NOZZLE DATA

NOZZLE MARK	QTY	DESIGNATION	SIZE (NB)	SCH/THK	TYPE/CLASS/FINISH/FACING	RF-PAD (OD x T)	PROJ. FROM ℄	WELD DETAIL TYPE	WELD DETAIL A	WELD DETAIL B
N1	01	SHELL INLET	3"	12	ASME SA 516 Gr.70/125 AARH/WNRF	197 x 10	490 (490) ⚠	W2	9	5
N2	01	SHELL OUTLET	3"	12	ASME SA 516 Gr.70/125 AARH/WNRF	197 x 10	490 -	W2	9	5
N3	01	CHANNEL INLET	10"	12	ASME SA 516 Gr.70/125 AARH/WNRF	395 x 10	520 -	W2	8	5
N4	01	CHANNEL OUTLET	10"	12	ASME SA 516 Gr.70/125 AARH/WNRF	395 x 10	520 (523)	W2	8	5
N5	01	CHANNEL VENT+BF	1.5"	160	ASME SA 516 Gr.70/125 AARH/WNRF		430 (433/420)	W1	6	-
N6	01	CHANNEL DRAIN+BF	1.5"	160	ASME SA 516 Gr.70/125 AARH/WNRF		430 (427)	W1	6	-
N7-N8	02	MP CONN.+BF	1.5"	160	ASME SA 516 Gr.70/125 AARH/WNRF		260 ✱ (259/258) ✱	W1	6	-
N9-N10	02	MP CONN.+BF	1.5"	160	ASME SA 516 Gr.70/125 AARH/WNRF		290 ✱ (293/288) ✱	W1	6	-
N11	01	SHELL DRAIN+BF	1.5"	160	ASME SA 516 Gr.70/125 AARH/WNRF		490 - ⚠	W1	6	-

✱PROJECTION FROM NOZZLE

NOZZLE MOUNTING TOLERANCE

SL.	NOMINAL NOZZLE SIZE	TRUE HOR. -MAX
1	4" AND UNDER	1
2	6" TO 10" INCLUSIVE	2

TYP. WELD DETAIL-W1 NOZZLE NECK TO SHELL

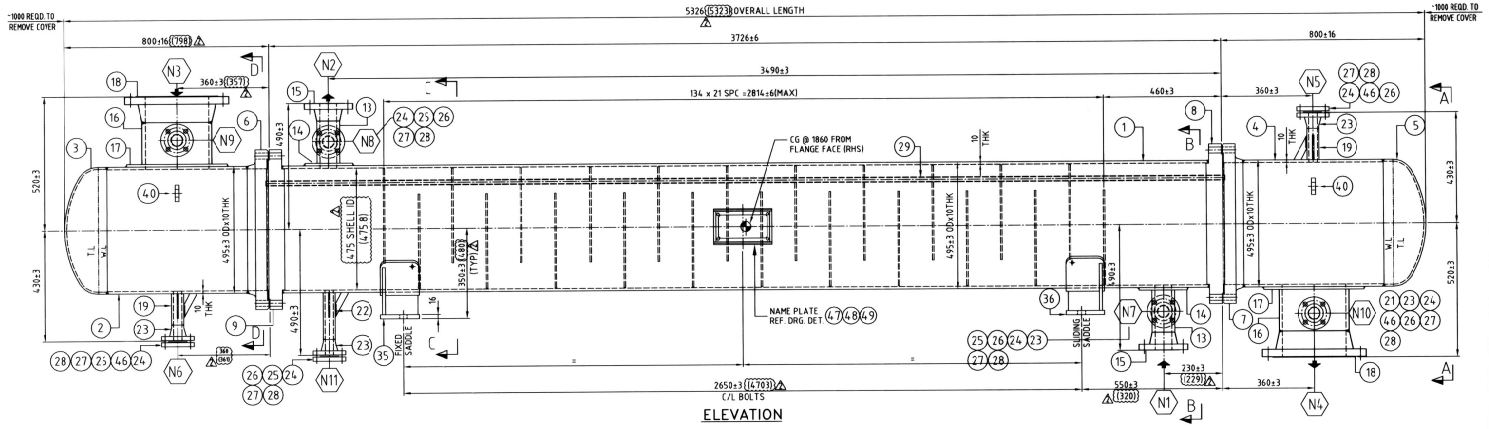
DETAIL-A TYP. EDGE PREP. DETAIL FOR SHELL

