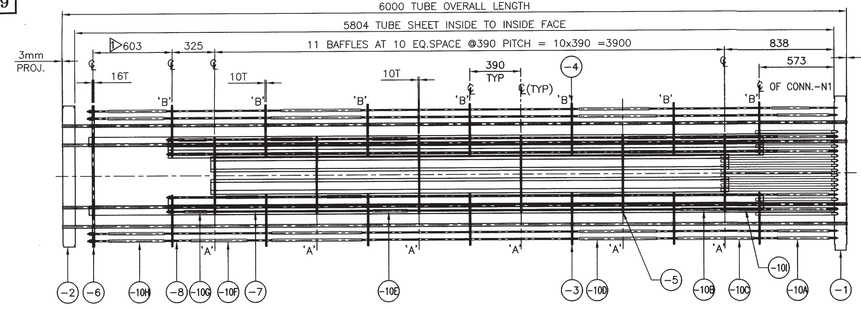
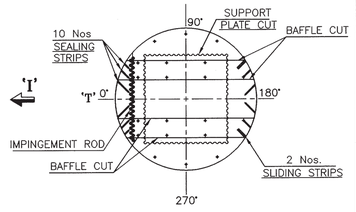
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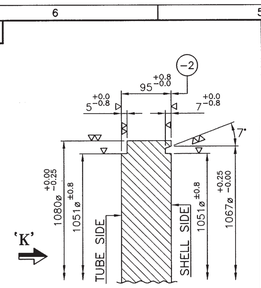
TUBE BUNDLE PLAN



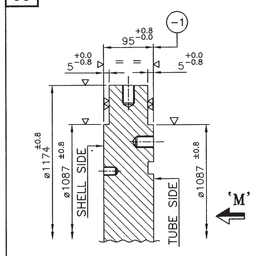
VIEW–'I'



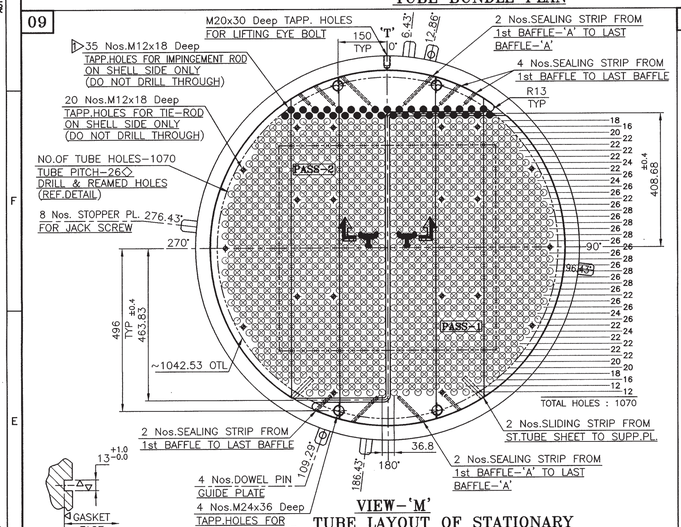
DET. OF FLOATING HEAD TUBE SHEET



DET. OF STATIONARY TUBE SHEET

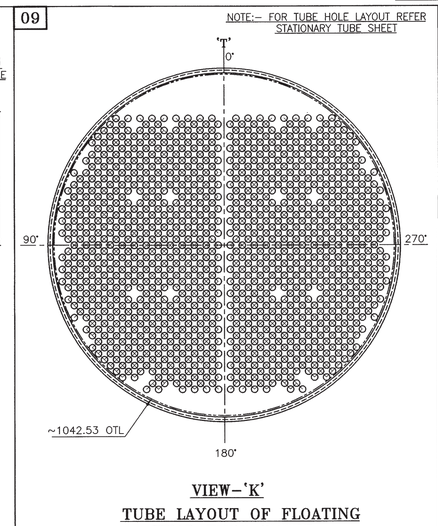


SECTION–'T–T'



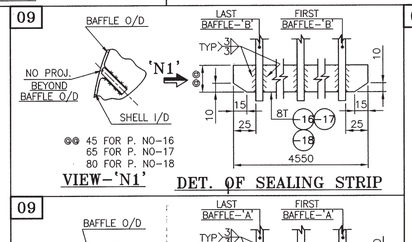
VIEW–'M'

