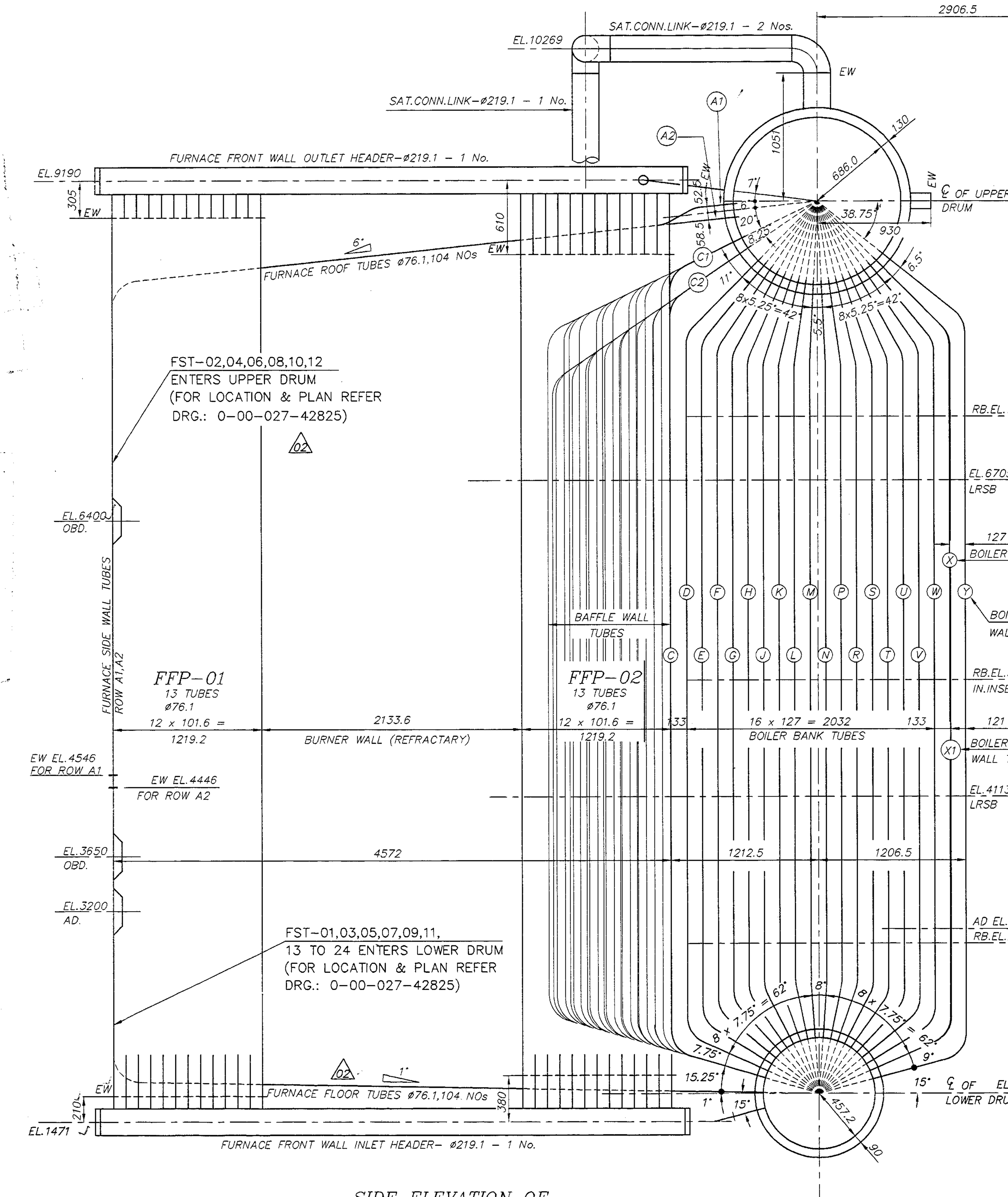
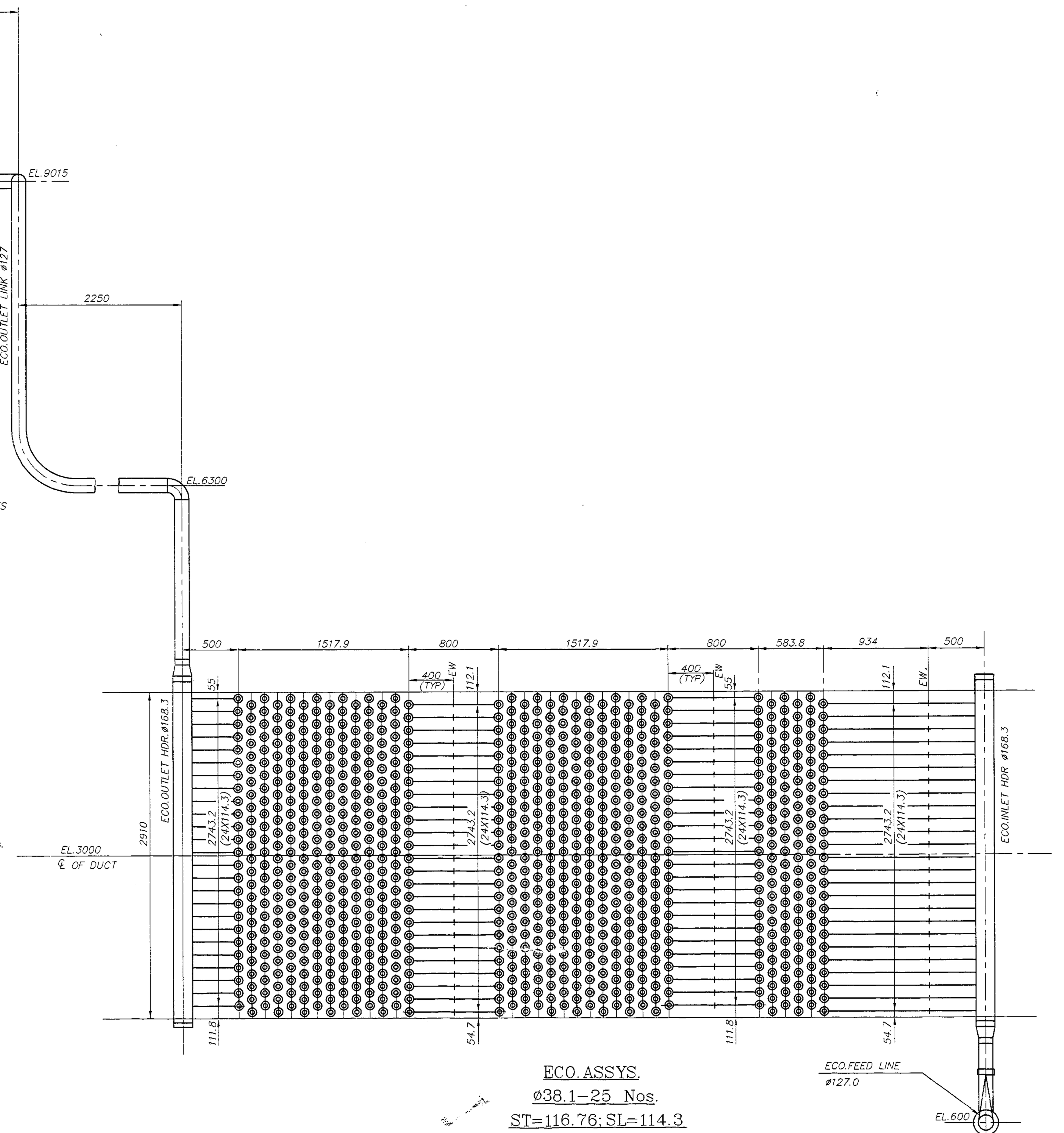
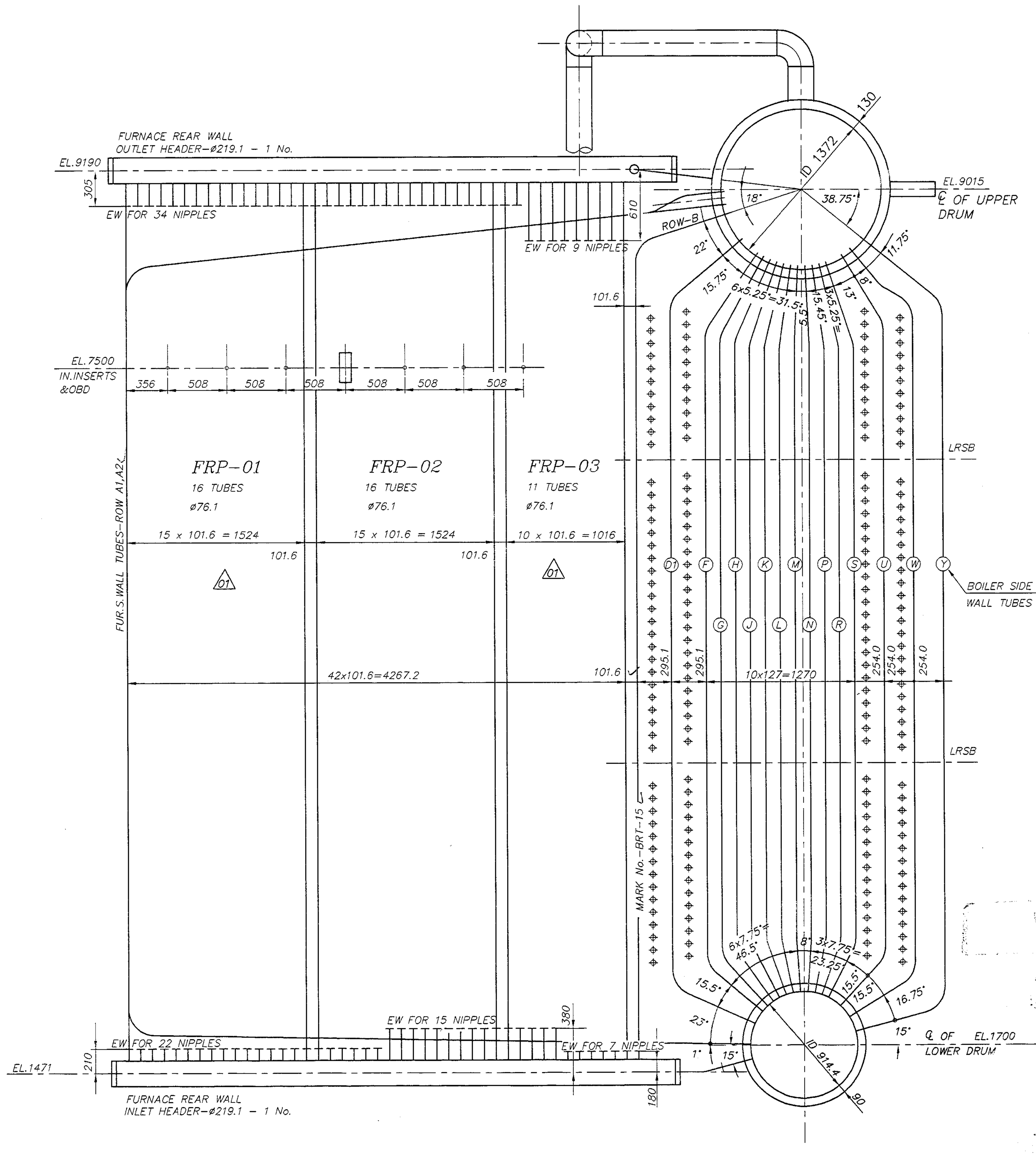
FOR TOLERANCES OF UNTOLERANCED DIMENSIONS DURING MANUFACTURE REFER PLANT STD. NO TP 023 0299



SIDE ELEVATION OF BOILER BANK TUBES,FRONT WALL AND BAFFLE WALL TUBES

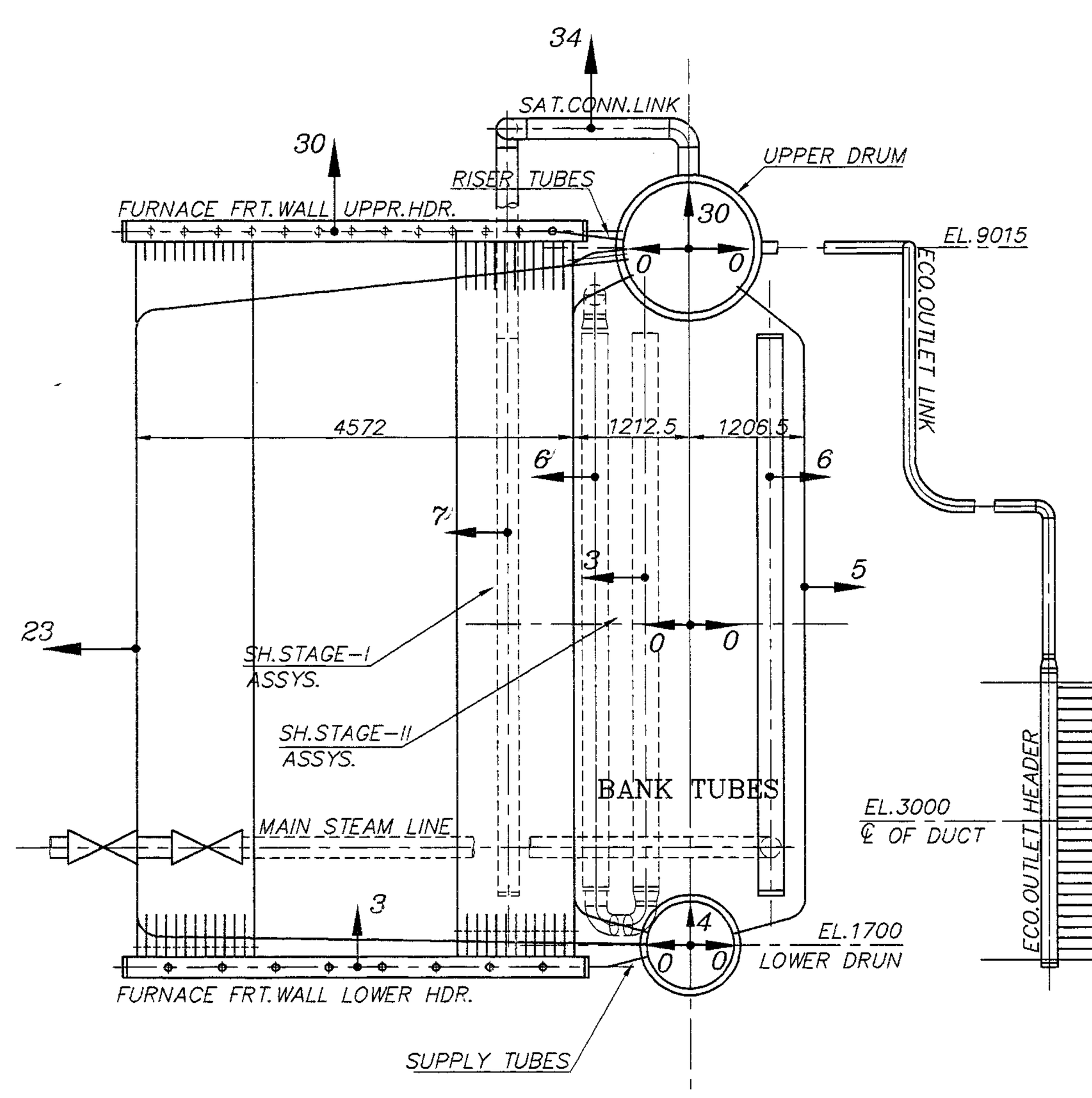


ECO.ASSYS.
ø38.1-25 Nos.
ST=116.76; SL=114.3
STAGGERD ARRGT.