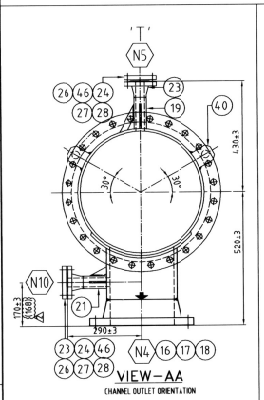
TYP. WELD DETAIL OF L/S & C/S

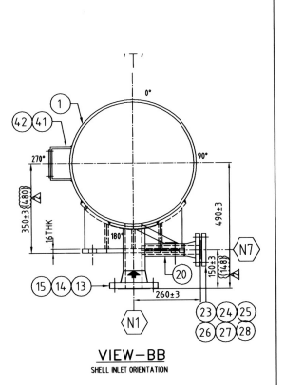
TYP. WELD DETAIL OF NOZZLE NECK TO WNRF

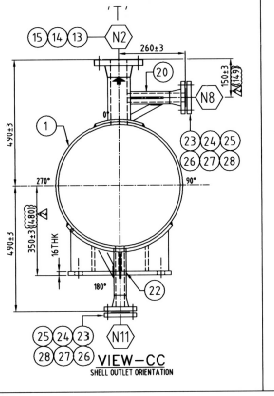
TYP. WELD DETAIL OF WELD NECK FLANGE TO SHELL & CHANNEL

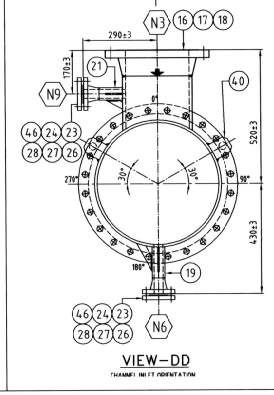
TYP. WELD DET.-W2 NOZZLE TO RF PAD AND SHELL/CHANNEL

