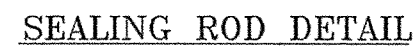
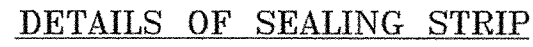
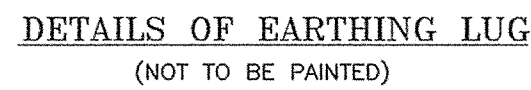
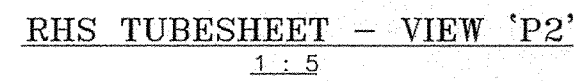
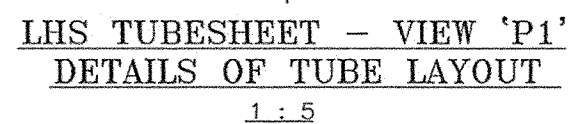
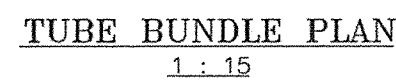
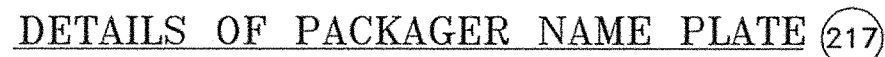


**G.A. DRAWING
FOR CONDENSER**



SPACER DETAIL



- FINAL "AS BUILT" DRAWING.



NOTE: FOR TIE ROD & TUBE HOLE LAYOUT, REFER TUBESHEET DETAIL.



P.NO.	DESCRIPTION	QTY+SPARES	MATERIAL	SIZE	WT(KG)	REMARKS
-------	-------------	------------	----------	------	--------	---------

OWNER : BCPL, LAPETKATA
PROJECT : BRAHMAPUTRA PETROCHEMICAL
COMPLEX PROJECT
UNIT : 220 KTA-LLDPE/HDPE
EIL JOB NO. : 6907

BRAHMAPUTRA CRACKER AND POLYMER LIMITED

**इंजीनियर्स
इंडिया लिमिटेड**  **ENGINEERS
INDIA LIMITED**
(भारत सरकार का उद्योग) (A Govt. of India Undertaking) EIL JOB NO: 6907

BRAHMAPUTRA PETROCHEMICAL COMPLEX PROJECT
220 KTA-LLDPE/HDPE UNIT

MATERIAL	SCALE NTS	DRG NO	FIRST USE MOD
		PRJ/9742/25	ACR PRO
Quantity- ONE	© XPC COPYRIGHT , NO PART OF THIS DRAWING DOCUMENT MAY BE REPRODUCED IN ANY FORM		REV. SHEET SH 0A 2/2 A