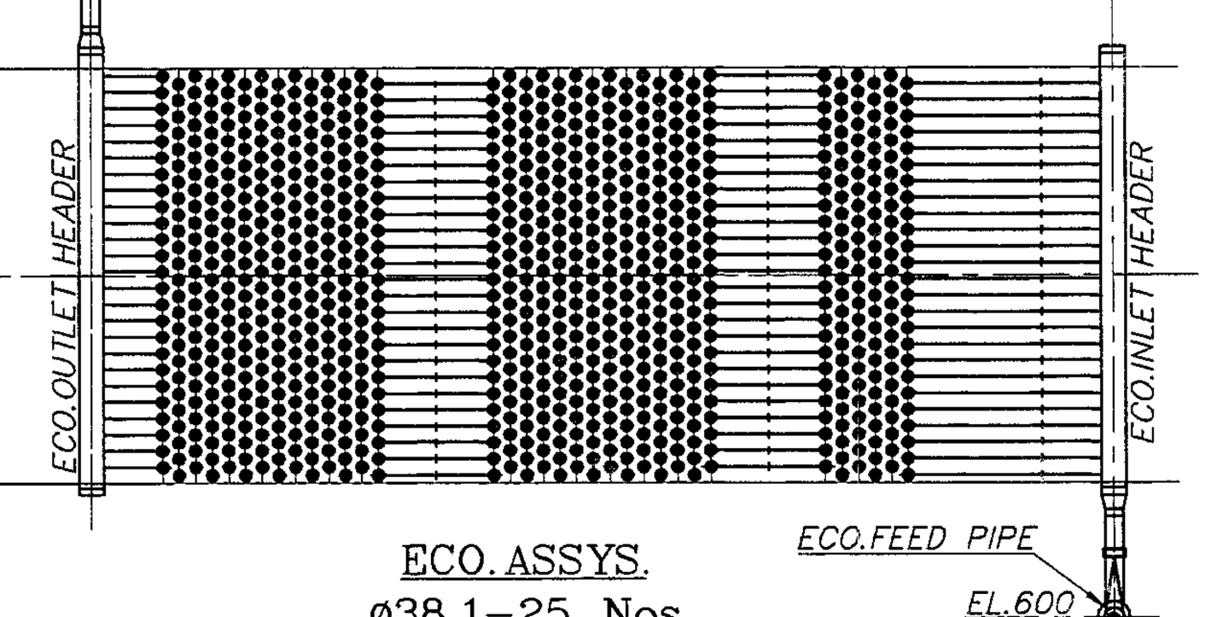


SIDE ELEVATION OF BOILER BANK TUBES AND BOILER REAR WALL

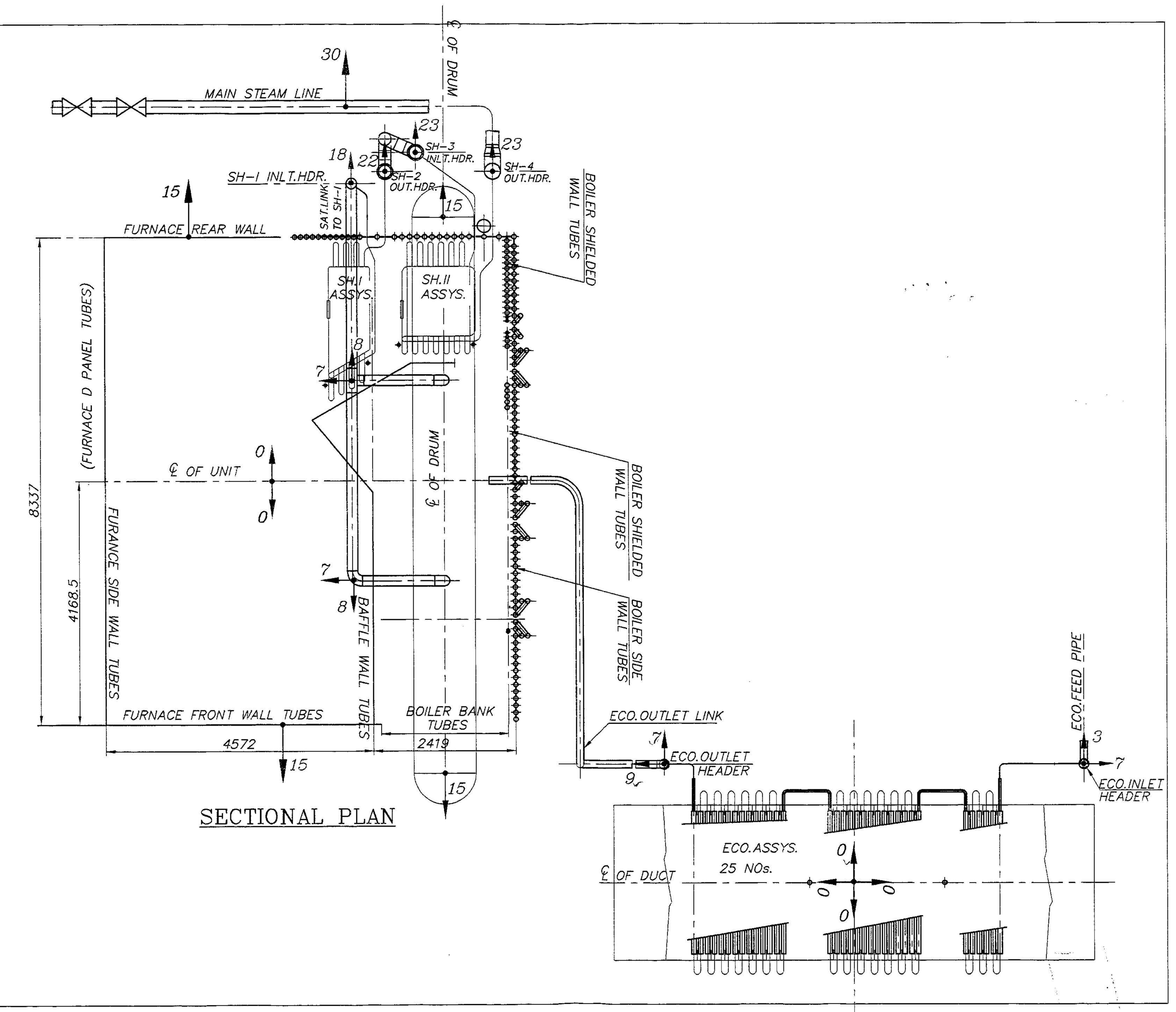
EXPANSION VALUES



SECTIONAL SIDE ELEVATION



ECO.ASSYS.
ø38.1-25 Nos.
SPIRAL FINNED TUBES
STAGGERD ARRGT.



SECTIONAL PLAN

REF.DRG: -

1. PPA-PLAN OVER FURNACE & BANK TUBES. 0-00-027-42825
2. PPA-SH.STAGE-I VIEW & DETAILS. 0-00-027-42826
3. PPA-SH.STAGE-II VIEW & DETAILS. 0-00-027-42827
4. PPA-PLAN OVER LINKS & DETAILS. 0-00-027-42828
5. GENERAL ARRANGEMENT OF BOILER ELEVATION & PLAN 0.00.022.72122

03

* BOM OF PRESSURE PARTS INDICATED IN THE DRAWING: 0.00.027.42823 (INCLUDED IN THE INSPECTION DATA BOOK)

LEGEND:-

OBD - OBSERVATION DOOR - 100x254 MM APPROX.
AD - ACCESS DOOR - 400x450 MM APPROX.
LRSB - LONG RETRACTABLE SOOT BLOWER - ø 128 MM. APPROX.

REV	DATE	ALTERED / CHD & APPD	DESCRIPTION
03	5/2/00	ALTD / CHCD & APPD	NOTES AND LEGEND ADDED
01	16.12.98	ALTERED / CHD & APPD	EXPANSION VALUES ADDED PANEL WIDTH CHANGED IN REARWALL DRAWING REPLOTTED
02	17.3.99	ALTERED / CHD & APPD	DRG.TITLE BLOCK ALTERED DRG.REVISED AND REPLOTTED

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PKG.NO 193 PROJ. DRG. NO. 193071301 6021

KONARK MET COKE LIMITED
COKE OVEN & POWER PLANT
KALINGAA NAGAR INDUSTRIAL COMPLEX, DUBURI, ORISSA
2 X 65 T/Hr ; 61 Kg/CM² (G) 482 °C CUST No : 0475 & 0476

CONSULTANT METALLURGICAL & ENGINEERING CONSULTANTS (INDIA) LIMITED.

55 MW COMBINED CYCLE COGENERATION POWER PLANT

Bharat Heavy Electricals Limited
UNIT: HIGH PRESSURE BOILER PLANT
TIRUCHIRAPALLI - 620014