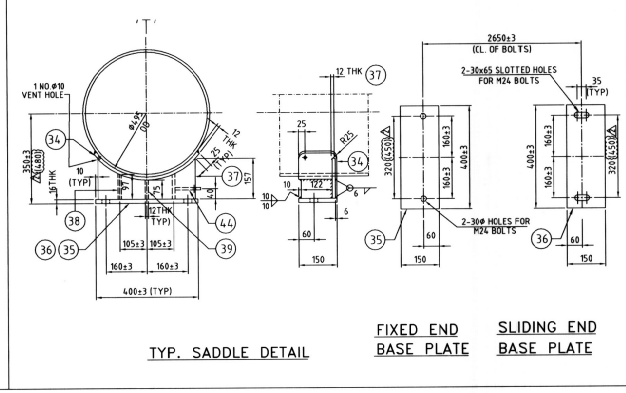


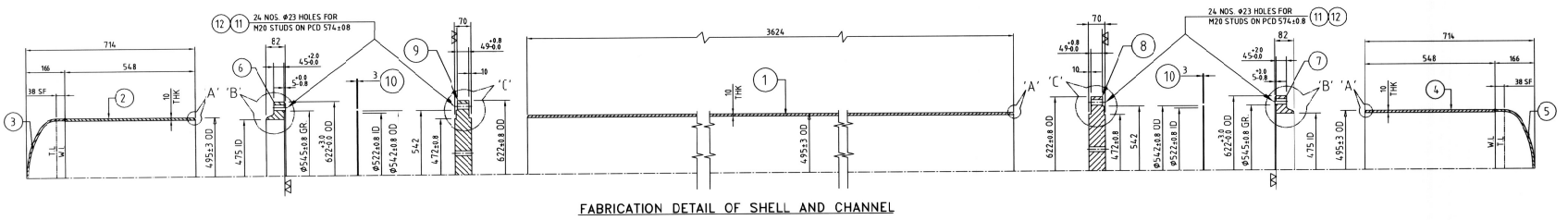


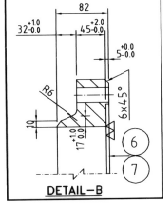


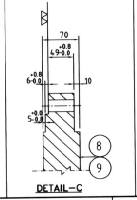


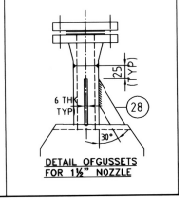


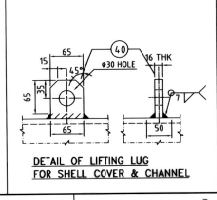


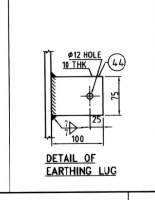


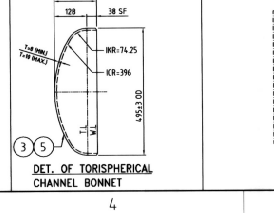


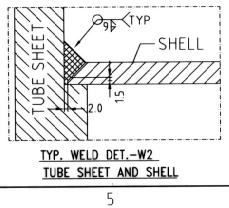












SIZE	1.75mm ID x 3750 mm Lg
TYPE	BEM (H)
CODE	ASME SEC VIII DIV1 2007 EDN & TEMA CLASS 'R' 2007 EDN
SHELLS /UNIT	ONE
NO. OF UNITS	ONE
EMPTY WEIGHT(Kg)	~ 2106
WEIGHT FULL OF WATER(Kg)	~ 3040

DESIGN DATA

DESCRIPTION		SHELL SIDE	TUBE SIDE
OPERATING PRESSURE	Kgf/cm² g	4.0	0.38
OPERATING TEMPERATURE (IN/OUT)	°C	33.0/45.0	95.6/43.0
DESIGN PRESSURE	Kgf/cm² g	7.7/FV	10.0/FV
DESIGN TEMPERATURE	°C	109.0	130.0
*HYDRO TEST PRESSURE	Kgf/cm² g	10.0	13.0
*MINIMUM METAL TEMPERTURE DURING HYDRO TEST	°C	20*	20*
FLUID CIRCULATED		COOLING WATER	HC+N2+FINES
NUMBER OF PASSES		ONE	ONE
POST WELD HEAT TREATMENT		NIL	YES (DISH END ONLY)
JOINT EFFICIENCY		0.85	0.85
RADIOGRAPHY		SPOT	SPOT
CORROSION ALLOWANCE	mm	3.0	3.0
INSULATION (PP)		NIL	40
MDMT	°C	1	1
PAINTING		REFER NOTE-9.6	
DUTY/UNIT	MMKcal/hr	0.1089x1.25	
EFFECTIVE AREA PROVIDED	m²	61.0	
INSPECTION BY		ENGINEERS INDIA LIMITED	

REFERENCE DOCUMENTS

Sl.No.	DOCUMENT NUMBER	REV.	DOCUMENT TITLE
1	6907-117-16-44-35-4470	0	SETTING PLAN/SECTION DRAWING FOR HEAT EXCHANGER ITEM NO. 117-EE-470 (NO. OF SHEETS 2)
2	6907-117-05-45-4470	0	TUBE LAYOUT FOR HEAT EXCHANGER ITEM NO. 117-EE-470 (NO. OF SHEETS 1)

STANDARD SPECIFICATIONS

3	6-15-0001	3	GENERAL SPECIFICATION FOR HEAT EXCHANGERS (NO. OF SHEETS 19)
4	6-15-0003	3	STANDARD SPECIFICATION FOR WELDED TUBE TO TUBESHEET JOINT (NO. OF SHEETS 9)

STANDARD INSPECTION TEST PLAN

5	6-81-0001	1	STANDARD SPECIFICATION FOR POSITIVE MATERIAL IDENTIFICATION AT VENDOR'S WORKS (NO. OF SHEETS 11)
6	6-81-0009	1	INSPECTION & TEST PLAN FOR HEAT EXCHANGERS (NO. OF SHEETS 6)

JOB SPECIFICATION

7	6907-16-44-SP-5055/0174	0	JOB SPECIFICATION FOR SHELL & TUBE HEAT EXCHANGERS (NO. OF SHEETS 5)
8	6907-16-44-SS-5055/0174	0	SCOPE OF WORK & SUPPLY FOR SHELL & TUBE HEAT EXCHANGERS (NO. OF SHEETS 2)
9	6907-16-44-TL-6055/3174	0	GUIDE LINE TO VENDOR REGARDING TUBE LAYOUT/PREPARATION (NO. OF SHEETS 3)