TUBE LAYOUT OF STATIONARY TUBE SHEET



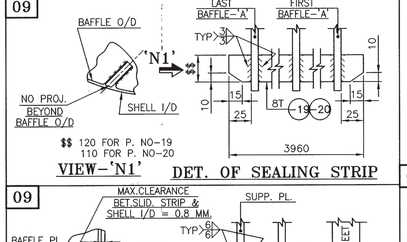
VIEW–'K'

TUBE LAYOUT OF FLOATING HEAD TUBE SHEET



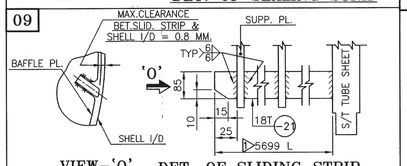
VIEW–'N1'

DET. OF SEALING STRIP



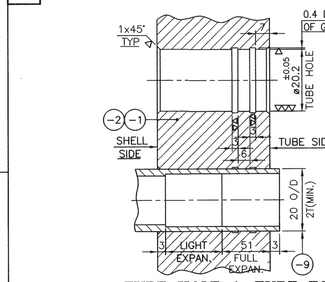
VIEW–'N1'

DET. OF SEALING STRIP

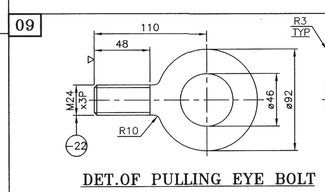


VIEW–'O'

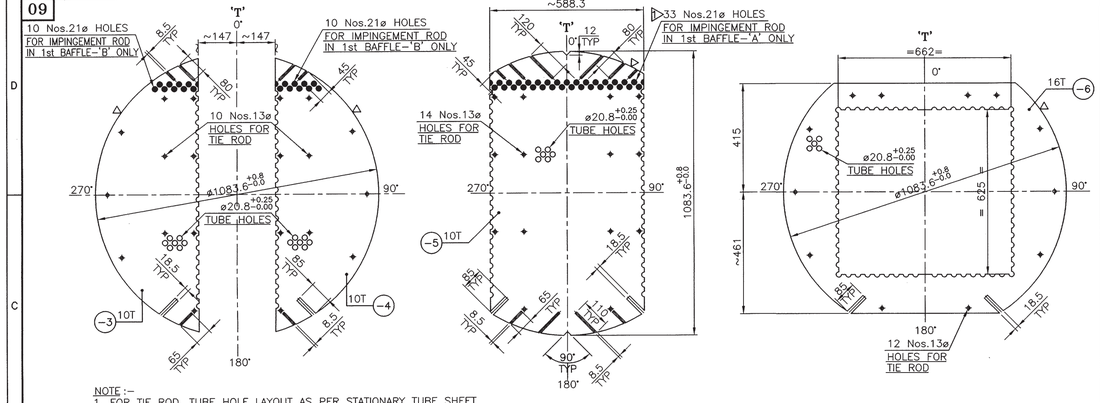
DET. OF SLIDING STRIP



TUBE HOLE & TUBE TO TUBE SHEET JOINT DET.



DET.OF PULLING EYE BOLT

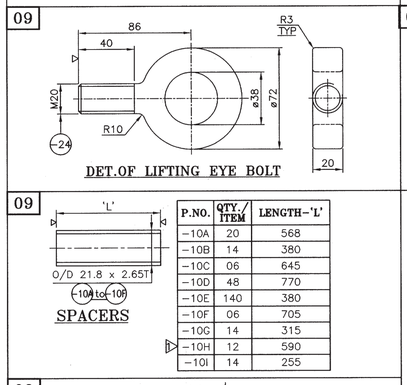


NOTE :–
1. FOR TIE ROD, TUBE HOLE LAYOUT AS PER STATIONARY TUBE SHEET
2. DEBURR THE BAFFLE PLATES ON BOTH SIDE.