	NAME	DATE
DRN	C.PALANI	20.10.98
CHD	A.UTHAYAN	20.10.98
APPD	G.M.S	20.10.98

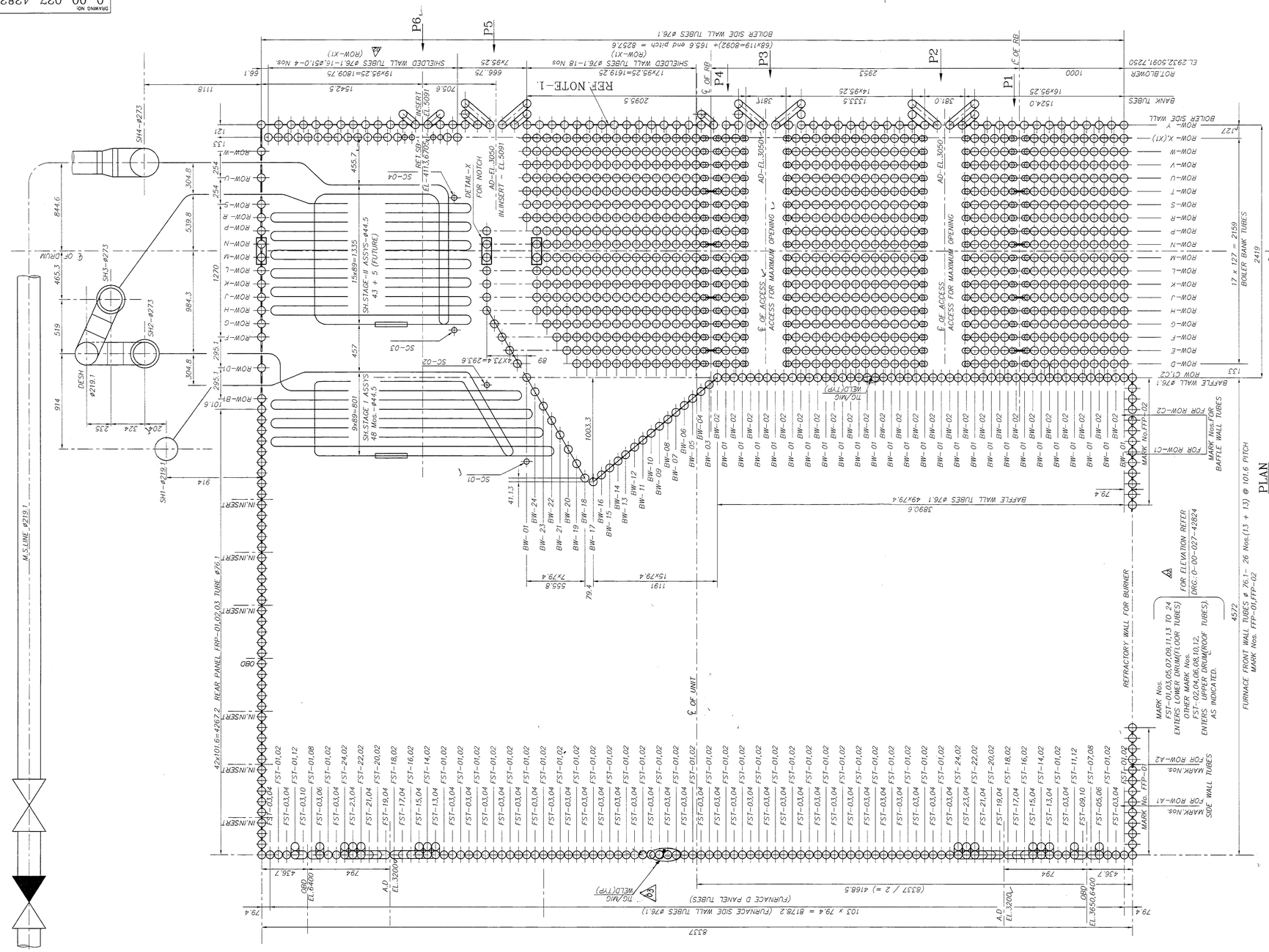
TITLE: PPA-SECTIONAL FRONT ELEVATION

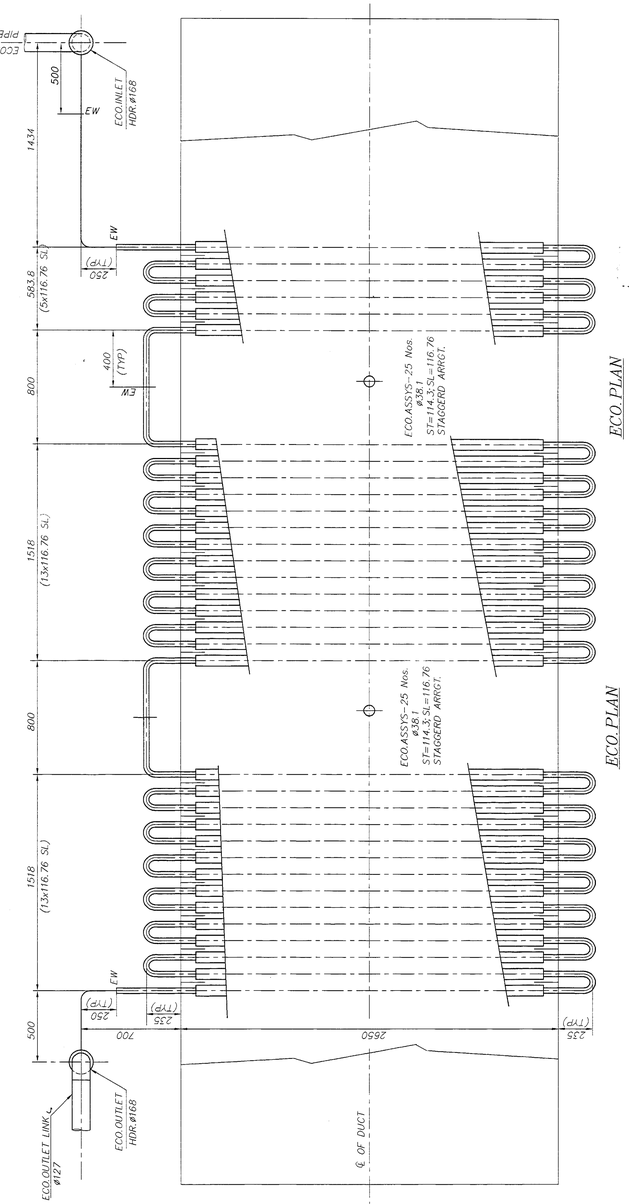
SCALE: N.T.S — ALL DIMENSIONS ARE IN MM

DRAWING NO : 0-00-027-42824 REV 03

CORPORATE DRG ID TP-DG-0-00-027-42824

FOR TOLERANCES OF UNTOLERANCED DIMENSIONS DURING MANUFACTURE REFER PLANT STD. NO TP 023 0299





MARK No. FOR BOILER BANKTUBES ROW-D TO ROW-X

MARK.Nos. BB-01 to BB-45 & BRT-01 TO BRT-14

SL.No. FROM FURNACE FRONT WALL	DIA	QTY.	D	E	F	G	H	J	K	L	M	N	P	R	S	T	U	V	W	X
01 TO 10	76.1	10	BB-01	BB-02	BB-03	BB-04	BB-05	BB-06	BB-07	BB-08	BB-09	BB-09	BB-08	BB-07	BB-06	BB-05	BB-04	BB-03	BB-02	BB-01
11 (RBF)	51	01	BB-10	BB-11	BB-12	BB-13	BB-14	BB-15	BB-16	BB-17	BB-18	BB-27	BB-26	BB-25	BB-24	BB-23	BB-22	BB-21	BB-20	BB-19
12 (RBR)	51	01	BB-19	BB-20	BB-21	BB-22	BB-23	BB-24	BB-25	BB-26	BB-27	BB-18	BB-17	BB-16	BB-15	BB-14	BB-13	BB-12	BB-11	BB-10
13 TO 16	76.1	04	BB-01	BB-02	BB-03	BB-04	BB-05	BB-06	BB-07	BB-08	BB-09	BB-09	BB-08	BB-07	BB-06	BB-05	BB-04	BB-03	BB-02	BB-01
17 (ADF)	51	01	BB-28	BB-29	BB-30	BB-31	BB-32	BB-33	BB-34	BB-35	BB-36	BB-45	BB-44	BB-43	BB-42	BB-41	BB-40	BB-39	BB-38	BB-37
18 (ADR)	51	01	BB-37	BB-38	BB-39	BB-40	BB-41	BB-42	BB-43	BB-44	BB-45	BB-36	BB-35	BB-34	BB-33	BB-32	BB-31	BB-30	BB-29	BB-28
19 TO 31	76.1	13	BB-01	BB-02	BB-03	BB-04	BB-05	BB-06	BB-07	BB-08	BB-09	BB-09	BB-08	BB-07	BB-06	BB-05	BB-04	BB-03	BB-02	BB-01
32 (ADF)	51	01	BB-28	BB-29	BB-30	BB-31	BB-32	BB-33	BB-34	BB-35	BB-36	BB-45	BB-44	BB-43	BB-42	BB-41	BB-40	BB-39	BB-35	BB-37
33 (ADR)	51	01	BB-37	BB-38	BB-39	BB-40	BB-41	BB-42	BB-43	BB-44	BB-45	BB-36	BB-35	BB-34	BB-33	BB-32	BB-31	BB-30	BB-29	BB-28
34, 35	76.1	02	BB-01	BB-02	BB-03	BB-04	BB-05	BB-06	BB-07	BB-08	BB-09	BB-09	BB-08	BB-07	BB-06	BB-05	BB-04	BB-03	BB-02	BB-01
36 (RBF)	51	01	BB-10	BB-11	BB-12	BB-13	BB-14	BB-15	BB-16	BB-17	BB-18	BB-27	BB-26	BB-25	BB-24	BB-23	BB-22	BB-21	BB-20	BB-19
37 (RBF)	51	01	BB-19	BB-20	BB-21	BB-22	BB-23	BB-24	BB-25	BB-26	BB-27	BB-18	BB-17	BB-16	BB-15	BB-14	BB-13	BB-12	BB-11	BB-10
38 TO 50	76.1	13	BB-01	BB-02	BB-03	BB-04	BB-05	BB-06	BB-07	BB-08	BB-09	BB-09	BB-08	BB-07	BB-06	BB-05	BB-04	BB-03	BB-02	———
51	76.1	1	———	BB-02	BB-03	BB-04	BB-05	BB-06	BB-07	BB-08	BB-09	BB-09	BB-08	BB-07	BB-06	BB-05	BB-04	BB-03	BB-02	———
52	76.1	1	———	———	BB-03	BB-04	BB-05	BB-06	BB-07	BB-08	BB-09	BB-09	BB-08	BB-07	BB-06	BB-05	BB-04	BB-03	BB-02	———
53	76.1	1	———	———	———	BB-04	BB-05	BB-06	BB-07	BB-08	BB-09	BB-09	BB-08	BB-07	BB-06	BB-05	BB-04	BB-03	BB-02	———
54	76.1	1	———	———	———	———	BB-05	BB-06	BB-07	BB-08	BB-09	BB-09	BB-08	BB-07	BB-06	BB-05	BB-04	BB-03	BB-02	———
55	76.1	1	———	———	———	———	———	———	———	———	———	———	———	BB-07	BB-06	BB-05	BB-04	BB-03	BB-02	———
Baffle Wall	76.1	1	BB-01	BB-02	BB-03	BB-04	BB-05	BB-06	BB-07	BB-08	BB-09	BB-09	BB-08	———	———	———	———	———	———	———
Boiler Rear Wall	76.1	1	———	———	BRT-02	BRT-03	BRT-04	BRT-05	BRT-06	BRT-07	BRT-08	BRT-09	BRT-10	BRT-11	BRT-12	———	BRT-13	———	BRT-14	———

RBF = ROTARY BLOWER FRONT; RBR = ROTARY BLOWER REAR; ADF = ACCESS FRONT; ADR = ACCESS REAR;

BOILER SHIELDED WALL TUBES

MARK Nos. BSH-01 to BSH-05 FOR ROW -X1

SL.No. FROM FRONT WALL	DIA	QTY.	X1
38 TO 57	76.1	10	BSH-01
58	51	1	BSH-03
59	51	1	BSH-02
60	51	1	BSH-04
61	51	1	BSH-05
FOR SB			
62 TO 75	76.1	24	BSH-01

MARK No. BRT-15 FOR ROW B (REAR WALL)

SL.No. FROM FRONT WALL	DIA	QTY.	B	D1
BOILER REAR WALL	76.1	1	BRT-15	BRT-01

NOTES: –

1. MK.No. BRT-15 ONE END ENTERS IN UPPER DRUM & OTHER END MATCHES WITH THE FUR.FRONT WALL INLET HDR.
2. MK.Nos. SC-01,SC-02,SC-03,SC-04,EACH 1 No. FOR SPACING OF SUPPERHEATERS ARE PART OF BANK TUBES.

BOILER SIDEWALL TUBE (ROW-Y)

MARK Nos. BST-01 TO BST-13 & BRT-16

SL.No. FROM FRONT WALL	DIA	QTY.	Y
1	76.1	1	BST-01
2 TO 8,11,12,13			
18 TO 27,32,33			
35 TO 49	76.1	51	BST-02
54,55,56			
59 TO 69			
9 (RBF)	76.1	1	BST-03
10 (RBR)	76.1	1	BST-04
14,28,50 (ACC)	76.1	3	BST-05
15,29 (ACC)	76.1	2	BST-06
16,30 (ACC)	76.1	2	BST-07
17,31,53 (ACC)	76.1	3	BST-08
34 (ACC)	76.1	1	BST-09
57 (ACC)	76.1	1	BST-10
58(RBR)	76.1	1	BST-11
70	76.1	1	BRT-16
51	76.1	1	BST-12
52	76.1	1	BST-13

REF. DRG: –

1.PPA–SECTIONAL FRONT ELEVATION: – 0–00–027–42824
2.PPA SH.STAGE–I VIEW & DETAILS. 0–00–027–42826
3.PPA SH.STAGE–II VIEW & DETAILS. 0–00–027–42827
4.PPA–PLAN OVER LINKS &DETAILS. 0–00–027–42828

NOTES: –

1.EXCEPT FURNACE FRONT/REAR WALL TUBES ALL OTHER TUBES ARE SUPPLIED AS LOOSE TUBES. CARBON STEEL FLATS OF 6mm THICK ARE TO BE PLACED IN BETWEEN TUBES AND WELDED BY MIG/ARC WELDING TO MAINTAIN GAS TIGHTNESS. FIN TO FIN WELDING TO BE DONE AT SITE WHEREVER NECESSARY TO MAINTAIN GAS TIGHTNESS
2.MARK Nos. FOR ROWS D TO X, X1,Y – REFER TABLE

REV	DATE	ALTERED	REV	DATE	ALTERED	REV	DATE	ALTERED
03	14.11.00	CHD & APPD	02	19.2.99	CHD & APPD	01	14.11.98	CHD & APPD
ZONE	T10/MIG WELD IN FURNACE D PANELS CHANGED TO HOT SIDE		ZONE	DRG.TITLE BLOCK ALTERED DRG.REVISED AND REPLOTTED		ZONE	MARK NOS. AND QUANTITY CORRECTED IN TABULAR COLUMN. DRAWING REPLOTTED	

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PKG.NO	1	9	3	PROJ. DRG. NO.	1	9	3	0	7	1	3	0	1	6	0	8	0

KONARK MET COKE LIMITED
COKE OVEN & POWER PLANT
KALINGAA NAGAR INDUSTRIAL COMPLEX, DUBURI, ORISSA
2 X 65 T/Hr : 61 Kg/CM² (G) 482 ° C CUST No : 0475 & 0476

CONSULTANT: METALLURGICAL & ENGINEERING CONSULTANTS (INDIA) LIMITED.

55 MW COMBINED CYCLE COGENERATION POWER PLANT

Bharat Heavy Electricals Limited
UNIT: HIGH PRESSURE BOILER PLANT
TIRUCHIRAPALLI – 620014

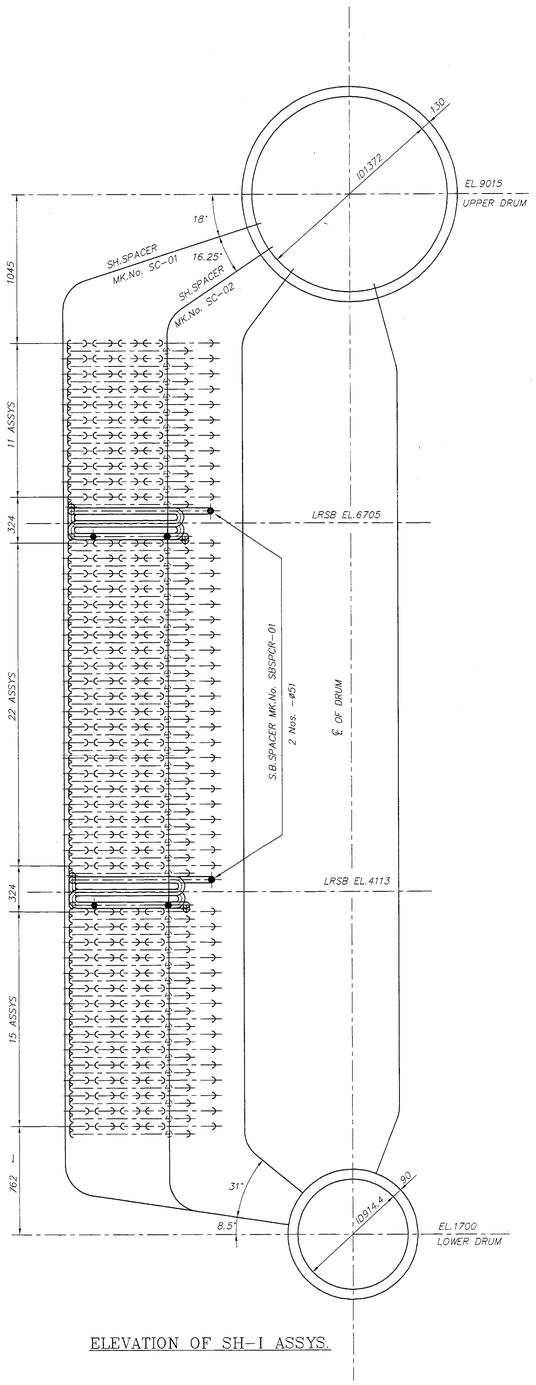
	NAME	SIGNATURE	DATE
DRN	K. KANTHIKUMAR		24.9.98
CHD	G. SUNDARAM		24.9.98
APPD	G.M.S.		24.9.98