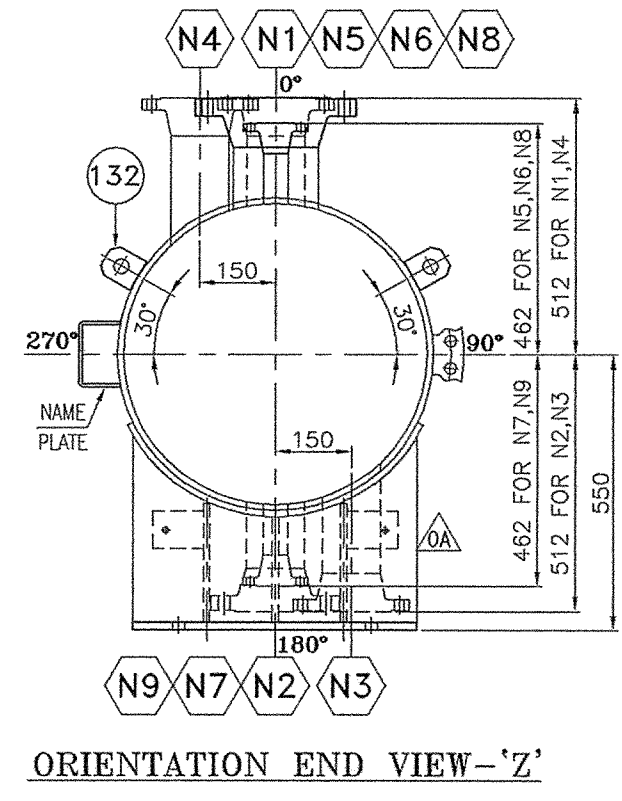
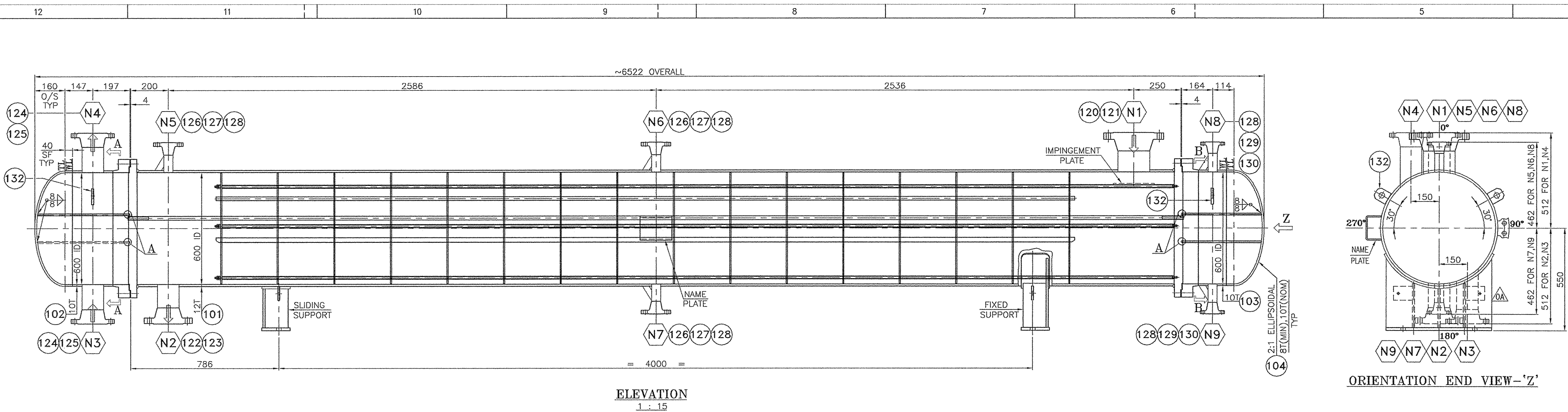
TITLE	
TUBE BUNDLE, SADDLE & NAME PLATE DETAIL	
CONDENSER (ITEM NO. 117-EE-485)	



KIRLOSKAR PNEUMATIC CO. LTD.
HADAPSAR INDUSTRIAL ESTATE, PUNE 411013, INDIA.

01 11	0A	SHOWN "AS BUILT" DRG. AS MKD.	CRG	CHD KK	DATE OF RELEASE	28/02/2010	
02 10	0	ISSUED FOR INFORMATION	PSW	DRN PSW	DATE OF PRINT		
SYM	DATE	ZONE	CHANGE NO.	BRIEF RECORD	SIGN	ALL DIMENSIONS IN mm.	FINISHED WEIGHT kgs.

SYM	DATE	ZONE	CHANGE NO.	BRIEF RECORD	SIGN	ALL DIMENSIONS IN mm.	FINISHED WEIGHT kgs.
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ELEVATION
1:15