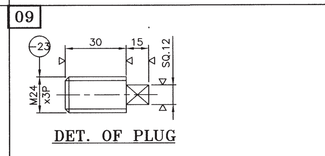
DET. OF BAFFLE PLATE–'B'

DET. OF BAFFLE PLATE–'A'

DET. OF SUPPORT PLATE–'A'



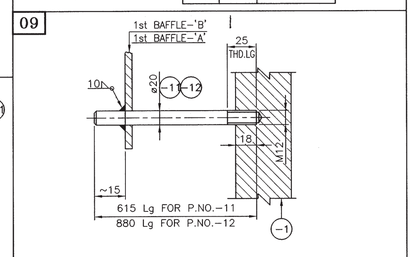
DET.OF LIFTING EYE BOLT



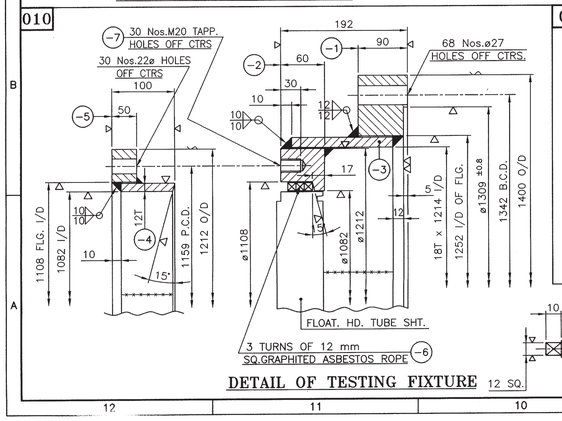
DET. OF PLUG

SPACERS

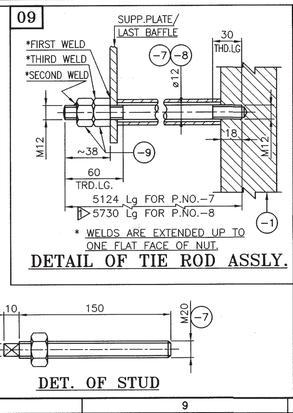
P.NO.	QTY./ ITEM	LENGTH–'L'
–10A	20	568
–10B	14	380
–10C	06	645
–10D	48	770
–10E	140	380
–10F	06	705
–10G	14	315
–10H	12	590
–10I	14	255



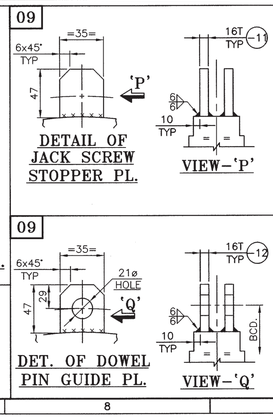
DETAIL OF IMPINGEMENT ROD



DETAIL OF TESTING FIXTURE



DETAIL OF TIE ROD ASSLY.



DETAIL OF JACK SCREW STOPPER PL.

VIEW–'P'

DET. OF DOWEL PIN GUIDE PL.

VIEW–'Q'

DET. OF STUD

F14) a) POST FORMING HEAT TREATMENT CYCLE FOR FL.HD. CROWN.
LOADING TEMP. : 300°C(Max.)
HEATING RATE : 180°C/Hr(Max) MIN. HOLDING TIME : 30 MINUTES(Min.)
HOLDING TEMP. : 900–920°C COOLING RATE : COOL IN STILL AIR

b) POST FORMING HEAT TREATMENT CYCLE FOR SHELL COVER DISH.
LOADING TEMP. : 300°C(Max.)
HEATING RATE : 200°C/Hr(Max) MIN. HOLDING TIME : 25 MINUTES(Min.)
HOLDING TEMP. : 900–920°C COOLING RATE : COOL IN STILL AIR

F15) SLIDING END OF EXCHANGER SHALL BE PAINTED AS 'CAUTION SLIDING END' IN BLACK ON PRIMER COATING IN THE SHOP.

F16) SPARE PARTS SHALL BE DISPATCHED SEPERATELY IN A BOX AND MARKED WITH PO No., ITEM No. & PURCHASER'S NAME & ADDRESS.

F17) SLING MARK IDENTIFICATION SHALL BE PROVIDED ON HEAT EXCHANGER WITH RESPECT TO C.G. OF EQUIPMENT.

F18) ALL WELD SHALL BE FULL PENETRATION WELDS UNLESS OTHERWISE SPECIFIED.

EXAMINATION

Q1) ALL L/S & C/S SHALL BE SPOT RADIOGRAPHED TO MIN. 5% OF TOTAL WELD LENGTH & ALL 'T' JOINT MUST BE RADIOGRAPHY.

