENGG.	A.RDY	RR/PB	AKG		
NO.	DATE	REVISION	BY	CHKD	APPROVALS		