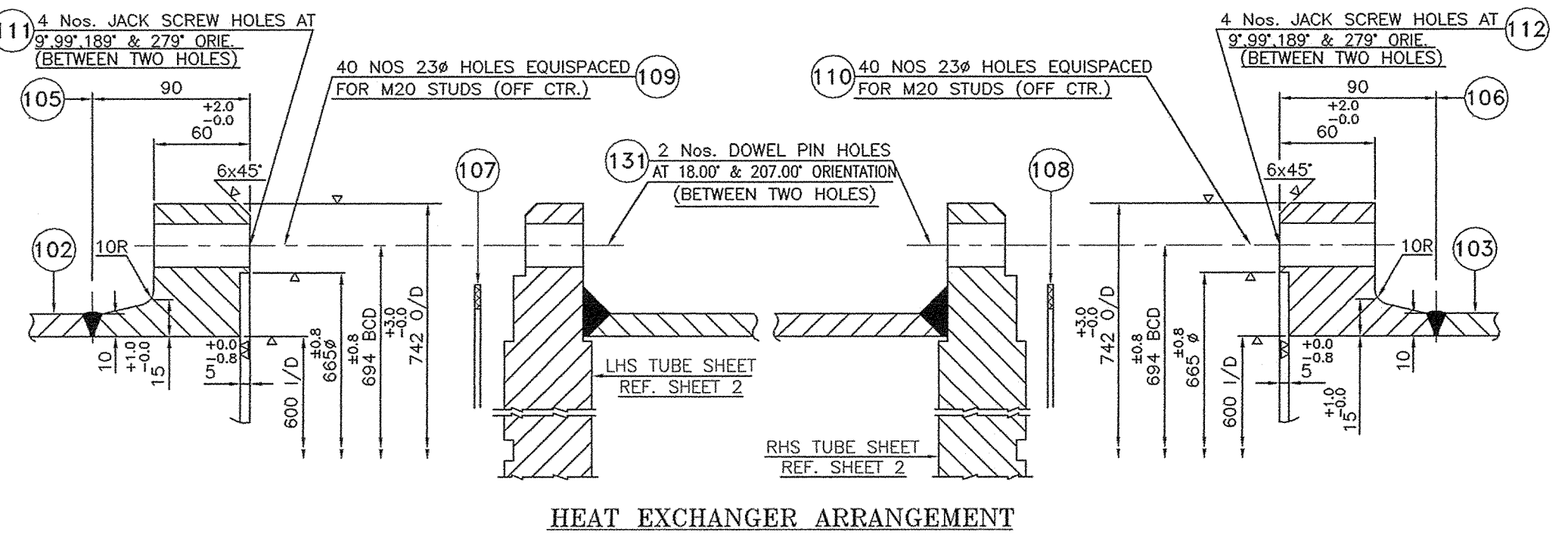
ORIENTATION END VIEW-'Z'

DESIGN DATA

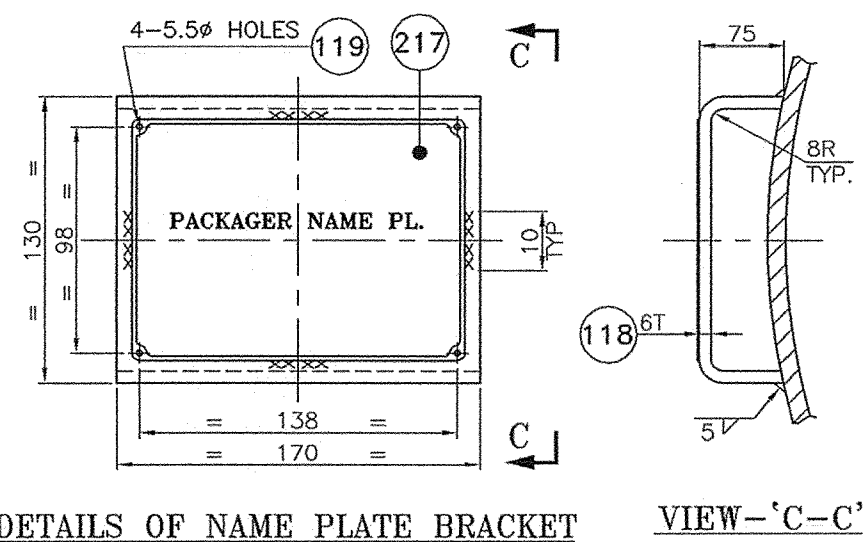
1	DESIGN & MANUFACTURING CODE	ASME SEC. VIII DIV.-1 EDITION 2007 + ADD 2009
2	TEMA TYPE	TEMA (NINTH EDITION) CLASS R
3	CODE STAMP	HORIZONTAL - BEM
4	LETHAL SERVICE	NO
5	PROCESS FLUID	SHELL SIDE PROPYLENE VAPOR
6	DESIGN PRESSURE INTERNAL	Kg/cm ² g 21.20
7	DESIGN PRESSURE EXTERNAL	Kg/cm ² g FV
8	DESIGN TEMPERATURE	°C -45 / 130
9	OPERATING PRESSURE INTERNAL	Kg/cm ² g 19.680
10	OPERATING PRESSURE EXTERNAL	Kg/cm ² g -
11	OPERATING TEMPERATURE (IN / OUT)	°C 80.02 / 47.06
12	PRESSURE DROP (ALLOWED / ACTUAL)	Kg/cm ² g 0.100 / 0.797
13	MDMT	°C (-)45
14	MEAN METAL TEMPERATURE	°C 43.16
15	RADIOGRAPHY (SHELL / D'END)	% 100%
16	JOINT EFFICIENCY (SHELL / D'END)	1.00 / 1.00
17	CORROSION ALLOWANCE	mm 3.0
18	NO. OF PASSES	6
19	HYDRO TEST PRESSURE (AT TOP)	Kg/cm ² g 21.32
20	PNEUMATIC TEST PRESSURE	Kg/cm ² g 23.32
21	TEST TEMPERATURE (MIN)	°C 20
22	POST WELD HEAT TREATMENT	NO
23	POST FORMING HEAT TREATMENT	NO
24	IMPACT TESTING REQUIRED	YES (NOTE-16)
25	DENSITY (IN / OUT)	Kg/M ³ - / 464.3
26	INSULATION THICKNESS	mm N.A.
27	SURFACE AREA PER UNIT (GROSS / EFFECTIVE)	M ² 138.63 / 136.60
28	HEAT DUTY	kCal/Hr 704457
29	EMPTY WEIGHT	Kg ~4250
30	TEST WEIGHT	Kg ~4922
31	TUBE BUNDLE WEIGHT	Kg ~2640
32	OPERATING WEIGHT	Kg ~5325
33	INSPECTION	AS PER APPROVED QAP, BY TPI