VENDOR DATA REQUIREMENTS

10	6-78-0001	0	SPECIFICATION FOR QUALITY MANAGEMENT SYSTEM REQUIREMENT FROM BIDDERS (NO. OF SHEETS 8)
11	6907-16-44-VD-6055/0174	0	VENDOR DATA REQUIREMENTS FOR SHELL & TUBE HEAT EXCHANGERS (NO. OF SHEETS 5)
12	6-78-0003	0	SPECIFICATION FOR DOCUMENTATION REQUIREMENT FROM SUPPLIERS (NO. OF SHEETS 8)

EIL STANDARDS FOR SHELL AND TUBE HEAT EXCHANGERS

13	7-15-0001	3	PART DETAILS (NO. OF SHEETS 2)
14	7-15-0002	3	TYPES OF NON STANDARD GASKETS (NO. OF SHEETS 3)
15	DELETED	-	-DELETED-
16	7-15-0004	3	SUPPORTS FOR HORIZONTAL EXCHANGERS (NO. OF SHEETS 2)
17	7-15-0009	3	METHOD OF FASTENING NUTS TO THE TIE RODS (NO. OF SHEETS 1)
18	7-15-0010	3	JACK SCREW TAPPING ARRANGEMENT (NO. OF SHEETS 1)
19	7-15-0013	3	LIFTING LUG DETAIL (NO. OF SHEETS 1)
20	7-15-0016	3	EARTHING LUG (NO. OF SHEETS 1)
21	7-15-0017	3	NAME PLATE (NO. OF SHEETS 1)
22	7-15-0019	3	TOLERANCES (NO. OF SHEETS 3)

PART No.	DESCRIPTION	QTY.	MATERIAL	SIZE
38	RIB PLATE-1	4	IS-2062 Gr. B	97 X 122 x 12 THK
37	WEB PLATE	2	IS-2062 Gr. B	12 THK, REF. DETAIL
36	BASE PLATE (SLIDING)	1	IS-2062 Gr. B	400 x 150 x 16 THK
35	BASE PLATE (FIXED)	1	IS-2062 Gr. B	400 x 150 x 16 THK
34	WRAPPER PLATE	2	SA 516 Gr. 60	150 x 466 x 12 THK
33D	SPACER	147	IS-1239 Cl. A	17.5 OD x 2.35 THK x 128 LG
33C	SPACER	7	IS-1239 Cl. A	17.5 OD x 2.35 THK x 398 LG
33B	SPACER	20	IS-1239 Cl. A	17.5 OD x 2.35 THK x 262 LG
33A	SPACER	1	IS-1239 Cl. A	17.5 OD x 2.35 THK x 532 LG
32	TIE ROD NUTS	16	SA 194 Gr. 2H	TO SUIT TIE ROD M10, HEAVY SERIES
31B	TIE ROD	7	IS-2062 Gr. B	Ø10 x 3265 LG, CONFORM TO ISO-R261-1994 PITCH
31A	TIE ROD	1	IS-2062 Gr. B	Ø10 x 3330 LG, CONFORM TO ISO-R261-1994 PITCH
30	BAFFLES	22	IS-2062 Gr. B	470.2 OD x 6 THK, REF. DETAIL
29	TUBES	260	SA 179	20.00 x 2 THK (MIN.) x 3750 LG
28	STIFFENERS - N5 to N11	14	SA 516 Gr.60	50 W x 6 THK, REF. DETAIL
27	NUTS - N5 to N11	56+56	SA 194 Gr. 2H	M16, HEAVY SERIES
26	STUDS - N5 to N11	28+28	SA 193 Gr. B7	M16 x 90 LG, CONFORM TO ISO-R261-1994 PITCH
25	STD. GASKET - N7, N8 & N11	3+12	NON ASBESTOS BS7531 Gr X	1½" x 59.8 x 2THK, CONFORM TO ASME B 16.21
24	BLIND FLANGE - N5 to N11	7	SA 105	1½" x 150#, BLRF
23	NOZZLE FLANGE - N5 to N11	7	SA 105	1½" SCH160 x 150#, WNRF
22	NOZZLE NECK - N11	1	SA 106 Gr. B	1½" SCH160 x 153 LG
21	NOZZLE NECK - N9/N10	2	SA 106 Gr. B	1½" SCH160 x ~90 LG
20	NOZZLE NECK - N7/N8	2	SA 106 Gr. B	1½" SCH160 x ~168 LG
19	NOZZLE NECK - N5/N6	2	SA 106 Gr. B	1½" SCH160 x ~132 LG
18	NOZZLE FLANGE - N3/N4	2	SA 105	10" x 12 THK x 150#, WNRF
17	RF PAD - N3/N4	2	SA 516 Gr. 60	396 OD x 270 ID x 10 THK
16	NOZZLE NECK - N3/N4	2	SA 516 Gr. 60	10" NB x 12"THK x ~185 LG
15	NOZZLE FLANGE - N1/N2	2	SA 105	3" x 150 # WNRF, 12 THK
14	RF PAD - N1/N2	2	SA 516 Gr. 60	192 OD x 92 ID x 10 THK
13	NOZZLE NECK - N1/N2	2	SA 516 Gr. 60	3" x 12"THK x ~160 LG
12	NUTS-GIRTH FLANGE /TUBE SHEET	96+20	SA 194 Gr. 2H	M20, HEAVY SERIES
11	STUDS-GIRTH FLANGE /TUBE SHEET	40+10	SA 193 Gr. B7	M20 x 160 LG, CONFORM TO ISO-R261-1994 PITCH
10	GASKET GIRTH FLANGE /TUBE SHEET	2+8	IIA (ARAMIDE FIBRE FILLER)	542 OD x 522 ID x 3 THK
9	STATIONARY TUBE SHEET-LHS	1	SA 516 Gr. 60	Ø622 x 70 THK, REF. DETAIL
8	STATIONARY TUBE SHEET-RHS	1	SA 516 Gr. 60	Ø622 x 70 THK, REF. DETAIL
7	CHANNEL GIRTH FLANGE-RHS	1	SA 266 Cl. 4	622 OD x 475 ID x REF. DETAIL
6	CHANNEL GIRTH FLANGE-LHS	1	SA 266 Cl. 4	622 OD x 475 ID x REF. DETAIL
5	CHANNEL BONNET-RHS (TORISPHERICAL)	1	SA 516 Gr. 60	495.00 x 10 THK (NOM.)/8 THK (MIN.)
4	CHANNEL SHELL-RHS	1	SA 516 Gr. 60	495.00 x 10 THK x 548 LG
3	CHANNEL BONNET-LHS (TORISPHERICAL)	1	SA 516 Gr. 60	495.00 x 10 THK (NOM.)/8 THK (MIN.)
2	CHANNEL-LHS	1	SA 516 Gr. 60	495.00 x 10 THK x 548 LG
1	SHELL	1	SA 516 Gr. 60	495.00 x 10 THK x 3624 LG