TITLE: PPA–PLAN OVER FURNACE & BANK TUBES

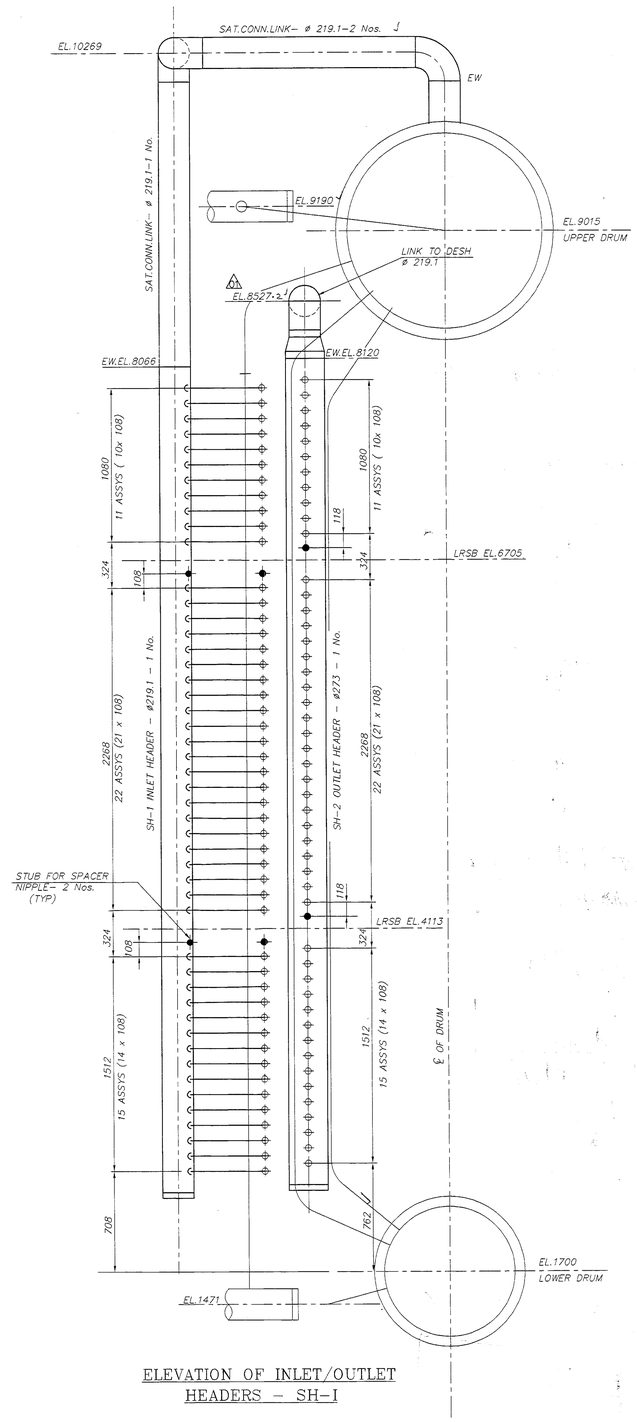
PROJECTION | SCALE: N.T.S | ALL DIMENSIONS ARE IN MM | DRAWING NO: 0–00–027–42825 | REV. 03

COPRPORATE DRG ID
TP-DG-0-00-027-42826

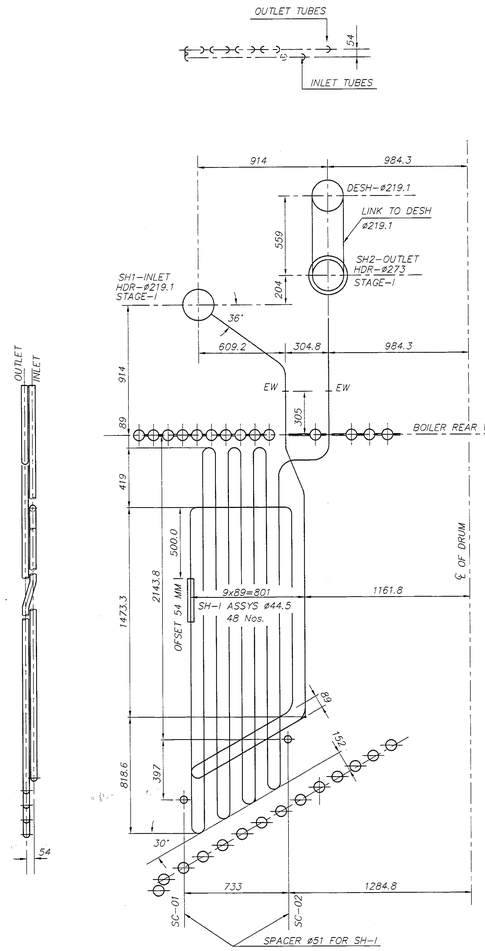
FOR TOLERANCES OF UNTOLERANCED DIMENSIONS DURING MANUFACTURE REFER PLANT STD. NO TP 023 0299



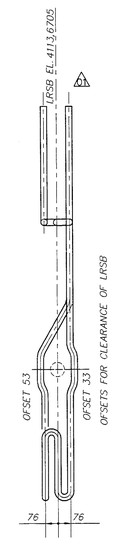
ELEVATION OF SH-I ASSYS.

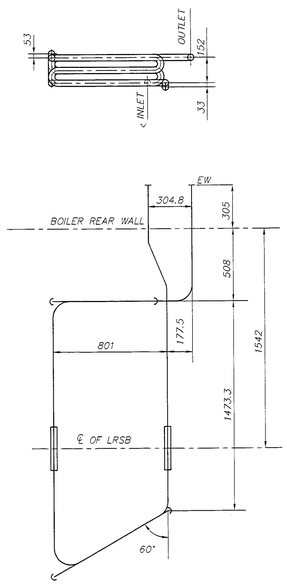


ELEVATION OF INLET/OUTLET HEADERS - SH-I



SH-I ASSYS
PLAN VIEW





S.B.SPACER FOR SH-I ASSYS
MARK - No. SBSPCR-01 - 2 Nos ø51
PLAN VIEW

REF.DRG: -

1.PPA-SECTIONAL FRONT ELEVATION.	0-00-027-42824
2.PPA-PLAN OVER FURNACE & BANK TUBES.	0-00-027-42825
3.PPA SH.STAGE-I VIEW & DETAILS.	0-00-027-42826
4.PPA SH.STAGE-II VIEW & DETAILS.	0-00-027-42827
5.PPA-PLAN OVER LINKS & DETAILS.	0-00-027-42828

LRSB...LONG RECTRATABLE SOOT BLOWER

PKG.NO	193	PROJ. DRG. NO.	193071301608 1		
KONARK MET COKE LIMITED COKE OVEN & POWER PLANT KALINGAA NAGAR INDUSTRIAL COMPLEX, DUBURI, ORISSA 2 X 65 T/Hr ; 61 Kg/CM^2 (G) 482 ° C CUST No : 0475 & 0476					
CONSULTANT	METALLURGICAL & ENGINEERING CONSULTANTS (INDIA) LIMITED.				
55 MW COMBINED CYCLE COGENERATION POWER PLANT					
Bharat Heavy Electricals Limited UNIT: HIGH PRESSURE BOILER PLANT TIRUCHIRAPALLI - 620014					
REV	DATE	ALTERED	SIGNATURE	DATE	TITLE
		CHD		12.09.98	PPA-SH.STAGE-I -VIEW & DETAILS
				16.9.98	
				16.09.98	
			ALL DIMENSIONS ARE IN MM	DRAWING NO : 0-00-027-42826	REV 01

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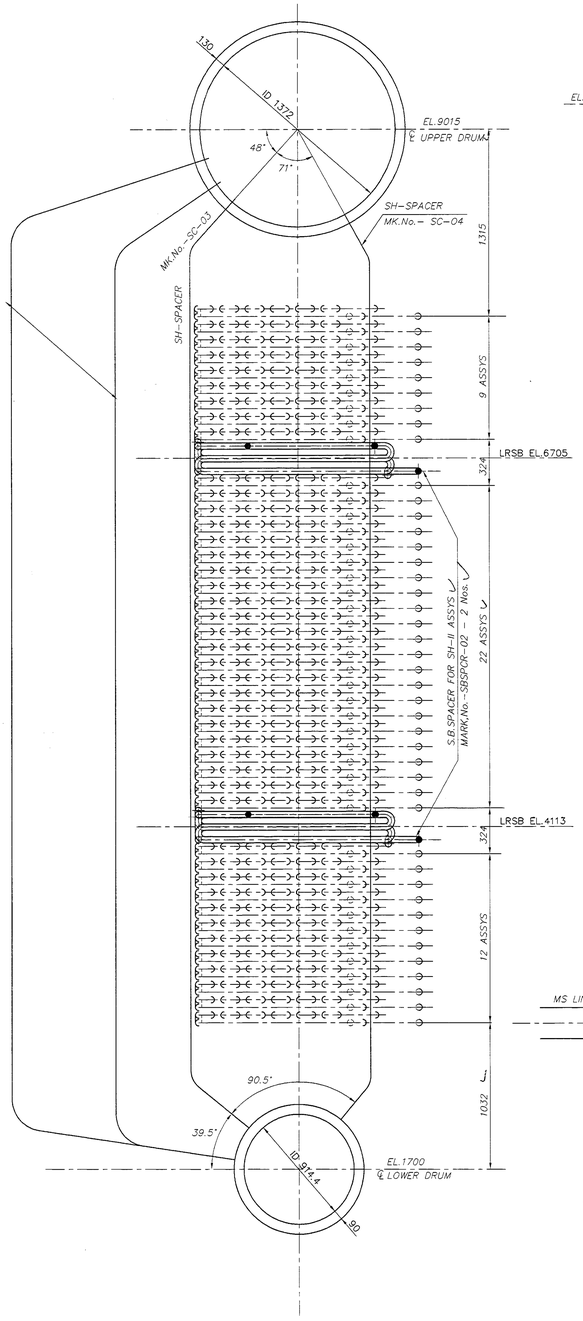
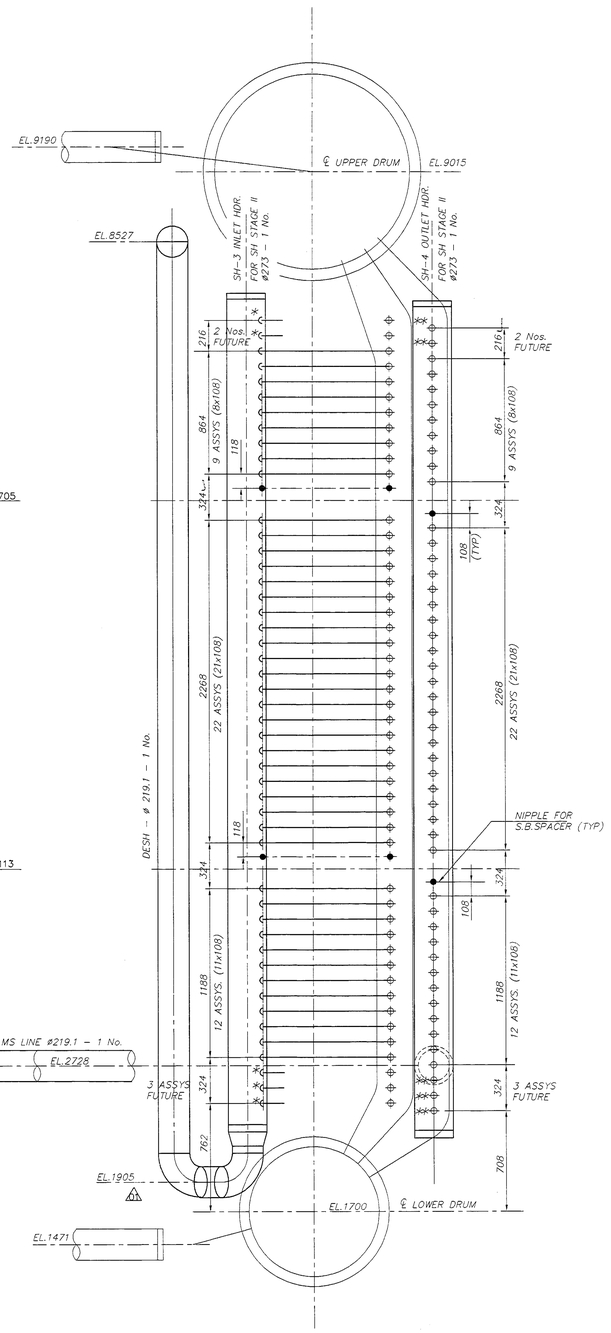
CORPORATE DRG ID
TP-DG-0-00-027-42826

DRAWING NO. 0-00-027-42827

CORPORATE DRG ID TP-DG-0-00-027-42827

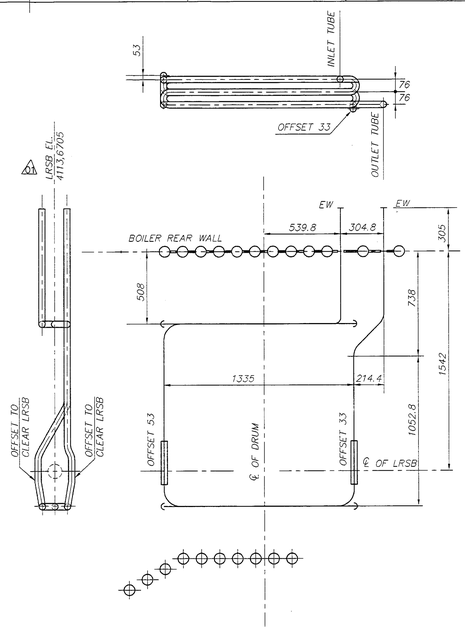


ELEVATION OF SH-II ASSYS.