GENERAL NOTES

- ALL DIMENSIONS ARE IN MM EXCEPT OTHERWISE STATED.
- WELD SEAMS OF FORMED HEADS SHALL BE 100% RADIOGRAPHED AFTER FORMING AND HEAT TREATMENT, IF ANY.
- ALL NOZZLE NECKS FABRICATED FROM PLATE SHALL BE 100% RADIOGRAPHED.
- FOR NOZZLE ON SHELL PROJECTIONS ARE MEASURED FROM EQUIPMENT C.L. AND FOR NOZZLES ON D'END PROJECTIONS ARE MEASURED FROM T.L. TO FLANGE CONTACT FACE, UNLESS OTHERWISE SPECIFIED.
- ALL REINFORCING PADS SHALL BE AIR TESTED AT PRESSURE OF 1.25 Kg/cm² g WITH SOAP SOLUTION.
- TELL TALE HOLES IN THE REINFORCING PADS SHALL BE PLUGGED WITH HARD GREASE AFTER TESTING.
- THREADS ON EXTERNAL BOLTING, PLUGS ETC. SHALL BE COATED WITH ANTI-GALLING AGENT BEFORE INSTALLATION.
- ALL SHARP EDGES & CORNERS OF NOZZLES, FITTINGS ETC. SHALL BE ROUNDED OFF INSIDE THE SHELL/DISH ENDS.
- ALL BOLT HOLES TO STRADDLE MAIN C.L. OF EQUIPMENT UNLESS OTHERWISE SHOWN.
- ALL WELDS ON PRESSURE PARTS NOT SUBJECTED TO RADIOGRAPH SHALL BE D.P. TESTED.
- ALL SINGLES ACCESSIBLE FROM SECOND SIDE SHALL BE GROUND/CHIPPED BACK TO SOUND METAL & THEN WELDED.
- ALL SINGLE SIDE WELDS TO BE INITIATED WITH T.L.G. USING INERT GAS PURGING.
- NOZZLE FLANGE GASKET SEATING FACE SHALL HAVE SMOOTH FINISH TO 125 TO 250 ARH.
- ALL NOZZLES OF SIZE 50 NB & BELOW SHALL BE STIFFENED WITH FLAT (2 Nos.) 6 THICK 30 W. @ 90° APART.
- SURFACE PREPARATION & PAINTING :
 - SURFACE PREPARATION : BLAST CLEAN TO SSPC-SP-10.
 - PRIMER : ONE COAT OF INORGANIC ZINC SILICATE COATING - TWO PACK AIR DRYING SELF CURING SOLVENT BASED INORGANIC ZINC SILICATE COATING WITH MINIMUM 80% ZINC CONTENT ON DRY FILM. THE FINAL CURE OF THE DRY FILM SHALL PASS THE MEK RUB TEST. @65 TO 75 MICRONS DFT/COAT.
 - FINISH PAINT : THREE COATS OF HEAT RESISTANT SYNTHETIC MEDIUM BASED TWO PACK ALUMINUM PAINT SUITABLE UPTO 250 °C. @20 MICRONS DFT/COAT = 5x20 = 60 MICRONS DFT.
- R.F. PADS, INTERVALS, TRAYS, SUPPORT RINGS, CLEATS ETC. SHALL PREFERABLY BE AWAY FROM MAIN SEAMS, IN CASE, IT IS UNAVOIDABLE THE MAIN SEAM PORTION COMING UNDER THE ATTACHMENT PLUS 150 MM LENGTH ON BOTH SIDES SHALL BE GROUND FLUSH, FULLY RADIOGRAPHED & D.P. EXAMINED BEFORE WELDING OF ANY SUCH ATTACHMENT.
- ALL LTCS MATERIAL SHALL BE IMPACT TESTED AT MDMT AS PER SA 20 OF ASME.
- CARBON CONTENT SHALL BE LIMITED TO 0.23% MAX.
- EQUIPMENT SHALL BE FILLED WITH N2 AT 0.25 Kg/cm² g BEFORE DESPATCH.
- "T" DENOTES MATCH MARK FOR ASSEMBLY & SHALL BE PUNCHED ON ALL MATCHING PARTS.
- TUBE SHEET FACES SHALL BE FLAT WITHIN ±1.5mm (CAMBER).
- 100% RADIOGRAPHY REQUIRED FOR ALL BUTT WELDED JOINTS.
- READ SA 516 GR 70 AS LTCS SA 516 GR 70.