Q2) D.P. TEST SHALL BE CARRIED OUT ON
a) KNUCKLE PORTION OF DISHED END–BOTH INSIDE & OUTSIDE AND ALL WELD EDGES.
b) ALL NOZZLE TO SHELL WELDS.
c) ALL ATTACHMENT FINAL WELD.

GEN. NOTES FOR TUBE BUNDLE:–

1) TUBE TO TUBESHEET JOINT SHALL BE COMPLIED WITH REQUIREMENTS OF 6–15–0004.
2) TUBESHEET FACES SHALL BE FLAT WITHIN ±1.5 MM (CAMBER)
3) TUBE HOLE IN TUBE SHEET SHALL HAVE SMOOTH FINISH TO 63 AARH.
4) AFTER HYDROTEST EQUP. SHALL BE COMPLETELY DRIED BY PASSING HOT AIR ON BOTH SHELL & TUBE SIDE.
5) AFTER DRYING, THE EQUIPMENT SHALL BE PURGED AND FILLED WITH DRY NITROGEN AT 0.25 Kg/cm2 THE EQUIPMENT SHALL BE PROVIDED WITH PRESSURE GAUGE TO MONITOR NITROGEN PRESSURE AND 1/2" NON RETURN VALVE.
6) THREADS ON EXTERNAL BOLTING,PLUGS ETC. SHALL BE LUBRICATED WITH GRAPHITE GREASE.
7) TUBE TO TUBE SHEET JOINT SHALL BE SUBJECTED TO AIR SOAP SOLUTION TESTED WITH AIR @ 1.25 kg/cm^2g.

OTHERS

1) ALL REQUIREMENTS OF THE PR SHALL BE COMPLIED WITH, UNLESS OTHERWISE AGREED BETWEEN THE EIL AND HDO, WITHOUT ANY COST AND DELIVERY IMPLICATIONS.
2) CLEAN POTABLE WATER SHALL BE USED FOR HYDROTEST. MINIMUM METAL TEMPERATURE DURING HYDROTEST SHALL BE 20°C. TEST PRESSURE SHALL BE MAINTAIN FOR AT LEAST ONE HOUR AND WATER CONTAIN CHLORIDE MORE THAN 25 PPM.
3) FINAL HYDROTEST SHALL BE DONE WITH SERVICE GASKET.

						8782
	–7	STUD WITH 1HVY HEX NUT	30	IS 1367 CL 4.6/4	M20 x AS PER DRG.	12
	–6	SQ. ROPE	1	GRAPHITED ASBESTOS	SQ.12 x ~14500 DEV.Lg	
	–5	GLAND FLANGE	1	IS 2062 GR B	50T x 1212 O/D x 1106 I/D	76
	–4	GLAND SHELL RING	1	IS 2062 GR B	12T x 90W x 3431 DEV.Lg	29
	–3	RING SHELL	1	IS 2062 GR B	18T x 165W x 3871 DEV.Lg	91
	–2	INNER FLANGE	1	IS 2062 GR B	60T x 1212 O/D x 1080 I/D	112
	–1	TEST RING FLANGE	1	IS 2062 GR B	90T x 1400 O/D x 1252 I/D	218
	010	TEST RING ASSLY				
	–24	LIFTING EYEBOLT	1	SA 105	M20 x AS PER DRG.	1
	–23	PLUG	4	SA 105	ø25 x 50 Lg	1
	–22	PULLING EYEBOLT	4	SA 105	M24 x 3P x AS PER DRG.	2
▷	–21	SLIDING STRIP	2	SA 516 GR 60	18T x 85W x 5699 Lg	137
	–20	SEALING STRIP	2	SA 516 GR 60	8T x 110W x 3960 Lg	55
	–19	SEALING STRIP	2	SA 516 GR 60	8T x 120W x 3960 Lg	60
	–18	SEALING STRIP	2	SA 516 GR 60	8T x 80W x 4550 Lg	45
	–17	SEALING STRIP	2	SA 516 GR 60	8T x 65W x 4550 Lg	38
	–16	SEALING STRIP	2	SA 516 GR 60	8T x 45W x 4550 Lg	26
	–15	DOWEL PIN GUIDE PLATE	4	SA 516 GR 60	16T x 35W x 47 Lg	1
	–14	JACK SCREW STOPPER PL.	8	SA 516 GR 60	16T x 35W x 47 Lg	2
	–13	TUBE	1070	SA 179	O/D 20 x 2T(MIN) x 6000 Lg	5702
▷	–12	IMPINGEMENT ROD	33	IS 2062 GR A	ø20 x 880 Lg	72
	–11	IMPINGEMENT ROD	2	IS 2062 GR A	ø20 x 615 Lg	1
	-10A/I	SPACER	SEE TABLE	IS 1239	O/D 21.8 x 2.65T x AS PER TABLE	105
	–9	HEX. NUT FOR TIE ROD	40	IS 1367 CL 4	M12 (STD.)	1
▷	–8	TIE ROD	12	IS 2062 GR A	ø12 x 5730 Lg	63
	–7	TIE ROD	8	IS 2062 GR A	ø12 x 5124 Lg	42
	–6	SUPPORT PLATE	1	IS 2062 GR B	16T x AS PER DRG.	116
	–5	BAFFLE PLATE–'A'	6	IS 2062 GR B	10T x AS PER DRG.	302
	–4	BAFFLE PLATE–'B'	7	IS 2062 GR B	10T x AS PER DRG.	240
	–3	BAFFLE PLATE–'B'	7	IS 2062 GR B	10T x AS PER DRG.	240
	–2	FLOATING HEAD TUBE SHEET	1	SA 266 CL 4	AS PER DRG.	435
	–1	STATIONARY TUBE SHEET	1	SA 266 CL 4	AS PER DRG.	557
	09	TUBE BUNDLE ASSLY				