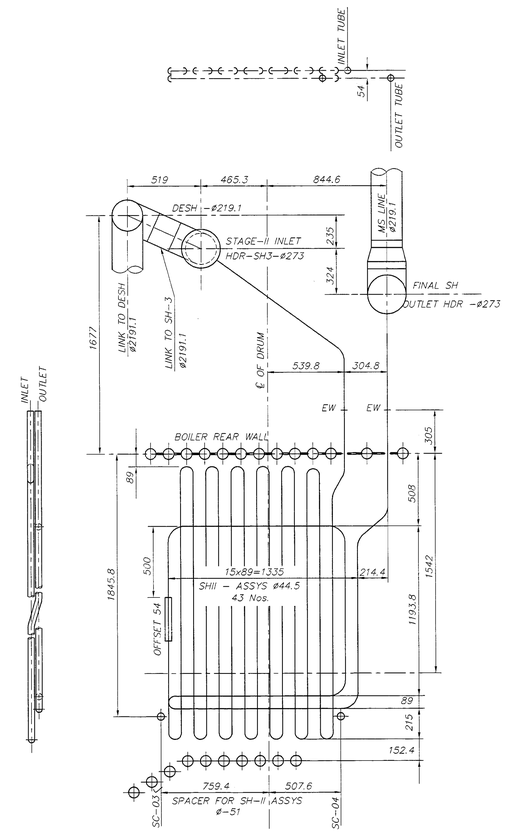


* FUTURE ASSYS.
** NIPPLES TO BE BLANKED.

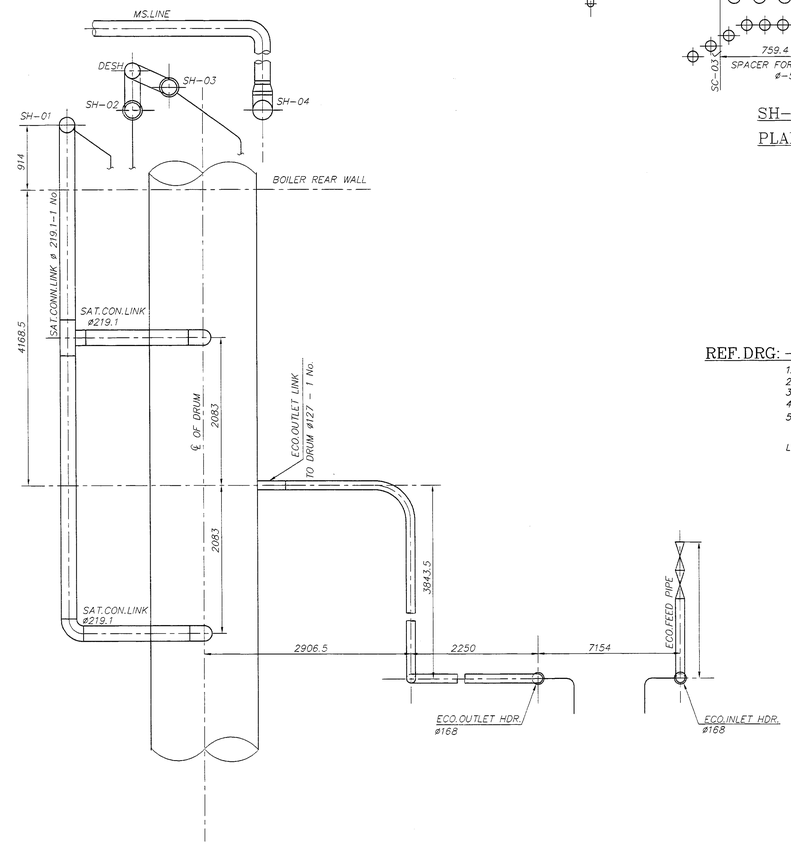
ELEVATION OF INLET/OUTLET HEADERS FOR SH-STAGE II



S.B.SPACER FOR SH-II ASSYS
MARK No. SBSPCR-2 - 2 Nos.-ø51
PLAN VIEW



SH-II ASSYS
PLAN VIEW



REF.DRG: –

1.PPA-SECTIONAL SIDE ELEVATION.	0-00-027-42824
2.PPA-PLAN OVER FURNACE & BANK TUBES.	0-00-027-42825
3.PPA SH.STAGE-I VIEWS & DETAILS.	0-00-027-42826
4.PPA SH.STAGE-II VIEWS & DETAILS.	0-00-027-42827
5.PPA-PLAN OVER LINKS &DETAILS.	0-00-027-42828

LRSB...LONG RECTRACTABLE SOOTBLOWER

FOR TOLERANCES OF UNTOLERANCED DIMENSIONS DURING MANUFACTURE REFER PLANT STD. NO TP 025 0299

REV	DATE	ALTERED :
01	19.3.99	CHD & APPD
2ND		DRG.TITLE BLOCK ALTERED DRG.REVISED AND REPLOTTED

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PKG.NO	193	PROJ. DRG. NO.	193071130160820

KONARK MET COKE LIMITED
COKE OVEN & POWER PLANT
KALINGAA NAGAR INDUSTRIAL COMPLEX, DUBURI, ORISSA
2 X 65 T/Hr ; 61 Kg/CM^2 (G) 482 ° C CUST No : 0475 & 0476

CONSULTANT: METALLURGICAL & ENGINEERING CONSULTANTS (INDIA) LIMITED.

55 MW COMBINED CYCLE COGENERATION POWER PLANT

Bharat Heavy Electricals Limited
UNIT: HIGH PRESSURE BOILER PLANT
TIRUCHIRAPALLI - 620014

	NAME	SIGNATURE	DATE
DRN	C. KRISHNA	C. Krishna	15.1.99
CHD	P. VENKATA		15.1.99
APPD	M. RAJARAM		19.1.99

PROJECTION | SCALE: N.T.S | ALL DIMENSIONS ARE IN MM

TITLE: PPA-SH STAGE-II VIEW & DETAILS

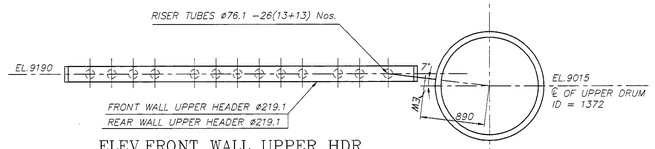
DRAWING NO : 0-00-027-42827 | REV 01

CORPORATE DRG ID TP-DG-0-00-027-42827

CORPORATE DRG ID
TP-DG-0-00-027-42828

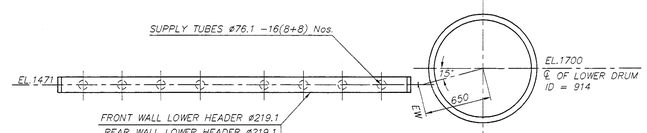
DRAWING NO. 0-00-027-42828

RISER TUBES ø76.1 –26(13+13) Nos.

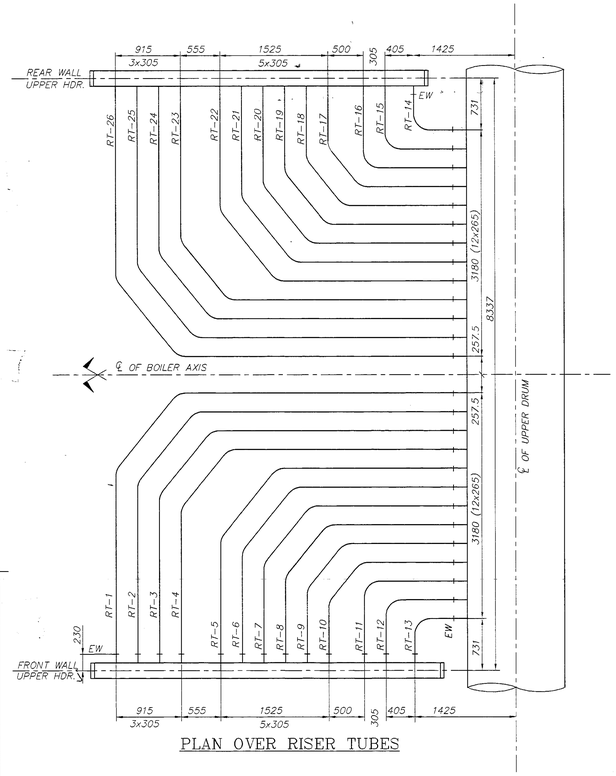


ELEV. FRONT WALL UPPER HDR.
ELEV. REAR WALL UPPER HDR.

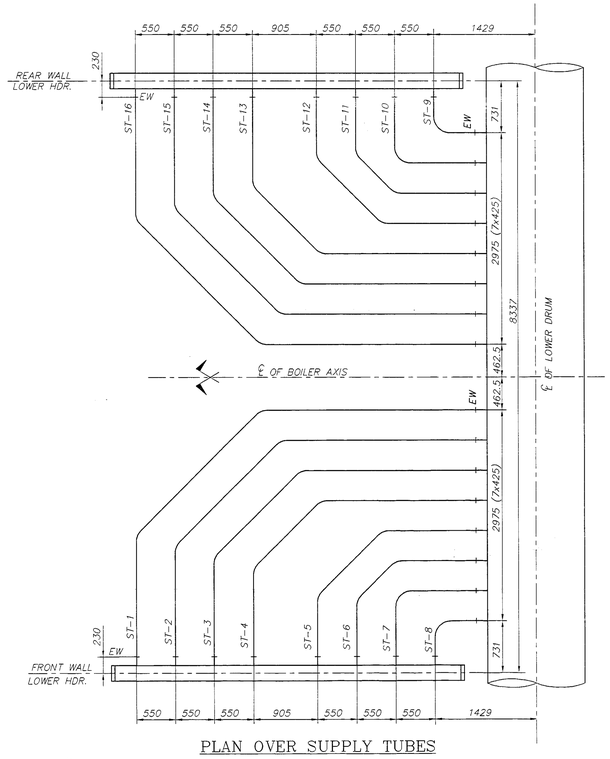
SUPPLY TUBES ø76.1 –16(8+8) Nos.



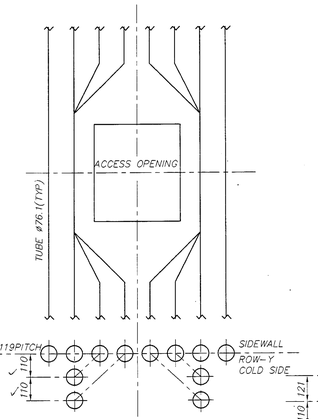
ELEV. FRONT WALL LOWER HDR.
ELEV. REAR WALL LOWER HDR.



PLAN OVER RISER TUBES

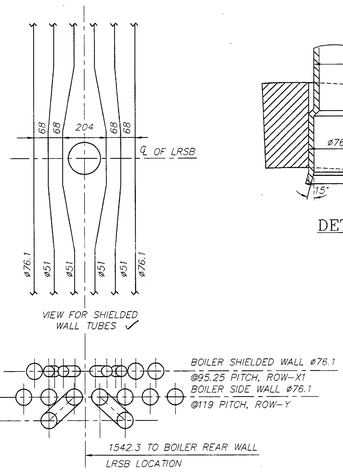


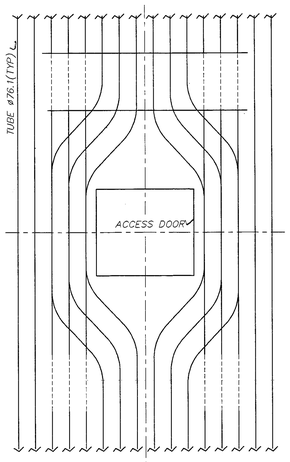
PLAN OVER SUPPLY TUBES



VIEW–P2,P3,P5

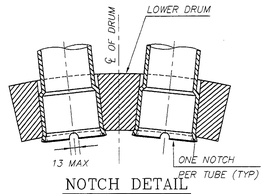
ACCESS DOOR OPENINIG IN BOILER SIDE WALL





VIEW–P6

LRSB OPENING IN BOILER SIDE &SHIELDED WALL

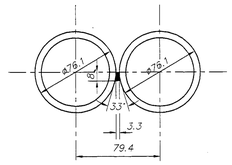


NOTCH DETAIL

NOTES (NOTCH DETAILS)

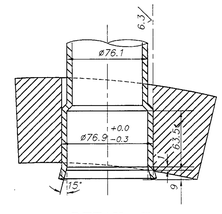
1. THE NOTCH SHOULD BE FORMED BY GRINDING AFTER THE TUBE IS INSTALLED.
2. THE WIDTH OF THE NOTCH SHOULD BE 13 mm, MAXIMUM AT THE END OF THE FLARE.
3. THE NOTCH SHOULD HAVE SMOOTH CONTOUR AND ITS ROOT MUST BE FLUSH WITH THE INSIDE SURFACE OF THE DRUM.
4. THE NOTCH MUST BE LOCATED AT THE HIGHEST POSSIBLE POINT OF THE INTERSECTION OF THE DRUM AND THE TUBE.
5. ONLY ONE NOTCH IS ALLOWED PER TUBE.
6. LOCATION OF THE NOTCHED TUBE IS SHOWN IN THE DRAWING 0–00–027–42824 IN PLAN VIEW