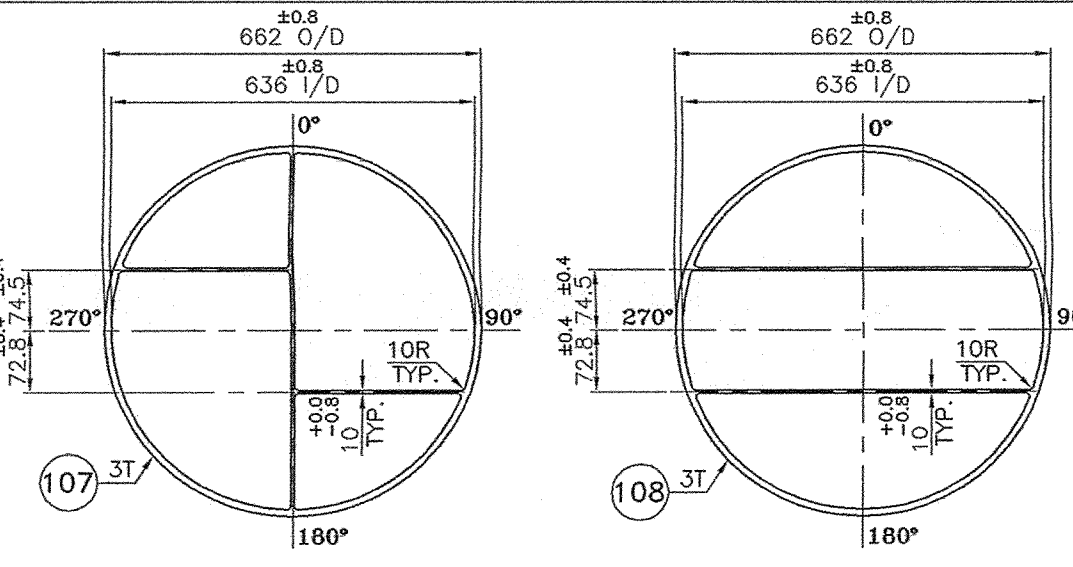


HEAT EXCHANGER ARRANGEMENT

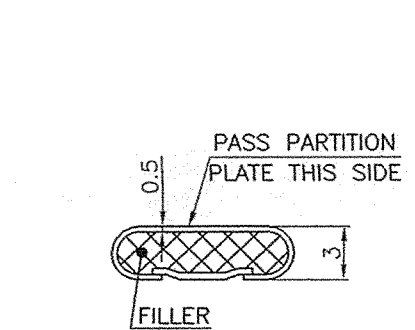


DETAILS OF NAME PLATE BRACKET