BILL OF MATERIAL

SPACE FOR REVIEW CODE

AS-BUILT DRAWING

REV	DATE	DESCRIPTION	BY	CHKD	APPD
2	11.07.2011	AS BUILT DIMENSIONS INCORPORTED	GS	AKK/HNM	HVR
1	23.03.2011	INCORPORTED AS PER EIL COMMENTS & REISSUED FOR APPROVAL	HNM	HNM	HVR
0	16.11.2010	ISSUED FOR APPROVAL	ASR	HNM	HVR

REVISION LIST

CICB - Chemicon Pvt. Ltd.
BANGALORE

DRN ASR	CLIENT : M/s. BRAHMAPUTRA CRACKER & POLYMER LIMITED.
DATE 11.11.2010	CONSULTANT : M/s. ENGINEERS INDIA LTD.
CHKD HNM	END USER : M/s. BRAHMAPUTRA CRACKER & POLYMER LIMITED.
DATE 11.11.2010	TITLE : FABRICATION DETAIL OF RECYCLE GAS COOLER
APPD HVR	
DATE 11.11.2010	
SCALE NTS	

THIS DWG. IS THE PROPERTY OF CICB ALL USE WITHOUT WRITTEN CONSENT FORBIDDEN

DWG. No.: CICB-P382-303	SHEET NO.: 1 OF 3 REV. No.: 02
PROJECT: BCPL, LEPETKATA-ASSAM	UNIT: LLDPE/HDPE
NO. OF UNITS: ONE	SHELLS /UNIT: ONE
CICB-CHEMICON JOB No. P382-10-012	TAG No.: 117-EE-470
	CLIENT'S PR. No.: 6907-117-EE-PR-6055/0174-REV 0, D: 23.07.2010

MASTER INDEX NO: 10-537

CICB-Chemicon Pvt Ltd
D.C. P382-46-dy. 2/9/11

CADFILE: M:/P382-10-012/DESIGN/DRAWINGS/FABRICATION/CURRENT/CICB-P382-303-0103-R2

A1 (594 x 841)