ACCESS DOOR OPENING SIDE WALL

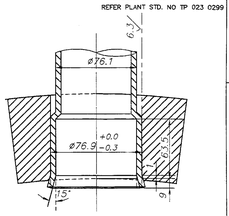


TYPICAL MIG/ARC WELD

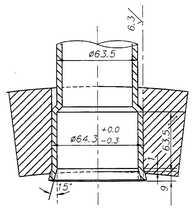
DETAIL–E



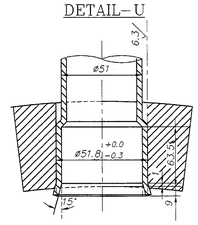
DETAIL–U



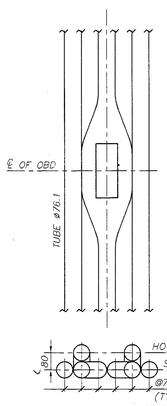
DETAIL–R



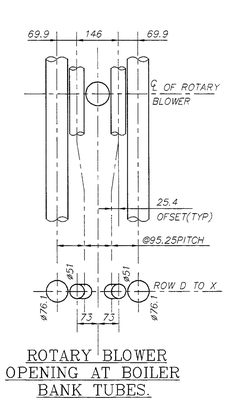
DETAIL–S



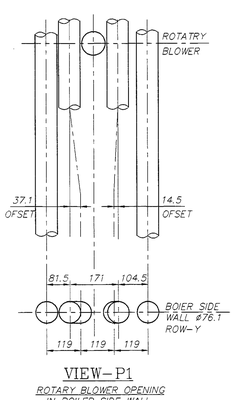
1. DESIGN PRESSURE..... : 76 Kg/cm^2(g)
2. HYDRAULIC TEST PRESSURE AT SITE ..... : 114 Kg/cm^2 (g)
3. WHEREVER REQUIRED TUBES SHOULD BE GIVEN AN OUTSIDE SURFACE FINISH OF 3.2 MICRONS FOR ABOUT 100 mm FOR THE PURPOSE OF EXPANSION.
4. TUBES OTHER THAN FURNACE SIDE WALL TUBES ARE TO BE PROVIDED WITH 5mm ERECTION ALLOWANCE ON LOWER END ONLY (LOWER DRUM). FURNACE SIDE WALL TUBES ARE PROVIDED WITH 5mm ALLOWANCE ON EITHER END ENTERING UPPER DRUM AND LOWER DRUM. THEY SHOULD BE CUT OFF SUITABLY DURING ASSEMBLY.
5. BEFORE FINAL EXPANSION / ROLLING OF TUBES, MIG/ARC WELDING, FIN PLATE, PRESSURE SEAL WELDING etc., SHOULD BE DONE.
6. AFTER COMPLETION OF INNER CASING AIR LEAKAGE TEST SHOULD BE CONDUCTED AT A PRESSURE OF 150mm (+25, –0) OF WATER COLUMN. TO CHECK FOR GAS TIGHTNESS, SOAP BUBBLES SHOULD BE USED TO CHECK THE LEAKAGE AREAS WHICH SHOULD BE REPAIRED.
7. AFTER AIR LEAKAGE TEST AND SUBSEQUENT REPAIRS, PRESSURE DECAY TEST SHOULD BE CONDUCTED AT A PRESSURE 250 mm (+25,–0) OF WATER COULMN. THE PRESSURE DROP WHEN FAN IS SHUT OFF, SHOULD NOT BE MORE THAN 25 mm OF WATER COULMN OVER A PERIOD OF 10 MINUTES.
8. BANK TUBES WITH SOOT BLOWER BEARING PLATES SHOULD BE ERECTED FIRST, BEFORE ANY OTHER TUBES. BEARING PLATES SHOULD BE ALIGNED AND WELDED TO BANK TUBES AS SHOWN IN DETAIL–E1.
9. ELEVATION OF EW. FOR TUBES ENTERING IN ROW–A1 IN UPPER DRUM IS 4546.0. AND FOR TUBES ENTERING IN ROW– A2 IN UPPER DRUM, THE ELEVATION OF EW. IS EL.4446 THIS IS TO FACILIATE ERECTOR.
10. HYDRALIC TEST IS TO BE CONDUCTED AFTER ALL WELDING OF PRESSURE PARTS AND NON PRESSURE PARTS ATTACHMENTS ON TO PRESSURE PARTS ARE COMPLETED.
11. AFTER SITE HYDRAULIC TEST OF BOILER, NO WELDING SHALL BE PERFORMED IN PRESSURE PARTS (ie., NEITHER BETWEEN PRESSURE PARTS NOR ANY ATTACHMENTS (NON PRESSURE PARTS) ON TO PRESSURE PARTS).
12. FOR LOWER DRUM TOUCH EXPANSION IS TO BE DONE FOR FULL DRUM THICKNESS AND THEN FINAL EXPANSION IS TO BE DONE FOR A LENGTH OF 63mm FROM INSIDE SURFACE OF THE DRUM.



O.B.D & INST.INSERT OPENING IN FURNACE SIDE WALL

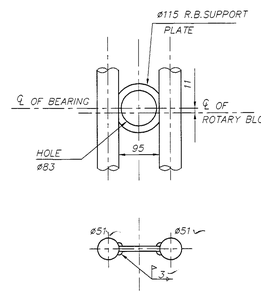


ROTARY BLOWER OPENING AT BOILER BANK TUBES.



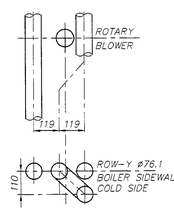
VIEW–P1

ROTARY BLOWER OPENING IN BOILER SIDE WALL



DETAIL–E1

DETAIL FOR ROTARY BLOWER BEARING PLATE
DU.NO.–029; POMA : 07–601



VIEW–P4

ROTARY BLOWER OPENING IN BOILER SIDE WALL

NOTE:
AFTER ERECTION OF DRUM BANK TUBES AND BOILER SIDE WALL TUBES WITH SOOT BLOWER SUPPORT PLATES ARE TO BE ERECTED FIRST.
ROTARY BLOWER SUPPORT PLATES ARE TO BE WELDED IN POSITION.
ALIGMENT OF C.L TO BE CHECKED FOR THESE ROWS. THEN ONLY FURTHER TUBES ARE TO BE KEPT IN POSITION.

TABLE SHOWING TUBE EXPANDING DETAIL △1
(REFER NOTES)

ENTRY TO ---->		UPPER DRUM (ID 1372x130)			LOWER DRUM (ID 914.4x90) (REFER–NOTE.12)		
DESCRIPTION	ROW NAME	SWAGED TO	TYPE OF JOINT	NO. OF JOINTS	SWAGED TO	TYPE OF JOINT	NO. OF JOINTS
FURNACE ROOF/FLOOR TUBES ø76.1	A1,A2	NO SWAGE	DETAIL–E	104	ø51	DETAIL–S	104
BAFFLE WALL TUBES ø76.1	C1,C2	NO SWAGE	DETAIL–U	73	ø51	DETAIL–S	73
BOILER BANK TUBES ø76.1	D TO X	ø51	DETAIL–S	818	ø51	DETAIL–S	818
BOILER BANK TUBES ø51	D TO X	NO SWAGE	DETAIL–S	144	NO SWAGE	DETAIL–S	144
SHEILDED WALL TUBES ø76.1	X1	ø51	DETAIL–S	34	ø51	DETAIL–S	34
SHEILDED WALL TUBES ø51	x1	NO SWAGE	DETAIL–S	4	NO SWAGE	DETAIL–S	4
SPACER TUBES ø51	———	NO SWAGE	DETAIL–S	4	NO SWAGE	DETAIL–S	4
BOILER SIDE WALL TUBES ø76.1	Y	ø63.5	DETAIL–R	69	ø63.5	DERAIL–R	69
BOILER REAR WALL TUBES ø76.1	B	ø51	DETAIL–S	1	–	–	–
BOILER REAR WALL TUBES ø76.1	D1 TO Y	ø51	DETAIL–S	15	ø51	DETAIL–S	15

REF. DRG: –

1.PPA–SECTIONAL FRONT ELEVATION.	0–00–027–42824
2.PPA–PLAN OVER FURNACE & BANK TUBES.	0–00–027–42825
3.PPA SH.STAGE–I VIEW & DETAILS.	0–00–027–42826
4.PPA SH.STAGE–II VIEW & DETAILS.	0–00–027–42827

REV	DATE	ALTERED :
01	14.3.99	CHD & APPD
ZONE	DRG.TITLE BLOCK ALTERED	
	DRG.REVISED AND REPLOTTED	

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	NAME	SIGNATURE	DATE
DRN	C.PALANI		13.10.98
CHD	A.UTHAYAN		13.10.98
APPD	G.M.S		13.10.98

PROJECTION | SCALE: N.T.S | ALL DIMENSIONS ARE IN MM

PKG.NO 193 PROJ. DRG. NO. 193071301608 3

KONARK MET COKE LIMITED
COKE OVEN & POWER PLANT
KALINGAA NAGAR INDUSTRIAL COMPLEX, DUBURI, ORISSA
2 X 65 T/Hr ; 61 Kg/CM^2 (G) 482 ° C CUST No : 0475 & 0476

CONSULTANT: METALLURGICAL & ENGINEERING CONSULTANTS (INDIA) LIMITED.

55 MW COMBINED CYCLE COGENERATION POWER PLANT

Bharat Heavy Electricals Limited
UNIT: HIGH PRESSURE BOILER PLANT
TIRUCHIRAPALLI – 620014

TITLE: PPA–PLAN OVER LINKS & DETAILS

DRAWING NO : 0–00–027–42828 REV 01

CORPORATE DRG ID
TP-DG-0-00-027-42828

DRAWING NO. 0-00-047-47320

STEAM DRUM

WATER DRUM

2"SCH 40 | 2"SCH 80 | 3"SCH 40

DRUM LEVEL CONTROL

DRUM LEVEL VERY LOW TO BMS

DRUM LEVEL VERY HIGH TO BMS

FRONT WW | BOILER BANK | D PANEL | REAR WW

DWLG | RWLI | EWLI

CHEMICAL DOSING 1"SCH 40

TO CBDT FOR CONTN.REF. 2-38101-00286

TO IBDT FOR CONTN.REF. 2-38101-00286

TO BDT FOR CONTN.REF. 2-38101-00286

ECO. OUTLET HDR | ECONOMISER | ECO. INLET HDR

BOILER DRAIN HEADER

SH-I INLET HEADER | SUPER HEATER-I | SH-I OUTLET HEADER

DESH | TO STEAM TEMP. CONTROL

SH-II INLET HEADER | SUPER HEATER-II | SH-II OUTLET HEADER

SH DRAIN HEADER

MAIN STEAM LINE

MASTER PR.CONTROL DCS

TO SH STEAM TEMP.CONTROL

MAIN STEAM LINE FOR CONTINUATION REFER DWG.No.0-38101-00284

FEED WATER SAMPLING D 14x2.9

CBD SAMPLING D 14x2.9

SAT. STEAM SAMPLING D 14x2.9

SH STEAM SAMPLING D 14x2.9

CONDUCTIVITY

COOLING WATER INLET HEADER

CW INLET D 60.8x4.5

SPRAY WATER LINE

FROM MAIN FEED LINE BEFORE FEED CONTROL STATION DWG.No.0-38101-00285

FEED LINE FOR CONTINUATION REF. DWG.No.0-38101-00285

BLR. FILLING

HYD.TEST LINE

N2 FILLING

LEGEND

- GLOBE VALVE
- GATE VALVE
- REGULATING VALVE (INCHING TYPE)
- THREE WAY VALVE
- NON RETURN LIFT VALVE
- NON RETURN FLAP VALVE
- SPRING LOADED SAFETY VALVE
- CONTROL VALVE
- BLOCK VALVE
- BLOW DOWN VALVE (ANGLE TYPE) (INCHING TYPE)
- ELECTRICAL SIGNAL
- PNEUMATIC AIR SUPPLY
- BHEL (TRICHY) BHEL (PED-HYD)
- ORIFICE PLATE (FOR FLOW MEASUREMENT)
- ORIFICE PLATE (FOR PRESSURE REGULATION)
- SOOT BLOWER PR.REDUCING VALVE
- SOLINOID OPERATED - SINGLE COIL
- MOTOR OPERATION (AC)
- PNEUMATIC OPERATION
- SILENCER
- TRAY
- CONDENSING LOOP
- VENT TO ATMOSPHERE
- DRAIN TO CANAL
- REDUCER
- LONG RETRACTABLE SOOT BLOWER
- ROTARY BLOWER
- TEST DRAIN TO EXHAUST
- AIR VENT
- (LC) LOCKED CLOSE
- (LO) LOCKED OPEN

REFERENCE INFORMATION FOR SCH PIPES

SL No	ANSI STANDARD	EQUIVALENT METRIC SIZE
01	1/2" SCH40	021.3x2.77
02	1" SCH40	033.4x3.38
03	1 1/2" SCH40	048.3x3.68
04	2" SCH40	060.3x3.91
05	2" SCH80	060.3x5.54
06	3" SCH40	088.9x5.49

KEY FOR NOMENCLATURE

- LOCAL MOUNTED INSTRUMENTS
- REMOTE PANEL MOUNTED INSTRUMENTS
- CBDT - CONTINUOUS BLOW DOWN TANK
- IBDT - INTERMITTENT BLOW DOWN TANK
- DWLG - DIRECT WATER LEVEL GAUGE
- SBOP - SOOT BLOWER CONTROL PANEL
- DCS INDICATION
- INTERLOCK FROM DCS

KKS CODE FOR INSTRUMENTS

BOILER No.
1-BOILER No.1
2-BOILER No.2
3-BOILER No.3

FUNCTION KEY
HAC-FEED WATER INLET TO ECONOMISER
HAD-DRUM INLET
HAH-PRI.SH.INLET
LBA-FINAL SH.OUTLET
LAE-SPRAY WATER FROM FEED LINE
HCB-SB.PROS VALVE INLET
TO F.W.INLET TO DRUM
TO DRUM OUTLET
TO FINAL SH.OUTLET
TO M.S.STOP VALVE
TO SH/RH SPRAY NOZZLE
TO COMPLETE SYSTEM

EQUIPMENT KEY
AA-VALVES,DAMPERS INCL. ACTUATOR & MANUAL
CF-FLOW MEASURING SYSTEM
CL-LEVEL MEASURING SYSTEM
CP-PRESSURE MEASURING SYSTEM
CQ-ANALYSER MEASURING SYSTEM
CT-TEMPERATURE MEASURING SYSTEM

EQUIPMENT No.
001to099-ANALOG INST.REMOTE
101to199-TRANSMITTERS/TE
201to299-PROCESS SWITCHES
301to399-TRANSMITTERS WITH LOCAL INDICATION
401to499-TEST POINTS
501to599-LOCAL INST.(INDICATORS)

EXAMPLE:-
1LAE11 CP401
- BOILER No.
- FUNCTION KEY
- AREA KEY
- EQUIPMENT No.FOR INSTRUMENTS
- EQUIPMENT KEY

NOTES

1. SCHEME DRAWING IS MEANT TO SHOW THE PRESSURISED (WITH STEAM OR WATER) COMPONENTS (ECONOMISER & SUPERHEATER) OF A STEAM GENERATOR.
2. THIS SCHEME SHOULD BE READ ALONG WITH THE SCHEDULE OF VALVES & FITTINGS AND LIST OF MEASUREMENTS AND CONTROL.
3. BOILER WATER,SPARY WATER AND STEAM FLOW DIRECTIONS ARE INDICATED BY ARROWS ON THE PIPING.
4. BEFORE STEAM BLOWING ALL THERMOWELL EXCEPT TEST THERMOWELL ARE TO BE REMOVED AND BLANKED TO AVOID DAMAGE OF THERMOWELLS.
5. ALL LOCAL DRAINS WILL BE COLLECTED TOGETHER AT A COMMOM PIPE AND LED TO THE CANAL..
6. SAFETY VALVE SETTING FOR BOILER & SH REFER DRG. NO. 2-00-047-47176
7. FOR DETAILS OF 3 ELEMENT DRUM LEVEL CONTROL REF.DRG.No.3-97-096-91422

REV	DATE	PREPARED / CHD & APPD	DESCRIPTION
06	7-2-2000	Chd Appd	DRUM 'LT' CORRECTED.
05	5-1-2000		DRUM 'LT' DESCRIPTION REVISED
04	22 06 99	B.S / C.A	ECONOMISER INLET & OUTLET HEADER DRAIN ARRANGEMENT CORRECTED.
03	18 04 99	B.S / C.A	MAIN STEAM STOP VALVE BYPASS ADDED IN LINE, DRAIN ADDED BETWEEN M.S.STOP VALVE & NON RETURN VALVE.
02	13 03 99	B.S / C.A	SCHEME CORRECTED AS PER MECON'S COMMENTS THRO' FAX.DT. & SCHEME MARKED UP COPY REFERRED.
01	05 12 98	B.S / C.A	SCHEME CORRECTED AS PER MECON'S COMMENTS THRO' FAX.DT.13 11 98 & SCHEME MARKED UP COPY REFERRED.