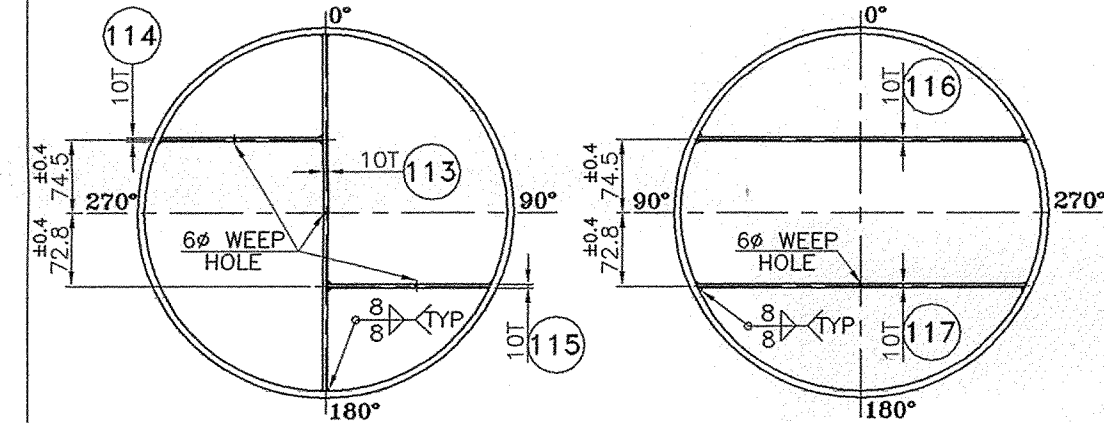
VIEW-'C-C'



DETAIL OF GASKETS



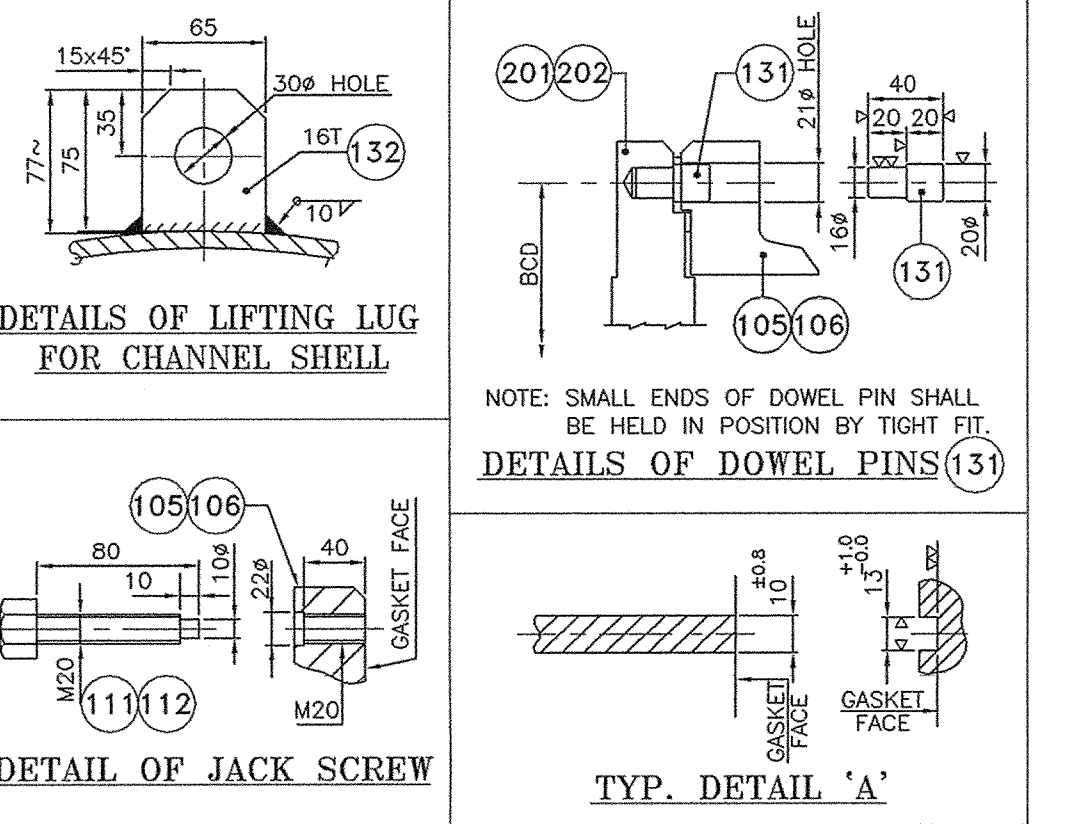
TYPICAL DETAIL OF JACKETED GASKET



SECTION 'A-A'