REV. NO	SR. NO	DESCRIPTION	QTY/ ITEM	MATERIAL	SIZE	REMARK

BILL OF MATERIAL

NO.	DESCRIPTION	BY	CHD.	APPD.	DATE
2	NO CHANGE & AS BUILT DONE.	SUMIT	V.V.S.	S.B.	09.11.11
1.	SUPPT. PLATE POSITION, TIE ROD & SLD. STRIP LENGTH REV. WT. ADDED, IMP. ROD QTY REV. & REVISED AS MARKED.	NIRAV	V.V.S.	S.B.	28.01.11
0	SUBMIT FOR APPROVAL	K.B.P.	V.V.S.	S.B.	27.11.10

REVISIONS
AS BUILT

HDO EIL

P.R. NO:– 6907–113–EE–PR–6595/0287– R0. DTD: 26.10.2010.

P.O. NO:– FOA No: 6907–113–EE–PO–6595/0105/0287 Dated: 12.10.2010

MFR'S SERIAL NO:– 8315 | EIL JOB NO:– 6907

CLIENT: BRAHMAPUTRA CRACKER & POLYMER LTD. | PROJECT: BPCP, LEPETKATA, ASSAM | UNIT: ECU

PROJECT MANAGEMENT CONSULTANT: ENGINEERS INDIA LIMITED (A Govt. of India Undertaking)

TITLE :–

TUBE BUNDLE ASSLY & OTHER DETAIL FOR CHARGE GAS COMPRESSOR 4TH STAGE AFTER COOLER ITEM No : 113–EE–204 TYPE AES (H)

			DATE	BY	SIGN
AE–8–8315–SH–4 OF 4	SPARES DETAIL	DRAWN	13.11.2010	K.B.P.	K.B.Panchal
AE–1–8315–SH–3 OF 4	DET. OF SADDLE SUPPORT, DAVIT & NAME PLATE ASSLY	CHECKED	13.11.2010	B.P.P.	B.P.P.
AE–1–8315–SH–2 OF 4	TUBE BUNDLE ASSLY & ITS DETAIL	APPROVED	13.11.2010	S.B.	S.B.
AE–1–8315–SH–1 OF 4	TUBE BUNDLE ASSLY & ITS DETAIL	SCALE	N.T.S.	PROJECTION :	

DWG.NO	REFERENCE DRAWINGS	MADE FROM	DWG. SIZE
		6907–113–16–46–DS–4204–R0	A1

HINDUSTAN DORR–OLIVER LTD.
ENGINEERING DIVISION
MUMBAI • CHENNAI • AHMEDABAD

ORDER NO. BYC–210907 | DWG. NO. AE–1–8315 | SHT. NO. 2 OF 4 | REV. 2