PKG.NO 193 PROJ. DRG. NO. 193071301600 4

KONARK MET COKE LIMITED
COKE OVEN & POWER PLANT
KALINGAA NAGAR INDUSTRIAL COMPLEX, DUBURI, ORISSA
2 X 65 T/Hr ; 61 Kg/CM^2 (G) 482 ° C CUST No : 0475 & 0476

CONSULTANT
METALLURGICAL & ENGINEERING CONSULTANTS (INDIA) LIMITED.
60 MW COMBINED CYCLE COGENERATION POWER PLANT

Bharat Heavy Electricals Limited
UNIT: HIGH PRESSURE BOILER PLANT
TIRUCHIRAPALLI - 620014

	NAME	SIGNATURE	DATE
DRN	B.Sivaraj		20-08-98
CHD	M.K.Kathir vel		22-08-98
APPD	C.Arivazhagan		22-08-98

PROJECTION | SCALE: N T S | ALL DIMENSIONS ARE IN MM

TITLE: P & I FOR WATER, STEAM & SB CIRCUIT WITH VALVES, FITTINGS AND INSTRUMENTATION

DRAWING NO : 0-00-047-47320 REV 06

CAUTION: This information on this document is the property of BHARAT HEAVY ELECTRICALS LIMITED. It may be used directly or indirectly in connection with the business of this company.

CORPORATE DRG ID TP-DG-0-00-047-47320

TP-DG-1-00-056-10241
CORPORATE DRG ID

DRAWING NO. 1-00-056-10241

LIGHT FUEL OIL
AIR
ELEC. SIGNAL
SCOPE ARROW
GAS LINE

GOFFLE VALVE
NORMALLY OPEN VL
NORMALLY CLOSED VL
GATE VALVE
GLOBE VALVE
REGULATING GLOBE
NON-RETURN VALVE
PLUG VALVE
BUTTERFLY VALVE
BALL VALVE
THREE WAY VALVE
FOUR WAY VALVE
RELIEF VALVE
OPEN DRAIN
VENT COCK
STM TRAP STN (HDR)
STM TRAP STN (OPEN)
STM TRAP W/STRNR
CONDENSATE HEADER
Y - STRAINER
FLEXIBLE HOSE
PAIR OF FLANGES
PIPE REDUCER
GAUGES - LOCAL
GAUGES - LOCAL PANEL
GAUGES - REMOTE
DIAPHRAGM OPERATOR
PISTON OPERATOR
MOTOR OPERATOR
HYDRAMOTOR OPERATOR
SINGLE SOLENOID OPR'R
DUEL SOLENOID OPR'R
VALVE POSITIONER
POSITION TRANSMITTER
AIR LOCK VALVE
SPEED REGULATOR
AIR FILTER
AIR LUBRICATOR
AIR FILTER-REGULATOR
DS- DIAPHRAGM SEAL
GS- INATRUMENT SEAL POT
FLOW DIRECTION
SLOPE DOWN
TRIP VALVE BALL TYPE
FLOW METER
TRIP VALVE/CONTROL VALVE (BUTTERFLY TYPE)
BALL VALVE

INSTRUMENT TAG
PD S AH
A ALARM
AL ALARM, LOW
AH ALARM, HIGH
CL CONTROL, LOW
CH CONTROL, HIGH
I INDICATOR
T TRANSMITTER
C CONTROLLER
E ELEMENT
P (TEST) POCKET
W (THERMO) WELL
P PRESSURE
T TEMPERATURE
PD PRESSURE, DIFFERENTIAL
F FLOW
L LEVEL

LIMIT SWITCH TAG
LS O S
T
S-SPDT
D-DPDT
1-1 CIRCUIT
2 BREAK
O OPEN POSITION
C CLOSED POSITION
E ENGAGED POSITION
A ADVANCED POSITION
R RETRACT POSITION
LS LIMIT SWITCH

INTERLOCK
REMOTE CRT BASED INSTRUMENTS (DCS)

BURNER ARRANGEMENT

BURNER No.2
BURNER No.1

BFG,BFG+CON. GAS SPUD,
COG SPUD & LDO GUN
FLAME SCANNER
HEA IGNITOR
AIR DAMPER

NOTES
1. REFERENCE DRAWINGS :
SCHEMES : 1-00-056-10241
VALVE SCHEDULE : 4-00-056-11054 To 4-00-056-11058
INSTRUMENT SCHEDULE : 3-97-290-91227 To 91230
INSTRUMENTS LEGEND :
INSTR. TAG No. IDENTIFICATION : KKS CODE
2. FUELS :
BFG SUPPORT : LDO ; 7.5 % MCR HEAT INPUT
START UP : LDO ; 15 % MCR HEAT INPUT
LOAD CARRYING FUEL : BFG/BFG+CG/COG/LDO: 100% MCR HEAT INPUT

	'pp'	'pt'	CST @ 'pt'	KG/LIT @ 'pt'	'ft'	CST @ 'ft'
START UP & LOAD CARRYING FUEL - LDO	12	50	2.5-15.7	0.967	50	2-15
LOAD CARRYING BFG+CG	-	-	-	1.288	30	-
COG				0.495	30	

'pp' = POUR POINT ; 'pt' = PUMPING TEMPERATURE
'ft' = FIRING TEMPERATURE ; CST = CENTISTOKES
3. READ NORMAL LINE PARAMETERS IN LOWER CASE
'p' IN KG/SQ.CM FOR OIL, 'p'IN MM WC FOR GAS; 't' IN deg.C.
'f' IN KG/HR FOR OIL AND STEAM
'f' IN N Cu M/HR FOR AIR AND GAS
4. INSTRUMENT TAPPINGS :
PRESSURE - 15MM SW END VALVE ON LFO,AIR AND GAS LINES
TEMP REMOTE - M33 x 2 STUB WITH PLUG
TEMP TEST - WELL WITH M20 x 1.5 THREAD
5. EXCLUSIONS FROM BHEL(T) SCOPE BY PED (HYD) (T)
ITEMS BEYOND ARROW MARKS
PNEUAMATIC PIPINGS
REMOTE INSTRUMENT & ANNUNCIATION DEVICES
6. PIPE SCHEDULE
PIPE SPECIFICATION - SA210 Gr.A1 / SA 106 Gr.B / API 5L Gr.B

NB15 - 21.3 x 2.77 NB50 - 60.32 x 3.91
NB25 - 33.4 x 3.38 NB80 - 88.9 x 5.49
NB40 - 48.26 x 3.68 NB100 - 114.3 x 6.02
NB150 - 168.28 x 10 NB600 - 609.6 x 10
NB350 - 355.60 x 10 NB950 - 965.2 x 10
NB400 - 406.40 x 10 NB1350 - 1371.6 x 10

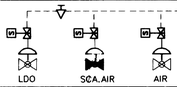
TABLE-1
OIL GUN PERFORMANCE DATA(FROM 100 % TO 15 % MCR)

ATOMISER 80 J 16	LFO FIRING AIR ATOMISED				BFG FIRING f IN Ncu/M p IN MM/WC		COG FIRING f IN Ncu/M p IN MM/WC	
	LDO		AIR					
	f	p	f	p	f	p	f	p
MAX. FLOW	2500	21.0	85	4.0	33900	400	6100	300
MIN. FLOW	375	2.1	148	4.0	16950	300	4026	300
SCAVENGING	-	-	167	4.0	-	-	-	-

TABLE-2
OIL GUN PERFORMANCE DATA(FOR BFG SUPPORT 7.5% MCR)

ATOMISER 80 J 7	LFO FIRING AIR ATOMISED			
	LDO		AIR	
	f	p	f	p
MAX. FLOW	940	21.0	40	4.0
MIN. FLOW	187.5	2.5	75	4.0
SCAVENGING	-	-	95	4.0

BURNER TRIP VALVES-PNEUMATIC PIPING DETAILS



TERMINAL POINT TP1 AT LDO PUMPING UNIT

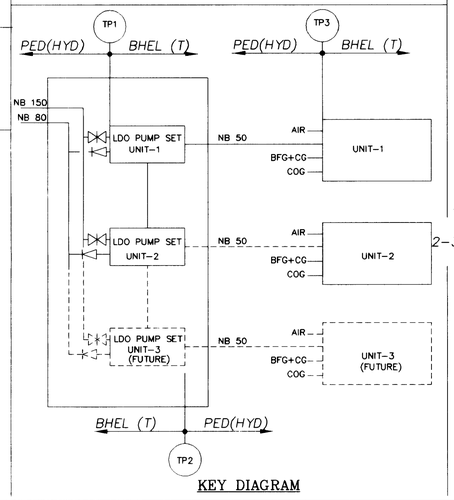
MEDIUM	NO	NB	FLOW	PR.	TEMP
LDO SUCTION TO UNIT-1	1	80	6000	+0.0	-
LDO RETURN TO UNIT-1	1	40	500-6000	2.0	-

TERMINAL POINT TP2 AT LDO PUMPING UNIT

MEDIUM	NO	NB	FLOW	PR.	TEMP
LDO SUPPLY TO UNIT-1	1	50	5000	30.0	-

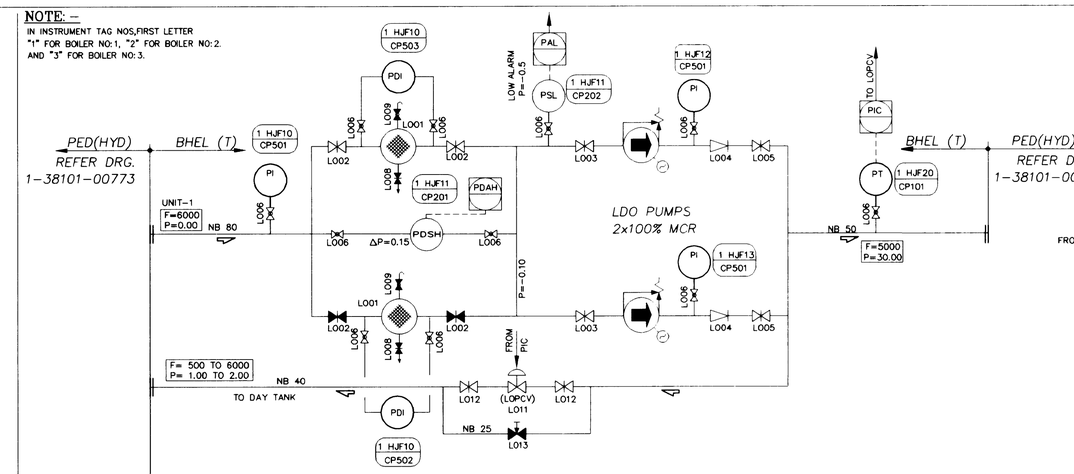
TERMINAL POINT TP3 AT BOILER OPRG. FLOOR

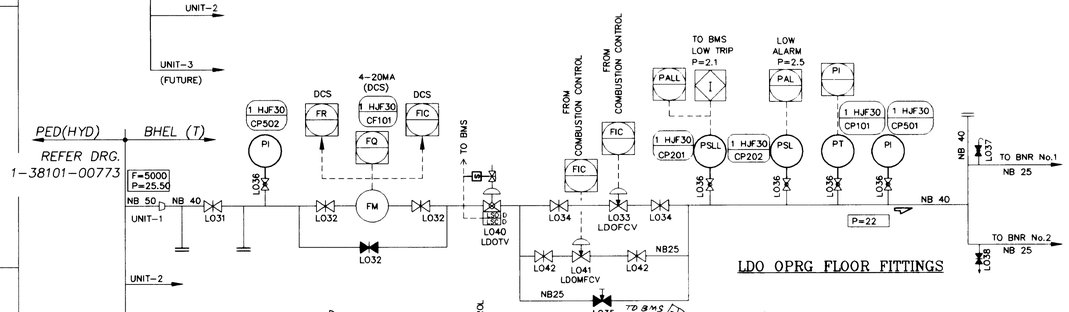
MEDIUM	NO	NB	FLOW	PR.	TEMP
LDO SUPPLY TO UNIT-1	1	50	5000	25.5	-
AIR TO UNIT-1	1	50	350	4	-
BFG+CG TO UNIT-1	1	1350	67800	425	30
COG TO UNIT-1	1	600	12200	425	30