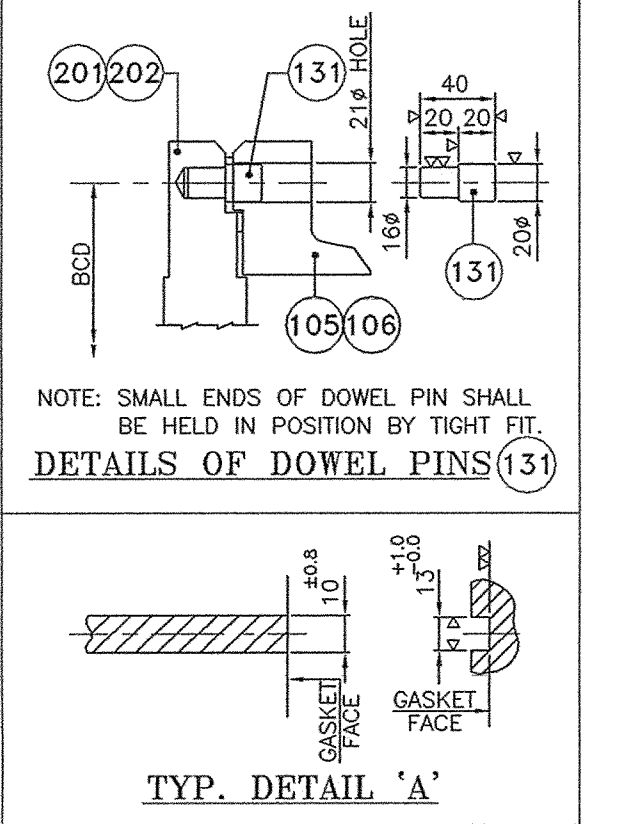
SECTION 'B-B'

NOTE : WEEP HOLE 50 MM AWAY FROM OPPOSITE END OF T/S.



DETAILS OF LIFTING LUG FOR CHANNEL SHELL

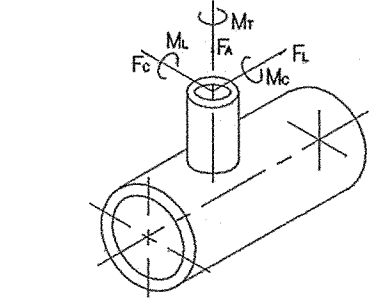
DETAIL OF JACK SCREW



TYP. DETAIL 'A'

FINAL "AS BUILT" DRAWING.
ORIENTATION SHOWN AS * () ARE "AS BUILT"

NO.	STD. NO.	DESCRIPTION	REV
1	6-36-0014	STANDARD SPECIFICATION FOR REFRIGERATION PLANT	3
2	6-81-0001	STANDARD SPECIFICATION FOR PMI AT SUPPLIER'S WORKS	1
3	6-81-0011	INSPECTION AND TEST PLAN FOR PRESSURE VESSELS/COLUMNS CARBON STEEL	1
4	007-117-14-40-LIFE	UTILITY AND SITE DATA	B
5	6907-0642-P1-107	JOB SPECIFICATION FOR SHOP & FIELD PAINTING FOR BCPL, ASSAM	0
6	6-15-0001	GENERAL SPECIFICATION FOR HEAT EXCHANGERS	3
7	6-15-0003	STANDARD SPEC. FOR WELDED TUBE TO TUBESHEET JOINTS	3
8	6-15-0021	STANDARD SPECIFICATION FOR VENDOR DESIGNED S&T HEAT EXCHANGERS	2
9	6-12-0011	STANDARD SPECIFICATION FOR BOILER QUALITY CS PLATES	5
10	6-15-0091	STANDARD SPECIFICATION FOR HARDNESS REQUIREMENT	1
11	7-15-0001	PART DETAILS	2
12	7-15-0002	TYPES OF NON STD. GASKETS	2
13	7-15-0009	METHODS OF FASTENING NUTS TO TIE RODS	2
14	7-15-0010	JACK SCREW TAPPING AND ARRANGEMENT	2
15	7-15-0011	FIXING DETAIL OF DOWEL PINS	2
16	7-15-0013	LIFTING LUG DETAIL	2
17	7-15-0016	EARTHING LUG	2
18	7-15-0017	NAME PLATE (S&T TYPE EXCH.)	2
19	7-15-0019	TOLERANCES FOR SHELL & TUBE HEAT EXCHANGERS	2
20			



EXTERNAL LOADS ON NOZZLES					
LOAD	UNIT	N1	N2	N3,N4	
Fx	KG	405	270	270	
Fy	KG	600	400	400	
Fz	KG	600	400	400	
Mx	KG-M	270	120	120	
My	KG-M	450	160	160	
Mz	KG-M	360	200	200	

OWNER : BCPL, LAPETKATA
PROJECT : BRAHMAPUTRA PETROCHEMICAL COMPLEX PROJECT
UNIT : 220 KTA-LDPE/HDPE
EIL JOB NO. : 6907

BRAHMAPUTRA CRACKER AND POLYMER LIMITED

ENGINEERS INDIA LIMITED
(A Govt. of India Undertaking)

EIL JOB NO: 6907

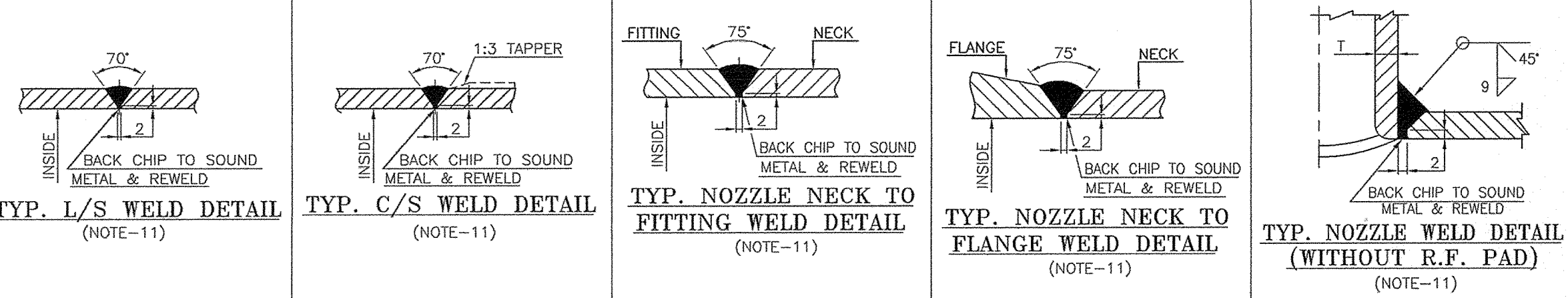
BRAHMAPUTRA PETROCHEMICAL COMPLEX PROJECT
220 KTA-LDPE/HDPE UNIT

DRG NO
PRJ/9742/25

REV. SHEET SH S2
0A 1/2 A1

TITLE
GENERAL ASSEMBLY & DETAILS FOR CONDENSER (ITEM NO. 117-EE-485)

KIRLOSKAR PNEUMATIC CO. LTD.
HADAPSAR INDUSTRIAL ESTATE, PUNE 411013, INDIA.



* NOTE-12											
N9	40	160	1	150#	WNRF	*	CHANNEL SIDE DRAIN	-	-	-	-
N8	40	160	1	150#	WNRF	*	CHANNEL SIDE VENT	-	-	-	-
N7	40	160	1	300#	WNRF	*	SHELL SIDE DRAIN	-	-	-	-
N6	40	160	1	300#	WNRF	*	SHELL SIDE VENT	-	-	-	-
N5	40	160	1	300#	WNRF	*	SHELL SIDE PSV	-	-	-	-
N4	100	80	1	150#	WNRF	*	CHANNEL OUTLET	-	-	-	-
N3	100	80	1	150#	WNRF	*	CHANNEL INLET	-	-	-	-
N2	100	120	1	300#	WNRF	*	SHELL OUTLET	-	-	-	-
N1	150	80	1	300#	WNRF	*	SHELL INLET	-	-	-	-
NOZZLE MARK	SIZE(NB)	SCH.	THK.	QTY.	RATING	FLANGE TYPE	FACING	SERVICE	W x T	PAD PL.	REMARK

NOZZLE SCHEDULE