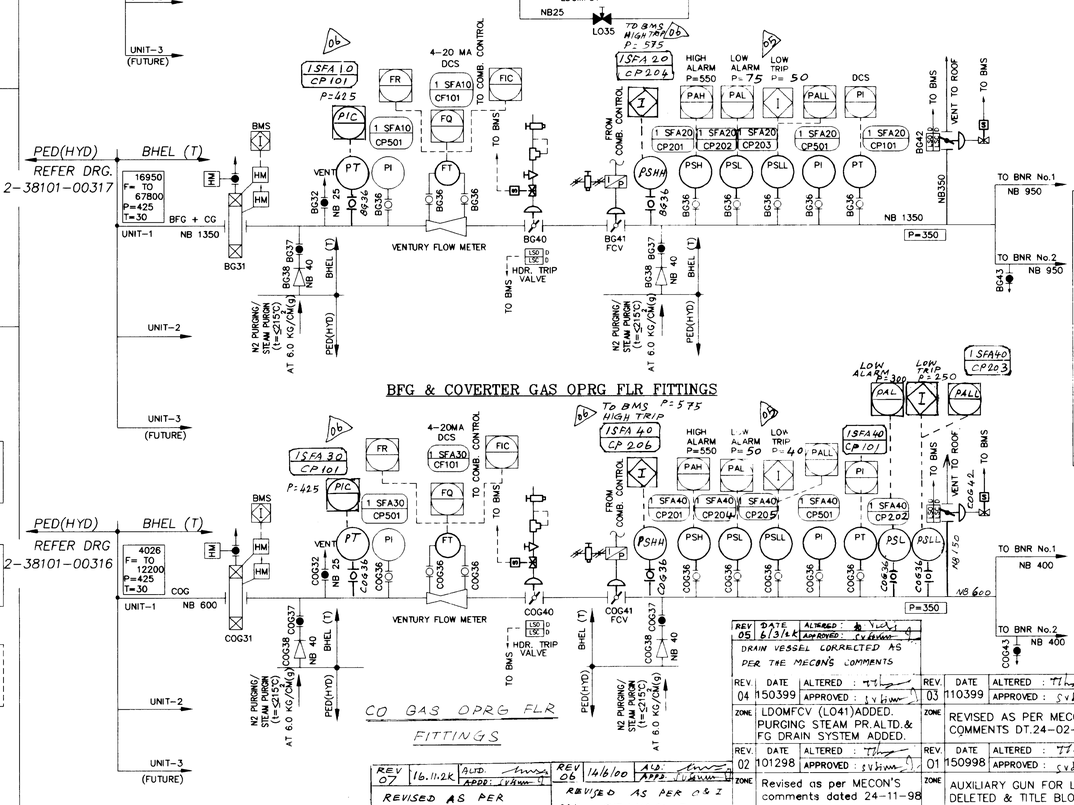


KEY DIAGRAM

NOTE: -
IN INSTRUMENT TAG NOS,FIRST LETTER "1" FOR BOILER NO:1, "2" FOR BOILER NO:2. AND "3" FOR BOILER NO: 3.

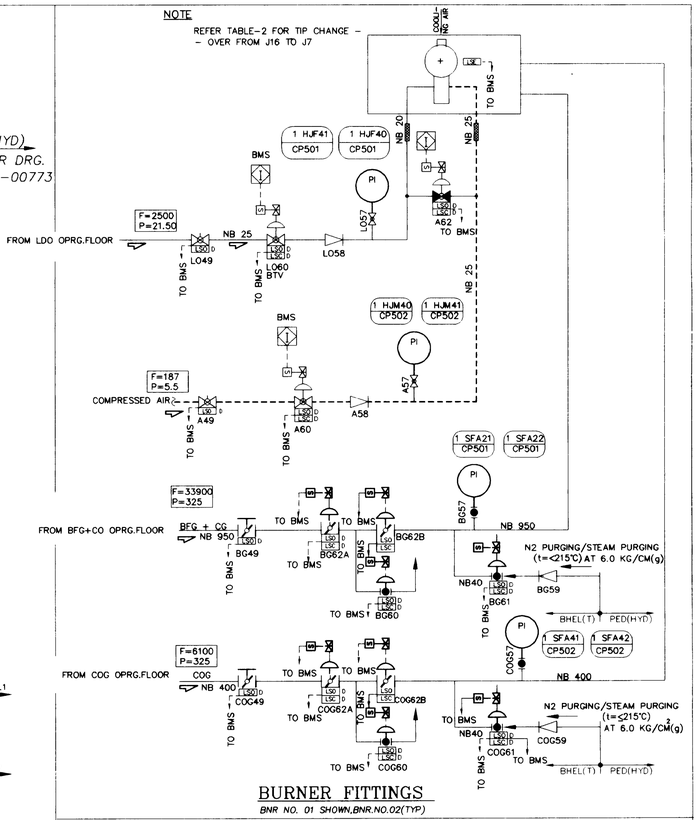




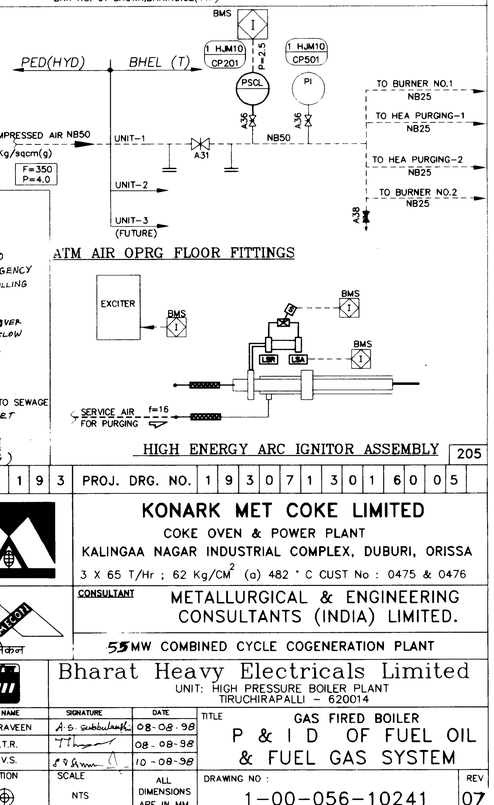


REV	DATE	ALTERED :	APPROVED :
05	6/3/K	DRAIN VESSEL CORRECTED AS PER THE MECON'S COMMENTS	
04	150399	LDOMFCV (L041) ADDED. PURGING STEAM PR.ALTD.& FG DRAIN SYSTEM ADDED.	
03	110399	REVISED AS PER MECON'S COMMENTS DT.24-02-99	
02	101298	Revised as per MECON'S comments dated 24-11-98	
01	150998	AUXILIARY GUN FOR LDO DELETED & TITLE BLOCK INCORPORATED.	
07	16.11.2K	REVISED AS PER MECON'S COMMENTS	
06	14/6/00	REVISED AS PER O & I REF. CI:11284:I 23/5/00.	

NOTE
REFER TABLE-2 FOR TIP CHANGE - OVER FROM J16 TO J7



BURNER FITTINGS
BNR NO. 01 SHOWN,BNR.NO.02(TYP)



205

PKG.NO 1 9 3 | PROJ. DRG. NO. 1 9 3 0 7 1 3 0 1 6 0 0 5

KONARK MET COKE LIMITED
COKE OVEN & POWER PLANT
KALINGAA NAGAR INDUSTRIAL COMPLEX, DUBURI, ORISSA
3 X 65 T/Hr ; 62 Kg/CM^2 (a) 482 ° C CUST No : 0475 & 0476

CONSULTANT METALLURGICAL & ENGINEERING CONSULTANTS (INDIA) LIMITED.

55MW COMBINED CYCLE COGENERATION PLANT

Bharat Heavy Electricals Limited
UNIT: HIGH PRESSURE BOILER PLANT
TIRUCHIRAPALLI - 620014

	NAME	SIGNATURE	DATE
DRN	PRAVEEN	A.S. Subbulakshmi	08-08-98
CHD	T.T.R.	TTR	08-08-98
APPD	S.V.S.	S.V.S.	10-08-98

PROJECTION | SCALE NTS | ALL DIMENSIONS ARE IN MM

TITLE: GAS FIRED BOILER P & I D OF FUEL OIL & FUEL GAS SYSTEM

DRAWING NO : 1-00-056-10241 | REV 07

CAUTION: The information on this document is the property of BHARAT HEAVY ELECTRICALS LTD. It must not be used directly or indirectly in any way detrimental to the interest of the company.

SCANNED

TP-DG-1-00-056-10241
CORPORATE DRG ID

TP-DG-1-97-288-90036
CORPORATE DRG ID

1-97-288-90036

FURNACE

SCANNER AIR FANS

AUTO TRANSFER DAMPER

SCANNER AIR

BURNER

TO SCNNER AIR FAN AUTO CHANGE OVER (TO BMS)

FROM FD FAN OUTLET DUCT

EMERGENCY AIR FROM ATMOSPHERE

SUPERHEATER - I

SUPERHEATER - II

BOILER BANK

ECONOMISER

TUBULAR AIRHEATER (GAS SIDE)

ID FAN

FROM FURNACE DRAFT CONTROL

ANALYSER SAMPLE

CHIMNEY

TO OXYGEN TRIM CONTROL

AIR FLOW CONTROL

AEROFOIL

TUBULAR AIRHEATER (AIR SIDE)

FD FAN

MOTOR

SUCTION FROM ATMOSPHERE

FROM AIR FLOW CONTROL

EXAMPLE :-

1 HNC20 CQ 103

- BOILER No
- FUNCTIONAL KEY
- AREA KEY
- EQUIPMENT No. FOR INSTRUMENTS
- EQUIPMENT KEY

K K S CODE FOR INSTRUMENTS:-

BOILER No

1 -- BOILER No: 1
2 -- BOILER No: 2
3 -- BOILER No: 3

FUNCTION KEY

HLB -- FD FAN INLET
HLA -- FD FAN OUTLET
HHL -- COMBUSTION AIR SUPPLY
HBK -- FURNACE
HNA -- ECONOMISER OUTLET
HNC -- INDUCED DRAUGHT FAN SYSTEM

EQUIPMENT KEY

AN -- FANS
AA -- DAMPERS,ACTUATORS
AE -- MOTORS
CF -- FLOW MEASURING SYSTEM
CP -- PR. MEASURING SYSTEM
CQ -- ANALYSER MEAS. SYSTEM
CT -- TEMP. MEASURING SYSTEM
CY -- VIB. MEASURING SYSTEM

EQUIPMENT NOs FOR INSTS.

001 TO 099 -- ANALOG INST.REMOTE
101 TO 199 -- TRANSMITTERS,TE'S
201 TO 299 -- PROCESS SWITCHES
301 TO 399 -- TRANSMITTERS WITH LOCAL INDICATION
401 TO 499 -- TEST POINTS
501 TO 599 -- LOCAL INST.(INDICATORS)

LEGEND :-

PP -- PRESSURE TEST POCKET
PT -- PRESSURE TRANSMITTER
PI -- PRESSURE INDICATOR
TP -- TEMP. TEST POCKET
TE -- TEMP. ELEMENT
TI -- TEMP. INDICATOR
AT -- ANALYSER TRANSMITTER
AP -- ANALYSER TEST POCKET
O-C - OPEN-CLOSE DAMPER
% - REGULATING DAMPER

FLUE GAS LINE
HOT SEC. AIR LINE
COLD SEC. AIR LINE
PNEUMATIC SIGNAL
PNEUMATIC OPERATED DAMPER
SCANNER AIR
LOCAL MOUNTED INSTRUMENT
INTER LOCK

ELECTRIC MOTOR OPERATED DAMPER
HAND OPERATED DAMPER
REMOTE CRT BASED INSTRUMENTS

BMS - BURNER MANAGEMENT SYSTEM
DCS - DISTRIBUTED CONTROL SYSTEM
VMS - VIBARATION MONITORING SYSTEM

NOTES :-

1. ID FAN MOTOR WINDING IS PROVIDED WITH 6 NoS, PT-100, SIMPLEX,PLATINUM,3 WIRE RTD ELEMENTS.
2. BEARING OF FD FAN & ID FAN & HT MOTORS ARE PROVIDED WITH ONE No.DIAL TYPE THERMOMETER FOR LOCAL INDICATION & ONE No.DUPLEX RTD FOR REMOTE INDICATION AT UCB.
3. ID FAN MOTOR IS A TWO SPEED MOTOR.
4. ALL REMOTE INSTRUMENTS ARE IN PED/HYD SCOPE. (FIELD TRANSMITTERS & TEMP.ELEMENTS ARE IN BHEL-T SCOPE.)
5. SCHEME SHOWN IS FOR BOILER : 1 ONLY , HOWEVER THE SCHEME IS IDENTICAL FOR OTHER BOILERS.

REV	DATE	PREPARED/CHD/APPD	REV	DATE	PREPARED/CHD/APPD
04		CHD/APPD:	03	30-04-99	CHD/APPD:
					ANALYSER TAPPING DETAILS REVISED AS PER MOM Dt:17-04-99. & EMERGENCY AIR DAMPER ADDED.
02	02-03-99	CHD/APPD: -sd-	01	04-12-98	CHD/APPD: -sd-
		SCANNER AIR FANS & ITS INSTRUMENTS ADDED.			DRG.REVISED AS PER M/S. MECON'S Lr.Dt:24-11-98 , TITLE BLOCK CHANGED & BOILER No.IDENTIFICATION ADDED IN KKS CODE.

CAUTION: The information on this drawing is the property of BHARAT HEAVY ELECTRICALS LIMITED, it must not be used directly or indirectly in any way detrimental to the interest of the company.

PKG.NO 193 | PROJ. DRG. NO. 193071301600 6

KONARK MET COKE LIMITED
COKE OVEN & POWER PLANT
KALINGAA NAGAR INDUSTRIAL COMPLEX, DUBURI, ORISSA
3x65 T/Hr ; 62 kg/sq.cm (a) 482 deg.c) CUST.No:0475&0476

CONSULTANT: METALLURGICAL & ENGINEERING CONSULTANTS (INDIA) LIMITED.
60 MW COMBINED CYCLE COGENERATION PLANT

BHARAT HEAVY ELECTRICAIS LTD., UNIT: HIGH PRESSURE BOILER PLANT. TIRUCHIRAPALLI-620014.

	NAME	SIGN	DATE	NO.OF VAR.
DRN	S.KIRUBALANI	-sd-	19-08-98	
CHD	R.VIJAYARAGHAVAN	-sd-	21-08-98	--
APPD	R.SUNDARARAJ	-sd-	21-08-98	

DEPT	GRADE OF UNTOL.DIM	SCALE	WEIGHT (KG).	REF. TO ASSY/OLD DRG.	ITEM NO.	NO. OF ITEMS
C & I	C / M / F	N.T.S	NIL	20-BPE-1266	--	--

CODE 016

TITLE: GAS FIRED BOILER - P & I DIAGRAM FOR AIR AND FLUE GAS SYSTEM.

CARD CODE: U 01

DRAWING NO.: 1-97-288-90036

REV: 03

KONARK

Size A1

TP-DG-1-97-288-90036
CORPORATE DRG ID